BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY DEUEL HARVEST WIND ENERGY, LLC FOR A PERMIT OF A WIND ENERGY FACILITY AND A 345-kV TRANSMISSION LINE IN DEUEL COUNTY	* * * * * * * *	**INTERVENOR CHRISTINA KILBY'S POST HEARING BRIEF** **EL18-053**

I submit this post-hearing brief respectfully requesting the Commission deny Deuel Harvest Wind LLC a Permit for a Wind Energy Facility in Deuel County. In the alternative, I request the Commission require specific conditions discussed below.

INTRODUCTION

Deuel Harvest requests a permit to construct 112 industrial wind turbines, up to 499' tall, across rural Deuel County. Deuel Harvest Wind Energy LLC, ("Deuel Harvest") therefore has the burden to prove the proposed project meets the following requirements of SDCL 49-41B-22:

1) The proposed facility will comply with all applicable laws and rules;
2) The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area;
3) The facility will not substantially impair the health, safety or welfare of the inhabitants; and
4) The facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

Failure to meet the burdens imposed by 49-41B-22 requires a denial.

These burdens are highly subjective. Therefore I ask that the Commission look at the burdens from the viewpoint of those affected. When people near other projects have abandoned their homes or are unable to sleep many nights of the year, I am sure they feel their health and welfare have been substantially impaired. I am sure it has. Of course the wind energy companies will argue otherwise and they are probably able to find expert witnesses they can hire to say otherwise. It is easy to say the problems someone else faces is not substantial or serious. But that does not solve the problems these people experience. To be meaningful, the burdens must be considered from the viewpoint of those who will be affected.

In this case, Deuel Harvest has failed to meet its burdens. Specifically, Applicant failed to prove that its Project will comply with the Deuel County Zoning Ordinance, will not pose a threat of serious injury to the environment, will not substantially impair the health, safety or welfare of the inhabitants, and will not unduly interfere with the orderly development of the region. In fact, evidence shows that Deuel Harvest has already unduly interfered with the orderly development of the region, and continues to do so.

In addition, SDCL 49-41B-13 states that an application may be denied, returned, or amended at the discretion of the Public Utilities Commission for any deliberate misstatement of a material fact in the application or in accompanying statements or studies required of the applicant. The Commission also has the discretion to deny the permit for failure of Deuel Harvest to file an application generally in the form and content required by this chapter and the rules promulgated thereunder. ARSD 20:10:22:04 (5) requires that the truth and accuracy of the Application shall be verified by the applicant. That did not happen here. ARSD 20:10:22.18 (3) required Deuel Harvest to conduct an analysis of the compatibility of the

Project with present land use of the surrounding area, with special attention paid to the effects on rural life…" Deuel Harvest failed to analyze the compatibility of the predicted sound levels on the present land use of surrounding areas. Deuel Harvest failed to conduct a "general analysis of the effects of the proposed facility and associated facilities on land uses and the planned measures to ameliorate adverse impacts, as it was required to by ARSD 20:10:22.18 (4).

ARGUMENT

I. THE PROJECT SHOULD BE DENIED BASED ON DEUEL HARVEST'S DELIBERATE MISSTATEMENTS AND INCOMPLETE APPLICATION

Deuel Harvest' Application was incomplete and inaccurate. Some problems with the Application include but may not be limited to Deuel Harvest's failure to conduct the proper analysis of the compatibility of the Project with the surrounding land use in a quiet rural area, specifically regarding the effects of the proposed noise levels; inaccurate and incomplete wildlife studies, and Deuel Harvest's failure to show a need for the Project. For these reasons alone I ask the Commission deny a permit to Deuel Harvest under the authority given the Commission by SDCL 49-41B-13.

In addition, Deuel Harvest has either intentionally misled or grossly erred in its Application and Presentation, although it claims only 'miscalculations' were made. The Application states "All turbines will be sited away from Like Alice; the nearest turbine will be 2.41.6 km (1.0 mi) from the lake; All turbines will be sited away from Long (Lone) Tree

Lake, Lake Francis, and Rush Lake; the nearest turbine will be 0.80 km (0.50 mi) from each lake… (A1, Effect on Terrestrial Ecosystems, 13-27)

These setbacks are also stated in Deuel Harvest North Wind Farm Bird and Bat Conservation Strategy, p 37. However, Deuel Harvest's Presentation at the Public Input Hearing and filed Jan. 28, 2019 claim setbacks of at least two-miles from Lake Alice. Several turbines are in violation of these setbacks. Turbines 18, 19, 20 21, 30, 31, 32, 33, 34, 42, 43, and 44 are all less than two-miles from Lake Alice. Turbines 35, 36, 37, 38, 39, 40, and 41 are all less than one mile from Lake Alice. Turbines 94 and 102 are less than .5 miles from Rush Lake. And turbines 100, 101, 105, 111, 112, 113, and 114 are all less than .5 miles from Lake Francis. The two-mile setback from Lake Alice is also required by the Deuel County Ordinance. (Application, Appendix C) As the Application shows, the Project will not meet the required setbacks in Deuel County. In order to comply with the setbacks, numerous turbines will need to be moved. New noise and flicker analysis will need to be conducted utilizing a corrected layout. Deuel Harvest has failed to meet its burdens. These significant errors in the project layout and Application as a whole necessitate a denial of Deuel Harvest's Application.

In addition to significant errors in turbine layout and contradicting setbacks listed, another example that Deuel Harvest's Application is deficient is the eagle's nest that was not disclosed in the Application. Deuel Harvest was made aware of a possible eagle's nest north of Lake Alice in February of 2018: "In February 2018, the USFWS shared with us that a landowner had brought to their attention that there may be an eagle nest north of Lake Alice." (Exhibit A10) Deuel Harvest reacted to that information by looking again at reports it

received from 2016 and its own surveys from 2016 and 2017. From that outdated information, Deuel Harvest determined no further due diligence was required. They did not include this information in the 62 page Bird and Bat Conservation Strategy dated November 2018 submitted with the Application. What good is this 62 page report - or any reports Deuel Harvest has submitted - if they fail to conduct due diligence and include relevant information?

It was not until members of the public raised concerns at the Public Input Hearing about the Application not including an eagle's nest, that Invenergy responded to this information it had been informed of previously. Deuel Harvest is only now conducting eagle flight path mapping, and it will not be complete until July 2019, after the Commission is required to make a decision. (A10 p5) This information should have been gathered prior to Deuel Harvest submitting it application. It shows Deuel Harvest cannot be trusted to provide accurate surveys, studies, or reports.

As shown throughout the application, testimony, studies, and motions, Deuel Harvest has made multiple misstatements of material fact. Because of the significant number of misstatements, I believe they were deliberately made in an attempt to acquire the required permit. For these reasons, and as explained below, I ask the Commission deny a permit to Deuel Harvest.

II. DEUEL HARVEST HAS FAILED TO PROVE THE PROJECT WILL COMPLY WITH THE DEUEL COUNTY ORDINANCES

SDCL 49-41B-22 requires Deuel Harvest *prove* that the project will comply with the Deuel County Zoning Ordinances ("Ordinance"). The Project layout violates the four-times

turbine height setback from businesses. The Project layout also violates the Ordinance requiring a setback of two-miles from "Lake Alice."

Deuel Harvest chooses to interpret the Ordinance differently than it is written. Deuel Harvest has failed to prove that the Project complies with the correct interpretation of the Ordinance. Deuel Harvest cannot simply go forward with a Project layout that violates the Ordinance. It is unfair to transfer the burden to the Intervenors or other landowners to prove that the Project layout fails to comply with the Ordinance. For this reason alone the Project must be denied.

III. DEUEL HARVETS HAS NOT PROVEN THAT THE PROJECT WILL NOT POSE A THREAT OF SERIOUS INJURY TO THE ENVIRONMENT

If permitted, the Project would construct 112 industrial wind turbines up to 499' tall into an area prone to quickly spreading fire. Lightning strikes are a very real possibility. The turbines are flammable. Mr. Baker made misleading statements regarding the flammability of the turbines. According to an interview contained David Lawrence's report, one landowner stated there were "[i]ssues with lightning strikes and shattered blades." (A5-1) If a turbine catches on fire, the fire could travel and spread quickly before anyone is aware of it. According to Mr. Baker, Deuel Harvest is unaware of the fire-fighting capabilities of local emergency responders. Deuel Harvest is unaware of how long it would take local fire fighters to arrive at the scene once a fire is reported. Mr. Baker testified that a fire at one Invenergy project went unnoticed because no staff was observing at the time.

There is no way for local fire crews to put out a fire 499' high. Local fire departments would only be able to hope to control the spread of fire. But in windy conditions flames and sparks could travel long distances and spread before fire crews could reach it.

The worst case scenario for Deuel Harvest is that they will be required to pay for the damage resulting if a fire occurs. However, for landowners near the turbines, the worst case scenario is that a fire destroys the trees and habitat that have taken years to grow and develop. A fire would cause serious injury to the environment.

In addition to the potential fires, the Project will produce an enormous amount of waste that will eventually end up in area landfills. This will have a direct impact on the environment of the area. The Project (original components) will produce an estimated 72,677 tons of non-recyclable waste. (K27-6) Deuel Harvest's initial response to this data request was that this concern was "premature." This again shows the shortsightedness of Deuel Harvest and the lack of concern for the effects on Deuel County and South Dakota.

Deuel Harvest has not given an answer to how many blades will need to be replaced during the 30 year estimated life span of the project. Deuel Harvest's Response was, "Based on Invenergy's experience, there is a 0.25% chance that a turbine will need a total blade replacement in a given year or a 0.09% chance per year on a per blade basis. (K 27-7) It is logical that this number would increase the longer the turbines operate. Deuel Harvest also did not provide any evidence showing the turbines will continue to operate for the 30 year estimate lifespan of the Project. The waste may be significantly more if turbines will need to be replaced during the 30 years of benefits Deuel Harvest is claiming.

IV. DEUEL HARVEST HAS NOT PROVEN THAT THE PROJECT WILL NOT SUBSTANTIALLY IMPAIR THE HEALTH OR WELFARE OF THE INHABITANTS.

Noise and other effects from turbines will substantially impair the health and welfare of the inhabitants of the area. Deuel Harvest and its paid experts typically make claims such as "no specific health condition caused by wind turbines has been scientifically proven in the peer-reviewed published literature." (Roberts Supplemental Direct Testimony, A12 line 69-70) They are playing word games. Wind turbines have been shown to be the proximate cause of negative health effects, as shown below by direct quotations taken from exhibits submitted by Deuel Harvest's own expert witnesses. These show that turbines are far from harmless and in fact can substantially impair the health and welfare of those living near them. "Long lasting annoyance can lead to health complaints." "Other (indirect) health effects that have been reported on an individual basis could be a result of chronic annoyance."

It is well settled that wind turbine noise causes annoyance. "[A]n association is found between the sound level due to wind turbines and annoyance from that sound." (A12-4 p 7-8) From Michaud et. al. and "in line with earlier findings the study confirms that the percentage of residents highly annoyed with wind turbines increased significantly with increasing wind turbine sound levels." (A12-4, p 11)

Sound levels from wind turbines, even when lower than sound levels from comparable sources such as traffic or industry, are experienced as more annoying. (Ex A1-4 p1) "It is generally accepted that annoyance from wind turbines occurs at lower levels than is the case

for transport or industrial sound." (A12-4 p 8) "[S]ound from wind turbines leads to a higher percentage of highly annoyed when compared to other sound sources." (A12-4 p 8)

Increased annoyance from the sound of wind turbines "is possibly caused by the typical swishing or rhythmic character of the sound." (Ex A1-4 p1) "Perhaps the low frequency component of wind turbine sound also leads to extra annoyance, as is the case with other sources…." Id. "Perhaps the effect of rhythmic pressure pulses on a building can lead to added indoor annoyance and should be further investigated. Id. A UK study "concluded that amplitude modulation is an important aspect of the intrusiveness of wind turbine sound." (A12-4 p9) "Yoon et al stated that there is a strong possibility that amplitude modulation is the main reason why wind turbine sound is easily detectable and relatively annoying." (A12-4, p 9) "[E]ven at long distances one can sometimes hear a rhythmic variation that can develop into a distinct beating." (A12, P 3)

This annoyance is further exacerbated by other effects of the turbines. "Annoyance from other aspects, such as shadow flicker, the visual (in)appropriateness in the landscape and blinking lights can add to the annoyance." (A11-4 p 1452) "Study findings indicate that annoyance toward all features related to wind turbines, including noise, vibration, shadow flicker, aircraft warning lights and the visual impact, increased as WTN levels increased." Id. "The observed increase in annoyance tended to occur when WTN levels exceeded 35dB and were undiminished between 40 and 46dBA." (A11-4, p 1452) "The visual aspect of wind turbines, safety, vibrations and electromagnetic fields may also have an impact on the environment and people in it." (A12-4 p 4) "Annoyance from visual aspects may add to or perhaps even reinforce annoyance from noise (and vice versa)." Id.

According to the Health Canada Study, "[l]ength of exposure seemed to be an important situational factor and led up to 4 times higher levels of annoyance for people living more than one year in the vicinity of a wind turbine, indication a sensitization to the sound rather than adaptation or habituation as is often assumed." (A12-4, p 12) So while some people may not think they will bothered by the noise of the turbines, they may quickly grow annoyed after only a short while. It is unknown how the level of annoyance multiples after multiple years. The annoyance could increase exponentially until people either sell or abandon their property. "[A] relatively high proportion of residents near two wind farms in Australia were noise sensitive." (A12-4 p 6) This may have been a result of the length of time they had been exposed to the noise from the wind turbines.

Annoyance from shadow flicker appears to have the same result in increasing annoyance with increased exposure: "As shadow flicker exposure increased, the percentage of highly annoyed increased from 4% at short duration of shadow flicker (less than 10 minutes) to 21% at 30 minutes of shadow flicker." (A12-4, p 11)

"[S]iting a wind farm in a natural or 'green' area may counteract the positive health effect of such an area." (A12-4 p 5) "The type of area and its geographical features are important: in a more urban or industrial environment wind turbines will be less intruding than in a more natural landscape in which the turbines contrast more with the environment." (A12-4 p 5) "When people feel attached to their environment ('place attachment'), the wind farm can form a threat to that environment…" "Also, a feeling of helplessness and procedural injustice can develop when people feel they have no real say in the planning process. Potentially this plays a role especially in rural areas if people choose to live there because of

tranquility; for them the wind farm can form an important threat (visual and auditory). (A12-4 p 6)

My family, including my parents, siblings and their families, my husband and children and I, all use the Homan property as a type of retreat. I believe it provides a positive health effect to us for that reason. We go to the property and enjoy it for the peace, quiet and beautiful scenery. As stated above, the wind farm poses an important threat to the quiet enjoyment that we have experienced for thirty years at the Homan property. In addition, the procedural injustice faced by all Intervenors and many other landowners in Deuel County because of Deuel Harvest's undue interference in the development of the area will only add to the intrusiveness experienced. "In line with the World Health Organization's (WHO) definition of health as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity', noise annoyance and sleep disturbance are considered as health effects." (A12-4 p 7)

Deuel Harvest claims the turbines do not produce vibrations. However, "[i]n several studies vibrations have been measured at large distances." (A12-4 p 5) In addition, the interviews conducted as part of Mr. Lawrence's report include statements that the homeowners could feel vibrations inside their homes. (A5-1) Undoubtedly vibrations would add significantly to the annoyance caused by wind turbines.

"Based on noise research in general we can conclude that chronic annoyance from wind turbines and the feeling that the quality of the living environment has deteriorated or

will do so in the future, can have a negative impact on wellbeing and health in people living in the vicinity of wind turbines." (Ex A1-4 P 21)

Interviews of buyers and sellers of property near wind turbines in the Brookings area corroborates the annoyance caused by wind turbines. (A5-1) Each of the following is from a separate interview contained in the report by David Lawrence:

- BK1 "Can be noisy. Limits potential buyers."
- BK2 "Don't like the noise. Flicker effect certain times of the day. Blade broke and threw fragments near the house. Sounds like a continual swooshing sound when it's windy."
- BK2, BK2.5 "Could feel vibrations inside the house. Glad not to be living near wind towers. Had to give up a wind lease option to sell the house."
- BK 2.5 "Noisy. Poor reclamation after construction of towers; compaction & loss of yields. Difficult to farm around towers."
- BK3 "The towers sound like jet planes when you are working in the yard. But paid the same, even though they don't like the noise."
- BK4 "Got tired of the annoying noise. Decided to sell. We thought it would effect the value; but it didn't matter to the buyer. Glad to not be living next to wind towers."
- BK5 "Really noisy. Distracts some buyers."
- BK5 "Can be noisy, but didn't matter to us when we purchased the home."
- BK6 AG "There are issues with towers. Can't aerial spray. Breaks up the land; can't plant straight rows."
- BK9 "Issues with lightning strikes and shattered blades. The company does not clean up well."
- BK12 AG "No issues with pasture land; have had some issues with tillable ground. Can't plant straight rows, no aerial spraying and can't hunt around the towers. You can hear them run if you are near a tower. Payments offset the hassles with towers."
- JD13 AG "Some restrictions because of the towers. You can't shoot around them. Noisy and limits aerial applications.
- BKGH "Trying to sell a house within the proposed project area. Currently listed on MLS. Had an offer on the property, but believes the disclosure of the proposed wind project near the property ended the deal."
- BKDJ "Built retirement home prior to the wind project. Towers within 1,000 ft of property on all sides. Noisy. Shadow and flicker effect during certain times of the day. Have to deal with constant noise. Some days louder than others, depending of direction on the wind. Believes the towers are effecting his ability to sell the property."
- BKBB "Purchased home prior to the wind project. There are periods of the day when there is a shadow effect depending on the angle of the sun. Best way to describe it is like a camera flash. The curtains in the house have to be closed during the flicker times. The flash scares the horses. The red lights, light up the night sky and destroy star gazing. The house was listed for sale and most potential buyers drove away when they saw how close the towers are to the house. The wind company over promised and under delivered."

Other factors that should be taken into account when interpreting annoyance scores are noise sensitivity…"(Ex A1-4 p1) "Noise sensitivity has a strong genetic component (i.e. is hereditary), but can also be a consequence of an illness (e.g. migraine) or trauma. Also, serious anxiety disorders can go together with an extreme sensitivity to sound which can in turn increase a feeling of panic." (A12-4 p 6) Deuel Harvest must prove that the Project will not substantially impair the welfare of even those people who may be more sensitive to sound. Turbines should be setback an adequate distance to protect even the highly sensitive individuals.

"Several more recent studies show an association between quality of life and sleep disturbance and the distance of a dwelling to a wind turbine. Differences in perceived quality of life were associated with annoyance and self-reported sleep disturbance in residents. These results are highly comparable with those found for air and road traffic." (A12-4) "Good sleep is essential for physical and mental health." (A12-4, p 9) "Sleep loss has been implicated in a variety of negative health outcomes including cardiovascular abnormalities, immunological problems, psychological health concerns, and neurobehavioral impairment that can lead to accidents." (A11-5, p 97)

"According to the WHO sleep disturbance can occur at an average noise level due to transport noise at the façade at night (Lnight) of 40 dB and higher. This is similar to conclusions of research into the relation between wind turbine sound and sleep in the reviews mentioned above. The night noise guidelines of the WHO are not specifically and exclusively aimed at noise from wind turbines but cover a whole range of noise sources. It is conceivable

that the relatively small sound peaks just above the threshold for sleep disturbance due to the rhythmic character of the wind turbine sound cause sleep disturbance" (A12-4, p 9-10)

"Stress is related to chronic annoyance or to the feeling that environmental quality and quality of life has diminished due to the placement of wind turbines, and there is sufficient evidence that stress can negatively affect people's health and well-being in people living in the vicinity of wind turbines." (A12-4 p 8) "People can experience annoyance from wind turbine sound, or irritation, anger or ill-being when they feel that their environmental quality and quality of life deteriorates due to the siting of wind turbines near homes. *This can lead to long term health effects."* (emphasis added) (A12-4 p 7).

Dr. Ellenbogen testified, "Because infrasound and db(A) are linked together, studying one is studying the other." (A19 Lines 201-202) Dr. Ellenbogen is not an acoustician, and this comment shows it. He also stated: "At the levels produced by wind turbines, it is my professional opinion that there are no 'physical effects or symptoms from infrasound.'" (Id. at lines 91-92) However, according to an article submitted by Deuel Harvest's other expert witness, Dr. Roberts, "[t]he literature is inconclusive about the influence of low frequency sound and infrasound on health." (A12-4 p 8) "There are no studies available yet about the long-term health effects." Id. "[H]igh infrasound levels may be inaudible but can add energy to the rhythmic 'normal' sound of a wind turbine and thus make vibrations perhaps more likely (see section 5.5)." Id. "Farboud et al conclude that physiological effects from infrasound and low frequency sound need to be better understood; it is impossible to state conclusively that exposure to wind turbine sound does not cause the symptoms described by authors such as Salt and Hullar or Pierpont." (A12-4, p 18)

The Fritz article sponsored by Dr. Roberts, also discredits the claimed "nocebo" effect. The article includes case studies showing that even people who were not opposed to wind turbines develop problems. One such individual call the turbines, "subsidized terror." (A12-4, p 16, at 4.7.2)

Dr. Ellenbogen appears to think the Health Canada Study has unequivocally found that wind turbines pose no risk to human health. However, there are numerous shortcomings to the Health Canada Study. The Health Canada Study did not test actual sound levels and only averaged the sound levels over the course of a year. "Since Health Canada Study relied on predictive noise calculations, actual noise levels are unknown." (K7 p9)

The methods used for the study of hair cortisol levels in the Health Canada Study also raise questions and concerns. For example, several samples were excluded. "Michaud et. Al. [29] report that of the 917 samples collected during the Health Canada Study, over 26% (n-242) were excluded or discarded: (K7 p 7)

214 – too little hair was taken;
9 – levels were too high;
19 – high levels of which 14 used chemical treatment in the last 3 months." Id.

"The validity of excluding 28 (9 + 19) samples due to high levels which included the use of chemical treatment in the last 3 months is unclear and has not been justified." (K7 p 7) "Research indicates hair cortisol levels are not affected by hair color…" (K7 p 7) The study was not consistent in the exclusion chemically treated hair.

In addition, “the study by Michaud et al. [29], Table I states that hair cortisol values ranged from 18 to 7139 ng/g (pg/mg) with Table 3 indicating many samples were over 200 ng/g. The stated values are substantially higher than those typically reported in the literature. Sauvé et al. [62] indicate a reference range for hair cortisol of 17.7 - 153.2 pg/mg of hair (median 46.1 pg/mg) and Karlan et al. [61] report levels of up to 212 pg/mg (mean levels 17 - 20 pg/mg) while a study across countries which also compared measurement kits indicate only a 2.3-fold difference [63]. (K7 p8)

No reason was given for the Health Canada Study cortisol values being above those published in the literature. (K7 p8) A possible explanation is that cortisol levels were elevated in some patients of all WT noise groups. This could have been due to an exposure other than audible noise such as WT LFN/infrasound as compared to those with no WT exposure. If some subjects were sensitive to inaudible infrasound, effects of WT could potentially extend beyond Health Canada’s study area of 10 km. An alternate explanation is sample or assay error. For levels to be so much higher and more variability than other published studies requires some justification. (K7 p8) The Health Canada Science Advisory Board recommended that Health Canada investigators consider hair cortisol with a group that provides saliva cortisol for diurnal patterns, but that was not done. (K7 p 7)

The Health Canada Study, “Effect of Wind Turbine Noise on Self-Reported and Objective Measures of Sleep,” indicates the study had shortcomings and therefore it should not be used as conclusive evidence that WTN does not disturb sleep. One such issue is that the sound levels used in the Health Canada Study were not real time levels experienced. This article admits “calculated sound pressure levels can only approximate with a certain degree of

uncertainty the sound pressure level at the dwelling during the reference time periods that are captured by each measure of sleep." (A11-5, p 98) "Outdoor WTN levels were calculated following international standards for conditions that typically approximate the highest long-term average levels at each dwelling." (A11-5 p 97) "Outdoor WTN levels reached 46dB(A) with an arithmetic mean of 35.6 and a standard deviation of 7.4." (A11-5 p 97) In addition, only a subsample of participants were studied for effects on sleep.

"Effect of Wind Turbine Noise on Self-Reported and Objective Measures of Sleep," states "Conclusions are based on WTN levels averaged over 1 y and in some cases, may be strengthened with an analysis that examines sleep quality in relation to WTN levels calculated during the precise sleep period." (A11-5, p 97)

Mr. Svedeman testified that Invenergy does not keep a record of complaints because there has not been a need to. Yet legal complaints filed indicate otherwise. Deuel Harvest's Supplemental Responses indicate five lawsuits against Invenergy related to noise complaints from landowners. One of the lawsuits, *Andre et. al v. Invenergy LLC,* filed August 5, 2014 in Wyoming County NY, alone includes fifty-seven plaintiffs. There petitioners allege Invenergy has again violated on a regular basis the town noise ordinances and have refused to abate the nuisance or engage in any mitigating measures. (K16)

From information in Judge Acosta's Opinion and Order in *Williams v. Invenergy*, Invenergy violated noise standards. Invenergy forced the landowner who was already having to endure ongoing noise violations to ongoing litigation. Evidence existed showing Invenergy engaged in deception, "[T]he evidence demonstrates that Willow-Creek representatives

misrepresented the applicable standards in an attempt to convince them to drop their complaints against Willow Creek." (K17-41) and manipulation of noise testing: "Further, the record contains evidence which, when viewed in a light most favorable to Williams, could suggest Defendants employed deceptive and manipulative testing methods to determine the true noise levels at Williams's residence." (K17)

"First, Williams produces an email in which the consultant Invenergy hired to conduct noise tests wrote, '[w]e need to end up conducting a test which will demonstrate compliance with the particular standard . . . ." (McCandlish PSJ Decl. Ex.10 at 1.) Although this statement is ambiguous, and alone may not demonstrate the culpability necessary to justify punitive damages, other emails between the consultant and Defendants'representatives tend to support the proposition that Defendants or their consultants manipulated reporting of sound-test data." (K17) "In a June 12, 2009 email, the consultant writes:

> A quick plot of Eaton's L1 shows almost all L1's are less than the 75 dBA limit. There are a few exceedance [sic]. I agree that L1 has no place here from an acoustic standpoint. If you want to say something like "the wind turbine section of the code focuses on L10 and L50 and therefore L1 was not analyzed" – I am ok with that. Proceed that way?(McCandlish PSJ Decl. Ex 18 at 1.) This email suggests that some sound-measurements were collected and analyzed, but Defendants or their agents chose not to report that data because, by their own admission, it was 'going to give [them] heartburn.'" (K17-42)

Mr. Hankard testified that he was involved with noise testing at the Willow Creek project. It is unknown if Mr. Hankard was involved with any of the emails mentioned. It is also unknown how many wind projects sold by Invenergy have also been involved in lawsuits.

These cases and findings indicate that Invenergy does not abide by regulations imposed, makes misleading statements to avoid enforcement, and manipulates data for their desired outcome. And instead of solving the problem, Invenergy forces the affected landowners to pay for and endure years of litigation.

For the Project to be even "marginally compatible" with the Project area, noise levels must be lower than 35 dBA. According to Robert Rand's testimony, "[t]he calculation concludes that for unfamiliar intrusive noise in quiet rural areas, long-term average noise levels lower than 30dBA are compatible; noise levels between 30 and 35 dBA are 'marginally compatible'; noise levels exceeding 35 dBA at night are incompatible." (K1-10). "[T]he only reliable noise control option for large three-bladed wind turbines is sufficient distance established prior to permit. So called 'noise reduction options' have not proved reliable for noise reduction and exact tremendous reductions in power output." (Rand, K 1 p6) No significant reduction in loudness was obtained in real world operation of noise reduction options tested. (Rand, K1 -6)

"INCE Rules of Practice require approving only noise control engineering studies, reports, or work which to the best of the reviewer's knowledge and belief, is safe for public health, property, and welfare and in conformance with accepted practice." (Rand K1-6) Therefore, as an INCE Member, Mr. Rand recommends the Application be turned down as unfit for purpose and unresponsive to requirements in the State and County law. (K1-6)

V. DEUEL HARVEST FAILED TO PROVE THAT THE PROJECT WILL NOT SUBSTANTIALLY IMPAIR THE SAFETY OF THE INHABITANTS.

Deuel Harvest has not proven that turbines will not substantially impair the safety of individuals using Homan Field. Instead, Deuel Harvest tries to justify doing so.

The Deuel County Board of Adjustment ("Board") required John Homan to sign a letter of assurance ("Letter of Assurance") prior to receiving a permit for a grass landing strip. The Letter of Assurance states:

> The following are the conditions to be place on the special exception permit issued to John Homan by the Deuel County Board of Adjustment on July 10, 2017:
>
> > Applicant hereby acknowledges that the only way to be guaranteed unrestricted access to the airspace over the neighbor's property is to secure those rights from the adjacent property owners.[1] By signing this letter of assurance, Applicant does not waive any legal rights to which he is entitled. That the applicant communicate with their adjacent property owners. (JH 19)

Deuel Harvest is attempting to use the Letter of Assurance as a reason for the Commission to not consider the safety risk proposed turbines pose to the use of Homan Field. There is nothing in the letter of assurance that would lead to that conclusion. In fact, the Letter of Assurance specifically states that Mr. Homan does not waive any legal rights.[2] Id.

[1] Mr. Hunt was not capable of granting Mr. Homan an easement for airspace over the Hunt property at the time Mr. Homan signed the letter of assurance because according to the Wind Lease and Easement agreement, the air rights over Mr. Hunt's property were owned by Deuel Harvest.

[2] The Zoning Officer, Jodi Theisen, who has a contract with Deuel Harvest, included different language on the permit than what is stated in the actual letter of assurance signed by Mr. Homan. In addition to modifying other wording, the permit fails to include the non-waiver language included in the letter of assurance. This is just another example of the issues created in Deuel County when the county employees and officials have conflicts of interest.

Mr. Homan has the same rights as any landowner to have the safe use of his permitted right protected.

The Letter of Assurance does not obviate Deuel Harvest's burden of having to prove that the Project will not substantially impair the safety of inhabitants, including individuals using Homan Field. And as provided in the testimony and exhibits of Garrett Homan and ineffectual argued by Deuel Harvest, proposed turbines pose a substantial risk to the safety of individuals using Homan Field.

The Letter of Assurance was an improper condition to be placed on the permit for a runway.[3] Conditions are to pertain to the physical aspects of the use. Here, the Letter of Assurance was the result of Deuel Harvest's manipulation of the biased Board, and an attempt to limit Mr. Homan's rights. During the several months that the Board of Adjustment took to grant Mr. Homan a runway for a grass landing strip, one Board member, Kevin DeBoer, was under contract with Deuel Harvest. Mike Dahl had received payment from Deuel Harvest but had been previously released from his contract with Deuel Harvest only a few days prior to his participation in discussions and voting on recommended Ordinance requirements for wind energy systems. Deuel Harvest also participated in many of those meetings. Deuel Harvest did not require Mr. DeBoer recuse himself from voting on the issue, nor require Mr. DeBoer or Mr. Dahl publicly disclose the conflict as is required by Deuel Harvest's wind lease and

[3] "Conditions for permitting the use of property as a special exception may be imposed only to the extent permitted by the zoning scheme or plan." "Furthermore, conditions must relate to the use of the land and not to the person by whom such use is to be exercised." "Imposition of personal conditions unlawful per se." "The grant of a variance may not be hindered by a condition which deprives the applicant the effective enjoyment of the variance, or which regulates the details of a permitted use in an improper way." (101 A, Zoning and Land Planning Section 307, C.J.S.).

easement agreement. Deuel Harvest also did not disclose the existence of the contract with Mr. DeBoer. The States Attorney, John Knight, was also present during the many runway hearings. (A32)

Deuel Harvest's Wind Lease and Easement Agreement includes the following No Interference clause that pertained to Kevin DeBoer and Jodi Theisen at the time of the runway hearings:

> Owner's activities and any grant of rights Owner makes to any person or entity, *shall not, currently or prospectively, disturb or interfere with*: the construction, installation, maintenance, or operation of the Windpower Facilities, whether located on the Property or elsewhere; access over the Property to such Windpower Facilities; any Development Activities; or the undertaking of any other Grantee activities permitted hereunder. (emphasis added, A32 at 9.2)

Deuel Harvest's Wind Lease and Easement agreement also includes the following requirements, requirements which would have pertained to the county employees and officials participating in hearings and voting on issues relevant to Deuel Harvest:

> Owner shall *assist* and *fully cooperate* with Grantee, at no out-of-pocket expense to Owner, in complying with or *obtaining* any land use permits and approvals, building permits, environmental impact reviews or any other permits and approvals required for the financing, construction, installation, monitoring, replacement relocation, maintenance, operation or removal of Windpower Facilities, including, but not limited to, execution of applications and documents reasonably necessary for such approvals and permits, and participating in any appeals or regulatory proceedings respecting the Windpower Facilities. (emphasis added, A32 at 9.4)

Deuel Harvest's agreements with Kevin DeBoer and Jodi Theisen no doubt came in handy. This likely explains why Deuel Harvest also chose not to disclose the existence of the conflicts of interest. Deuel Harvest then further manipulated the Board by its ex parte letter to

the Board, misrepresenting the law. (K24) In it, counsel for Deuel Harvest states, "absent the necessary avigational easements, a private airport owner has no right to request that neighboring property owners maintain a setback from a private airport." (K24) This statement is misleading. A landowner has the right to request and expect the local zoning board or PUC Commission protect the safe use of a permitted runway at the time a wind company seeks special exception permits to place turbines near the permitted runway.[4] But because of the Board's bias, the Board was more than happy to require a letter of assurance in an attempt to have Mr. Homan waive this right. Deuel Harvest should not be allowed to now benefit from its manipulation of the Board of Adjustment and use it to justify turbines that pose a substantial risk to the safe use of Homan Field.

It was not necessary for Mr. Homan to appeal the condition of the Letter of Assurance because he received the permit and the Letter of Assurance included non-waiver of rights language. (JH27 p 2). In addition, Mr. Homan, like most individuals does not have unlimited budgets for legal fees as Invenergy appears to have.

The risk to safety would not only come from the physical presence of the turbines proposed on Darold Hunt's property, but also from turbulence on and over the Homan property produced by those turbines. For the sake of argument only, even if the Letter of Assurance could be used to justify allowing a safety risk from any obstacle posed by the turbines on neighboring property, the Letter of Assurance cannot be interpreted as allowing a safety risk from turbulence produced by the turbulence over Homan property. Interestingly,

Deuel Harvest's Wind Lease and Easement agreement includes language granting to Deuel Harvest the exclusive easement for air turbulence and wake over the owner's property. (A32 at 2. c.) However, that air turbulence and wake does not stop at the property line. And neither Darold Hunt nor Deuel Harvest has acquired any rights to cause air turbulence or wake over Homan property. The turbulence alone created by locations of proposed turbines will substantially impair the safety of individuals using the runway.

The Letter of Assurance does not obviate Deuel Harvest's burden to prove that the Project will not substantially impair the safety of people using the runway. There is no sufficient reason the turbines that pose a risk to the safe use of Homan Field cannot be relocated. But failure of Deuel Harvest to meet its burden requires a denial of the permit.

VI. THE PROJECT IS UNDULY INTERFERING WITH THE ORDERLY DEVELOPMENT OF THE REGION.

The Applicant has not proven the Project will not unduly interfere with the orderly development of the region. In fact, the Project has already done so. Invenergy and Deuel Harvest's manipulation of development in Deuel County is extensive and ongoing.

Deuel Harvest's wind lease and easement agreement acknowledges that payment to county employees and officials creates a conflict of interest:

> 14.13 Public Officials. Owner acknowledges that its *receipt* of monetary and other good and valuable consideration hereunder may represent a conflict of interest if Owner is a government *employee* or otherwise serves on a governmental entity with decision-making authority (a "*Public Official*") as to any rights Grantee may seek, or as to any obligations that may be imposed upon Grantee in order to develop and/or operate the Project ("Development Rights"), and Owner hereby agrees to (1) *recuse* him/herself from all such decisions related to Grantee's Development Rights unless such recusal is prohibited by law or is not reasonably practicable considering the

> obligations of such Public Official's position and (2) recuse him/herself from all such decisions related to Grantee's Development Rights if such recusal is required by law. If Owner is not required pursuant to (1) or (2) above to recuse him/herself from a decision related to Grantee's Development Rights, Owner shall, in advance of any vote or other official action on the Development Rights, *disclose* the existence of this Agreement (but not the financial terms therein) at an open meeting of the relevant governmental entity Owner serves on as a Public Official. Additionally, if Owner is a Public Official and any of Owner's spouse, child or other dependent has a financial interest in the Project, Owner shall disclose such relationship (but not the financial terms thereof) at an open meeting of the relevant governmental entity Owner serves on as a Public Official, prior to participation in any decision related to Grantee's Development Rights. (emphasis added, A32 at 14.13)

The clause above specifically states that if Owner is a government employee or serves on a government entity, Owner agrees to 1) recuse him/herself *unless* doing so is prohibited by law, or not reasonably practicable, and 2) recuse him/herself if such recusal is required by law. If neither 1) nor 2) applies, the Owner "shall" disclose the agreement at an open meeting. It seems odd that none of the county officials who have signed contracts with Deuel Harvest or Invenergy has recused themselves or publicly disclosed their agreements with Deuel Harvest, as is required by Deuel Harvest's Wind Lease and Easement. Apparently, Deuel Harvest believes the rules should not apply to them when they can benefit. Deuel Harvest has a pattern of entering into contracts with county officials, paying them, and then releasing them just prior to their participation or voting on matters important to the Project. Neither the officials, nor Deuel Harvest disclosed the existence of the contracts, nor the payment made by Deuel Harvest to the officials. Instead, Deuel Harvest chose to release them from the agreements. The officials then voted in matters important to the Project – a win-win for both the official and Deuel Harvest - and a pretty good business strategy for Invenergy.

Despite the contract requirements of 14.13 above, Deuel Harvest is now appealing the Third Circuit Court's decision that two members of the Deuel County Board of Adjustment who had contracts with Deuel Harvest were disqualified for receiving payment from Deuel Harvest. So even though Deuel Harvest was complicit in or even encouraged the violation of its own contract requirements, it continues to litigate the matter. Forcing opponents to endure continued litigation in an attempt to enforce rules and laws is just another example of Invenergy's interference in the orderly development of the area.

I voiced concerns regarding the Zoning Officer's involvement and interpretation of the Ordinance given Ms. Theisen's contract with Deuel Harvest. Their response: "Deuel Harvest does not agree that Ms. Theisen has a conflict of interest that precludes her from interpreting the Zoning Ordinance." (A41 p 1) Again, this is in direct violation of Deuel Harvest's own contract requirements at 14.13. Deuel Harvest then resorted to its back-up by then submitting their request to the State's Attorney, John Knight whom negotiated with Deuel Harvest on behalf of two of his own clients, Darold Hunt and Gregory Toben. (A41) According to the Project layout submitted to the PUC, these two landowners are to receive 25% of the Project turbines and the accompanying lease payments.

In addition, the letter sent to Mr. Knight does not simply request an interpretation but specifically requests "that the BOA render an interpretation confirming that the setback is from the Lake Alice Lake Park District." (A41) When Mr. Svedeman testified regarding this letter, he stated that Deuel Harvest had not "directed" the county to answer within a certain time period. While this statement stuck out as unusual to some, it seems Deuel Harvest is accustomed to "directing" county officials and thought nothing of it.

The letter sent on April 16, 2019, by Deuel Harvest requesting an interpretation of the Ordinance should have been addressed to the Board of Adjustment, not sent directly to John Knight. (A41) Deuel County Ordinance states that an appeal from a decision of the Zoning Officer is to go to the Board of Adjustment. From there it can be appealed to the courts. However, Deuel Harvest has had continued contact with Mr. Knight who appears to be extensively involved in Deuel Harvest's application process, as shown by communications provided in Deuel Harvest's Supplemental Responses to my data requests. (K27-1). I am unaware of the need for the State's Attorney to be so involved in the application process for Deuel Harvest's special exception permit.

During the hearing on my Motion to Compel Deuel Harvest's Responses, I modified request 1-8 to include any arrangement for commission, or arrangement for payment. Mr. Svedeman's supplemental response to that data request still leaves open the possibility that Mr. Knight has an arrangement for future payment or an arrangement for a future commission with Deuel Harvest or any of Deuel Harvest's affiliates, employees, agents, or contractors. The response states, "John Knight has no role in the Project. Deuel Harvest denies that there has been any 'payment, commission, gift arrangement… with Deuel Harvest or any of Deuel Harvest's affiliates, employees, agents, or contractors.'" (K27-1)

For these reasons, Deuel Harvest has failed to meet its burden of proving the Project is not unduly interfering in the orderly development of the region and requires a denial of the permit.

VII. THERE IS NO ADEQUATE REDRESS FOR PROBLEMS ARISING ONCE THE PROJECT IS PERMITTED

Landowners and inhabitants near the Project will not have adequate redress for problems caused by the Project. Once the Project is permitted, SDCL 21-10-2 precludes any nuisance claims for effects caused. SDCL 21-10-2 states "Acts under statutory authority not deemed nuisance. Nothing which is done or maintained under the express authority of a statute can be deemed a nuisance."

The majority of SDCL 49-13, Procedure on Complaints to Public Utilities Commission, only applies to complaints regarding telecommunications companies or motor carriers. As such, there is no complaint process established to effectively address permit violations of the Deuel Harvest project. According to 49-41B-25, the Commission has authority to impose such terms, conditions, or modifications of the construction, operation, or maintenance of the project as the commission deems appropriate. This would allow the commission to include the requirement that Deuel Harvest be required to shut down a turbine upon a reliable complaint made to a public liaison. The potential harm to people outweighs the benefit of allowing the offending turbine to continue operation.

A process should be imposed that prevents a significant burden on complainant. For example, how would a landowner prove non-compliance with a shadow flicker limit when the limit is annual? Not only would it take at least a year to prove non-compliance, but the cost of this testing should be the responsibility of Deuel Harvest, part of the cost of doing business. Stating any flicker limit as a monthly limit would make enforcement issues easier.

Based on Invenergy's past actions in *Williams v. Invenergy*, (K17-4) I believe Deuel Harvest will force any complainant to endure lengthy and costly litigation, while Invenergy or Deuel Harvest attempts to evade enforcement of regulations. Meanwhile people are subjected to years of violations. Therefore, upon any reliable complaint to a public liaison, the possibly offending turbine should be shut down until independent testing, done at Deuel Harvest's expense, shows the turbine is in compliance.

I also ask that there be recourse for potential complaints of noise, and annoyance, not requiring a claim of damages, nor even proof of any violation. This would help create goodwill on behalf of the Project and any further wind development. However, this would also require a permanent public liaison officer to mediate.

If a permit is granted to Deuel Harvest, it should contain a condition that if at any time the Commission determines the project poses a threat to human health, the Commission can require any modification to the construction or operation of the project to prevent such harm. The record shows that previous projects have resulted in annoyance, complaints and lawsuits.

If setbacks are sufficient and respectful, suffering, complaints, and lawsuits can be avoided. Pro-active protection for the welfare of the inhabitants is paramount. As Mr. Rand has explained, increased setbacks are the only way to do that. According to Mr. Svedeman's Supplemental Response, there will be 119 participating landowners that will not have turbines. (K27-2, at 1-12) There are alternative sites for the turbines the intervenors have requested be moved, even if it cuts into Deuel Harvest's profits.

CONCLUSION

Deuel Harvest's Application contains significant errors and deficiencies. Deuel Harvest's past operations show a lack of compliance with applicable laws and rules, as well as a disregard for the welfare of the inhabitants of siting areas. Deuel Harvest has not met the burdens required by SDCL 49-41B-22, burdens put in place to protect the people and wildlife of South Dakota.

Whatever the outcome, the employees, attorneys, and witnesses hired by Deuel Harvest will go on their way to the next project application. They are not personally affected by this Project. It is only the landowners and inhabitants of Deuel County that will have to live with the determinations of the Commission, and the repercussions for decades to come. People should be put before profits, whether it is the profits to Deuel Harvest or the claimed tax benefits to the state and county. Denying this permit to Deuel County will not stop all wind development in the area. There are already multiple other projects seeking permits or being proposed for Deuel County alone, not to mention counties surrounding Deuel County and South Dakota as a whole. Invenergy has shown no concern for the people and wildlife of Deuel County. Deuel Harvest has spent its time and resources on trying to justify the harms the Project will cause. They have shown they cannot be trusted. Deuel Harvest has not shown a need for the Project.

I ask the Commission to err on the side of protecting the health and welfare of Deuel County. Please deny a permit to Deuel Harvest. Please do not force any number of unwilling

landowners to sacrifice their sleep, health, or even quiet enjoyment of their property for this wind project.[5]

Dated: May 7, 2019

/s/ Christina Kilby

Christina Kilby
Intervenor
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[5] Ironically, the Do Not Call Registry is in place to protect people from unwanted, frequent, and harassing phone calls from telemarketers. http://sddonotcall.com/ However, individuals living near wind projects will have no control over harassing noise and effects from wind turbines. Individuals living near wind projects should be given the same respect, so they can get back to their life, "Uninterrupted."