EL18-053 - In the Matter of the Application of Deuel Harvest Wind Energy LLC for a Permit of a Wind Energy Facility and a 345-kV Transmission Line in Deuel County

The Deuel Harvest PUC application, like the county application, is full of omissions and vagueness. As an example, I submit a markup of the pre-construction wind turbine noise analysis. I do believe it will not pass peer review. Further, I do not believe this application meets the PUC's applicant responsibilities (attached).

The PUC should require reports and analysis that are warrantied, and peer reviewed such as the noise and flicker analysis. The submitted reports were written by, checked by, and approved by the same company, and possibly the same person. The PUC should require; missing reports, supporting documents, manuals and methods used to make reports on issues and impacts, like infrasound, vibrations, sleep deprivation, mental health, accidents, property value loss, decommissioning noise levels, tourism, bird and bat kills caused by industrial wind turbines, etc.. #software Versions

Will the PUC hire a medical doctor who has evaluated people living in industrial turbine projects and has experience with health impacts caused by the projects? Will the PUC allow 1 person to be harmed, 2, 3 how many before safe siting of the turbines is standard? Is there safe siting near where people live? Who will the PUC call when there are problems? After all this is a foreign shell corporation.

This application contains information about geology, hydrology and bedrock. Will the PUC hire experts to evaluate the safety and impacts to our aquifers or will it allow the industry to say in a few years, "we included that information in the application, you gave us the permit, so it must have been ok?" Thus, dropping the responsibility on the PUC and the impacts including loss of drinking water and financial clean up on the residents of South Dakota? Does the PUC know about black shale particulates in aquifers and how industrial wind turbines cause issues with aquifers?

Where is the information on foundations depth and the specs on the cement? Cement always cracks, what does industry do to make sure the cement will last 30 years of vibrations. Who will oversee industry checking that they are not taking cost cutting and time saving corners at their own cement batch plants? After all we know this is not about green energy, it is getting the project in before the PTC's, wind welfare, run out.

Where are the specks on the foundations, how deep, are they mining?

When people lose property value or can not sell at all because banks will not loan on a low marketability home, who will be responsible? Ask the experts about FHA critical guidelines? Ask when and whose home will be the first in South Dakota to get dinged because of industrial wind turbine poor or dangerous siting? I'm betting it will be [redacted] home.

Where is the traffic and infrastructure study, showing changes to traffic patterns because of ice throw, infrasound, ruined Sunday? The socio-economical study showing the number of jobs lost to crop dusters, the higher costs to famers for both pest control and electric rates, increase in crime rates do to temporary workers, the lost to Mainstreet SD due to rural people being driven from their homes?

Where in EIS does it state the number of birds kills or the increase in predators? Clearly, as stated earlier tonight, some critical environmental information was omitted. What if this was discovered after the permit was issued? Does it get a rework or get to continue as permitted?

What if the turbines start spinning, and people become sick or our roads are unsafe to travel because of ice throw? What will the PUC do? The post construction report suggests having a 24-hour call number. I'm sorry, that is like having the chicken report to the fox. No thank you, the public will be calling you, local officials and neighbors who permitted this to destroy the lives of South Dakota inhabitants.

I would like to know where it is written that the PUC has the authority to stomp all over South Dakotans constitutionally protected property rights. Allowing any amount of flicker or infrasound to cross a property is illegal, let alone allowing it to invade a castle.

As a member of the public, I am forced to play, who can buy the best $500/hour expert, "wins the game". Without being an expert, but clearly full of common sense, my testimony is discounted. So, I ask PUC will you, as a commission in charge of public protections, to hire the experts needed to peer review this application. I also ask the PUC to have the information peer reviewed to the PUC standards required of the applicant responsibilities and not to wholly inadequate county ordinances, written by bias commissions.

The PUC should never risk impacts to the public over a rush job to review an application that has reports and maps that are not fully evaluated and questions unanswered. I ask that you deny this application.

Kristi Mogen

Twin Brooks SD

Oops I had an ommission, I have been informed of 2 missing receptors

Where is the report on infrasound, LFN, vibrations & pulsations?

- Just because humans can't hear it doesn't mean it is safe

Where is the post construction report? Will it be to noise to deconstruct? see MRC 17-410

decommissioning

APPENDIX D – PRE-CONSTRUCTION WIND TURBINE NOISE ANALYSIS

Pre-Construction Wind Turbine Noise Analysis

for the proposed

Deuel Harvest North Wind Farm

November 2018

DEUEL HARVEST WIND FARM

Prepared for:

Deuel Harvest Wind Energy LLC
Chicago, Illinois

Prepared by:

Hankard Environmental, Inc.
Verona, Wisconsin

HANKARD ENVIRONMENTAL
ACOUSTICS AND VIBRATION CONSULTING

Who - person name
Checked by person's name
Approved by person's name

Stamp?
Warranty?
Guarantee?
License; what state?

1. Introduction

This report describes a pre-construction noise analysis conducted by Hankard Environmental for the proposed Deuel Harvest North Wind Farm (the Project) in support of its Energy Facility Permit. Deuel Harvest Wind Energy LLC (Deuel Harvest, the Applicant), an affiliate of Invenergy LLC (Invenergy), is developing the up to 310.1 megawatt (MW) Project to be located in Deuel County, South Dakota. Deuel Harvest intends to construct and operate the Project, which is located in the townships of Portland, Lowe, Altamont, Glenwood, Clear Lake, and Herrick. Figure 1-1 shows the general location of the Project, which is bordered by 166th Street to the north, State Line Road to the east, County Highway 309 to the south, and County Highway 443 to the west.

This report assesses potential sound levels of the Project and confirms compliance with the Zoning Ordinance of Deuel County, Section 1215: Wind Energy System (WES) Requirement of 45 dBA at non-participating residences. Our analysis confirmed that sound levels will not exceed 44.9 dBA at non-participating residences. Described herein are the applicable noise standard, the Project and its environs, the methods and data used to model noise levels, the results of the noise level predictions, and demonstration of compliance with the Zoning Ordinance.

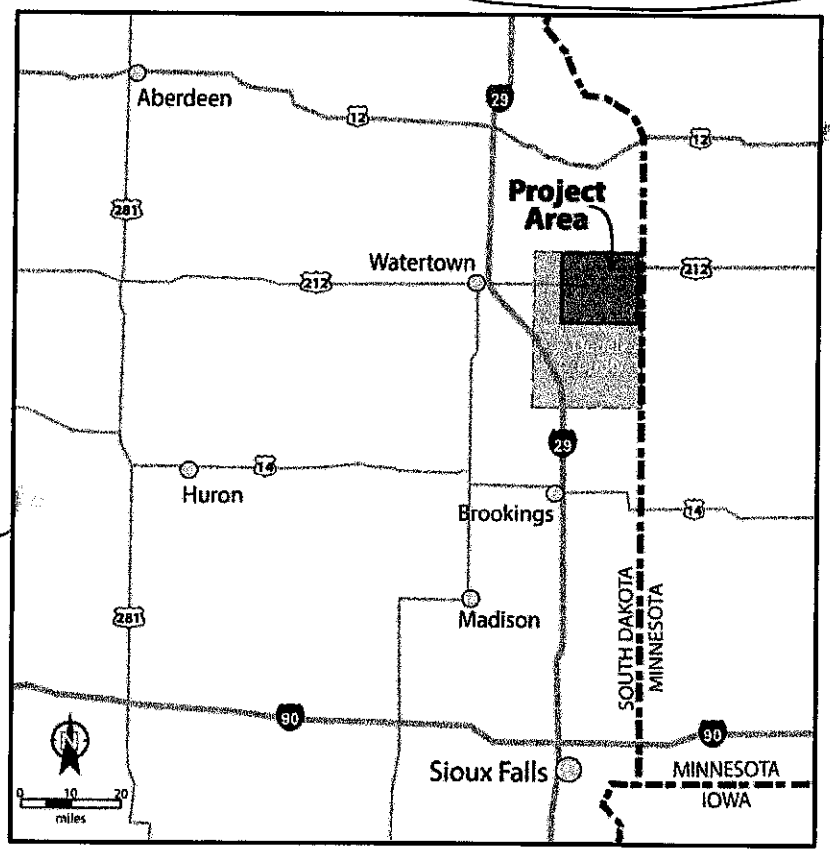

Figure 1-1. General Location of the Proposed Deuel Harvest North Wind Farm

Big Deal ORD written by people paid by Wind Contracts who profited from

2. Applicable Noise Standards

On May 23, 2017, the Board of County Commissioners passed Ordinance 82004-01-23B, which amended the Deuel County Zoning Ordinance, Section 1215.03: General Provisions, Paragraph 13: Noise & Shadow Flicker, Subparagraph a to read:

> *a. Noise level shall not exceed 45 dBA average A-Weighted Sound pressure at the perimeter of existing residences, for non-participating residences.*

This amendment became effective on June 20, 2017. This is the only numerical noise limit applicable to wind energy systems in Deuel County, South Dakota. There are no other *numerical* local, state or federal noise limits applicable to the Project.

There is one other noise-related requirement at the state level: South Dakota Administrative Rule 20:10:22:33.02 requires that an application for an Energy Facility Permit include "Anticipated noise levels during construction and operation". The noise levels reported herein are those expected during operation. Construction noise levels will be typical of those produced by standard construction equipment.

40 DBA Leq not 45 DBA
- need safe noise levels that will not effect human health
- where is info?

Does meet the PUC applicant requirements?

Receptors

In the SoundPLAN model, receptors (prediction points) were located at each of the 122 non-participating and 109 participating residences located within the Project study area, which includes any residence located within approximately two miles of any turbine or main transformer. The geographic locations of the residences were provided by Deuel Harvest Wind. Ground elevations were determined using Digital Elevation Model (DEM) data from the U.S. Geological Survey (USGS) National Elevation Dataset. In accordance with ISO 9613-2, each receptor's height was set to 1.5 meters (5 feet) above the ground. The location of each receptor is shown in the figures in Appendix A. The geographic coordinates and ground elevation of each modeled non-participating and participating receptor are listed in Appendix B and C, respectively.

Noise Sources

In the SoundPLAN model, each turbine was represented as an acoustical point source located at its hub height, which is 80 meters above the ground for the GE 2.3-116 units, 88.6 meters above the ground for the GE 2.82-127 units, and 3 meters for the transformers. No directivity was applied to any noise source, thus assuming maximum acoustic output in all directions, and all turbines were assumed to be operating in normal mode (versus noise-reduction mode). The locations of the turbines were provided by Deuel Harvest (State Permit Layout_Rev1 (124 WTGs Numbered.shp)). The location of the substation containing the two main step-up (34.5 kV to 345 kV) transformers was also provided by Deuel Harvest. The location of each turbine in each layout is shown in the site plan figures in Appendix A. The geographic coordinates, ground elevation, and hub-height elevation of each modeled turbine and transformer are listed in Appendix D. The ground elevation for each turbine location was determined using DEM data from the USGS National Elevation Dataset.

Table 4-1 lists the octave band sound power levels for all modeled noise sources in the Project. The levels are expressed in terms of unweighted decibels (dB) for each of nine standard frequency bands, as defined by the American National Standards Institute (ANSI) Standard S1.11: Specification for Octave-Band and Fractional-Octave-Band Analog and Digital Filters. The noise level data for each turbine was provided by the manufacturer and was determined according to International Electrotechnical Commission standard 61400-11. This standard requires wind turbine sound power levels to be reported for a number of wind speed bins across the operating range of the turbine. In general, sound levels increase with increasing winds speeds, up to approximately 10 m/s at hub height. Noise levels do not further increase above this wind speed because the turbines reach a maximum rotational speed. This relationship between wind speed and noise level holds true for each octave band. This analysis used octave band noise levels reported the manufacturer for the 10 m/s wind speed at hub height, as this is the speed at which the overall noise level first reaches its maximum level. The manufacturer's uncertainty factor was not applied to this data.

Table 4-1. Source Sound Power Levels

Source	Octave Band Sound Power Level (dB)									Overall Sound Power Level (dBA)
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	
GE 2.3-116 LNTE*	118.3	115.3	111.7	107.2	102.5	99.5	98.1	92.3	74.6	106.0
GE 2.82-127 LNTE*	122.3	118.8	113.3	106.8	103.6	103.8	101.5	94.0	78.0	108.5
Transformer	95.0	100.8	102.7	97.2	97.8	91.6	86.4	81.6	72.5	98.0

* For 10 m/s hub-height wind speed

The Project's collector substation will contain two transformers, switch gear, metering, electrical control and communication systems, and other equipment required to transform Project wind generated power. The only significant noise-producing equipment are the Project's main step-up transformers. The noise analysis assumed the simultaneous operation of two 120 MVA transformers at the substation. The sound power levels from the transformers are listed in Table 4-1. The substation location is shown in the figures in Appendix A. Ground elevations for the transformers were determined using the USGS National Elevation Dataset. The transformers were modeled as point sources located 3 meters (10 feet) above the ground, with no barriers or directivity reductions. The spectral shape of transformer noise emissions was estimated using published data and adjusted to match the overall sound power level of 98 dBA, which is a typical and achievable level estimated for utility-scale transformer.

Terrain and Ground Effect

The terrain in the project area was modeled by importing digital elevation model (DEM) data from the U.S. Geological Survey National Elevation Dataset into SoundPLAN. The acoustical effect of the ground was modeled using the ISO 9613-2 General Method. This requires the selection of ground absorption factors for the ground near the source, near the receiver, and in between. Ground factors range from 0.0 to 1.0 and represent the proportion of sound that is absorbed or reflected when sound waves interact with the ground. A value of 0.0 represents completely reflective ground material such as pavement or flat water, and results in a higher level of sound reaching a receptor. A value of 1.0 represents absorptive material such as thick grass, crops, or fresh snow, and results in a lower level of sound reaching a receptor. For this project, we conservatively assumed a ground factor of 0.0 (completely reflective). Actual ground conditions could at times be 0.0 when the ground is completely frozen, but would generally be closer to 0.5 when the ground is covered with new snow or crops, or when the ground is bare and unfrozen.

Atmospheric Conditions

The air temperature, relative humidity, and atmospheric pressure were set to standard-day conditions of 10°C, 70%, and 1 atmosphere, respectively. These values represent the lowest amount of atmospheric absorption of sound available in the ISO 9613-2 method, and result in the highest levels of sound reaching the receptors.

name the turbines in project

warranty - Guarantee? did one person write, check and approve?

Validation of Noise Prediction Method

The noise level prediction method employed on the Project has been validated by Hankard Environmental by comparing predicted noise levels to those measured at operating wind farms. Most notably, Hankard Environmental compared the noise levels measured over the course of four months near an existing Illinois wind farm employing similar turbines to the noise levels predicted by an acoustical model of that project using the methods described above. The validation compared the predicted levels to the very highest turbine-only noise levels measured. A majority of the time, actual turbine noise levels will be lower than those predicted. This is because, in addition to the conservative ground attenuation factor and atmospheric absorption conditions, sound levels were calculated assuming maximum turbine operations (which will not always be the case) and the ISO 9613-2 method assumes that all receptors are downwind of all noise sources at all times (a physical impossibility for this turbine layout).

The noise level modeling method employed on this Project has been validated by many acoustical consultants, including Hankard Environmental. Hankard Environmental has conducted numerous wind turbine noise level compliance surveys, and routinely compares the results of these measurements with corresponding predicted levels using the same methods employed on this Project. We consistently find that our predicted levels are at least 1 dB higher than the loudest measured hourly turbine only noise levels.

Says is pre construction what about trucks, cranes, Cement batch plants, graders, dozers, Rippers

Using inaccurate data inputs?

Supply data inputs so can be peer reviewed

5. Predicted Noise Levels

Non-Participating Residences

Noise levels from the full and continuous operation of 111 GE 2.82-127 LNTE turbines, 13 GE 2.3-116 LNTE turbines, and two main step-up transformers were predicted at each residence. Table 5-1 lists the predicted turbine noise levels at the 12 non-participating residences where the loudest levels are predicted. All of these predicted levels are less than the County's 45 dBA limit. Predicted noise levels at all other non-participating residences are lower. Overall, levels range from 24 dBA to less than 45 dBA, with an average of 36 dBA. The predicted noise levels at each of the 122 non-participating residences are listed in Appendix B.

Table 5-1. Highest Predicted Noise Levels ($L_{eq\,(1\,Hr)}$) at Non-Participating Residences

Receptor ID	Noise Level (dBA)	Receptor ID	Noise Level (dBA)
258	44.9	201	43.6
260	44.9	259	43.6
233	44.5	200	43.4
245	44.0	196	43.3
198	43.7	231	43.3
299	43.7	242	43.3

need to check every receptor and find all missing receptors

that's close no room for errors!

Participating Residences

Table 5-2 lists the 12 participating residences where the highest noise levels are predicted. Overall, levels range from 28 dBA to less than 50 dBA, with an average of 40 dBA. Predicted noise levels at all other participating residences are lower. The predicted noise levels at each of the 109 participating residences are listed in Appendix C.

Table 5-2. Highest Predicted Noise Levels ($L_{eq\,(1\,Hr)}$) at Participating Residences

Receptor ID	Noise Level (dBA)	Receptor ID	Noise Level (dBA)
458	49.8	400	48.0
302	48.8	433	48.0
452	48.5	436	47.7
438	48.4	414	47.6
380	48.1	459	47.6
257	48.0	455	47.4

Predicted Noise Level Contours

Noise levels are indicated graphically in the form of noise level contours in the figures in Appendix E. Each of the green contour lines encircles one or more turbines to indicate the positions at which the predicted noise level is 45 dBA. All of the area between a contour line and any turbine that it surrounds has a predicted noise level in excess of the 45 dBA level. All of the area outside of a contour has a predicted noise level less than the 45 dBA level.

How about a Safe level for humans 40 DBA Leq10

6. Construction Noise Levels

Construction for a wind turbine farm is expected to include the wind turbine sites, substation, access roads, and underground transmission lines. The construction will generate temporary noise from a variety equipment. Table 6-1 provides a list of potential construction equipment for each type, phase and sub-phase for construction of a wind farm project. In general, each individual wind turbine site is estimated to take about two to three weeks to construct, with the substation taking about three to four months and the entire wind farm around twelve months.

Table 6-1. Potential Construction Equipment to be Employed on a Wind Turbine Project

Type	Phase	Sub-Phase	Equipment
Turbines	Site Preparation	Clearing	Chainsaw, Feller Buncher, Grapple Loader, Log Truck
		Road/Site	Dozer, Excavator, Grader, Roller, Dump Trucks
		Foundation	Drill Rig, Track Hoe, Dozer, RT Crane, Concrete Truck
	Installation	Delivery	Fork Lift, RT Crane, Tractor Trailer
		Components	Crawler Crane
	Site Finishing	—	Dozer, Moto Grader, Skid Steer, Seed Drill
Substation	Site Preparation	Clearing	Chainsaw, Feller Buncher, Grapple Loader, Log Truck
		Road/Site	Dozer, Excavator, Grader, Roller, Dump Truck
		Foundation	Drill Rig, Track Hoe, Dozer, RT Crane, Concrete Truck
	Construction	Delivery	Fork Lift, RT Crane, Tractor Trailer
		Components	Fork Lift, Bucket Truck, Truck Crane
	Site Finishing	—	Dozer, Moto Grader, Skid Steer, Seed Drill
Roadways	Site Preparation	—	Chainsaws, Feller Buncher, Grapple Loader, Log Truck
	Construction	—	Dozer, Moto Grader, Back Hoe, Dump Truck, Roller
	Site Finishing	—	Dozer, Moto Grader, Skid Steer, Seed Drill
Underground Electrical Collections	Trenching	—	Trencher, Track Hoe, HDD machine
	Installation	—	Cable Layer
	Site Finishing	—	Track Hoe, Skid Steer, Seed Drill

Construction noise at off-site receptor locations will usually be dependent on the loudest one or two pieces of equipment in operation at a particular time. Noise levels from diesel-powered equipment at 50 feet generally range from 80 dBA to 95 dBA. Table 6-2 provides a list of common construction equipment, its maximum noise level expected at 50 feet, the typical duration a particular piece of equipment is used in any one-hour period, and the resulting hourly equivalent noise level ($L_{eq\ (1\ Hr)}$) for the piece of equipment.

Table 6-2. Noise Source Characteristics of the Construction Equipment

Equipment	L_{max} Noise Level at 50 ft (dBA)	Usage Factor (%)	$L_{eq(1\ Hr)}$ Noise Level at 50 ft (dBA)
Back Hoe	82	40	77.6
Belly Dump Truck	88	40	84.0
Bucket Truck	82	20	74.7
Cable Layer	70	50	67.0
Chain Saw	91	20	83.7
Concrete Truck	88	20	81.4
Crawler Crane	89	16	80.6
Dozer	86	40	81.7
Drill Rig	86	20	79.1
Dump Truck	81	40	76.5
Excavator	85	40	80.7
Feller Buncher	89	40	85.0
Fork Lift	69	40	65.0
Grapple Loader	83	40	79.1
Horizontal Drill	88	25	82.0
Log Truck	78	40	74.3
Moto Grader	89	40	85.0
Roller	84	40	80.0
RT Crane	89	16	80.6
Seed Drill	83	50	80.0
Semi Trucks	78	40	74.3
Skid Steer	83	40	79.1
Track Hoe	82	40	77.6
Tractor Trailer	78	40	74.3
Trencher	83	50	80.4
Truck Crane	87	16	80.6

Construction noise from the Project is not expected to create any significant impacts. That said, the following steps could be taken by the Project to minimize the impact of construction noise:

- Limit any necessary nighttime work near residences to quiet activities such as finishing,
- Maintain equipment to manufacturers' specifications, particularly mufflers,
- Use ambient controlled broadband backup alarms versus tonal back-up alarms,
- Minimize backing up on site of delivery trucks to the degree practicable,
- Provide a 24-hour telephone complaint number for residents to use if needed,
- Attempt to resolve any legitimate problems in a prompt manner,
- Notify residences of expected construction schedule for the entire Project.

7. Conclusions

Noise levels from the full and continuous operation of the Project were predicted at each non-participating and participating residence located within two miles of any Project noise source. Noise levels are predicted to be less than 45 dBA at all non-participating residences. The noise modeling (prediction) method used in this analysis has been demonstrated by Hankard Environmental and other acoustical consultants to result in predicted levels that are at least 1 dB higher than the loudest measured hourly turbine only noise levels. Therefore, we confidently conclude that noise levels from the Project, once operational, will be less than the Deuel County limit under any circumstances. A majority of the time, when either turbines are at less than full operation, or off, or when atmospheric conditions are less than ideal for sound propagation, noise levels will be significantly less than those reported herein.

The noise modeling analysis is based on the following assumptions:

1) The use of a 0.0 ground attenuation factor, which results in higher levels of predicted noise than would result from a higher ground factor. Hankard Environmental has found that measured levels never exceed those predicted using 0.0 and are often lower.

2) The model assumes atmospheric conditions that result in efficient sound propagation and therefore higher noise levels. These conditions, primarily wind direction and the presence of either a temperature inversion or a wind gradient, will only be present a certain percentage of time. When they are not present, noise levels will be lower than those reported herein. In addition, the ISO 9613-2 method assumes that all receptors are downwind of all noise sources at all times. For many receptors (those with turbines located in different directions around them), this is not physically possible.

3) All turbines and transformers are modeled without any source directivity. In reality, these sources project different levels of sound in different directions. In the model, they are assumed to radiate their highest levels in all directions.

4) All turbines and transformers are assumed to be operating in their maximum-noise state, which will not always be the case.

5) All of the GE 2.3-116 and 2.82-127 wind turbines are fitted with LNTE blades.

Note that the results described herein are valid for the receptor locations provided, the turbine layout analyzed, and the wind turbine sound power levels as provided by the manufacturer. If the Applicant makes any significant changes to the Project, including layout, turbine type, or mix of standard and LNTE blades, this noise analysis should be updated and compliance with the noise limit again demonstrated.

South Dakota Public Utilities Commission Information Guide to Siting Energy Conversion & Electric Transmission Facilities

This guide is intended to offer a simple overview of the Public Utilities Commission's process in making a decision to approve or deny the construction of an energy conversion facility, AC/DC conversion facility, wind energy facility, or electric transmission facility in South Dakota. This guide is informational and does not address all situations, variations and exceptions in the siting process and proceedings of the PUC. For additional information, see South Dakota Codified Laws Chapter 49-41B (www.legis.sd.gov/Statutes/Codified_Laws) and South Dakota Administrative Rules Chapter 20:10:22 (www.legis.sd.gov/rules).

PUC Authority

The South Dakota Legislature gave the PUC authority to issue permits for energy conversion, AC/DC conversion, wind energy and electric transmission facilities. An energy conversion facility is a generation facility, other than a wind generation facility, capable of generating 100 megawatts or more of electricity. In considering applications, the commission's primary duty is to ensure the location, construction and operation of the facilities will produce minimal adverse effects on the environment and the citizens. The commission determines these factors based on definitions, standards and references specified in South Dakota Codified Laws and Administrative Rules. For energy conversion facilities, AC/DC conversion facilities and transmission facilities, the PUC has one year from the date of application to make a decision; six months for wind energy facilities.

> The commission strives to issue a reasoned decision and conditions where appropriate that uphold the law and discourage a potentially expensive and lengthy appeal process.

In rendering its decision, the commission may grant the permit, deny the permit, or grant the permit with terms, conditions or modifications of the construction, operation or maintenance as the commission finds appropriate and legally within its jurisdiction. The commission does not have authority to change the route or location of a project. The decision of the commission can be appealed to the circuit court and, ultimately, to the South Dakota Supreme Court.

The PUC is not involved in the easement acquisition process that occurs between applicants and landowners. Likewise, the PUC does not have a role in the eminent domain process, which is handled in the circuit court system. Landowners with concerns about these issues should seek advice from their personal attorney.

Applicant Responsibility

The applicant that seeks the PUC's approval must show its proposed project:

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

PUC Staff Role

PUC staff members assigned to work on a siting case typically include one attorney and multiple analysts. Staff attorneys have educational and practical experience in administrative law, trial procedure and business management principles. Staff analysts have expertise in engineering, research and economics. Some of the work the staff does involves reviewing data and evidence submitted by the applicant and intervenors, requesting and analyzing opinions from experts, and questioning the parties. The staff considers the information relative to state laws and rules and presents recommendations to the Public Utilities Commissioners.

Public Involvement

South Dakotans, as well as anyone else with an interest in a siting case, have a variety of ways to stay informed and involved. Read more on back.

Ontario wind power bringing down property values – CBC News

OCT 3 Posted by ccsage

CBC News has published a major investigative report on losses in market values of Ontario residential properties located near wind turbines. It reports actual and anticipated losses of 10-50%, increased time to sell and potential difficulties in obtaining a mortgage. There is also a poll showing the percentage of people willing to live near wind turbines.

Some excerpts from the report:

... The CBC has documented scores of families who've discovered their property values are not only going downward, but also some who are unable to sell and have even abandoned their homes because of concerns nearby turbines are affecting their health."

... The president of the Brampton Real Estate Board [Chris Luxemburger] examined real estate listings and sales figures for the Melancthon-Amaranth area, home to 133 turbines in what is Ontario's first and largest industrial wind farm. "Homes inside the windmill zones were selling for less and taking longer to sell than the homes outside the windmill zones," said Luxemburger. On average, from 2007 to 2010, he says properties adjacent to turbines sold for between 20 and 40 per cent less than comparable properties that were out of sight from the windmills.

... Canadian Hydro Developers bought out four different owners [who threatened legal action] for $500,000, $350,000, $305,000 and $302,670. The company then resold each property, respectively, for $288,400, $175,000 (50% loss), $278,000 and $215,000. In total, Canadian Hydro absorbed just over half a million dollars in losses [34%] on those four properties.

... last February, before an environmental review tribunal in Chatham, Environment Ministry lawyer Frederika Rotter said: ..."That's what makes them sick is that, you know, they'll get less money for their properties, and that's what's causing all this annoyance and frustration and all of that."

... Getting a mortgage on her house might not be that easy. CBC News has learned that already one bank in the Melancthon area is not allowing lines of credit to be secured by houses situated near wind turbines. In a letter to one family situated close to the turbines, the bank wrote, "we find your property a high risk and its future marketability may be jeopardized."

Reinforcing the information contained in the above report, a CBC News poll indicates that only 23% of more than 1700 responders would be willing to live near wind turbines, thereby reducing the number of potential buyers by three-quarters.

Source: http://ccsage.wordpress.com/2011/10/03/ontario-wind-power-bringing-down-property-values-cbc-news/

Wind turbines to blame for well water problems: hydrogeologist

November 12, 2017

Well water problems continue in Chatham-Kent with neither the wind power developer consortium, the municipality (which is part of the developer consortium), or the Ontario Ministry of the Environment responding to citizens' concerns about altered well water. People have complained about Black Water coming from their wells, or so much sediment that the wells stop working entirely.

Here is an excerpt from the current edition of Ontario Farmer, which contains interviews with two experts on water wells.

Of concern to Wind Concerns Ontario is not only the lack of acknowledgement, explanation or effective resolution but also the fact that yet another wind power project on the same hydrogeology is being considered for approval. Ontario needs answers as more projects on fragile hydrogeology are pushed forward.

Water in Chatham-Kent wells is cloudy, even brown: not our fault says Samsung-Pattern [Photo: Sydenham Current]

Hydrologist blames turbines for well water issues

By Jeffrey Carter, ONTARIO FARMER

November 7

Ontario's MInistry of the Environment and Climate Change should have already stopped the North Kent project in the Municipality of Chatham-Kent, according to hydrogeologist Bill Clarke.

It's clear many wells have been compromised due to the vibrations created by wind turbine construction and by their operation, he said. Less clear is the level of risk for the people drinking the water. There are just too many unknowns to make a definitive statement on the matter.

Clarke, who is near retirement after a 40-year career in Ontario, has been working with Water Wells First citizens' group that stands in opposition to wind farm development in the area, given the fragile nature of the aquifer.

"There are 13 families who are seeing a change in their water supply," he said.

"Quantity is the issue now but not necessarily water quality. What's happening is that particulate matter is getting loosened up at the base of the wells. In my opinion, there is well interference — there is no doubt."

Clarke said well interference is something covered under the Ontario Water Resources Act and the situation should have raised a red flag for the Ministry of the Environment and Climate Change (#MOECC).

Proponents of the North Kent Wind project, consultants hired by the developers, have said that turbine construction has had no impact on the wells, despite the visual evidence that suggests otherwise. In the case of the complaints, which now number 14 according to Water Wells First, problems only arose after turbine pile-driving operations began.

Clarke said the consultants are correct in one respect: sediment shaken loose below the area where the turbines are being erected is not a concern. However, few people, experts included, have recognized the extreme delicate nature of this particular aquifer. The vibrations from pile-driving, and even from those created by the rotation of the huge turbine blades, are an issue at the well locations themselves. This accounts for particles from the underlying bedrock — Kettle [Point Black Shale] — being found in the contaminated wells.

The aquifer is very fragile

"The aquifer is very fragile and what we didn't know before this all began is how fragile it is ... They [the ministry] are being reluctant to get involved and, subsequently making a decision," Clarke said.

Filtering systems have proven ineffective. Some have quickly clogged up within days or even hours of being put into operation. This may explain why the wind farm developers have offered to supply municipal and bottled water to affected well owners, though liability is still denied.

Also weighing in on the nature of the aquifer was Craig Stanton, executive director of the Ontario Groundwater Association. He said it's long been known that when water is drawn too quickly from the area's aquifer, cloudiness can become an issue.

"A lot of those wells are only good for a gallon or two per minute because if you were to pump harder, you would disturb that till with water pressure," he said.

Kettle [Point Black Shale] is the bedrock underlying much of Southwestern Ontario. Across the northern part of Chatham-Kent, it's located within 50 to 70 feet of the soil surface.

The "sweet water" lies in a layer of glacial till just above the bedrock. Particles of the bedrock are mixed into the aquifer layer.\

Clarke, while convinced that water wells have been compromised by the wind far development, said the level of risk from a human safety perspective, is unknown at this point.

In a well water evaluation conducted for Peter Hensel, just south of Wallaceburg*, uranium, barium and selenium were all flagged under the Ontario Water [Resources Act]. Unfortunately, due to test limitations, the level of uranium and selenium detected could not be determined. The level of barium did exceed the standard but only marginally.

Questions sent to the MOECC concerning the potential health threat from Hensel's 2016 results were not answered. Hensel has not yet supplied the MOECC with his 2016 results although a copy was given to Ontario Farmer. The MOECC has also not answered why, in its own 2017 test of Hensel's water, metals were not included in the evaluation.

The same questions sent to the MOECC were sent to Ontario's environment minister Chris Ballard's office. So far, there's been no reply from the minister's office.

They should have known ...

According to Stainton and Clarke, an evaluation of metal content is a standard part of most water tests.

"Why would you test for just part of the Periodic Table, and who made the decision (at the MOECC) on what they would or wouldn't test for?" Stainton asked. "It certainly seems to me suspect, and they should have known these things are in the black shale."

Stainton and Clarke are both puzzled by the MOECC's reluctance to investigate the situation further,. Especially since concerns were raised prior to the start of construction on the North Kent Wind project.

"I believe if they had been listening, they never would have allowed North Kent to move forward because they should have learned their lessons in Dover. There should have been so many red flags going up that they should have said no," Stainton said.

... a spokesperson with the MOECC [told Ontario Farmer] that the Chatham-Kent Medical Officer of Health has determined there is no risk from the particulates in the water in the absence of bacterial contamination.

*The MOECC is now contemplating approval of yet another wind power project on the same hydrogeology, the Otter Creek wind power project. A citizens' group has formed: the Wallaceburg Area Wind Concerns.