

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA

**IN THE MATTER OF THE APPLICATION  
BY CROWNED RIDGE WIND, LLC FOR A  
PERMIT OF A WIND ENERGY FACILITY  
IN GRANT AND CODINGTON COUNTIES**

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)  
)  
)

APPLICATION FOR PARTY  
STATUS

**9@%0!\$03**

\_\_\_\_\_  
(Name of Applicant, this will be the person or entity named as a party)

petitions the Public Utilities Commission to be granted party status in the above-referenced facility permit proceeding.  
Pursuant to SDCL 49-41B-17 and ARSD 20:10:22:40

Briefly explain your interest in this permit proceeding. Form is limited to 1000 characters.  
(Example: Landowner in project area).

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Print or Type Name

Address: \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
E-mail Address

\_\_\_\_\_  
Name of Organization (if applicable)

\_\_\_\_\_  
Date

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_.

\_\_\_\_\_  
Notary Public

(Seal)

My Commission expires: \_\_\_\_\_

NOTE: Consistent with SDCL 49-41B-17 and ARSD 20:10:22:40, this application must be filed with the Public Utilities Commission on or before 5:00 p.m. CDT, April 1, 2019, unless the deadline is extended by the Commission.

Executive Director  
South Dakota Public Utilities Commission  
500 E. Capitol Ave.  
Pierre, SD 57501-5070  
Electronic Filing: <http://puc.sd.gov/EFilingOptions.aspx>

001200

# 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](http://www.legis.sd.gov/Statutes/Codified_Laws)) and South Dakota Administrative Rules Chapter 20:10:22 ([www.legis.sd.gov/rules](http://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.

**Review the electronic docket.** A docket is the continually updated collection of documents filed with the commission for a particular case. Dockets are accessible under the Commission Actions tab on the PUC website, [www.puc.sd.gov](http://www.puc.sd.gov). Dockets are labeled to correspond with their type and filing date. For example, the Crowned Ridge wind energy facility docket is EL19-003; EL for electric, 19 for the year 2019 and 003 to indicate it was the 3rd electric docket filed with the commission in 2019.

**Attend a public input hearing.** The PUC will hold a public input hearing on a siting case, with 30 days notice, as physically close as practical to the proposed facility site. At the hearing, the applicant describes its project and the public may ask questions and offer comment. PUC commissioners and staff attend this hearing. The discussion is documented and becomes part of the record.

**Submit comments.** Members of the public are encouraged to submit written comments about an active siting case to the PUC. These informal public comments are reviewed and considered by the PUC commissioners and staff. Comments should include the docket number or siting project name, commenter's full name, mailing address, e-mail address and phone number. These comments should be emailed to [puc@state.sd.us](mailto:puc@state.sd.us) or mailed or hand-delivered to PUC, 500 E. Capitol Ave., Pierre, SD 57501. Comments are posted in the "Comments" section of the docket within a reasonable time after having been received. The commenter's name, city and state will be posted along with their comment. Comments received from businesses, organizations or other commercial entities (on letterhead, for example) will include the full contact information for such.

Please follow these guidelines when submitting written comments to the PUC:

- For comments sent by email, the maximum file size is 10 MB. If you have questions, please contact South Dakota PUC staff at 605-773-3201 (Monday – Friday, 8 a.m. – 5 p.m. Central Time).
- For comments sent by U.S. mail or hand delivered, no more than twenty (20) 8.5" x 11" pages, including attachments and support materials, should be submitted with a comment. Sheets with printing on both sides are counted as two pages.
- A reference document, article or other attachment not written by the person commenting should clearly identify the source of

the content. The inclusion of any copyrighted material without accompanying proof of the commenter's explicit right to redistribute that material will result in the material being rejected.

- In instances where individual comments are deemed to be a duplicate or near duplicate copies of a mass message campaign, the PUC will post only a representative sample and list the name, city and state of the commenter.
- Comments containing threatening language or profanity will be rejected.
- Multimedia submissions such as audio and video files will not be accepted as written comments.
- Electronic links will not be accepted.

**Become an intervenor.** Individuals who wish to be formal parties in a siting case may apply to the PUC for intervenor status. The intervention deadline is clearly indicated within the docket. Intervention is appropriate for people who intend to actively participate in the case through legal motions, discovery (requests for facts or documents), the written preparation and presentation of actual evidence, and in-person participation in a formal hearing. Intervenors are legally obligated to respond to discovery from other parties and to submit to cross-examination at a formal hearing. Individuals seeking only to follow the progress of a siting case or to offer comments for the PUC's consideration need not become intervenors.

**Communicate on record.** Verbal communication between a commissioner and a person with an interest in a matter before the commission that does not occur in a public forum or as part of the official record should be avoided. Those who communicate in writing with a commissioner about an open or imminent docket matter should understand that their comments will become part of the official record and subject to review by all parties and the public. Likewise, comments made at a PUC public proceeding or submitted to the commission relative to a docket matter become part of the record, open to review by all parties and the public. Because commissioners have a decision-making role in docket matters, any discussion with a commissioner about an open or imminent docket must take place in an open forum, such as a public meeting, with notice given to all parties.

**South Dakota Public Utilities Commission**  
500 E. Capitol Ave., Pierre, SD 57501  
1-800-332-1782; 605-773-3201  
[www.puc.sd.gov](http://www.puc.sd.gov); [puc@state.sd.us](mailto:puc@state.sd.us)

South Dakota Public Utilities Commission

EL19-003- In the Matter of the Application by Crown Bridge Wind, LLC for a Permit of a Wind Energy Facility in Grant and Codington Counties – Public Input Hearing

March 20, 2019, 5:30 p.m.

Waverly – Waverly-South Shore School Gymnasium, 319 Mary Place, Waverly, S.D.

Please Print Legibly

Person	City/State
Charles Noeldner	So Shore S.D.
Garry Ehlebracht	Goodusly, SD
John Irish	South Shore, SD
Kathy Minatra	Waverly SD
Verla Peterson	LaBolt, SD
Paul Peterson	LaBolt, SD
Lina Lindgren	South Shore, S.D.
Stephanie Pauli	millbank, SD
Josh Akers	Bismarck, ND
Myron Johnson	Watertown S.D.
Russ Lloyd	Lubbock, TX
Mark Tensen	Watertown S.D.
Kathy Wallman	Stockholm SD
Bridget Johnson	Waverly,
Paul C. Larson	Stockholm, S.D.
Mark Buchholz	Watertown, SD
Bob Spauld	LaBolt S.D.
David Olson	Stockholm
Wm Tostenson	Twin Brooks

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Please Print Legibly

Person	City/State
Loretta Kranz	Goodwin SD
Nancy Ryland	Waverly SD
Tony Ryland	Waverly SD
Tom Paulson	Watertown SD
Mikel Johnson	Milbank SD
Mark Comes	Waverly SD
Rick Hartley	Watertown, SD
ROGER ANGERHOFER	MILBANK, SD
Wayne Borgherink	Waverly, SD
J.R. COMEAU	LAFAYETTE, LA
Dewey Zemelicka	Wtn, SD
Kimberly	Stockholm, SD
Ken Peterson	Stockholm, SD
Luke Peterson	Stockholm, SD
Ted Gramm	Glenwood MN
Bill Street	Milbank SD
Vern Hinkle	Strandberg S.D.
Celesta Buchholz	Watertown SD
Patricia	Waverly SD

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**Please Print Legibly**

Person

City/State

BOB SCHEMING SOUTH SHORE SD

Bryan Garner Juno Beach, FL

Richard Lampeter Maynard, MA

Gary Grangvist Stockton SD

Mark Grangvist Milbank S.D.

Jason Utten Juno Beach FL

Daryl Hart Juno Beach, FL

FOXANNE REYES JUNO BEACH, FL

Al Polish Strandburg SD

Sarah Suppington Bismarck, ND

Jay Haley Grand Forks, ND

Sam Morsey Juno Beach, FL

David L. Kett Waverly SD

KEN TURBAK WATERTOWN

Edward Raml Goodwin S.D.

Charles Appelhof Goodwin SD

Jon [Signature] Bloomington, MN

Kenneth Gross Waverly S.D.

Jo Ann Comer Waverly S.D.

South Dakota Public Utilities Commission

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Please Print Legibly

Person	City/State
Chris Olson	Ancaster, Ontario, Canada
CARY STEEN	WATERTOWN, S.D.
Brian Murphy	Jupiter FL
Miles Schumacher	Sioux Falls SD
Matt Krausz, Jr	Wfk. S.D.
Kristi Mogen	Twin Brooks SD
AMBER CHRISTENSEN	STRANDBURG SD
Cory Olson	Juno Beach, FL.
TILER WILHELM	JUNO BEACH, FL.
Jason Rasm	Kranzburg S.D.
Jamie Gentile	Juno Beach, FL
MICHELLE Phillips	Houston, TX
Kym Turbale	Watertown SD
Dan G. H. H.	Leadville SD
Amita Rasm	Goodwin SD
Shirley & Suzanne Anderson	Wtn S.D.
Steve Rasm	STRANDBURG
Brian Riniker	Sioux Falls
John Fox	stockholm SD

South Dakota Public Utilities Commission

EL13-03- In the Matter of the Application by Crowned Ridge Wind, LLC for a Permit of a Wind Energy Facility in Grant and Codington Counties - Public Input Hearing

March 20, 2019, 5:30 p.m.

Waverly - Waverly-South Shore School Gymnasium, 319 Mary Place, Waverly, S.D.

Please Print Legibly

Person	City/State
Jim Michol	Lake Benton MN
Pose Steen	Watertown SD
Mark Thompson	Watertown SD
Yvonne Pauli	Watertown SD
Nicholas Burg	Milbank SD
Brittany Bruce	Juno, Florida
DENNIS KORBEL	GOODWIN, S. D.
Margaret Korbel	Goodwin, S. D.
Dale Plunkett	Kranzburg SD
Kim Wells	Katy, TX
Bernice Steen	Watertown SD
JACK SPARTZ	Watertown S.D.
Mike Raul	Kranzburg
Leo Karpas	Watertown
David Schultz	Milbank, SD
Tom Raul	Sour Lake
Mindy Marks	Stockholm SD
Rich Raul	Taucha
Melvin Raul	Stockholm SD

South Dakota Public Utilities Commission

003- In the Matter of the Application by Crowned Ridge Wind, LLC for a Permit of a Wind Energy Facility  
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Person

City/State

Chris Noeldner

Watertown SD

DAVE OMTAUS

Goodwin SD.

Jan Rudebusch

Watertown SD

Linda Lindgren

South Shore, SD

Darrel Smith

Milbank SD

Connie Hartley

Wth. SD

Shirley Bell

SFSD

# Crowned Ridge Wind Project

South Dakota PUC  
Public Input Hearing  
Waverly, South Dakota  
March 20, 2018



# Applicant overview

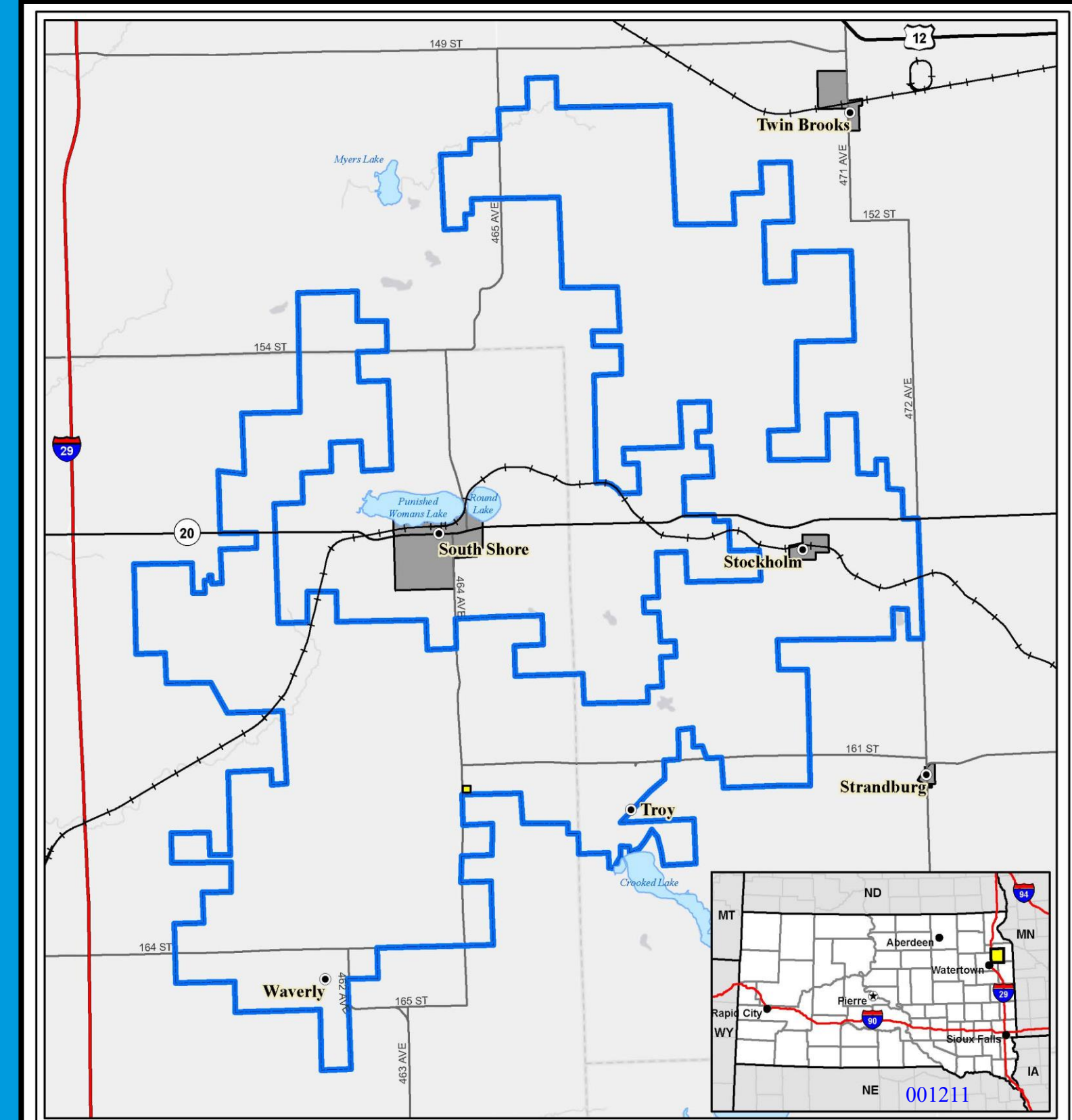
- ▶ Crowned Ridge Wind, LLC (CRW) is a wholly owned, indirect subsidiary of NextEra Energy Resources, LLC (NEER)
- ▶ American owned and operated, NEER is the world's largest generator of renewable energy from the wind and sun
- ▶ NEER affiliates own and operate 118 wind farms across the United States and Canada
- ▶ NEER currently owns and operates three wind farms in the state of South Dakota
  - » South Dakota Wind, Day County Wind and Wessington Springs



**world's  
#1  
generator of wind  
and solar energy  
2018**

# Project overview – current filing

- » **Crowned Ridge Wind, LLC**  
PUC filing date: Jan. 2019  
PUC Status: Under review
- » CRW is seeking Facility Permit approval to construct, own and operate the up to 300 MW Crowned Ridge Wind project
- » CRW possesses a Power Purchase Agreement (PPA) with Northern States Power (NSP)
- » The Project is a \$400 million investment in the state of South Dakota and located in Codington County and Grant County, SD
- » The Project has a proposed Commercial Operations Date (COD) of December 2019



# Project overview – purpose of project

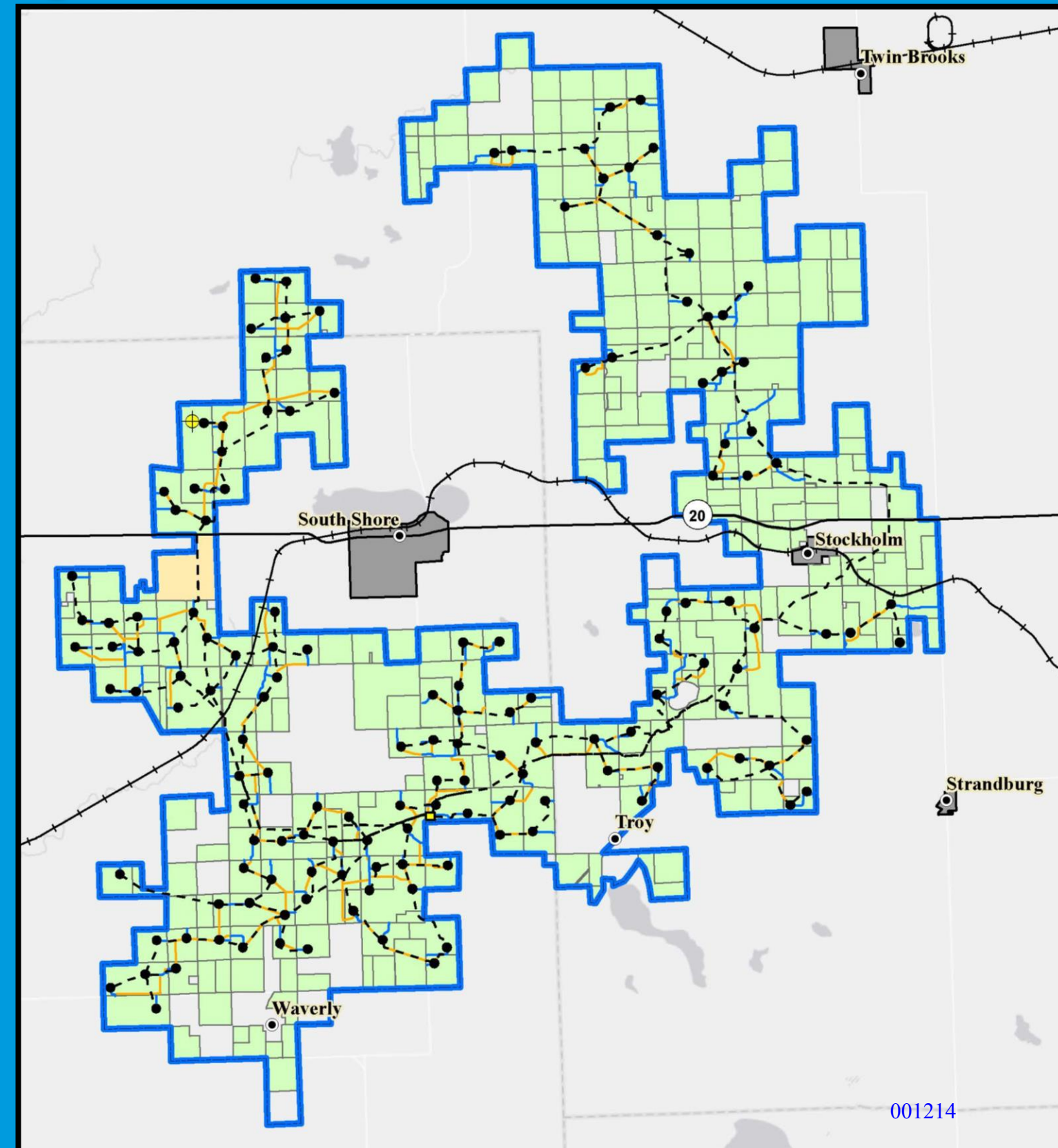
- ▶ Crowned Ridge Wind, LLC is seeking Facility permit approval for the proposed up to 300 MW Crowned Ridge Wind Farm located in Codington County and Grant County, South Dakota .....
- » To satisfy energy demands within NSP's service territory by delivering zero-emission, competitively priced electricity to the Midcontinent Independent System Operator, Inc (MISO) regional grid.
  - › Demand was recognized by the Minnesota Public Service Commission and North Dakota Public Service Commission
- » To supplement NSP's pursuit of a higher renewable energy generation mix across their generation output/consumption portfolio
- » To deliver a safe and reliable project to Codington and Grant County compatible with existing land uses, provides additional revenue streams, creates jobs and yields local benefits

# Project overview – why now?

- ▶ Crowned Ridge Wind, LLC elected to file the Crowned Ridge Wind Facility Permit application in January 2019 for a number of reasons:
  - » Both Codington County and Grant County have completed the review process of the existing local ordinances and successfully codified new siting requirements for Wind Energy Systems
  - » CRW has completed the necessary field surveys and micrositing of Project infrastructure and adopted changes to the Project site plan to ensure compliance with the newly codified county siting requirements for Wind Energy Systems
  - » Land easements have been obtained for 99% of the Project's proposed infrastructure
  - » The South Dakota PUC's application review process reflects a 6-month approval timeline which supports the Project's proposed COD of December 2019

# Project overview – site plan

- » **Project Size:** 300 MW
- » **Project Area:** 53,186 acres
- » **Participation:** 45,935 acres
- » **Project Turbines:** 130 GE 2.3 MW turbines
  - » (117) 2.3 MW 116-90 at 485' total height,  
(13) 2.3 MW 116-80 at 452' total height; and  
(20) alternate turbine locations
  - » 95 turbines proposed in Codington County;  
35 turbines proposed in Grant County
- » **Other Project Facilities:**
  - » Access roads to project facilities,  
underground collection cabling and an  
Operations and Maintenance (O&M) Facility



# Community Benefits

## ► Boost to local economy

- » 250 temporary construction jobs will increase local spend (hotels, dining, places to conduct general business)
- » 7-12 full time, long term O&M jobs created for the life of the project
- » \$400 million investment in the state of South Dakota

## ► Landowner benefits

- » Approx. \$40 million in payments to landowners over life of the project
- » Improvements to existing county and township roads

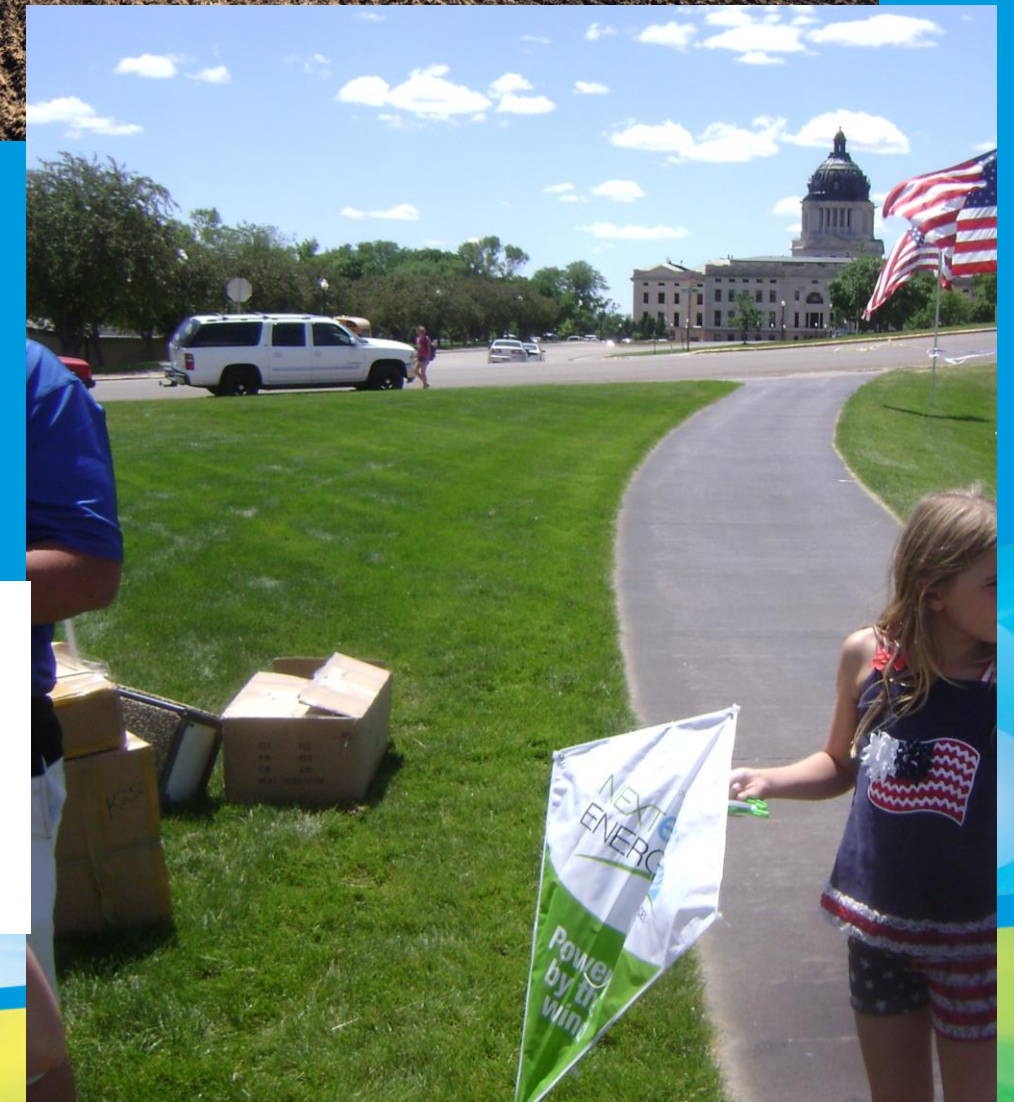


# Community Benefits

Crowned Ridge Wind Project – 25 year Expected Tax Revenue	
<i>Jurisdiction</i>	<i>Estimated Total Tax Revenue</i>
Grant County	\$2,170,000.00
Codington County	\$4,880,000.00
Mazeppa Township	\$30,000.00
Twin Brooks Township	\$40,000.00
Stockholm Township	\$30,000.00
Troy Township	\$60,000.00
German Township	\$90,000.00
Leola Township	\$280,000.00
Waverly Township	\$400,000.00
Rauville Township	\$50,000.00
Waverly School District	\$26,150,000.00
Milbank School District	\$3,190,000.00
	<b>\$37,370,000.00</b>

# Community Benefits

- ▶ Local support of organizations, groups and events
  - ▶ Crystal Springs Rodeo
  - ▶ South Dakota Wind for Schools program
  - ▶ Kite Day at the Capitol
  - ▶ SDSU Wind Application Center
  - ▶ Mitchell Tech / Lake Area Tech
  - ▶ Molded Fiber Glass (Aberdeen, SD)



FEATURED

## New contract keeps MFG open; 60 jobs to be added

By Elisa Sand, [esand@abernnews.com](mailto:esand@abernnews.com) Jul 2, 2018 0 1 min to read

# Stakeholder outreach

- ▶ Crowned Ridge Wind's stakeholder outreach has resulted in 99% completion in land acquisition (no eminent domain utilized)
- ▶ Stakeholder outreach involved communication with landowners, local tribes, wildlife agencies and government officials:
  - » Codington County Planning and Zoning
  - » Grant County Planning and Zoning
  - » Sisseton Wahpeton Oyate Tribe
  - » Spirit Lake Tribe
  - » United States Fish & Wildlife Service
  - » South Dakota Game, Fish & Parks
  - » Open House conducted on Nov. 16<sup>th</sup> 2017



# General Project Location Selection

- ▶ **Available wind energy resource**
  - » Wind resource data confirms viable wind resource suitability of Project Area
- ▶ **Access to viable transmission interconnection**
  - » Adequate proximity to the Big Stone South Substation with suitable infrastructure and available capacity
- ▶ **Landowner support for wind energy development**
  - » Voluntary participation from approx. 86% of all lands located within Project Area some of which have been participating for 10+ years
- ▶ **Land use and environmental resource compatibility**
  - » Project layout supplements existing land uses and avoids or minimizes the impacts to natural and cultural resources

# Project Compliance

- ▶ CRW has worked diligently to make the necessary changes to the Project site plan to meet and exceed local and state wind energy siting requirements

## Section 5.22.03 General Provisions - Codington County Requirements

<b>Setbacks</b>	<ul style="list-style-type: none"><li>- 550' from participating occupied residence, business, church, or school</li><li>- 1,500' from non-participating occupied residence, business, church, or school (within all Districts other than Town Districts)</li><li>- 5,280' from Municipal Boundaries at the time of Conditional Use Application</li><li>- 110% of the height of the wind turbine from Right-of-Way of public roads</li><li>- 110% the height of the wind turbines from any property line</li></ul>
<b>Noise</b>	<ul style="list-style-type: none"><li>- Shall not exceed 50 dBA, average A-weighted Sound pressure level effects at the property line of existing non participating residences, businesses, and buildings owned and/or maintained by a governmental entity</li></ul>
<b>Flicker Analysis</b>	<ul style="list-style-type: none"><li>- Flicker at any receptor shall not exceed thirty (30) hours per year within the analysis area for all schools, churches, businesses and occupied dwellings within a one (1) mile radius of each turbine within a project.</li></ul>

# Project Compliance

## Section 1211.0 General Provisions - Grant County Requirements

<b>Setbacks</b>	<ul style="list-style-type: none"><li>- 1,500' from participating residence, business, church, or school, building owner and/or operated by a governmental entity</li><li>- 1,500' from non-participating residence, business, church, or school, building owned and/or operated by a governmental entity</li><li>- 5,280' from Municipal Boundaries existing at the time of Conditional Use Permit Application</li><li>- 500' or 110% of the vertical height of the wind turbine, whichever is greater, from Public ROW</li><li>- 500' or 110% of the vertical height of the wind turbine, whichever is greater, from any property line</li></ul>
<b>Noise</b>	<ul style="list-style-type: none"><li>- Shall not exceed 45 dBA, average A-weighted Sound pressure including constructive interference effects measured twenty-five (25) feet from the perimeter of the existing non-participating residences, businesses, and buildings owned and/or maintained by a governmental entity.</li><li>- Shall not exceed 50 dBA, average A-weighted Sound pressure including constructive interference effects measured twenty-five (25) feet from the perimeter of participating residences, businesses, and buildings owned and/or maintained by a governmental entity.</li></ul>
<b>Flicker Analysis</b>	<ul style="list-style-type: none"><li>- Flicker at any receptor shall not exceed thirty (30) hours per year within the analysis area for all schools, churches, businesses and occupied dwellings within a one (1) mile radius of each turbine within a project.</li></ul>

# Wind farm description

- ▶ The project will consist of up to 130 turbines, a collector substation, under ground collection lines and an O&M facility:
  - » **Turbines** – 117 GE 2.3 MW, 90m HH and 13 GE 2.3 MW 80m HH
  - » **Collector substation** – 34.5kV to 230kV fenced area with breakers, switches, control house and two power transformers
  - » **Underground collection lines** – 34.5kV power cables buried at least 36 inches below the surface that connects the turbines to the substation. It also includes pad mount transformers and junction boxes
  - » **O&M facility** – Fenced area with a main building that accommodates offices, spare parts storage, maintenance shop and parking facilities

# Construction overview

- ▶ The construction process begins with a detailed engineering design for all the facets of the project including; access roads, turbine foundations, tower erection and electrical systems
- ▶ Turbine foundation
  - » Remove and stockpile top soil for future reclamation
  - » Install straw waddles and silt fences to control run-off during rain events
  - » Excavate turbine foundation to approx. 8' depth
  - » Install rebar and bolt cage
  - » Pour concrete supplied by on-site batch plant



# Construction overview

- Turbine towers are erected using special cranes that are capable of lifting up to 1,800 ton and reaching a height of 350 feet (107 meters)
- Install down tower assembly including turbine converter
- Install tower base including torqueing anchor bolts
- Install mid and top tower sections
- Install nacelle, hub and fly rotor



# Construction overview

- The collection lines are installed using a trencher or horizontal direction bores
  - Cables and communications line are simultaneous laid while trench is being cut
  - Trenches are back filled with native soil and compacted
- The collector substation is designed, constructed to meet all the applicable codes and standards
  - Clear and grub site, grade and compact site, install below grade infrastructure, equipment foundations, equipment, wire and termination, test and commissioned equipment



# Operations overview

- ▶ The project will be monitored 24/7 from the Renewable Operations Control Center by a SCADA system. In addition the site will be maintained and monitored locally from the O&M building by 12 wind technicians, technician site lead and a site manager
  - » Supervisory Control and Data Acquisition (SCADA) system collects real time data from wind farm and substation and feed information to controllers located in the turbine and substation
  - » Controllers make automatic adjustments based on *set points established for the* safe, reliable and efficient operation of the site.
- ▶ The O&M building provides accommodation for the operations personnel who are responsible to ensure that the facility is operated in accordance with North American Electric Reliability Corporation (NERC) standards

# Decommissioning overview

- ▶ CRW is responsible for decommissioning of the project and all costs associated with decommissioning associated facilities
  - » Removal of 130 wind turbines and all existing above ground facilities
  - » Remove roads and staging areas not desired by land owners to remain in place
  - » Restore property or properties to pre-construction conditions including:
    - › Vegetation, drainage and other environmental features
  - » Repair county roads impacted by movement of heavy vehicles and frequent vehicle trips

# Crowned Ridge Projects Timeline

wind data  
analysis;  
landowner  
outreach

PPA  
Executed

Local  
Permitting  
Begins

Wind  
Farm  
Design

State  
Permitting  
Begins

Material  
Procurement

Construction  
Begins

In  
Service  
Operations

2006

March  
2017

June  
2018

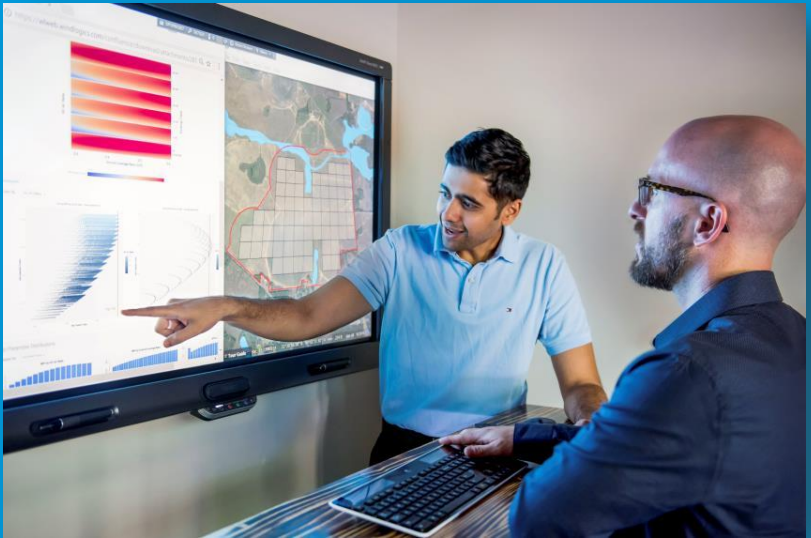
Dec  
2018

Jan  
2019

Feb  
2019

Aug  
2019

Dec  
2019



# Contact information

## Crowned Ridge Wind, LLC

Tyler Wilhelm

*Project Manager*

[Tyler.Wilhelm@NextEraEnergy.com](mailto:Tyler.Wilhelm@NextEraEnergy.com)

## South Dakota PUC Website

<https://puc.sd.gov>



# Property Rights

## Bill Street - Farmer - Grant County

I feel Non-Participants "Property Rights" within a WES footprint are as important as a Participants. There are issues of sound (that we hear), infrasound (that we don't hear but can feel), shadow flicker and the intrusion of the safety zones from the turbine unto other peoples property.

In the instance of the "safety zone" which extends out from the turbine say 1500' depending on turbine size. Because distance requirement in Grant County is the ht of the turbine plus 10% from the property line of a non-participant the safety zone can extend unto neighboring property 7 hundred feet or more. In certain instances this might prevent the non-participating resident from having a building project.

I'm going to suggest to you PUC members, Gary Hanson, Chris Nelson and Kristie Fiegen to go to Clark County, and maybe you have, and take a hard look at their  $\frac{3}{4}$  mile setback from non-participating residents homes. Thats with waivers of course. Clark County already had experience with turbines with the WES project North of town. Clark County "Board of Adjustments" experience with these turbines give them cause to go with the  $\frac{3}{4}$  mile setback. The energy company didn't go away, They stayed and I understand they did sign some waivers.

I feel we would have less problems in our counties if the PUC would give us more direction with <sup>(adequate)</sup> decent setback distances. Instances of "Absentee landowners" having a turbine <sup>on</sup> their property within 1500' of an adjacent resident and giving problems to a resident is shameful!

It's a monetary benefit for one person at the expense of someone else.

My wife and I signed a contract for a transmission line in 2010. We were totally ignorant of the downside of wind farms. Easements are a big issue. In our case we were given a verbal statement that the transmission line would be next to the south property line. We found out later the lessee has sole discretion where it can go. Last July ~~we~~ they had the power line moved in 70' from our property line. We didn't want to have to farm around them and objected to this change. Then they said they could run it through our pasture with only one post in our field. We didn't want that either. We then had a lawyer look at our contract and found that in an addend it reads that WES has an easement on our entire quarter. What I want you people to understand is that these contracts are written to benefit WES & not the property owners.

In the end, I urge you PUC Board to place a condition of  $\frac{3}{4}$  mile setback to residents and 1500' from neighboring property lines unless waivers are signed. Please make this a condition for Crowned Ridge. Because we, in Great County have never experienced 500-600' turbines.

Bill Street

Milbank, S.D. 57252

## Thirty Pieces of Wind Turbine Silver

We hear wind turbine land owners say they have a RIGHT to do what they want on their property without giving Any concern for the rights of other land owners.

A number of Wind Turbine Land Owners, as part of Citizens Against Waverly Dairy, successfully fought to protect their Health, Safety, Quality of life and Property values against the effects of the activities on another property. Most of these owners lived much farther away than the one mile or 1500 feet being allowed for this permit for wind turbines. Some as far as ten or fifteen miles. Since 1994, human deaths from wind turbines has had a steady annual increase, the highest number caused by projectiles from breaking turbines or ice throw. The threat imposed by this industrial wind turbine project makes that dairy look like Minor League.

The dairy also promised money for better schools, roads and jobs but Health, Safety, Quality of life and property value protection was believed to be and is more essential to the health of the community. Next Era showed up with thirty pieces of Wind Turbine Silver and people grabbed it and threw friends and neighbors under the bus.

I watched a Grant County Zoning Commissioner oppose a longer setback with waiver if there was permission from Non Participants. She did not believe Non Participants had a right to be compensated for living with the threats posed by wind turbines over them while the neighbor gets paid. Of course she has contracts for numerous wind turbines on her property, she has her Thirty Pieces of Silver which is more important than her duty to protect public safety.

We know what happened to Judas after his Thirty pieces, the same happens to communities, in time, with Industrial wind Turbines.

Every party in the chain who accepts Thirty Pieces of Silver for this projects OWNS Responsibility for placing others at risk without consent. Are they prepared to compensate for deaths, ill health and loss of property values. It appears NOT.

County officials relied mostly on Wind Turbine Industry to tell them what to put in the ordinances that favor mostly Wind Energy needs for profit rather than public safety.

There is more than sufficient information to support the inefficiencies of our County Ordinances to protect the rights of Non Participating Land Owners. To correct that the PUC must DENY THIS PERMIT!

Wayne Bongheijnck  
Waverly, SD

Wayne F. Bongheijnck



March 11, 2019

Dear landowner:

On behalf of our Crowned Ridge project team, I hope this letter finds you well. I would like to inform you of two very important upcoming dates that will determine the future of the Crowned Ridge and Crowned Ridge II projects.

It is important to remember that the Crowned Ridge projects must receive all requested permit approvals from Grant, Codington and Deuel counties as well as the state of South Dakota before the construction process can commence. Failure to obtain any one approval from the county or state governing bodies would jeopardize the development/construction of the Crowned Ridge projects as a whole.

First, we have our state permitting hearing on March 20 to consider our Facility Permit.

**South Dakota Public Utilities Commission hearing**  
Wednesday, March 20 – 5:30 p.m. (*please arrive by 5:00 p.m.*)  
Waverly-South Shore School Gymnasium  
319 Mary Place, Waverly, South Dakota 57201

- Then, on April 8, the Grant County Board of Adjustment will meet to consider two applications for siting permits. We will host a get together with landowners to provide a project update and have some refreshments before we head to the meeting together.

**Special event for Landowners – Speedway Bar & Grill**  
Monday, April 8 – 2:00 p.m.  
221 E 3<sup>rd</sup> Avenue, Milbank, South Dakota 57252

**Grant County Board of Adjustment Hearing**  
Monday, April 8 – 4:00 p.m. (*please arrive by 3:30 p.m.*)  
222 E. 5<sup>th</sup> Avenue. Milbank, South Dakota 57252

At the Grant County Board of Adjustment Hearing, the Board will consider our permit application for our project's transmission line. While the Board previously granted a Conditional Use Permit for the transmission line, it later ruled the meeting did not have the appropriate public notifications, which is why this permit must be considered a second time. In addition, the Board will consider our request to extend the Conditional Use Permit for Cattle Ridge Wind. Cattle Ridge is a project our company acquired to merge with and enhance our Crowned Ridge Wind project. Both of these permits are critical to the success of Crowned Ridge.

Many of you have been a part of our project for years. Over the next month, we have the opportunity to move our project a big step closer to the finish line. I strongly urge you to attend the hearings and show your support. As our partners in the project, it is critical that the Commission hear directly from you about why this project is important to you, your family and your community. Your voice matters and it



truly makes a difference for the success of the project. You can show your support in three different ways:

1. Attend the hearings on March 20 and April 8 to stay informed, speak up and show your support for the project. Wear your NextEra Energy Resources hats and stickers to show your support (we'll have extras at the landowner get together).
2. Write a few words on each of the enclosed, pre-addressed postcards explaining why you support Crowned Ridge Wind and send them to the South Dakota Public Utilities Commission and Grant County Commission.
3. E-mail the South Dakota Public Utilities Commission at [www.puc.sd.gov](http://www.puc.sd.gov) explaining why you support Crowned Ridge Wind. This will be sent directly to the South Dakota Public Utilities Commission.

Our project has the potential to deliver tremendous benefits to Grant, Deuel and Codington Counties, including good jobs, landowner payments, millions of dollars in additional tax revenue and clean, homegrown energy for years to come. Hearing from supportive members of the community who will be most impacted by the wind project will allow the Commission to consider all of these important benefits and make a fully informed decision that will allow the project to move forward.

I look forward to seeing you on March 20 and April 8. If you have any questions, or would like additional postcards, please don't hesitate to reach out to me at (561) 694-3193.

Best regards,

A handwritten signature in black ink that reads "Tyler Wilhelm". The signature is written in a cursive, flowing style.

Project Developer  
Crowned Ridge Wind Projects

I am not sure why we are here, since NextEra was denied their permit in Grant County for half of the Grant County portion of this project. But, since we are here, I would like to talk about a safety issue.

The safety issue that concerns me, is my personal experience with a wind turbine throwing chunks of ice.

It happened in February of 2018 on Highway 59, south of Barret, MN. I haul milk to Perham, MN and drive by a field with 10 turbines operating. One of those turbines threw ice over a tree grove and a house onto the highway ahead of me; when the ice hit the highway the chunks shattered into many pieces. The distance of the throw was 520 yards, or 1560 feet.

There were two other incidents in Freeborn County, MN of ice throws hitting a semi tractor and a farmer's stock trailer. I am also aware of livestock being hit with 400 pound chunks of ice.

Who will be liable for any damages after the turbines are built? The state does not require liability insurance coverage by wind farms. A court calls this the Allocation of Liability. A landowner, farmer or rancher on whose land a wind farm sits, is the odd-man-out under the state's current wind farm permitting process. I am giving credit to David Ganje of Ganje Law Office for this information from the article 'Naked in the Wind', published in the Capital Journal.

I checked with the two insurance companies I have policies with, about having a turbine on my property. One said they would not cover any liability from a turbine. The other said if I sited a turbine on my property, they would cancel my insurance.

I did some research, and Farmers Insurance has a supplement for wind turbine liability that is 25 pages.

Our count officials have failed to protect us. I encourage anyone with wind turbines on their land to protect themselves.

I would like the PUC commission to contact all insurance companies in South Dakota and determine their policy on turbines. Most of these people who signed up had no idea of the dangers, and no idea they could not be insured.

Allen Robish  
Strandburg, SD

**WARNING!**

**DO NOT PASS THIS POINT FOR  
YOUR SAFETY**

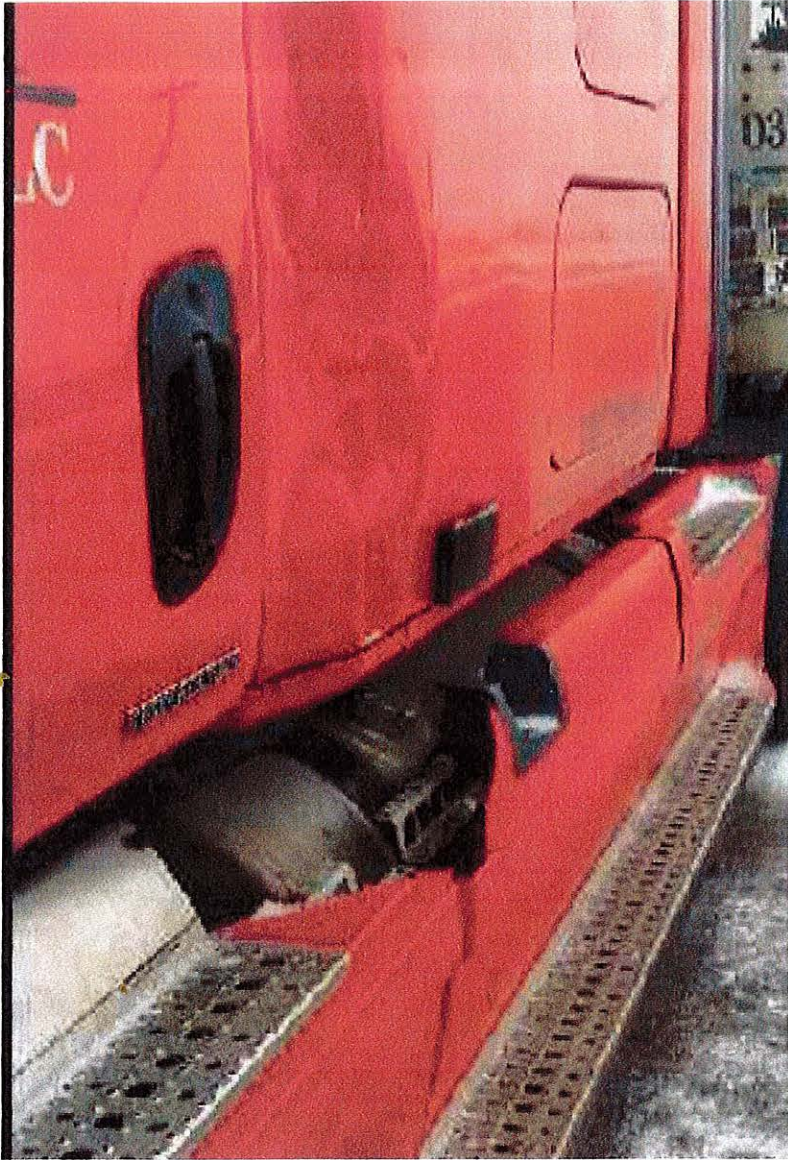
**ICE AND OTHER HEAVY OBJECTS  
CAN BE THROWN LONG DISTANCES  
FROM WIND TURBINE TOWERS AT  
HIGH VELOCITY AND CAN KILL!**



**EMERGENCY: 508-251-7744**

**Brookfield**

**Freeborn County, Minnesota  
February 2018  
Ice Throw from the Bent Tree Wind Farm  
Highway 13**



**kaal**tv.com

Allen Robish

[REDACTED]

Strandburg, SD

Wind Energy Easement Contracts are unfair for all involved.

Unfortunately, when we signed our contract we were not informed about all the negative effects of wind turbines. We were told that the wind turbines are definitely coming to our area. Everyone else has signed so we might as well get the money for having wind turbines on our property. As far as we knew, these might be not much different than the old fashioned wind mills that were used to pump water for the livestock when electricity was not available on the farms. We were not informed of their height or the number of these turbines that were planned. We were not informed that each wind turbine takes up 1.5 acres of valuable cropland.

The 5.2 Effects easement section of our contract should have been a red flag to us. Even this does not include the health effects of infrasound, damage to water tables, the negative effects on animal life, livestock, oil leaks, turbines catching on fire, ice throw, blades flying off and small pieces falling off and contaminating the soil, the damage from compaction from heavy equipment, and the list goes on. The only way this is included is with the phrase: and any other effects attributable to the Wind Farm or activity located on the Owner's Property or on adjacent properties over and across the Owner's Property. At the very least, the other effects should be listed instead of just included in the phrase "any other effects". Why weren't we informed of all these effects? If we had been informed, we certainly wouldn't have signed.

Construction has begun on our property and no permit has been granted. Last Fall, heavy equipment went through our unharvested cropland destroying crops and creating irreparable damage from compaction. At the very least, they could have waited a few days to avoid wasting valuable food. Legally, no notice needs to be given. Common sense would tell you that for the protection of all involved that giving us notice would be a good idea.

The state of South Dakota does not require insurance for Wind Farms. Are we the land owners going to be sued if the Wind Farms don't pay up for damages? Will we be driven from our homes by the negative effects of these Wind turbines and/ or by being sued? The little amount of money we would receive is nothing compared the negative effects of these wind turbines. We cannot sue them and they are not required to attempt to do anything to alleviate the effects to us.

Please deny this permit.

Linda Lindgren

■■■■

South Shore, SD 57263

■■■■

## **Signing Wind Energy Contract a Big Mistake**

### **Signing Wind Energy Contract a Big Mistake**

My wife and I are currently signed up with the Next Era Crowned Ridge I project. When signing up with the project, we were convinced that we were doing the right thing, having the chance to produce so called "Green Energy". In the past year, we have read the book Paradise Destroyed by Gregg Heubner, and have done research on the effects of shadow flicker and infrasound on human health, and the health of wild life and domestic animals. Also the dangers of ice throw. Not to mention the amount of fossil fuel, steel, and concrete used to construct the turbines, and the lowering of property values of homes within wind projects. We don't like the fact that we would be making money off other people's property. We would be taking away our neighbor's property rights by inflicting flicker, audible noise and infrasound and all the health effects on their animals and themselves. Good Neighbors don't put up Industrial Wind Turbines! We want to be good neighbors! Please protect the health and safety of our people on the Coteau Ridge.

Let's ask ourselves 2 questions:

1. Even if you are a strong supporter of wind energy, what is wrong with having at least a ¼ mile set back from homes? The worst that can happen is that you may not get a wind turbine on my land.
2. Is having money in our pockets going to offset the depopulation of our rural communities, constant migraine headaches, sleep deprivation, and even suicide?

We are currently locked into a 30-year contract that we probably cannot get out of, and one clause in the contract mentions that in the event that Next Era ever files for Bankruptcy, their creditors can put a lien on any property where a turbine, substation, or transmission line is located. Which means that someday a bank in a foreign country could end up owning Codington, Deuel, and Grant Counties.

Tim Lindgren

■■■■ ■■■■ ■■■■

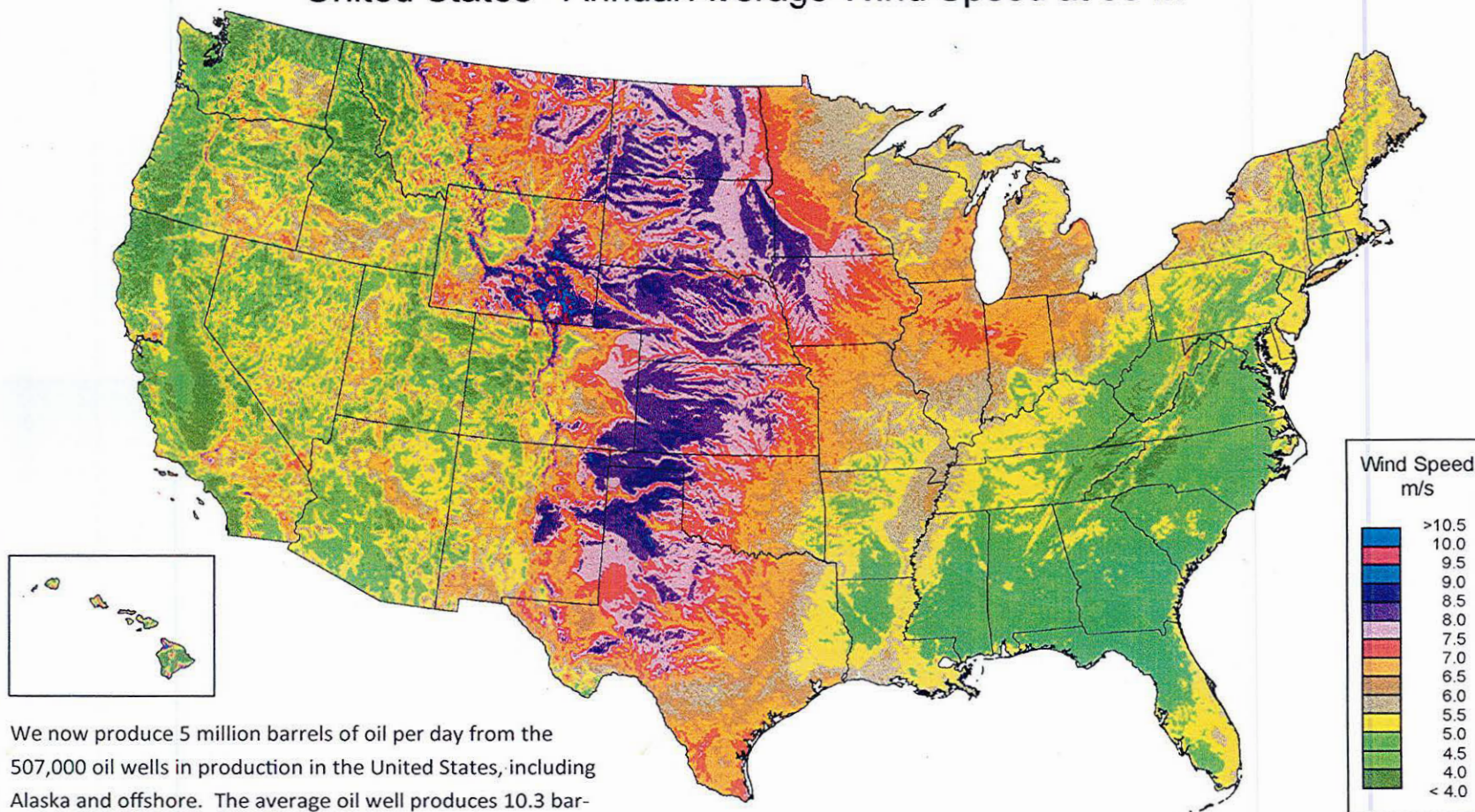
South Shore, SD 57263

■■■■■■■■■■

EL-19-003 Jim Nichols

-Lake Benton, MN 56149

## United States - Annual Average Wind Speed at 80 m



We now produce 5 million barrels of oil per day from the 507,000 oil wells in production in the United States, including Alaska and offshore. The average oil well produces 10.3 barrels per day. At full production, a 2 megawatt turbine produces as much energy as 28 barrels of oil per day with an average of 12 barrels per day. The conversion factor for wind is 3,412 BTU per kwh and for oil is 5,800,000 BTU per barrel. With 500,000 wind turbines, we can produce as much energy as we now produce from oil in America.

Source: Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. Web: <http://www.windnavigator.com> | <http://www.awstruepower.com>. Spatial resolution of wind resource data: 2.5 km. Projection: Albers Equal Area WGS84.



**AWS Truepower**  
Where science delivers performance.



**NREL**  
NATIONAL RENEWABLE ENERGY LABORATORY

01-APR-2017 2:11

## WIND DELIVERS TAX RELIEF IN MINNESOTA

*Minnesota benefits from \$7.1 billion in capital investments from wind energy.  
Minnesota landowners receive estimated lease payments of >\$10 million, annually.  
25 Minnesota counties benefit from more than \$12 million in Production Tax revenue.*

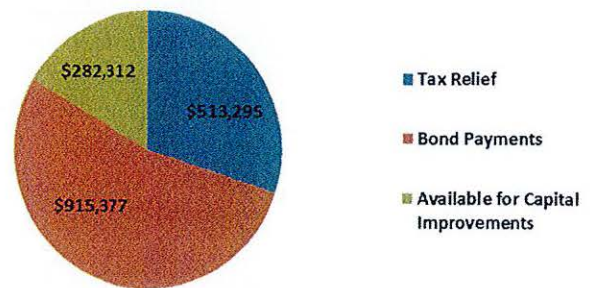
### Wind Energy Production Tax

County	Production in 2016 Taxes Payable 2017 Tax Dollars	Production in 2017 Taxes Payable 2018 Tax Dollars
Becker	\$ 13,157	\$ 12,203
Clay	\$ 197,988	\$ 183,614
Cottonwood	\$ 533,487	\$ 748,116
Dodge	\$ 184,980	\$ 189,375
Faribault	\$ 159,293	\$ 151,313
Freeborn	\$ 689,628	\$ 679,523
Grant	\$ 78,209	\$ 70,969
Jackson	\$ 1,991,885	\$ 2,202,936
Lincoln	\$ 1,003,774	\$ 1,084,569
Lyon	\$ 72,966	\$ 65,733
Martin	\$ 374,964	\$ 351,133
Meeker	\$ 133,186	\$ 113,092
Mower	\$ 2,373,932	\$ 2,375,055
Murray	\$ 1,382,798	\$ 1,323,936
Nobles	\$ 1,149,262	\$ 1,113,006
Pipestone	\$ 592,809	\$ 572,715
Redwood	\$ -	\$ 3,247
Rock	\$ 847,949	\$ 825,431
Sherburne	\$ 107	\$ 102
St. Louis	\$ 56,578	\$ 67,913
Stearns	\$ 30,040	\$ 378,954
Steele	\$ 155,518	\$ 157,652
Todd	\$ 1,599	\$ 1,383
Watsonwan	\$ 39,076	\$ 33,848
Winona	\$ 4,227	\$ 3,290
<b>TOTAL</b>	<b>\$ 12,067,411</b>	<b>\$ 12,709,108</b>

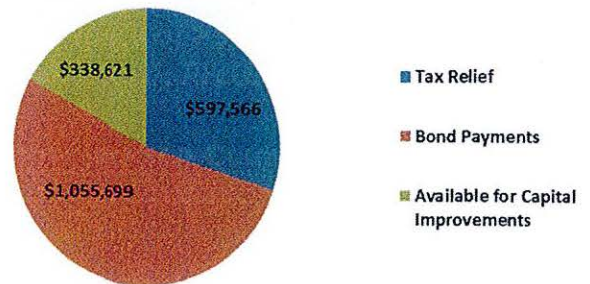
Minnesota Department of Revenue  
Property Tax Division  
April 2018

### Here's how Jackson County Benefits from its annual wind production tax revenue in 2016-2017:

**2016**



**2017**



Jackson County chose to divide their revenue this way:  
30% -- tax relief  
16% -- capital improvements  
53% -- bond payments

This is a new source of revenue that **does not come from the pocketbooks of the citizens**, allowing counties to **reinvest in themselves** as they see fit.

*One Quarter of the State's Counties Receive This Revenue!*

ADDRESS  
570 Asbury Street, Suite 201, St. Paul, MN 55104

OFFICE  
651.644.3400

WEB  
CleanGridAlliance.org

# WIND ENERGY IN MINNESOTA

## Minnesota is a national leader in the wind energy industry.

Minnesota ranks seventh in the country for installed wind capacity, with a total capital investment of \$7.1 billion. In 2017, wind power generated over 18 percent of Minnesota's electricity, ranking seventh in the nation for wind energy as a share of total electricity generation. The state has also been successful in attracting investment for wind energy manufacturing, with at least 20 active manufacturing facilities in the state. Major wind energy construction companies Blattner Energy and Mortenson Construction are both based in Minnesota.

## BENEFITS

### Jobs & Economic Benefits

An investment in wind power is an investment in jobs, including jobs in operations and maintenance, construction, manufacturing and many support sectors. In addition, wind projects produce lease payments for landowners and increase the tax base of communities.

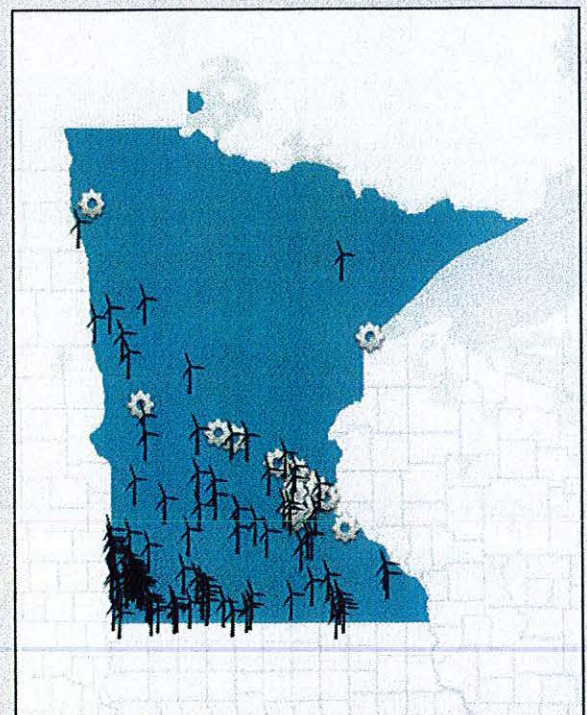
- 2017 direct and indirect jobs supported: **3,001 to 4,000**
- Total capital investment through 2017\*: **\$7.1 billion**
- Annual land lease payments\*: **\$10 - \$15 million**

\*Calculations based on national and state averages.

### Wind-Related Manufacturing

The United States has over 500 manufacturing facilities producing products for the wind industry that range from blade, tower and turbine nacelle assembly facilities to raw component suppliers, including fiberglass and steel.

- Number of active manufacturing facilities in the state: **20**



Online Wind Project



Manufacturing Facility

POWERED  
BY

WindIQ

AWEA

I wonder how many people in this room had no idea what they were signing up for...and still don't.

For many, it was all about the money. It is NOT about the money for me. I am in the project boundary. I was offered money. I was offered even more money when I declined. I knew I never wanted to give up any bit of my property rights.

Many of my neighbors signed up years ago and want desperately to get out of contracts. When you see the maps of participators, keep in mind they are MANY who are not willing participators, they are prisoners to a piece of paper signed many years ago, not realizing the gravity of that signature.

Speaking of the maps...tell me why there is a gerrymandered boundary. Is it to skew the perception of area support? That is the only apparent reason. Other wind projects that have the full support of local communities, are a nice rectangular map, not a map that looks like ours, a map drawn by a drunken sailor.

Because of time restriction, I am going to throw out random information for you and the public.

How many people here have researched living in large scale industrial wind energy plants?

Do you know your body fights the infrasound? The wall of your heart thickens by 20%? The vertigo? Tinnitus? Migraines? Sinus pressure?

The multitude of problems that come from sleep deprivation? You don't get to turn the noisy power plant in your backyard off if you can't sleep, you have no recourse, you suffer.

I've heard that ONLY 30% of people are affected. That is a huge number. Those are the 30% who REALIZE they are affected. The other 70% won't know, until it is too late to reverse the effects. Of course, if you are one of the many absentee landowners, you don't care...your wind welfare check will come to your mailbox. No worries for you.

Landowners...did your contract tell you the access roads can be 200' wide? Or did they lead you to believe they would be 16'? Did they tell you about the wide crane path going through your property on the way to build a turbine on someone else's property? That is going to compact your land and diminish your crop production forever. Do you think you got paid enough for that?

As a business owner, I can attest to the shallow labor pool here. It is already extremely difficult to find employees in our area. [REDACTED] can't find truck drivers. So NextEra will come in and throw some taxpayer cash around and offer short term jobs because they have a PTC deadline.

Where does that leave local businesses? That leaves the local business owner in a bind...that's where.

Stack onto that, all of the people who are vowing to move away...even less of a labor pool. We need people to move here, not move away.

I ask the Commission to survey every participating landowner and ask them if they are willing to go forward, or if they want this project to stop so they can be removed from the nightmare they find themselves in. They should have that opportunity to withdraw now that the real damage has been revealed.

Amber Christenson

[REDACTED]

Strandburg, SD 57265

PUC Hearing, 3.20.19, Waverly, SD

Presented by Patrick Lynch

Dear Commissioners,

I would like to speak on two topics. The first is a concern for the health and safety of my family if the project proceeds as proposed. I have attached a study contained in the US National Library of Medicine and the National Institutes of Health. In this they recommend a night time noise level which should not exceed 30 dB(A). They along with the World Health Organization recommend this because it can attribute to increased cardiovascular risk, higher cortisol levels, and sleep disturbance such as awakenings and shallower sleep stages as the most severe health effects of noise on sleep studied.

My property is CR1-C27-NP in Updated Appendix H Appendices A-D- Noise Report of the edocket. My property is going to experience noise level 42.2 dB(A) at my property line and 40 dB(A) at my home. Both of these exceed these noise level recommendations. Looking at the maps most if not all properties participating or non-participating will exceed these levels.

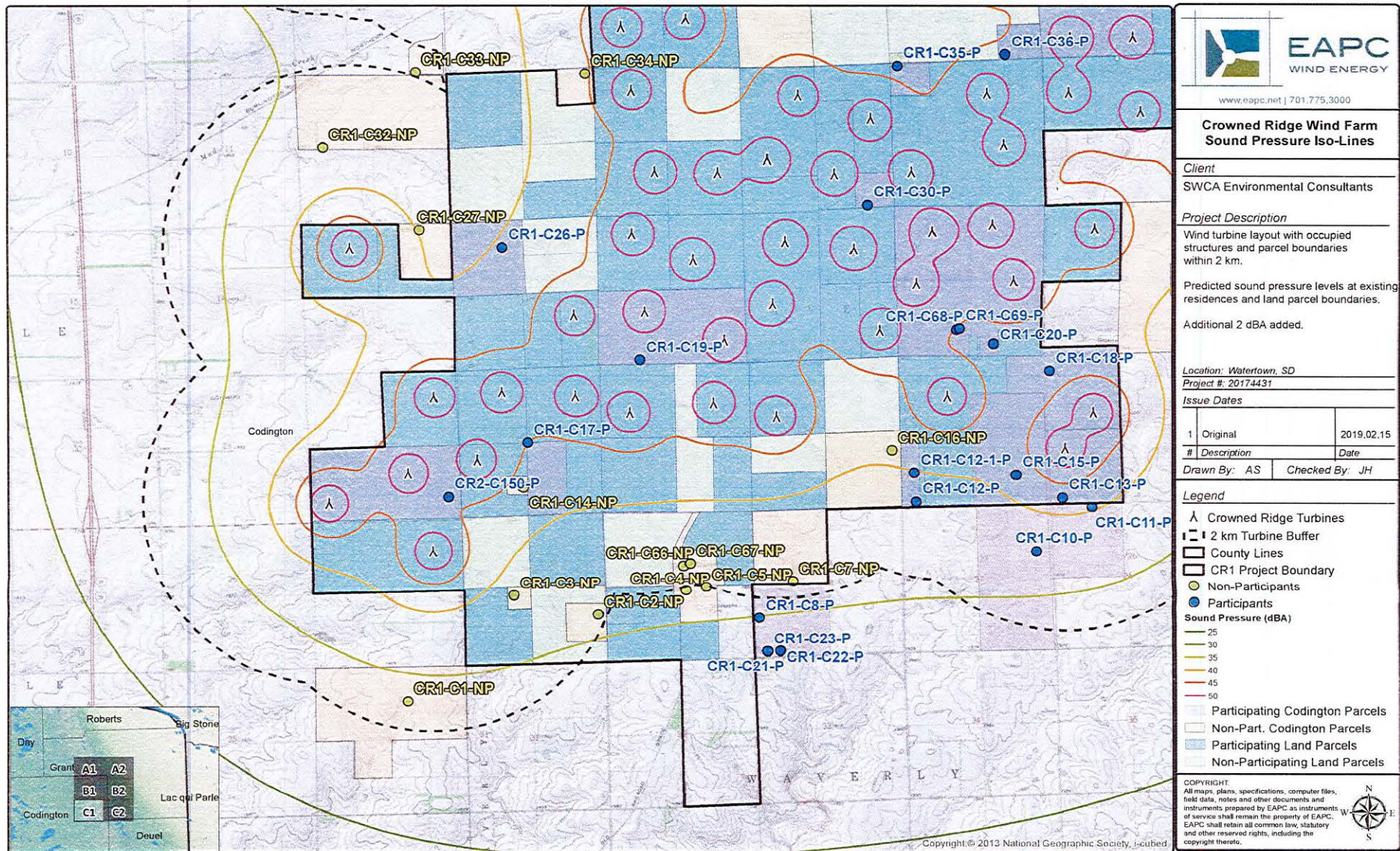
Also, according to the shadow flicker report my home will experience 6 hours and 58 minutes of shadow flicker each year. I heard testimony at the Codington County public hearing that this also can cause sleep disturbance. It is my belief that I should not have to live or raise my children in an environment where we are unable to sleep soundly and suffer any long term health impacts.

My second topic is the violation of my property rights. I ultimately desire to move my home into a different area on my property. Unfortunately this would move my family into an area where I would experience even more noise and shadow flicker. I believe have the right to enjoy my entire property to its fullest. I feel the turbine projecting noise and flicker onto my land and affecting the way I use it is an illegal taking of my property rights. I ask that you either deny this permit or curtail the placement of turbines so that all non-participating property owners experience zero shadow flicker and noise levels of less than 30 dB(A).

Patrick Lynch

[REDACTED]

Watertown, SD 57201



0 0.25 0.5 1 Mile

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001247

**Table C-1: Crowned Ridge Sound Level Tabular Results Sorted by Receptor ID**  
Realistic case sound results at land parcel boundaries and occupied structures  
Results using GE 2.3-116-90 m HH, GE 2.3-116-80 m HH WTG's  
UTM NAD83 Zone 14  
Codrington County

Receptor ID	Participation Status	Type	Easting (m)	Northing (m)	Elevation AMSL (m)	Real Case Sound (dB(A))	Distance to Nearest Turbine (ft)
CR1-C1-NP	Non-P	Boundary	657,276	4,983,921	590.3	36.5	4,258
CR1-C2-NP	Non-P	Boundary	658,435	4,984,609	601.8	37.7	5,036
CR1-C3-NP	Non-P	Boundary	657,812	4,984,785	603.1	39.4	2,936
CR1-C4-NP	Non-P	Boundary	659,890	4,985,620	605.4	40.5	3,914
CR1-C6-P	Participant	Boundary	663,383	4,994,502	591.0	38.5	3,878
CR1-C7-NP	Non-P	Boundary	661,266	4,985,387	591.0	46.6	1,253
CR1-C8-P	Participant	Boundary	661,277	4,984,852	597.6	43.1	2,139
CR1-C9-P	Participant	Boundary	665,421	4,985,265	609.0	49.5	1,079
CR1-C10-P	Participant	Boundary	662,869	4,985,477	601.4	52.2	610
CR1-C11-P	Participant	Boundary	664,444	4,985,206	608.6	52.0	738
CR1-C12-P	Participant	Boundary	662,067	4,985,677	604.9	45.3	1,670
CR1-C13-P	Participant	Boundary	664,410	4,986,207	615.0	53.3	574
CR1-C14-NP	Non-P	Boundary	657,803	4,986,003	609.0	46.1	1,191
CR1-C15-P	Participant	Boundary	663,047	4,985,700	612.8	51.1	722
CR1-C16-NP	Non-P	Boundary	661,642	4,985,677	597.0	48.8	948
CR1-C17-P	Participant	Boundary	658,017	4,986,369	606.4	45.2	1,837
CR1-C18-P	Participant	Boundary	664,126	4,986,525	610.2	52.4	591
CR1-C19-P	Participant	Boundary	660,393	4,987,529	607.7	50.1	784
CR1-C20-P	Participant	Boundary	662,024	4,987,612	604.8	51.0	640
CR1-C26-P	Participant	Boundary	658,015	4,987,993	606.0	43.5	1,867
CR1-C27-NP	Non-P	Boundary	656,658	4,988,484	587.2	42.2	1,749
CR1-C28-NP	Non-P	Boundary	665,432	4,989,009	583.9	44.9	1,483
CR1-C29-NP	Non-P	Boundary	666,496	4,989,001	573.9	42.7	1,952
CR1-C30-P	Participant	Boundary	661,978	4,989,318	613.3	51.3	633
CR1-C31-NP	Non-P	Boundary	665,639	4,989,013	584.6	44.5	1,637
CR1-C32-NP	Non-P	Boundary	657,187	4,989,566	573.0	38.2	4,970
CR1-C33-NP	Non-P	Boundary	657,126	4,990,843	567.0	38.1	5,856
CR1-C34-NP	Non-P	Boundary	658,763	4,990,247	589.7	45.9	1,293
CR1-C35-P	Participant	Boundary	661,955	4,990,153	606.0	47.2	1,112
CR1-C36-P	Participant	Boundary	663,564	4,990,731	610.7	48.3	1,033
CR1-C37-P	Participant	Boundary	663,879	4,990,574	594.0	51.1	699
CR1-C38-NP	Non-P	Boundary	660,955	4,990,468	591.2	47.3	1,027
CR1-C39-NP	Non-P	Boundary	659,741	4,991,242	583.2	48.5	856
CR1-C40-NP	Non-P	Boundary	658,706	4,991,231	579.8	44.9	1,555
CR1-C41-NP	Non-P	Boundary	664,801	4,991,929	577.1	46.1	1,585
CR1-C42-P	Participant	Boundary	659,828	4,992,807	580.5	51.1	604
CR1-C44-NP	Non-P	Boundary	665,447	4,992,972	578.2	44.4	1,824
CR1-C45-NP	Non-P	Boundary	653,821	4,993,552	572.0	37.0	4,291
CR1-C46-P	Participant	Boundary	656,678	4,992,970	611.5	51.4	561

[illegible]

# Ice Shedding and Ice Throw – Risk and Mitigation

**David Wahl**

**Philippe Giguere**

Wind Application Engineering

GE Energy

Greenville, SC



# Ice Shedding and Ice Throw – Risk and Mitigation

## Introduction

As with any structure, wind turbines can accumulate ice under certain atmospheric conditions, such as ambient temperatures near freezing (0°C) combined with high relative humidity, freezing rain, or sleet. Since weather conditions may then cause this ice to be shed, there are safety concerns that must be considered during project development and operation. The intent of this paper is to share knowledge and recommendations in order to mitigate risk.

## The Risk

The accumulation of ice is highly dependent on local weather conditions and the turbine's operational state.<sup>[2,4]</sup> Any ice that is accumulated may be shed from the turbine due to both gravity and the mechanical forces of the rotating blades. An increase in ambient temperature, wind, or solar radiation may cause sheets or fragments of ice to loosen and fall, making the area directly under the rotor subject to the greatest risks<sup>[1]</sup>. In addition, rotating turbine blades may propel ice fragments some distance from the turbine—up to several hundred meters if conditions are right.<sup>[1,2,3]</sup> Falling ice may cause damage to structures and vehicles, and injury to site personnel and the general public, unless adequate measures are put in place for protection.

## Risk Mitigation

The risk of ice throw must be taken into account during both project planning and wind farm operation. GE suggests that the following actions, which are based on recognized industry practices, be considered when siting turbines to mitigate risk for ice-prone project locations:

- **Turbine Siting:** Locating turbines a safe distance from any occupied structure, road, or public use area. Some consultant groups have the capability to provide risk assessment based on site-specific conditions that will lead to suggestions for turbine locations. In the absence of such an assessment, other guidelines may be used. Wind Energy Production in Cold Climate<sup>[6]</sup> provides the following formula for calculating a safe distance:

$$1.5 * (\text{hub height} + \text{rotor diameter})$$

While this guideline is recommended by the certifying agency Germanischer Lloyd as well as the Deutsches Windenergie-

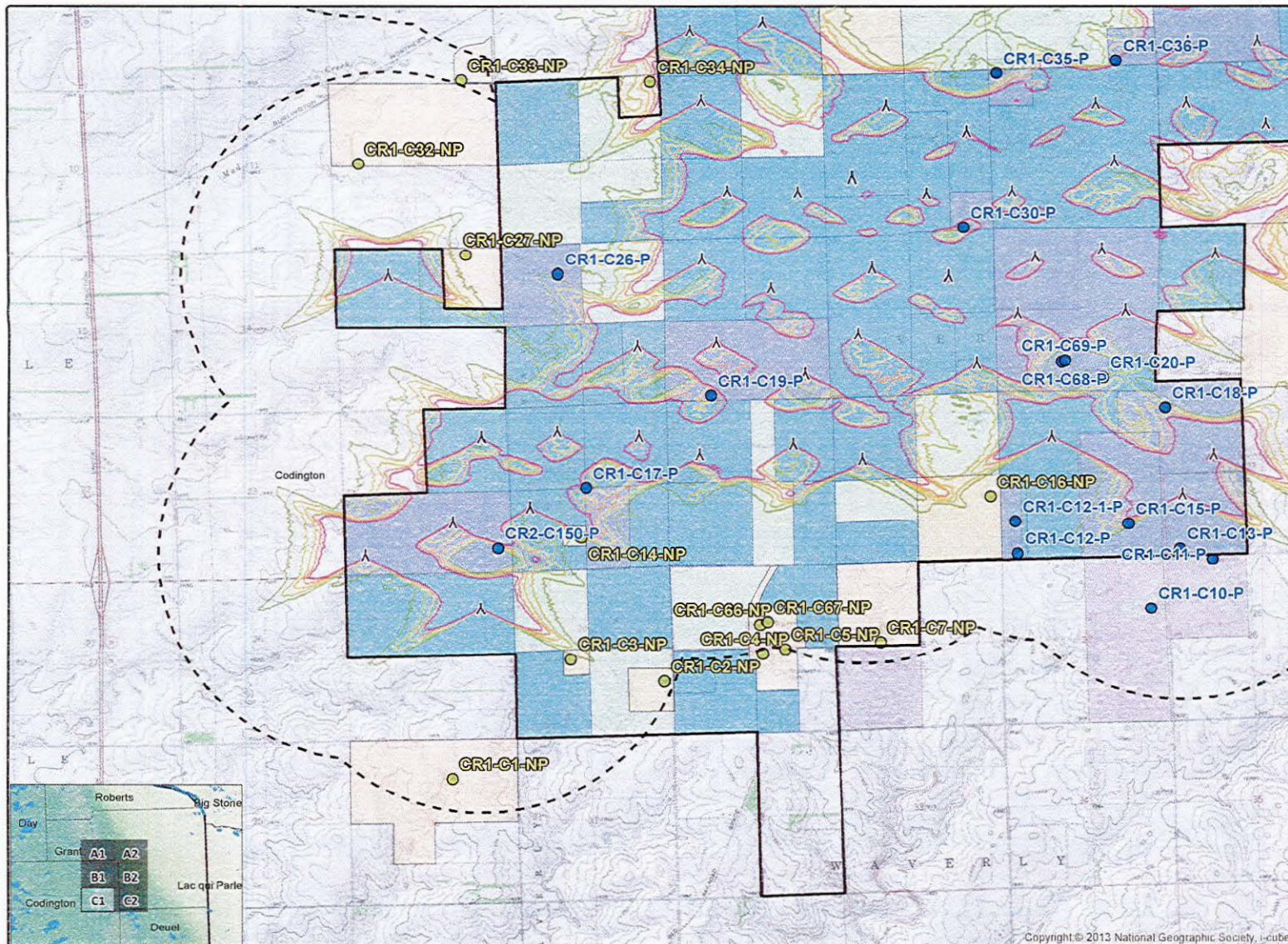
Institut (DEWI), it should be noted that the actual distance is dependant upon turbine dimensions, rotational speed and many other potential factors. Please refer to the *References* for more resources.

- **Physical and Visual Warnings:** Placing fences and warning signs as appropriate for the protection of site personnel and the public.<sup>[4]</sup>
- **Turbine Deactivation:** Remotely switching off the turbine when site personnel detect ice accumulation. Additionally there are several scenarios which could lead to an automatic shutdown of the turbine:
  - Detection of ice by a nacelle-mounted ice sensor which is available for some models (with current sensor technology, ice detection is not highly reliable)
  - Detection of rotor imbalance caused by blade ice formation by a shaft vibration sensor; note, however, that it is possible for ice to build in a symmetric manner on all blades and not trigger the sensor<sup>[2]</sup>
  - Anemometer icing that leads to a measured wind speed below cut-in
- **Operator Safety:** Restricting access to turbines by site personnel while ice remains on the turbine structure. If site personnel absolutely must access the turbine while iced, safety precautions may include remotely shutting down the turbine, yawing to place the rotor on the opposite side of the tower door, parking vehicles at a distance of at least 100 m from the tower, and restarting the turbine remotely when work is complete. As always, standard protective gear should be worn.

## References

The following are informative papers that address the topic of wind turbine icing and safety. These papers are created and maintained by other public and private organizations. GE does not control or guarantee the accuracy, relevance, timeliness, or completeness of this outside information. Further, the order of the references is not intended to reflect their importance, nor is it intended to endorse any views expressed or products or services offered by the authors of the references.

- [1] *Wind Turbine Icing and Public Safety – a Quantifiable Risk?*: Colin Morgan and Ervin Bossanyi of Garrad Hassan, 1996.
- [2] *Assessment of Safety Risks Arising From Wind Turbine Icing*: Colin Morgan and Ervin Bossanyi of Garrad Hassan, and Henry Seifert of DEWI, 1998.
- [3] *Risk Analysis of Ice Throw From Wind Turbines*: Henry Seifert, Annette Westerhellweg, and Jürgen Kröning of DEWI, 2003.
- [4] *State-of-the-Art of Wind Energy in Cold Climates*: produced by the International Energy Agency, IEA, 2003.
- [5] *On-Site Cold Climate Problems*: Michael Durstewitz, Institut für Solare Energieversorgungstechnik e.V. (ISET), 2003.
- [6] *Wind Energy Production in Cold Climate*: Tammelin, Cavaliere, Holttinen, Hannele, Morgan, Seifert, and Sääntti, 1997.



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# **Crowned Ridge Wind Farm Shadow Flicker Iso-Lines**

**Client**  
SWCA Environmental Consultants

**Project Description**  
Wind turbine layout with occupied structures within 2 km.  
Predicted shadow flicker levels at existing residences.

**Location:** Watertown, SD  
**Project #:** 20174431

Issue Dates	
1	Original
	2019.02.15
#	Description
Drawn By:	Checked By:
AS	JH

- Legend**
- ^ Crowned Ridge Turbines
  - 2 km Turbine Buffer
  - County Lines
  - CR1 Project Boundary
  - Non-Participants
  - Participants
  - Shadow Flicker (hr/yr)
    - 10
    - 15
    - 20
    - 25
    - 30
  - Participating Codington Parcels
  - Non-Part. Codington Parcels
  - Participating Land Parcels
  - Non-Participating Land Parcels

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**EL19-003 – In the Matter of the Application by Crowned Ridge Wind, LLC for a Permit of a Wind Energy Facility in Grant and Codington Counties**

- This month the AmericanExperiment.org reported that El Nino has caused electricity generation from wind to plummet by approximately 14%. NextEra Energy told Bloomberg, that wind resources were the worst in 30 years, despite the fact that this year El Nino is a relatively weak one.
- In 2012 Boulevard Associates, NextEra affiliate, sent letters to local contracted landowners stating one of the reasons to terminate the wind farm agreement was based on wind resources. 2011-12 was not an El Nino year it was a year the PTC's were not extended.
- Page 15 of the application states "applicant over a period of 10 years within the Project Area indicated that the Project Area is one area in South Dakota with the premier wind sources."
- Which statements is true?
- I ask why is NextEra applying for a permit to install 130 industrial wind turbines?
- During the committee hearing on HB1226 a bill updating safe setbacks, a state legislator was honest and said "yes, it is all about the money".
- On 2-25-19 in a committee hearing for SB16 a PUC commissioner said "each developer is getting about \$300k PTC not counting the energy they produce" this is per turbine per year.
- I want to be factual so I ran the numbers for the Crowned Ridge Project based on PTC alone, at 40% efficiency, the developer will receive \$193,420.80\* per turbine per year of the tax payers dollars. Over ten years this is a little over \$250 million taxpayer dollars. which equals \$25,144,704 dollars, per year for ten years of taxpayer's dollars. This does not count energy produced, sold carbon credits, subleases allowed thru fence to fence easements, payment in lieu of taxes incentives given by the state, or the benefits of accelerated depreciation.
- Did the contracted landowners get a fair deal in the contract? Are the most impacted; local communities getting a fair deal?
- According to the application Appendix B, NextEra has been working on the Project since 2007. They have had plenty of time to apply for the application. On Page 16 of the application last line "to receive the Production Tax Credit (PTC) the Project must be constructed by December 31, 2020.
- This leads to asking for a denial, and why that has not happened yet from the PUC. Over the past couple years, the PUC has been presented with evidence and first-hand testimony from people whose health and lives have been greatly affected from living in an industrial wind turbine project. Yet no denial. Is it because of the threat of a lawsuit? How many times has NextEra sued a community or the State PUC? How many times has a local board or state PUC denied NextEra a permit because it was not in the public's interest or would affect the public health safety and welfare of the inhabitants or the future inhabitants of the area?
- How many lawsuits have been filed against NextEra for being a public nuisance or damaging the health safety and welfare of the people living in and near NextEra wind projects? I submit the latest class action lawsuit against NextEra filed in Florida this month.
- Earlier in my presentation I was factual, I have included the method so it can be checked. I ask that the PUC make NextEra prove the vague statements in this application such as on page 114 "considered to be safe based on the developers experience" What is their experience? I ask the PUC to demand records, the incident reports, after review reports, safety manuals, manufacture

setback requirement as well as other manuals and documentation needed to fully evaluate the safety of industrial wind turbines built near homes.

- I ask that you deny this permit and not strap South Dakotans with the dangers of living in a wind project, higher electric rates and a tax for an intermittent unreliable energy source being built because of the <sup>PTC</sup> money.

-----e-----o-----  
[REDACTED]

\*130 turbines X 2.3MW =299 MW

299 MW x 8,760 hours = 2,619,240 MW 100% efficiency

2,609,240 x 40% efficiency = 1,047,696 MW

1,047,696 MW x \$24 PTC = \$ 25,144,704 million

\$25,144,704 / 130 turbines = \$193,420.80 per turbine per year

## **22.0 Reliability and Safety (ARSD 20:10:22:33.02(8))**

### **22.1 Reliability**

GE, one of the world's largest wind turbine suppliers of has over 35,000 wind turbines installed globally. GE has been producing wind turbines since 2002. Preventative maintenance based on analyzing real time data will be used to help mitigate potential failures.

To improve reliability, the Project has the ability to create short-term forecasts of wind speed and energy that will be produced. Determining weather conditions with accuracy enables the project owner and operator to efficiently maximize the facility output. Transmission system operators need to know how much energy wind facilities can deliver and when to dispatch generators on the system to match load to generation. Typically, wind projects provide a daily, hourly and incremental forecast, updated every 15 minutes to the off-taker, balancing authority, and/or regional TO. Predicting energy generation through vast, location-specific weather forecasting is used to integrate wind energy into the region's power grid and to schedule turbine and transmission maintenance windows, improving overall reliability. As wind forecasting has improved, the reliability of wind energy generation forecasts provided to the transmission operators has also improved.

### **22.2 Safety**

The Project is located in a rural setting with low population density. Construction and operation of the Project will have minimal impacts on the security and safety of the local population. The construction team will coordinate with first responders, including, but not limited, to air ambulance, local sheriff's office(s) and local fire services to develop a safety plan during the Project's 5-9-month construction period. During the operation period of the Project, the on-site operation and maintenance team members will also be in contact with local first responders to offer information about the Project and to answer any questions response teams may have regarding Project plans and details. The following security measures will be taken to reduce the chance of physical and property damage, as well as personal injury, at the site:

- The towers will be setback from occupied residences and roadways as described in this Application in Table 13.1.2 and the applicable regulations identified herein. These distances are considered to be safe based on developer experience, and are consistent with prior Facility Permits.
- Security measures will be taken during the construction and operation of the Project including temporary (safety) and permanent fencing, gates, warning signs, and locks of equipment and wind power facilities.
- Regular maintenance and inspections will address potential blade failures, minimizing the potential for blade throw.

## **4.0 Purpose of, and Demand for, the Wind Energy Facility (ARSD 20:10:22:08, 20:10:22:10)**

*ARSD 20:10:22:08. Purpose of facility. The applicant shall describe the purpose of the proposed facility.*

*ARSD 20:10:22:10. Demand for facility. The applicant shall provide a description of present and estimated consumer demand and estimated future energy needs of those customers to be directly served by the proposed facility. The applicant shall also provide data, data sources, assumptions, forecast methods or models, or other reasoning upon which the description is based. This statement shall also include information on the relative contribution to any power or energy distribution network or pool that the proposed facility is projected to supply and a statement on the consequences of delay or termination of the construction of the facility.*

The Project will generate electricity to be delivered to the high-voltage transmission grid at the Big Stone South Substation. NSP and CRW have entered into a PPA for the full output of the Project. Although, the generation from the Project will be sold to NSP, CRW will retain ownership of the Project and is responsible for the development, construction, and O&M of the Project.

The Project provides zero-emission cost electricity to the grid and long-term, economic energy pricing in the region. Electricity generated from the Project will be utilized within the Midcontinent Independent System Operator, Inc. (MISO) regional grid to help satisfy demand within MISO's operating territory. Demand for the power and its benefits are discussed in Section 4.2.

The Project will provide benefits not only to the State, but, also, to the local communities as well in the form of construction jobs, an increase in local economy, and investments in local businesses. The Project represents an approximate \$400 million investment in Codington and Grant Counties, of which Crowned Ridge will pay taxes on the Project, increasing the tax revenues available in the local communities and State. The project will employ up to 12 personnel (see Section 19).

### **4.1 Wind Resources Areas**

The Project location was selected due to its high wind resources and open area that could easily support a large-scale wind energy facility. Studies of the wind resource were conducted by the Applicant over a period of 10-years within the Project Area and indicated that the Project Area is one area in South Dakota with premier wind sources and suitable for wind energy development. Based on data collected, composite mean wind speeds (CMWS) are 9.01m/s and generally highest in the winter (mainly December and January) months of the year. The Project is classified as an IEC Classification Class II wind site. IEC Classifications are a set of design requirements that ensure wind turbines are engineered against damage from hazards within their

planned lifetime. An IEC Class II wind site has an annual average wind speed at the hub height greater than 8.5 m/s and less than 10 m/s.

#### **4.2 Renewable Power Demand**

Demand for renewable energy is evident in the United States, the upper Midwest region, and the State of South Dakota. The National Conference of State Legislatures specifies that 29 states, Washington, D.C., and three territories have adopted a Renewable Portfolio Standard and eight states and one territory have set renewable energy goals (National Conference of State Legislatures 2018). Additionally, Xcel's Minnesota Resource Plan shows a demand for 1,800 MW of new wind energy generation by 2026 (Xcel Energy 2015).

The Project provides a solution for the demand of clean energy within the Midwest. The market exists for independently produced electricity from wind projects and other renewables to meet the growing demand for renewable energy. The Project's location is conveniently located within South Dakota's high wind resource and with close proximity to the newly available capacity along the CapX2020 transmission project which allows for windier parts of the South Dakota to satisfy the markets growing demand for electricity in more densely populated regions further east. In fact, a recently completed 70-mile stretch of the CapX2020 project in South Dakota has resulted in proposals for over nine wind projects and one natural gas plant totaling more than 2,000 MW. One of those contributing wind projects is the Crowned Ridge Wind Project, the largest proposed wind energy investment in South Dakota's history.

According to a March 2018 Gallup poll, 73% of the public believes that alternative energy is key in solving the nation's energy problems and 70% of the public think more emphasis should be put on wind energy (Gallup 2018).

#### **4.3 Consequences of Delay**

Should the Project be delayed the Project benefits for the local communities, region, and State as listed in Section 18, will be at risk. If the Project does not achieve COD by the end of the first quarter 2020, the Project will face commercial challenges that could place it at risk of completion. Delay of Project's COD could also impact savings for regional customers as a higher cost of energy may be needed to fulfill renewable standards and requirements for the region from an alternative source of energy with potentially less, long-term economic benefits for the State and the Project's local communities. To receive the Production Tax Credit (PTC), the Project must be constructed by December 31, 2020.

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF FLORIDA**

**CASE NO.:** \_\_\_\_\_

KEVIN KOHMETSCHER, individually  
and on behalf of similarly situated  
individuals,

**CLASS ACTION**

Plaintiff,

v.

NEXTERA ENERGY, INC., a Florida,

Defendant.

**CLASS ACTION COMPLAINT & DEMAND FOR JURY TRIAL**

Plaintiff, Kevin Kohmetscher, brings this Class Action Complaint & Demand for Jury Trial against Defendant, NextEra Energy, Inc. ("NextEra" or "Defendant"), to stop Defendant from operating wind turbines near residential communities in a way that causes a nuisance and interferes with homeowners' use and enjoyment of their property. Plaintiff alleges as follows based on personal knowledge as to himself and his own acts and experiences, and as to all other matters, on information and belief, including an investigation by his attorneys.

**NATURE OF THE ACTION**

1. Defendant is one of the largest electric utility companies in the country, and the largest generator of wind energy in the world.
2. To generate wind energy, Defendant has constructed numerous "wind farms" across the United States. A wind farm is an array of wind turbines. Each turbine sits high in the air atop a tower and consists of a large rotor with three blades that spin as wind passes over the blades.

Defendant's wind farms often consist of dozens of turbines and stretch for miles across open terrain.

3. Although wind farms can supply renewable energy, they can also pose a number of hazards when built too close to homes and residential communities.

4. For instance, a turbine's spinning blades create flickering shadows that pass over nearby land. For those in the path of a wind turbine's shadows, the "shadow flicker" effect is similar to a constant strobe light. Those who experience prolonged shadow flicker often complain of severe headaches, nausea, difficulty concentrating, and in some cases seizures.

5. Turbines are also very noisy. The spinning blades create a deep thumping noise that sounds similar to a distant helicopter or train. This constant sound can travel for miles depending on weather conditions, and results in a decreased quality of life for those within a certain radius of the wind turbines due to stress, loss of sleep, and anxiety.

6. Rather than constructing its wind farms away from residential areas to prevent interfering with homeowners' use and enjoyment of their land, Defendant has instead sited many of its wind farms in the middle of farm fields, near houses, and next to important roads.

7. Although Defendant's chosen wind farm locations may be optimal for wind energy generation, the turbines' proximity to residential areas can be devastating to those living in the surrounding community. The turbines drive people from their homes due to the unreasonable inconvenience, interference, annoyance, and adverse health effects caused by the turbines. Wind farms also destroy the scenic beauty of rural areas, cluttering the horizon with conspicuous towers and spinning blades.

8. Those who attempt to sell their homes and move away from Defendant's wind farms are often unable to do so because the value of land near turbines plummets.

9. Accordingly, Plaintiff brings this action on his own behalf and on behalf of similarly situated individuals to obtain redress and injunctive relief for those who have suffered harm as a result of Defendant's substantial and unreasonable interference with their use and enjoyment of their property.

10. On his own behalf and on behalf of a proposed class defined below, Plaintiff seeks an award of damages compensating him and the putative class members for the negative effects that Defendant's turbines have had on their health and well-being, use and enjoyment of their property, and diminution in value of their property due to Defendant's turbines. Plaintiff also seeks a permanent injunction barring Defendant from continuing to unreasonably interfere with his and the putative class members' use and enjoyment of their property.

#### **JURISDICTION AND VENUE**

11. This Court has subject matter jurisdiction over this matter pursuant to the Class Action Fairness Act, 28 U.S.C. § 1332(d) *et seq.*, because this case is a putative class action in which the matter in controversy exceeds the sum or value of \$5,000,000, exclusive of interest and costs; there are greater than 100 putative class members; at least one putative class member is a citizen of a state other than Defendant's states of citizenship; and none of the exceptions under subsection 1332(d) apply to the instant action.

12. This Court has general personal jurisdiction over Defendant, because Defendant is a corporation organized under the laws of Florida and its headquarters is located within this District.

13. Venue is proper in this District pursuant to 28 U.S.C. § 1391(b), because Defendant resides in this District.

## **PARTIES**

14. Plaintiff, Kevin Kohmetscher, is a natural person who resides and owns property in Nebraska.

15. Defendant, NextEra Energy, Inc., is a for-profit corporation organized under the laws of Florida. Defendant is engaged in business as an energy company that owns and operates power generating plants and wind turbine farms across the country.

## **ALLEGATIONS OF FACT COMMON TO ALL COUNTS**

### **Background**

16. Wind energy is produced through the use of wind turbines. Turbines generally consist of three spinning blades connected to a rotor and a generator that sit atop a tower. As wind passes over the blades, the blades rotate and spin the generator to convert the wind's kinetic energy into electrical energy.

17. Towers range in size up to 500 feet high, and blades can be more than 260 feet long. Due to their size, wind turbine towers require a large foundation to stay upright. Turbines are generally painted white to make them visible to aircraft.

18. When used to generate energy for commercial applications, large numbers of wind turbines are grouped together for efficiency in arrays known as wind farms.

19. Wind farms require use and control of extensive land area in order to optimize the spacing between turbines and minimize turbulence at downwind turbines.

20. Wind farms are typically sited in wide-open, rural areas. As such, the turbines often disrupt the natural scenic beauty of the land where they are placed. Wind farms also pose a risk of mortality to migratory birds whose flight paths pass through wind farms.

21. Many industrial wind turbine manufacturers recommend that turbines be at least

1,500 feet from any residence—a minimum setback—to provide a safety zone in the event of catastrophic failure (e.g. a blade breaks and flies off, or the turbine flings shards of ice that have accumulated along the blades during winter).

22. As a result, there is typically a “no-build” zone in a 1,500 foot radius surrounding any turbine. In many instances, however, this “no-build” zone overlaps with the property of landowners.

23. More importantly, wind turbines often interfere with residents’ use and enjoyment of their property even where they live beyond the recommended minimum setback.

24. For instance, the rotation of turbine blades causes a rhythmic flickering of sunlight, commonly called “shadow flicker.”

25. Shadow flicker can be especially noticeable in the mornings and evenings, when the sun appears close to the horizon. During such times, turbine blades can cast intermittent shadows that completely obscure sunlight each time a blade passes in front of the sun, causing a strobe-like effect. Shadow flicker can be an issue both indoors and outdoors when the sun is low in the sky.

26. Prolonged exposure to the strobe-like effect of shadow flicker is not only distracting and annoying, it also causes headaches, nausea, and has been reported to cause seizures in certain individuals.

27. Wind turbines can also be very noisy, exceeding prescribed decibel limits in many residential areas.

28. In addition to the noise made by the mechanical equipment inside turbine towers, turbines also cause aerodynamic noise. Aerodynamic noise is created by wind passing over the blades of a wind turbine. The tip of a 40-50 meter blade can travel at speeds of over 140 miles per

hour under normal operating conditions. As the wind passes over the moving blade, the blade interrupts the laminar flow of air, causing turbulence and noise. Although current blade designs attempt to minimize the amount of turbulence and noise caused by wind, it is not possible to completely eliminate turbulence or noise from turbines.

29. Those who live near wind turbines have described the noise that turbines make as a rhythmical beating that sounds like “like a train that never gets there,” a “distant helicopter,” “thumping,” “thudding,” “pulsating,” and “beating.”

30. In addition to this audible thumping, turbines also emit inaudible low frequency sound waves known as infrasound. Although these sound waves are below the range of sound audible to humans, prolonged exposure can disturb sleep and impair mental health. Infrasound has been linked to increased instances of insomnia, stress, stroke, heart failure, immune system problems, dizziness, vertigo, nausea, ringing in the ears, breathing problems, abdominal and chest pain, urinary problems, effects on speech, and headaches. Further, high noise environments negatively impact learning in young children, making it hard to concentrate and communicate with others.

31. Health effects related to noise emissions from wind turbines have been observed in individuals living up to three miles from turbines, with the effects being greatest for those within one mile.

32. Individuals who live near Defendant’s wind farms usually decide to move away from the farms shortly after their installation due to the various ways that turbines interfere with their use and enjoyment of their property, including issues stemming from shadow flicker, noise emissions, and related health issues. However, many who reside near Defendant’s wind farms are

unable to move due to the financial strain caused by the decreased value of their property and the inability to find a buyer willing to live near a wind farm.

**Facts Specific to Plaintiff**

33. Plaintiff owns a plot of land located at 2034 Rd. 1900, Blue Hill, Webster County, Nebraska. Plaintiff's plot is approximately 11 acres in size, and Plaintiff currently resides in a single-family dwelling located on his land.

34. Plaintiff's plot has been in his family for decades. Plaintiff grew up on his land, and he purchased it from his father.

35. Plaintiff's property is adjacent to the Cottonwood Wind Farm, a wind turbine farm owned and operated by Defendant. Defendant began constructing the Cottonwood Wind Farm in or about mid 2017, and the turbines began commercial operation in or about November 2017.

36. The Cottonwood Wind Farm is miles-long and consists of more than 40 wind turbines built and maintained by Defendant.

37. The rear of Plaintiff's residence faces the Cottonwood Wind Farm. In relation to Plaintiff's property, the turbines are located to the east, south, and west of Plaintiff's residence. The nearest turbine is located approximately 1,300 feet from Plaintiff's property line.

38. Since the turbines near Plaintiff's property began operating, the turbines have negatively affected, invaded upon, and interfered with the Plaintiff's use and enjoyment of his property by:

- a. creating sustained, incessant, cyclical, and highly disturbing and annoying audible noise created by and emitted from the turbines, often described as sounding like an airplane flying overhead that never flies away;

- b. creating vibrations or amplitude modulation of sound pressures or a pulse sensation when the rotating blades of the turbines pass by the turbine pedestal;
- c. creating a shadow flicker/strobe light effect that often covers all of Plaintiff's property and intrudes into Plaintiff's home when the rotating blades of the turbines pass in front of the sun;
- d. disrupting and/or preventing Plaintiffs' ability to entertain guests or relatives, who are unable to visit for extended periods of time due to headaches and sleep disruption caused by the turbines;
- e. creating highly visible glare or glint which emanates from the turbines when they reflect sunlight;
- f. disrupting and obscuring Plaintiff's views and vistas with turning blades, where such vistas were previously unobstructed;
- g. preventing Plaintiff from enjoying normal outdoor family activities on his property such as barbeques, and other recreational activities;
- h. Preventing Plaintiff from keeping his windows open due to persistent noise.

39. As a direct and proximate result of Defendant's ongoing interference with Plaintiff's use and enjoyment of his property, Plaintiff has suffered and continues to suffer:

- a. an inability to sleep, repeated awakening during sleep, and sleep deprivation;
- b. headaches;
- c. vertigo and/or dizziness;
- d. nausea;
- e. stress and tension;

- f. fatigue;
- g. and anxiety and emotional distress.

40. The Cottonwood Wind Farm and the impact it has had on Plaintiff's property has thus substantially and unreasonably interfered with Plaintiff's use and enjoyment of his property. On information and belief, Plaintiff's property has decreased and will continue to decrease in value due to its proximity to Defendant's wind turbines, and Plaintiff will be unable to lease or sell his property for its fair market value prior to installation of the turbines.

### **CLASS ACTION ALLEGATIONS**

41. Pursuant to Fed. R. Civ. P. 23(b)(2) and (b)(3), Plaintiff brings this action on behalf of himself and a nationwide class (the "Class") defined as follows:

The Class: all persons in the United States who reside on and lease or own residential property within three miles of a NextEra wind turbine.

The Subclass: all persons who reside on and lease or own residential property in the State of Nebraska within three miles of a NextEra wind turbine.

42. Expressly excluded from the Class and Subclass are any individuals who have granted Defendant an unexpired license, lease, or easement for the purpose of operating a wind turbine or wind farm on or adjacent to their property; any members of the judiciary or their staff assigned to preside over this matter; any officer, director, or employee of Defendant; and any immediate family members of such officers, directors, or employees.

43. **Numerosity:** Upon information and belief, there are approximately hundreds, if not thousands, of members of the Class such that joinder of all members is impracticable. Although the exact number of members of the Class and Subclass is presently unavailable to Plaintiff, the members of the Class and Subclass can be easily identified through Defendant's records and publicly available population data.

44. **Typicality:** Plaintiff's claims are typical of the claims of the Class members, because the factual and legal bases of Defendant's liability to Plaintiff and to the other members of the Class are the same, resulting in injury to the Plaintiff and to all of the other members of the Class as a result of Defendant's interference with Plaintiff's and the other Class members' use and enjoyment of their properties.

45. **Adequacy:** Plaintiff will fairly and adequately represent and protect the interests of the other members of the Class. Plaintiff has retained counsel with substantial experience in prosecuting complex litigation and class actions, and Plaintiff and his counsel are committed to vigorously prosecuting this action on behalf of the members of the Class and have the financial resources to do so. Neither Plaintiff nor his counsel has any interest adverse to those of the other members of the Class.

46. **Commonality & Predominance:** Numerous common questions of law and fact exist as to all members of the Class, and such questions predominate over questions affecting Plaintiff or individual members of the Class. Common questions for the Class include, but are not limited, to the following:

- (a) Whether the effects of Defendant's wind farms, including disturbing and incessant noise, vibrations, shadow flicker and strobe lighting, which have caused nausea, headaches, sleep deprivation, vertigo, dizziness, anxiety, and diminution of property values, among other harms, are a private nuisance;
- (b) Whether Defendant's invasion of Plaintiff's and the other putative Class members' interests in the private use and enjoyment of their lands was done knowingly and intentionally;
- (c) Whether Defendant, as the entity that owns, operates, and constructs its wind

turbines and wind farms, Defendant knew or should have known of its turbines' propensity to generate loud and invasive noise, vibrations, shadow flicker, and to have other negative effects on individuals' health, comfort, and peace of mind

- (d) Whether Defendant assumed a duty of care owed to Plaintiff and the other putative Class members when it constructed wind turbines and/or wind farms near their residences;
- (e) Whether Plaintiff and the other members of the Class are entitled to monetary, restitutionary, or other remedies, and, if so, the nature of such remedies; and
- (f) Whether Defendant should be enjoined from engaging in such conduct in the future.

47. **Superiority:** Absent a class action, most members of the Class would find the cost of litigating their claims to be prohibitive and would have no effective remedy. The Class treatment of common questions of law and fact is also superior to multiple individual actions or piecemeal litigation in that it conserves the resources of the courts and the litigants and promotes consistency and efficiency of adjudication.

48. Defendant has acted and failed to act on grounds generally applicable to the Plaintiff and the other members of the Class, requiring the Court's imposition of uniform relief to ensure compatible standards of conduct toward the members of the Class and making injunctive or corresponding declaratory relief appropriate for the Class as a whole.

**COUNT I**  
**Private Nuisance**  
**(on behalf of Plaintiff and the other Class members)**

49. Plaintiff incorporates by reference all of the foregoing allegations as if fully set forth herein.

50. As explained above, Defendant's construction and operation of wind turbines and

wind farms near Plaintiff's and the other putative Class members' properties has caused a substantial and unreasonable invasion of Plaintiff's and the other putative Class members' interests in the private use and enjoyment of their lands.

51. By continuing to operate its wind turbines and wind farms, Defendant continues to substantially and unreasonably interfere with the property interests of Plaintiff and the other putative Class members by, among other things, subjecting them and their guests to disturbing and incessant noise, vibrations, shadow flicker and strobe lighting, which have caused nausea, headaches, sleep deprivation, vertigo, dizziness, anxiety, and diminution of property values, among other harms.

52. Defendant's invasion of Plaintiff's and the other putative Class members' interests in the private use and enjoyment of their lands was done knowingly and intentionally. At all relevant times, Defendant was aware of its turbines' proximity to Plaintiff's and the other putative Class members' lands. Defendant knew or should have known that by siting its wind turbines in such close proximity to the Plaintiff's and the other putative Class members' properties that the turbines' noise, vibrations, shadow flicker, and strobe lighting would invade the homes and properties of Plaintiff and the other putative Class members and thus interfere with their use and enjoyment of their properties. Such siting was therefore intentional and unreasonable, negligent, and reckless.

53. Further, as the entity that owns, operates, and constructs its wind turbines and wind farms, Defendant was aware or should have been aware of its wind turbines' propensity to generate loud and invasive noise, vibrations, shadow flicker, and to have other negative effects on individuals' health, comfort, and peace of mind.

54. Defendant's invasions into Plaintiff's and the other putative Class members' use

and enjoyment of their properties are such as to cause actual physical discomfort to one of ordinary sensibilities. Defendant operates its wind turbines and wind farms in a way that is offensive and intolerable, and out of character for the normally quiet, residential nature of the areas where Plaintiff's and the other putative Class members' properties are located.

55. To the extent that Defendant's wind turbines and wind farms emit noise that exceeds levels prescribed under local zoning laws in the jurisdictions where Plaintiff and the other putative Class members reside, Defendant's continued operation of wind turbines and wind farms constitutes a nuisance *per se*.

56. Even if Defendant's wind turbines and wind farms fully complied with local zoning laws, it would not excuse the nuisance caused by Defendant's operation of its wind turbines and wind farms, because Defendant knows and understands the harms and negative effects that its turbines can have on nearby residents, and it nonetheless sited its turbines too close to Plaintiff's and the other putative Class members' property.

57. As a direct and proximate result of Defendant's misconduct described herein, Plaintiff and the other putative Class members have suffered actual monetary damages, pecuniary losses, and other significant harms, including physical harm, anxiety and emotional distress, disruption of their lives, and loss of the use and enjoyment of their properties, all of which have ascertainable value to be proven at trial.

**COUNT II**  
**Negligence**  
**(on behalf of Plaintiff and the other Class members)**

58. Plaintiff incorporates by reference the allegations in paragraphs 1 – 48 as if fully set forth herein.

59. Defendant assumed a duty of care owed to Plaintiff and the other putative Class

members when it constructed wind turbines and/or wind farms near their residences. As the entity that owns, operates, and constructs its wind turbines and wind farms, Defendant knew and could reasonably foresee that construction and operation of its turbines would interfere with Plaintiff's and the other putative Class members' use and enjoyment of their properties.

60. Defendant's duty of care obligated it to exercise reasonable care by (1) mitigating the noise, vibrations, and infrasound made by its turbines; (2) disabling its turbines during times of day when excessive noise and shadow flicker are an issue; and (3) siting its turbines far enough away from Plaintiff's and the other putative Class members' residences so as to not have negative effects on individuals' health, comfort, and peace of mind.

61. Defendant breached its duty of care owed to Plaintiff and the other putative Class members users as described herein by, among other things, siting its wind farms too close to Plaintiff's and the other putative Class members' properties and failing to mitigate the shadows and noise emissions from its turbines, subjecting Plaintiff and the other putative Class members and their guests to disturbing and incessant noise, vibrations, shadow flicker and strobe lighting, which have caused nausea, headaches, sleep deprivation, vertigo, dizziness, anxiety, and diminution of property values, among other harms

62. As a direct and proximate result of Defendant's misconduct described herein, Plaintiff and the other putative Class members have suffered actual monetary damages, pecuniary losses, and other significant harms, including physical harm, anxiety and emotional distress, disruption of their lives, and loss of the use and enjoyment of their properties, all of which have ascertainable value to be proven at trial.

WHEREFORE, Plaintiff, on his own behalf and on behalf of the other Class members, prays for the following relief:

- A. an order certifying the proposed Class as defined above and appointing Plaintiff as the Class representative;
- B. an award of actual and compensatory damages in an amount to be determined at trial;
- C. an order permanently enjoining Defendant from continuing to operate its wind turbines and wind farms in ways that unreasonably interfere with Plaintiff's and the other Class members' use and enjoyment of their property;
- D. such preliminary and other equitable or declaratory relief as the Court deems appropriate;
- E. such other and further relief as the Court deems reasonable and just.

Dated: March 1, 2019

Respectfully submitted,

KEVIN KOHMETSCHER, individually and on behalf of other similarly situated individuals.

By: /s/ David P. Healy

One of Plaintiff's Attorneys

David P. Healy (0940410)  
DUDLEY, SELLERS, HEALY, HEATH  
& DESMOND, PLLC  
SunTrust Financial Center  
3522 Thomasville Rd., Suite 301  
Tallahassee, Florida 32309  
Tel: 850.222.5400  
Fax: 850.222.7339  
dhealy@davidhealylaw.com

Myles McGuire (*pro hac vice* to be filed)  
Paul Geske (*pro hac vice* to be filed)  
MCGUIRE LAW, P.C.  
55 W. Wacker Dr., 9th Fl.  
Chicago, IL 60601  
Tel: (312) 893-7002  
Fax: (312) 275-7895  
mmcguire@mcgpc.com  
pgeske@mcgpc.com

*Counsel for Plaintiff and the putative class*

**From:** Silver Sage [REDACTED]  
**Sent:** Monday, April 1, 2019 9:31 AM  
**To:** PUC-PUC <[PUC@state.sd.us](mailto:PUC@state.sd.us)>; Edwards, Kristen <[Kristen.Edwards@state.sd.us](mailto:Kristen.Edwards@state.sd.us)>; Reiss, Amanda <[Amanda.Reiss@state.sd.us](mailto:Amanda.Reiss@state.sd.us)>  
**Subject:** [EXT] Input Hearing documents

Please find the attached letter in regard to my submitted documents at the Public Input hearing for docket EL19-003

*Kristi Mogen*

[REDACTED]  
*Twin Brooks, SD*

**Confidentiality Notice:** This E-mail and any attachments are covered by the Electronic Communications Privacy Act, 18 U.S.C. & 2510-2524, is confidential and may be legally privileged. If you are not the intended recipient, you are hereby notified that any retention, dissemination, or copying of this communication is strictly prohibited. Please reply to the sender that you have received the message in error, and permanently delete the original and destroy any copy, including printed copies of this email and any attachments thereto.

001275

Kristi Mogen

Twin Brooks, SD 57269

4/1/19

Dear SD PUC Staff:

I respectfully ask that the SD PUC Staff reconsider the acceptance and posting of my submitted document Boulevard Associates during March 20<sup>th</sup>, 2019, PUC input hearing Docket EL19-003 held in Waverly, SD.

The reason given was "A reference document, article or other attachment not written by the person commenting should clearly identify the source of the content. The inclusion of any copyrighted material without accompanying proof of the commenter's explicit right to redistribute that material will result in the material being rejected."

On September 7<sup>th</sup>, 2018 Jody Theisen, the Deuel County Planning and Zoning Officer sent this document in an email as part of the Crowned Ridge CUP Application in Deuel County. Tyler Wilhelm presented the Crowned Ridge Project as a whole (Crowned Ridge LLC, Crowned Ridge II) at the Grant, Codington and Deuel CUP hearings, and during the PUC input hearing. In response to Kristi Mogen and Amber Christenson data request 1-16 "Crowned Ridge Wind does have recorded documents in Deuel County, South Dakota. All documents assigned to Crowned Ridge Wind that are recorded in Deuel County, South Dakota are publicly available and accessible are public information and accessible at the Register of Deeds office in Clear Lake, South Dakota. For more information on the Deuel County Register of Deeds office please reference the following link:  
<https://www.deuelcountysd.com/register-of-deeds>"

I marked on this document "of 247 filed in Deuel", this is a public document that can be accessed by anyone. Please post the Boulevard Associates document with my submitted comments on the PUC Docket EL19-003 website.

Sincerely,



Kristi Mogen

of 247 filed  
in Devel County

## ***Boulevard Associates, LLC***

700 Universe Blvd.  
Juno Beach, FL 33408-2683

8/31/2012

**GARY AND DIXIE HENZE**

**PRESCOTT VALLEY, AZ 86314**

Re: Wind Farm Agreement

*Dear GARY AND DIXIE HENZE,*

As you are aware, the wind farm agreement we have on your property renews annually. After a thorough review of the opportunities for wind energy in your area, we have decided to not renew your agreement at this time.

I want to personally thank you for your participation and cooperation as we gathered data for a potential wind project in your community. The decision to discontinue your agreement was based on a list of criteria, including market opportunities, wind resource and environmental that leads us to the decision to terminate your wind farm agreement with Boulevard Associates, LLC. Based on this determination, we will also be discontinuing any further payments.

We will continue to monitor this region. If market conditions change and we believe this project is viable in the future, we will contact you. Should you have any questions please feel free to contact me at (561) 691-7240.

Sincerely,

Scott Scovill  
Director Development

cc: Mikel Greene

PTC - ended 2012  
El Nino years - low wind events  
2002-03, 2004-05, 2006-07, 2009-10,  
2014-16, and 2019