To: The Davison County Commissioners and March 6, 2017

Members of the Planning and Zoning Board and Administration

Ladies and Gentlemen;

Concerning the proposed wind turbine ordinance that is going before the Planning and Zoning Board on March 8, 2017, I would like to submit the following observations and research for your consideration.
If you are considering passing these wind recommendations proposed by Mr. Bathke, please bear in mind that a year ago, in an interview with The Daily Republic, he explained that if these same recommendations were in place at that time, the Conditional Use Permit requested by Juhl for 9 Industrial Wind Energy Conversion Systems (IWECS) would have to be granted because Juhl had conformed in every way.

Though that project met all these same recommendations now before you, that application was denied by the Commissioners over concerns about loss of property values for the non-participating owners.

It appears that if the same concerns are still felt, that changes to the wind ordinance are needed. I ask you to review these currently proposed items, in the table that is part of this letter, and look at the suggestions there for protecting the public health, safety and welfare, as well as use and enjoyment of property and its underlying value.

These proposed rules could also prove costly to Davison County when administering and enforcing the problems that will arise from adopting them as is with no provisions for enforcement. The best and least expensive action would be to place the setback at 2 miles from the non-participating owner's property line.

Thank you for your time and your service to Davison County,

Jerry Scott

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Mitchell, SD 57301

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	Current	Proposed
1	Not contain artificial lights other than in accordance with the Federal Aviation Administration Standards.	Not contain artificial lights other than in accordance with the Federal Aviation Administration Standards and require these lights to be transponder activated (OAC or Obstacle Collision Avoidance) if allowed. **Lighting.** LWECS sites shall be marked as required by the Federal Aviation Administration (FAA) and shall not be artificially lighted, except to the extent required by the FAA or other applicable authority. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations. Red strobe lights are preferred for night-time illumination to reduce impacts on migrating birds. Red pulsating incandescent lights should be avoided. Exceptions may be made for meteorological towers, where concerns exist relative to aerial spray applicators or infrared heating devices used to protect the monitoring equipment.
2	Not exceed 45 dBA, as measured at the closest neighboring non-participating residence.	Need to measure dBA and dBC levels or better yet DB(linear) which has no filter A 30 year infrasound study https://youtu.be/l5BV8QSR2Ic?t=76 Lecture about low frequency noise and infrasound and its effects on health, by Dr Mariana Alves-Pereira. Held in Gram, Denmark, on December 14, 2016. (speaker is in English with English captions when Danish is spoken) The World Health Organization defines Noise as Inanimate Mechanical Forces like the sound generated by hands clapping Noise Standards for Type 3 and 4 wind turbines: a. Audible noise levels (dBA) due to wind turbine operation shall not exceed either of the following two conditions: 1. The pre-construction ambient noise level by more than 5dBA as measured at any property line. Pre-construction ambient noise studies shall be conducted, by the applicant, for all properties located within 2 times the setback of proposed wind turbine site. 2. The audible noise levels will not exceed 40 dBA during the day or 35 dBA during the night. b. Low frequency noise levels (dBC) due to wind turbine operation as measured inside an occupied building or at any property line will not exceed: 1. 20 decibels (measured as dBC) above the pre-construction ambient noise level (measured as dBA). Pre-construction ambient noise studies shall be conducted, by the applicant, for all properties located within 2 times the setback of proposed wind turbine site. 2. 50 dBC.

		Property owners may waive these noise restrictions with a written Mitigation Waiver. (see Section 13.4 Mitigation Waiver) Noise measurement standards and procedures that must be used are contained in Appendix A. 13.2.3 Violations and Enforcement 13.2.3.1 A serious noise violation is defined as three (3) verified noise complaints as defined by a written or verbal complaint received by the Code Enforcement Officer attributed to the operation of a Wind Turbine within a period of one month or less with a measurable noise level greater than: 1) 10 dBA above the noise limits listed in section 13.2.1for Type 1 and Type 2 Turbines; or 2)10 dBA above pre-construction ambient noise levels or 50 dBC inside or at an Occupied Building. For serious violations the Owner/operator will respond within five (5) days of the complaint. Testing, if necessary, will be paid for by the Owner/operator and hired independently by the County, and will commence within ten working days of the complaint. Testing will be conducted for a minimum of a one-month period according to the measurement standards and procedures in Appendix A. The Owner/operator is responsible for mitigating the problem within ten (10) days from the Code Enforcement Officer's final determination of any cause attributed to the operation of the Wind Turbine. Failure to mitigate the problem will result in the Wind Turbine being declared unsafe and emergency shutdown procedures will be implemented per Section 22.4 of this Ordinance. 13.2.3.2 Noise violations not determined to be a serious violation pursuant To Section 13.2.3.1 shall be managed pursuant to Section 22.6. Testing, if necessary, shall be hired by the Enforcing Authority and will be paid for from the testing escrow account. Testing will be conducted for an appropriate period of time and conducted according to the measurement standards and procedures set forth in Appendix A. The Owner/operator is responsible for mitigating the problem within 30 days from a final determination of any cause attributed to the operation of the Wind Turbine Project. Mitigation involving significant construction or physical modification may have up to 90 days to be completed pursuant to Section 16.4.1.
3	Not exceed 30 hours per year of project shadow flicker at a non-participating residence.	Add specific fines or costs to the owner for violations. Require all Blades and towers be painted with matte non-reflective paint to reduce or eliminate the "disco" effect. 13.3 Shadow Flicker and Blade Reflection 13.3.1 Wind Turbines shall be designed and sited so that shadow flicker and/or blade reflection will not fall on a shadow flicker receptor as defined in Section 8. The flicker or reflection shall not exceed 10 hours per year for any given receptor. 13.3.2 Violations and Enforcement 13.3.2.1 A serious shadow flicker or blade reflection violation is defined as: 1) three (3) days of shadow flicker or blade reflection, in any one month falling on an Occupied Building receptor that, if annualized, will be estimated to be more than 20 hours per year. The predictive annualized calculation for Occupied Buildings shall assume clear weather, but take into account seasonal tracking of the sun. For serious violations the Owner/operator will respond within five (5) days of the complaint. Field verification and modeling, if necessary, will be hired by the Enforcing Authority and paid for from the testing escrow account. The Owner/operator is responsible for mitigating the problem within ten (10) days from the Code Enforcement Officer's final determination of any cause attributed to the operation of the Wind Turbine. Failure to mitigate the problem will result in the Wind Turbine being declared unsafe and emergency shutdown procedures will be implemented per Section 22.4 of this Ordinance. 13.3.2.2 Shadow flicker and blade reflection not determined to be a serious violation pursuant to Section 13.3.1, shall be managed pursuant to Section 22.6. Field verification and modeling, if

		necessary, will be hired by the Enforcing Authority and paid for from the testing escrow account. The Owner/operator is responsible for mitigating the problem within 30 days from a final determination by the Code Enforcement Officer of any cause attributed to the operation of the Wind Turbine Project. Mitigation involving significant construction or physical modification may have up to 90 days to be completed pursuant to Section 16.4.1.
4	Not be located within 1,000' of a non-participating residence, business, or public building.	A setback of 2 miles from the tower base to the non-participating owner's property line is recommended. Public Safety demands objective analysis, not political compromise. The 1000 foot setback is a political, for profit, setback and does not support health, safety, welfare and land value protection for county residents. https://www.youtube.com/watch?feature=youtu.be&v=w4oOLbfr6tI&app=desktop If the property line is a section line with public roads, at this distance, the ice throw or debris throw would easily present a health or life threatening hazard to the public Wind Ordinance Setbacks why 1000ft The setback was defined to allow the IWECS developer to "use" the non-participating landowner's property as part of the setback distance. The property line and not the foundation of the non-participating landowner's house should define the distance, placing the distance requirements squarely upon the participating owner and the developer. The 1000' setback distance for IWECS historically was most likely created by a wind industry legal team probably working with Florida Power & Light which is now NextEra. Setbacks from around the world There is no mention in any siting guidelines that the 1000' distance is required or necessary in any way for the proper operation of the turbine installation. This distance simply allows the developer to place the maximum number of turbines in the smallest space without regard for their proximity to neighboring homes. This 1000' distance does not even meet the minimum distance maintenance personnel are required to be from a malfunctioning IWECS turbine.

		This is supported by references to training documentation published by the turbine manufacturers for their employees responding to a malfunction of a turbine. They recommend a minimum distance range of 1300' to 1640' to maintain for safety from ice throw and "Component liberation" (blade throw), also cautioning those workers to stay up wind of the turbine which your house would be unable to do. Setbacks with Science not Politics A noteworthy thing is if the 2.3 MW GE Turbines with ±160 foot blades are usually separated by distances of 4 blade diameters (4x320' = 1280 feet) up to 10 blade diameters (10x320 = 3200 feet) apart. The average being 7 blade diameters or 2240 feet. Why the short 1000' setback from dwellings? **Setbacks.** The following setbacks and separation requirements shall apply to all wind turbines and meteorological towers. (1) **Structures**. Each wind turbine and meteorological tower shall be set back from the nearest off-site residence, school, hospital, church or public library, a distance no less than the greater of (a) one point one (1.1) times its total height or (b) one mile (5,280) feet. Distance from the residence of the landowner on whose property the tower(s) are erected shall be not less than five hundred (500) feet or one point one (1.1) times the system height, whichever is greater. For the purposes of this section only, the term "business" does not include agricultural uses. (2) **Property Lines**. At no time shall any part of the wind turbine and meteorological tower overhang an adjoining property without securing appropriate easements from adjoining property owners. Distance from property line shall be one mile (5,280) feet or one point one (1.1) times the system height depending upon which is greater, measured from ground surface to the tip of the blade when in a fully vertical position.
5	Not be located within 1.1 times the height of the tower to any property line.	The State of South Dakota defines the tower setback from the property line to the IWECS as 1.1 times the height of the tower (should define height as to tip of the blade at its highest point). This distance could be a holdover from the time when the towers were about 50' tall.
6	Be decommissioned if out of service for a continuous 12 month period. All equipment	Estimates show a cost of about $250K per tower to decommission. Excel Energy in California is currently using explosives to drop the towers. 23.0 Decommissioning Standards: 23.1 The Owner/operator shall, at its expense, complete decommissioning of the Wind Turbine Project within: 1) twelve (12) months after the end of the useful life of the Wind Turbine as determined by the Owner/operator or;

	above ground and three feet below ground shall be removed within 180 days.	2) as specified in the materials provided at the time of application or; 3) Pursuant to remedies described in Section 22.8, The Wind Turbine will be presumed to be at the end of its useful life if no electricity is generated for a continuous period of twelve (12) months. 23.2 Decommissioning shall include removal of wind turbines and foundations to a depth of 36 inches. All buildings, cabling, electrical components, roads, and any other associated facilities shall be removed unless, at the end of the Turbine or Wind Turbine Project's useful life, as determined in accordance with section 23.1, the Applicant provides written evidence of plans for continued beneficial use of these components of the Wind Turbine Project. 23.3 Except as otherwise provided by section 23.2, disturbed earth shall be graded and re-seeded, unless the Participating Landowner of the affected land requests otherwise in writing. Any alterations to County roads or property during decommissioning must be approved by the Town. 23.4 Special Decommissioning Standards for Type, 3 and 4 Wind Turbine Projects 23.4.1 An independent and certified Professional Engineer shall be retained to estimate the total cost of decommissioning ("Decommissioning Costs") without regard to salvage value of the equipment and the cost of decommissioning net salvage value of the equipment ("Net Decommissioning Costs"). The Planning Board shall review the estimates and determine the amount of decommissioning funds that must be guaranteed prior to operation of the Wind Turbine Project. Additional estimates by an independent and certified Professional Engineer shall be submitted to the Code Enforcement Officer every fifth year after approval, along with the application for renewal of the Operational License, and additional funds shall be guaranteed at that time if necessary in accordance with the revised estimate. 23.4.2 The Owner/operator shall post and maintain decommissioning funds in an amount equal to Net Decommissioning Costs; provided that at no point shall decommissioning funds be less than twenty five percent (25%) of Decommissioning Costs. The decommissioning funds shall be posted and maintained with a bonding company or Federal or State-chartered lending institution chosen by the Owner/operator and Participating Landowner posting the financial security, provided that the bonding company or lending institution is authorized to conduct such business within the State and is approved by Davison County, whose approval shall not be unreasonably withheld. Adequate funds shall be posted or guaranteed before the Code Enforcement Officer may issue an Operational License to the Owner/operator. 23.4.3 Decommissioning funds may be in the form of a performance bond, surety bond or other similar form of financial assurance as may be acceptable to the Davison County, whose approval shall not be unreasonably withheld. 23.4.4 If the Owner/operator fails to complete decommissioning within the period prescribed by Section 23.1, then the Participating Landowner shall have an additional six (6) months to complete decommissioning. 23.4.5 If neither the Owner/operator, nor the Participating Landowner completes decommissioning within the periods prescribed by Sections 23.4.1 and 23.4.4 the Wind Turbine or Wind Turbine Project shall be deemed to be in violation of this Ordinance and Davison County may take such measures as necessary, including court action, to ensure the completion of decommissioning. 23.4.6 The escrow agent may release the decommissioning funds when the Owner/operator has demonstrated and the Enforcement Authority concurs that the decommissioning has been satisfactorily completed, or upon written approval of the Town in order to implement the decommissioning plan.
7	Acquire waivers to be signed by those affected to allow a less	Non-participating Landowners may waive specified protections of setbacks, noise and shadow flicker in this Ordinance using the Mitigation Waiver format below, as negotiated between the wind turbine Applicant and the Non-participating Landowner. Copies of executed Mitigation Waivers must be included with the submission of the wind turbine application. The Mitigation Waiver must be recorded in the Davison County Register of Deeds, describe the benefited and burdened properties and run with the land. The deed must advise all subsequent owners of the burdened property.

	restrictive distance.	Davison County Wind Turbine Ordinance Revised: __/__/____ Mitigation Waiver Form THIS DECLARATION OF COVENANT is made by_____ (collectively, "Grantor"), the owner(s) of a certain lot or parcel of kind situated in Davison County and State of South Dakota, more particularly described in the deed dated_____ and recorded at the _____(hereinafter referred to as the "Servient Land"). WHEREAS _____ having a mailing address at _____ ("Grantee"), plans to construct and operate a wind power project, including wind turbine generators and towers and related equipment, facilities, infrastructure and substructures (hereinafter referred to as the "Wind Power Project"), on lands near the Servient Land, including (without limitation) the lands described on the attached Exhibit A; WHEREAS, the Wind Power Project may include activities that produce annoyance, inconvenience, or discomfort to Grantor in connection with its use and enjoyment of the Servient Land; and WHEREAS, Grantor has agreed to grant a perpetual negative covenant to Grantee, whereby Grantor covenants and agrees not to object to the Wind Power Project operations; Now, THEREFORE, for good and valuable consideration received, Grantor hereby grants a perpetual negative covenant to Grantee, whereby Grantor covenants and agrees for itself, its heirs, successors and assign, not to object to the Wind Power Project, or to any activities arising from the construction or operation of the Wind Power Project that produce annoyance, inconvenience, or discomfort to Grantor in connection with its use and enjoyment of the Servient Land. Without limiting the generality of the foregoing, Grantor hereby: (a) agrees not object to visual impacts, sound (including, without limitation, sound that exceeds otherwise applicable state or local maximum sound level limits for the Servient Land), shadow flicker, cell tower interference, or construction or operation impacts made or arising in connection with the Wind Power Project; and (b) waives, releases, and forever discharges Grantee from any action, claim, suit or proceeding in equity, law and/or administrative proceeding that Grantor may now have or may have in the future against Grantee (including, without limitation, any claim of negligence, public or private-nuisance, trespass, or infliction of emotional distress) relating to any effect of the construction or operation of the Wind Power Project upon Grantor's use and enjoyment of the Servient Land.

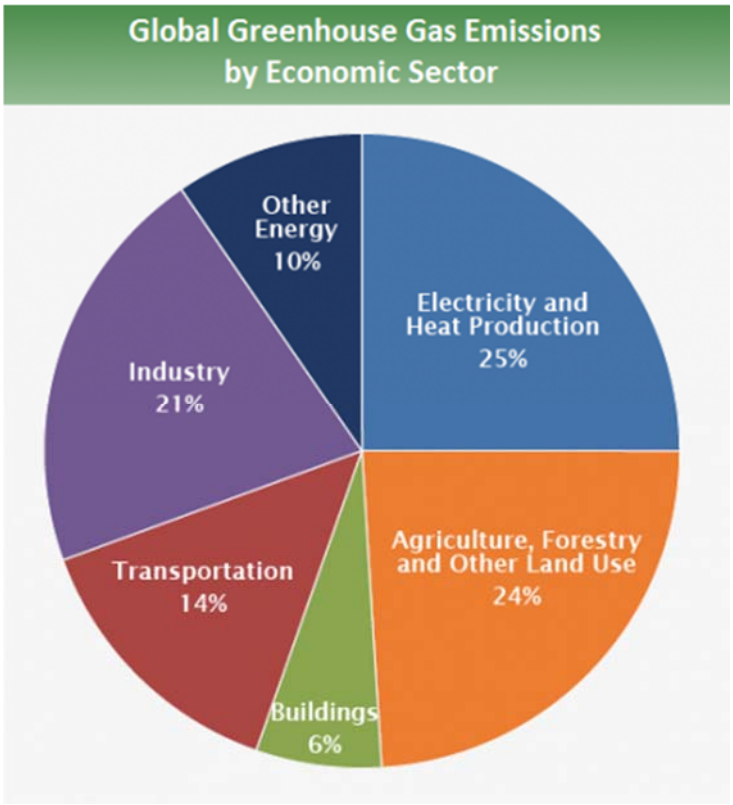
		This Declaration of Covenant shall extend to, be binding upon and shall inure to the benefit of heirs, personal representatives, successors and assigns of the parties hereto. The burden of the negative covenant hereby granted shall run with the Servient Land. The benefit of the negative covenant hereby granted is not appurtenant to any particular property, but shall be transferable in whole or in part, and may be sold, leased, assigned, pledged, and mortgaged by Grantee, it being the intent of the parties that such benefit maybe transferred to any successors or assignees of Grantee that own or operate the Wind Power Project, as it may be modified, divided or expanded. The benefit of the negative covenant hereby granted may be enforced by Grantee, its successors and assigns, by any appropriate legal or equitable remedy. In the event that Grantee, its successors or assigns, shall bring an action against Grantor, it's successors or assigns, by reason of a breach or violation of this negative covenant by Grantor, it's successors and assigns, the substantially prevailing party in such action shall be entitled to recover their reasonable attorneys' fees and court costs incurred in such action from the substantially non-prevailing party. Davison County Wind Turbine Ordinance Revised: __/___/_____ Witness our hands and seals_____ day of _____, _____ In the presence of: GRANTOR _____ _____ Print _____ STATE OF:_____ COUNTY OF:_____ Personally appeared the above-named_____ and acknowledged the foregoing instrument to be his/her/their free act and deed. Before me, Notary Public/Attorney-at-Law Print Name:_____ My Commission Expires: _____
8	Submit a conditional Use Application to be considered.	
9	Obtain any access permits from the road authority, to include the	Strongly urge that the Administrator use the Freedom Maine Wind Ordinance to explore their permitting procedure and attendant fee structure to offset costs and protect the county.

	Highway Superintendent or Township Chairman.	
10	Obtain a road use and maintenance agreement with the road authority (s).	
11	Obtain a building permit.	
12	Not damage any private or county coordinated drainage Systems. Any repairs will be the responsibility of the developer.	

Why even bother hosting Industrial Wind Energy Conversion Systems in Davison County?

How does the Wind Industry satisfy the intent let alone the reality of what the Davison County Ordinances call for when they say:

> "granting of the conditional use will not adversely affect the public interest."
>
> "grant conditional uses with such conditions and safeguards as appropriate under this Ordinance, or to deny conditional uses when not in harmony with the purpose and intent of this Ordinance."
>
> "general compatibility with adjacent properties and other property in the district"
>
> "economic effect and compatibility and harmony with properties in the district"



We know this push is to reduce greenhouse gases especially those from coal fired electric baseload plants. I was surprised to learn that agriculture, especially "cow flatulence" is a major contributor. Who knew?

http://www3.epa.gov/climatechange/ghgemissions/global.html or this

http://www.worldwatch.org/agriculture-and-livestock-remain-major-sourcesgreenhouse-gas-emissions-0

Wind energy conversion can never 100% replace our current fossil fuel generation plants because it has no storage capabilities. (Estimates say it may be able to supply around 20% but after 24 yrs. we are only at about 5%) Wind power is not a standalone technology. It is totally dependent on the weather systems which either blow or don't, hard or soft, at whatever time of day or night. Often, more at night than during the day. https://www.llnl.gov/news/power-generation-blowing-wind

This largely unpredictable performance also requires "baseload" generating plants to be constantly spinning to make up for times when the wind isn't blowing.

Production Tax Credit – We are already paying for them

The Federal Gov't is in the business of subsidies. Because this money is from our taxes, we tax payers do have a real stake in this industry and historically, without the subsidies, wind power development grinds to a halt. The PTC or Production Tax Credit was renewed for 2016 and beyond and this will no doubt increase the building of wind projects. This along with other incentives like loan guarantees and special 200% 5 year declining depreciation options makes this very lucrative for large corporations looking to pay taxes on their passive income.

Here are the PTC legislation's details:
For the PTC (Sec. 301 of the bill), wind projects that started construction in 2015 and 2016 receive a full value PTC of 2.3 cents per kilowatt hour. For projects that begin construction in 2017, the credit is at 80 percent of full value; in 2018, 60 percent PTC; and in 2019, 40 percent PTC.
Similarly, for the ITC election for wind energy (Sec. 302 of the bill), projects that started construction in 2015 and 2016 are eligible for a full 30 percent ITC; for 2017, a 24 percent ITC; for 2018, an 18 percent ITC; and in 2019, a 12 percent ITC.
As before, the rules will allow wind projects to qualify as long as they start construction before the end of the period.

Power Purchase Agreements

If the Wind Projects have a PPA (Power Purchase Agreement) with a utility like Northwestern Energy, they are also paid an agreed contract price which is estimated to be 2.5 to 3.0 cents per kilowatt hour. Utilities and wind

With the drop in natural gas prices below $6.00, the wind industry is struggling. Watch this: https://youtu.be/pAVARYFA4Fw Boone Pickens talks briefly about wind power.

Even more, the policy changes coming about in the Trump administration are creating further havoc in this feeding frenzy to the point where many wind developers are invoking a 1978 law called PURPA or Public Utility Regulatory Policies Act. Where it was intended to promote small energy installations it is now being "gamed" when large installations are split into small segments to qualify for the right to force suppliers to purchase energy at prices higher than wholesale market prices. http://energycentral.com/c/um/gaming-purpa

This forces our suppliers to charge more and our electric rates increase because of it. This is happening now with the Prairie Winds Project near Avon, SD. Closer to home, for over a year, Northwestern Energy has been fighting Juhl Energy in court where Juhl is demanding 6.07¢ per kilowatt hour and Northwestern Energy is saying 2.435¢. That's 60% higher. Further cause for concern is that Juhl Energy was purchased by Consolidated Edison

Development which has "inherited" the court battle. You can read about both of these in back issues of the Daily Republic.

Renewable Portfolio Standards and Goals

South Dakota is already doing it's part

The states became involved when the Feds asked them to submit an RPS or Renewable Portfolio Standards and Goals where use of wind generated electricity was mandated. Twenty-nine states have signed up. It's notable that Texas, a wind leader, recently dropped its RPS. Texas Ends RPS Here is more on RPS. http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx . What the RPS does is also force the states' businesses and suppliers to use renewable energy. With the prices for natural gas and subsidies for wind dropping, and the cost for wind conversion on the rise, our electric rates are increasing.

In 2008 South Dakota agreed to reach 10% of our usage through conservation and renewable means by 2015. South Dakota achieved that goal easily and now in 2017 we stand 9th in the nation (6 states tied for first) for renewable energy production with 93.87%. By both standards, SD is way ahead of its goals. https://energy.gov/maps/renewable-energy-production-state

South Dakota Wind Tax

The State of South Dakota retains the taxing authority for wind generation and recently reduced the tax rate it charges wind energy producers in an attempt to be more competitive with neighboring states. That in turn reduced the money that filters down to the county level. South Dakota reduces wind tax

I mention this because as a county we host Wind Projects but the only control we have over them regarding costs come from imposing increased fees to compensate the County Zoning office for the additional work load of managing them. If we don't charge them it will just increase out costs.

Also in 2016, South Dakota Senate Bill SB131 the (section 6B) deals with revenue from Wind Projects***: (6B) Wind energy tax revenue ….. However, any wind energy tax revenue apportioned to a school district from a wind farm producing power for the first time after June 30, 2016, one hundred percent shall be retained by the school district to which the tax revenue is apportioned for the first five years of producing power, eighty percent for***

the sixth year, sixty percent for the seventh year, forty percent for the eighth year, twenty percent for the ninth year, and zero percent thereafter;

Because the tax revenue designated for schools is now deceasing to zero over a 10 year period, the result is a substantial reduction in wind tax revenue for the school districts hosting the wind projects. This makes hosting the wind projects far less attractive than before. Add to that the absence of any inflation adjustment to the revenue stream, it turns the developers' promise of millions of dollars over the 30 year life of their project into the question "Is it really worth it?"

Industrial Wind Energy Conversion projects are not value-added agriculture. They are an industry.

Not just anybody builds these huge generation plants and if you would care to read about who does, read this http://www.aweo.org/Schleede.html. Some of the information is dated. This site talks about big investors. Forbes - Business and Wind

How much of its rated capacity does a wind conversion turbine deliver annually? They are not very efficient. The US Energy Information Administration says they have an average **34.7%** capacity factor for the year 2016.
http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_6_07_b

A wind project the same size as Juhl's even with 2017 PTC of 1.84 cents per kWh is estimated to gross about ***2.7 million dollars annually*** if they can, using PURPA, sell their output by forcing a supplier like Northwestern Energy or a Co-op like Central Electric to purchase electricity for 2.5 cents.

That's the reason why the large domestic and multinational companies are pushing so hard to develop and own wind energy conversion sites. It speaks to their opportunistic choice of sites like Davison County and their lack of concern for the surrounding land owners.

Wind Projects and Negative Pricing? – what's that?

If that isn't enough, wind producers are actually paying grid operators to take electricity off their hands. Why? Wind energy producers get money for generating renewable electricity, but to qualify for these federal tax credits, the generation must be purchased and fed to an electric grid. As long as the money paid to the grid operator to take excess or "unwanted" electricity is less than the federal tax credit, the wind producer can make a profit.

Basically we pay them to produce unusable energy.

Take a look at this and scratch your head. Negative Pricing of Wind Power? There's a euphemism or here on another site Wind Farms pay to Get Rid of Power

And just when we thought this fiasco was over, we find that when the energy is placed on the grid, the Wind Producer receives a Renewable Energy Credit (REC) or 'green tag' for every 1000 kWh they sell. A designated agency certifies the production and issues a number for each certificate. These are then sold to brokers who resell them on the market.
By purchasing green energy credits, corporations, states, Government entities (air force bases are big buyers) and even individuals can meet the requirements set by the laws of that state requiring the use of renewable energy. It's a balancing act where solar and wind energy created in one part of the country can be used to offset use of fossil fuels in another state.

The money they get from selling the proof that they generated and sold 1000 kWh on the grid goes back in their coffers as additional income. And we the taxpayers are picking up the tab. Think about it, we are paying them twice for energy that is not needed and if they were doing "the right thing", they would shut down the turbines and wait until there was a positive market.

Property Values and Setbacks

Loss of property value by non-participating owners is supported by studies done by appraisers other than those paid for by the wind energy people. Just the use of common sense will tell you that property you own near an Industrial Wind Electrical Conversion System (IWECS) will be devalued by their presence.

The following is a copy of the first few pages of a report prepared by McCann Appraisal, LLC. I urge you to read the entire report by following the link below.

SUMMARY OF OPINIONS & RECOMMENDATIONS

Opinions

1. Residential property values are adversely and measurably impacted by close proximity of industrial-scale wind energy turbine projects to the residential properties, with value losses measured up to 2-miles from the nearest turbine(s), in some instances.

2. Impacts are most pronounced within "footprint" of such projects, and many ground-zero homes have been completely unmarketable, thus depriving many homeowners of reasonable market-based liquidity or pre-existing home equity.

3. Noise and sleep disturbance issues are mostly affecting people within 2-miles of

the nearest turbines and 1-mile distances are commonplace, with many variables and fluctuating range of results occurring on a household by household basis.

4. Real estate sale data typically reveals a range of 25% to approximately 40% of value loss, with some instances of total loss as measured by abandonment and demolition of homes, some bought out by wind energy developers and others exhibiting nearly complete loss of marketability.

5. Serious impact to the "use & enjoyment" of many homes is an on-going occurrence, and many people are on record as confirming they have rented other dwellings, either individual families or as a homeowner group-funded mitigation response for use on nights when noise levels are increased well above ambient background noise and render their existing homes untenable.

6. Reports often cited by industry in support of claims that there is no property value, noise or health impacts are often mischaracterized, misquoted and/or are unreliable. The two most recent reports touted by wind developers and completed in December 2009 contain executive summaries that are so thoroughly cross-contingent that they are better described as "disclaimers" of the studies rather than solid, scientifically supported conclusions. Both reports ignore or fail to study very relevant and observable issues and trends.

7. If Adams County approves a setback of 1,000 feet, 1,500 feet, or any distance less than 2-miles, these types of property use and property value impacts are likely to occur to the detriment of Adams County residences and citizens for which the nearest turbines are proposed to be located.

8. The approval of wind energy projects within close proximity to occupied homes is tantamount to an inverse condemnation, or regulatory taking of private property rights, as the noise and impacts are in some respects a physical invasion, an easement in gross over neighboring properties, and the direct impacts reduce property values and the rights of nearby neighbors.

9. A market value reduction of $6.5 million is projected for the residential property

located in the footprint and within 2-miles of the pending Prairie Mills project located in east Adams County.

Recommendations

Therefore, if the County Board should choose to adopt the industry requested minimal setbacks, or some other setback of less than 2-miles from residential uses or occupied dwellings or structures such as schools, churches and nursing homes, I have developed a series of recommendations that would at least partially mitigate the widely experienced impacts prevalent with industrial scale wind turbines developments, as follows:

1. A Property Value Guarantee (PVG) should be required of the developer(s), significantly similar to the PVG attached hereto as Appendix A. A Countycontrolled fund or developer bond should be required to guarantee no undue delay in PVG payment(s) to legitimately affected homeowners, and/or to buy out homeowners located within 2-miles of any turbines if they elect to relocate away from the turbine project(s) and cannot sell for the pre-project market value of their properties. Such a guarantee is nominal in cost, relative to total project costs, and are used to condition high impact land use approvals such as landfills and even limestone quarries, as well as other wind energy developments (i.e. DeKalb County, Illinois, etc.)

2. An alternative to the bonding element of Recommendation # 1 would be to require that the developer(s) obtain a specialized insurance policy from a highrisk insurance carrier or legitimate insurer, such as Lloyds of London, if they will even insure against such impacts. If Lloyds was unwilling to provide such insurance, however, that should be compelling to the County that professional risk-management actuaries find such projects too risky for even them to insure. Under those possible circumstances the burden of risk is fairly placed with the developer, rather than the residential occupants who are being surrounded or otherwise directly impacted by close proximity of the projects.

3. If Adams County decides to permit projects, the limited evidence of impacts beyond a 2-mile setback would mitigate against the need for a PVG as cited in recommendation # 1.

4. If Adams County decides to permit projects, I recommend that the County require developer funding and a plan to constantly monitor not only sound levels in decibels, but also in low frequency noise emissions from the turbines utilizing the best available technology, or at least homeowner reports and logs. There is significant evidence and personal accounts confirming that low frequency sound/noise is "felt" by nearby occupants, and, as I understand it, cannot be measured by decibels as audible noise is typically measured. Disclosure of the owner's actual experience to prospective buyers is necessary from both an ethical perspective and, I believe potentially under the Illinois Real Property Disclosure Act, as a "known" defect or detrimental condition. Thus, documentation should be created at the cost of the developer(s), to insure that appropriate disclosures can be made to any prospective buyer(s) of homes within the 2-mile zone.

5. Appropriate devices should be installed at the developers expense at all occupied dwellings and property lines within a 2-mile distance of any turbines, and the County should retain the ability to immediately enforce the shut-down of any turbines exceeding a level of 10 decibels or more above ambient background noise levels from any property/home experiencing that exceeded noise level. The proximity of constant or frequent noise sources is an adverse impact to the use and enjoyment of a residential property, and indicates a basis for loss of property value.

6. An alternative to recommendation # 5 would be to place a limit on hours of operation, requiring turbines within 2 miles of any occupied (non-participating) dwelling be shut off during normal sleeping hours (i.e. 10 p.m. to 7 a.m.).

7. If the County finds that the wind energy projects are desirable from a economic

development goal or perspective, or for the “public good”, I recommend that “footprint” and 2-mile distant neighboring homeowners (measured to lot line from the furthest span of turbine blades) be afforded the opportunity to sell to either the developer or the County, with possible use of eminent domain powers employed by the County, on behalf of and at the expense of the developer(s).

8. The financial assurance for decommissioning and reclamation of wind turbine pad sites, i.e., a bonding requirement, is also recommended as a County condition. To demonstrate solvency companies should pay the bond requirements before starting construction. It’s basically insurance in case the company goes bankrupt or otherwise abandons the wind project without taking down the turbines and reclaiming the land. Coal mines, quarries, landfills and drilling companies have similar bond or financial assurance requirements.

9. An aesthetic landscaping requirement for wind project developers to plant mature trees or groves to shield the view between residential properties and turbines. Evergreens planted along property lines and/or other types of trees strategically planted between residential windows and turbines would partially alleviate aesthetic impacts from turbines.

10. The County should consider a moratorium on wind energy project development(s) in Adams County, until such time as:

 A thorough and complete Wind Energy Ordinance is developed and adopted by the County, which incorporates all the protection and authority of zoning, building and health codes.

Appropriate Conditional or Special Use standards are developed and adopted, to insure wind developers carry the burden of their for-profit projects rather than the hosting jurisdiction(s) and/or neighboring property owners.

The actual experiences of numerous existing turbine neighbors is documented thoroughly by an impartial group of professionals with

appropriate qualifications in the various relevant fields of expertise, i.e., acoustic engineers, medical sciences, valuation professionals, etc.

The preceding recommendations are not intended to be all inclusive or to address all wind energy project issues and impacts. They are intended to address issues that affect the public health, safety and welfare of area residents, as well as their property values.

The property value diminution is the single most important issue here. There are many people who have been more articulate than I in stating the position of the neighboring nonparticipating landowners concerning Wind Energy Conversion. If you click on none of the other hyperlinks I included, please click on these four and read them.

McCann-appraisal-6-8-10.pdf

McCann addresses a county board

McCann Appraisal Lincoln Co SD

His appraisal on Wind Farms and Property Values

Woods and Fuller response Lincoln Co

Response to Dakota Power Community Wind on

Commercial Wind Energy Conversion Sites (CWECS)

http://windwisema.org/mccann-summarizes-property-value-studies/

Except for the vista issue and attendant loss of value with that, all other issues could be addressed by mandating a 3 mile setback.

If the setbacks are not placed at these distances, reduced noise level requirements and noise measurements and controls as well as Property Value Guarantees would be necessary.

Setbacks or guarantees - one or the other!

Noise and Infrasound

You've all heard the phrase "so quiet you could hear a pin drop". We all understand that, if it's quiet we can hear other sounds better. The same is true for the noise of the wind turbines. Developers trot out the common 45dB as a background level and conveniently forget that the background level in rural SD, at night is closer to 30dBs.

This sheet probably says it better.
Fact Sheet on Wind Turbine Noise

Look at pages 178 to 186 of this report
http://www.pacifichydro.com.au/files/2015/01/Cape-Bridgewater-AcousticReport.pdf

http://www.pacifichydro.com.au/files/2015/02/Portland-community-meetingPresentation-by-Steven-Cooper.pdf

I suggest you visit this site and read about the reference of wind turbine noise to a refrigerator. http://betterplan.squarespace.com/todays-special/2008/5/30/53008-who-said-an-industrial-wind-turbine-is-no-louderthan.html

General Electric says that their wind turbine blades create about 105 to 107 decibels of noise and at approximately 1000 feet away that noise level is reduced to 43 decibels. That's for only one turbine. Increasing the number of turbines to nine increases these figures by 9.5 decibels. Decibel Calculator Noise output of the generators varies with wind speed as much as 10 decibels while running, with levels increasing in higher winds.

Using their figures the loudest sounds at 1000 feet would now be somewhere between 43 and 53 decibels (accounting for 9 turbines) and could reach as high as 63dBs in higher winds. That would sound to us 4 times louder than they said. Then at night when the ambient background level drops to around 30dB and there are high winds aloft, that same 63dB is now 8 times louder in that quiet nighttime environment. What would you do with your refrigerator if it became 8 times louder at night? What are the chances of moving those concrete anchored 450ft high, multi-ton "refrigerators"? They're about ½ the height of the Eiffel Tower.
It would be a lot easier to locate them far from the residences before they are built.

On GE's website it says:

For the stillest, most rural areas, Longtin says the background noise is 30 decibels. At that level, a turbine located about a mile away wouldn't be heard. How loud is a wind turbine?
The EPA did a study in 1974 when trying to site military airbases. They found that increased noise level variations or fluctuations from the background level values was the single most disturbing factor to citizens and prompted the most negative response.
EPA 1974 Study EPA Report

Infrasound

https://en.wikipedia.org/wiki/Infrasound
There are many sources of infrasound but Wind Conversion developers would, it seems, have us believe that only infrasound produced by wind turbines is not detrimental to humans. Low frequency sounds travel immense distances as demonstrated by their use by the National Institute of Standards and Technology in resetting your "atomic clock". These low level sound waves do cause distress in humans and have been studied and used by Military and Law Enforcement as weapons. Sonicweapon It is also a fact that infrasound is produced by wind turbine blades. Their existence and effects are not in dispute. It seems that people with motion sickness are especially susceptible and the effect on humans is said to mimic the symptoms of motion sickness. Do you suffer from motion sickness? Do you know someone who does? Estimates of those who suffer range from a low of 25% to higher than 40% of the population. We have wrist bands, drugs, etc. to help relieve these symptoms, but scientists still do not know the exact mechanism nor do we have a cure.

Is it so improbable to believe that low frequency sounds, which are inaudible to humans, could affect our bodies the same way motion from riding in cars, airplanes or boats does? Denying the negative effects of sound waves we can't hear, or infrasound, is like denying that no harm will come to your skin from light we can't see. How about invisible ultraviolet light? Or radiation? We didn't always know about that stuff either.

It seems that people with motion sickness are especially susceptible and the effect on humans is said to mimic the symptoms of motion sickness. Knowing that you or someone in your family suffers motion sickness would you gamble on placing a source of infrasound near your home? If you did and then found you couldn't live there would you have to disclose that fact on the form you sign when selling your property? Would the home inspection report need to mention the likely presence of this unknown and do you think a prospective buyer would willing choose to purchase your property even at a discounted price?

Developers of wind conversion sites consistently respond to these complaints stating that there are no scientific studies that prove that it is harmful to humans and yet there are no studies done by the developers that scientifically prove that it is not harmful.

Beyond 3 miles the effects of infrasound are minimal. Larger wind turbines with longer and more flexible blades as in turbines with 2MW power rating and up suggest worsening effects as these larger, slower-rotating wind turbines are sited near people.

These sites are a great source of noise information.

Wind Turbine Noise Fact Sheet

Wind turbine noise Part 1

Wind turbine noise Part 2

Wind turbine noise Part 3

http://randacoustics.com/wind-turbine-sound/annoyance/

http://www.epa.gov/aboutepa/epa-identifies-noise-levels-affecting-health-and-welfare

Arial Spraying

> Most who do work around wind turbines charge more. The most common number I have heard is 50 percent more. Some are considering charging an hourly rate instead of a per-acre rate. This makes sense since the pilot would have less pressure to rack up acres and could take the time to plan each pass.
>
> http://www.agaviation.org/sprayornotspray
>
> https://www.ag.ndsu.edu/news/columns/biofuels-economics/new-energyeconomics-unintended-effects-of-wind-energy-2013-aerial-spraying/

Wildlife Issues

> Besides the Bird and bat kill issues
>
> *In areas with large numbers of ground wildlife, the increased noise, especially at night, will reduce the listening radius. This is the distance at which each animals mating and other calls can be heard and the distance at which an approaching predator is heard. A decrease in the listening radius results in reduced mating opportunity and less time to respond to sounds from predators, both of which adversely impact population size. –* ***Richard James, INCE, BME***

Fire

A big concern and one that often ends up in the landowner's lap. Does the developer claim any responsibility and liability for fire damage caused to crops on neighboring properties?