BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF CROWNED RIDGE WIND II, LLC FOR A FACILITIES PERMIT TO CONSTRUCT A 300.6 MEGAWATT WIND FACILITY

Docket No. EL19-027

SUPPLEMENTAL TESTIMONY

OF TYLER WILHELM

September 20, 2019

INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAMES AND BUSINESS ADDRESS.

A. Tyler Wilhelm. My business address is 700 Universe Blvd., Juno Beach, Florida, 33408.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by NextEra Energy Resources, LLC ("NEER") as a Senior Project Manager of Renewable Development at NEER. I am responsible for the development, permitting, community outreach, regulatory compliance, and meeting the commercial operations date ("COD") for the 300.6 megawatt ("MW") Crowned Ridge Wind II, LLC ("CRW II") wind generation project ("Project").

Q. ARE YOU THE SAME TYLER WILHELM WHO SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING ON JULY 9, 2019?

A. Yes.

Q. HAS THIS TESTIMONY BEEN PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes.

PURPOSE OF TESTIMONY

Q. PLEASE DESCRIBE THE PURPOSE OF THE TESTIMONY.

A. The purpose of my testimony is to address the comments made at the August 26, 2019 Public Input Meeting on general development issues and to provide updates to the consideration of alternative turbine locations and the current land status.

DEVELOPMENT

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE REGARDING WHETHER THERE IS A SPECIFIC 1 MILE SETBACK FOR THE TOWN OF BEMIS, SOUTH DAKOTA. PLEASE COMMENT.

A. On May 23, 2017, the Deuel County Board of County Commissioners approved and adopted several changes to the siting requirements for Wind Energy Systems in Ordinance B2004-01-23. This ordinance, which is provided as Exhibit TW-S-1, defined setback requirements for wind turbines for a list of named, incorporated municipalities and the lake park districts. However, the ordinance does not enumerate a specific setback distance from the unincorporated town of Bemis. Instead, the setback distance for Bemis falls within the general setback that wind turbines shall be no less than four times the total height of the wind turbine from non-participating residences and fifteen hundred feet from participating residences.

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE REQUESTING CLARIFICATION ON THE DISTANCES BETWEEN TURBINES. PLEASE COMMENT.

A. Witness Thompson provides the manufacturer's recommended distance that turbines should be from each other, which is three rotor diameters of separation or 348 meters for the CRW II Project's turbines. In addition, due to combination of compliance with sound and shadow flicker ordinances and other setbacks, the nearest distance between any two turbines in CRW II is 418 meters.

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE REGARDING THE ABILITY TO FIND LOCAL LANDMARKS ON THE WIND TURBINE MAPS TO FACILITATE AN UNDERSTANDING OF THE LOCATION OF A WIND TURBINE TO A RESIDENT.

A. To facilitate a greater understanding of the wind turbine locations to residents we have added additional landmarks and roads to the map that was originally filed with the Application as Map 3a, and is provided hereto as Exhibit TW-S-2.

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE REGARDING WHETHER CRW II WILL KNOW THE TILE LOCATIONS PRIOR TO CONSTRUCTION. PLEASE COMMENT.

A. Throughout the landowner outreach process, the CRW II project team makes inquiries about the locations of existing facilities located on landowner properties, which included the location of existing drainage tiles. If impacts to existing drainage tiles are of concern,

the landowner may elect to provide a drainage tile map to CRW II for consideration. Although drainage tile maps have not been obtained for all properties where drainage tile exists, the drainage tile maps have been obtained from those landowners who have expressed concerns related to the impacts construction may have on their existing drainage tiles and who have drainage tile maps available to provide to CRW II.

At the August 26, 2019 Public Input Meeting, landowner Dean Mack commented on the potential impact to drainage tiles located on a participating landowner's property that he paid for and installed to benefit his adjacent farming operations. A CRW II representative followed up with Dean Mack and received a copy of his drainage tile maps. CRW II has taken the location of his installed drainage tile into consideration and will work to eliminate impacts to existing drainage tile on the property to the extent possible. In the event any damage or impacts occur to the existing drainage tile CRW II will coordinate with Dean Mack and ensure that restoration to the drainage tile is completed, including the payment of appropriate compensation.

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE REGARDING WHICH GRANT COUNTY SET BACK ORDINANCE CRW II WAS APPLIED TO THE WIND TURBINE ARRAY. PLEASE COMMENT.

A. On December 28, 2018, the Grant County Board of County Commissioners approved and adopted several changes to the siting requirements of Wind Energy Systems in Ordinance 2016-01C, provided as Exhibit TW-S-3. Ordinance 2016-01C is the most current

ordinance for wind turbine setback requirements in Grant County, and is the ordinance that CRW II used to design the Project in Grant County.

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE REGARDING THE ABILITY TO MOVE A WIND TURBINE 250 FEET POST APPROVAL IN THE CONTEXT OF THE FEDERAL AVIATION ADMINISTRATION DETERMINATION OF NO HAZARD REQUIREMENTS. PLEASE COMMENT.

A. For the CRW II project, wind turbines that have received a Determination of No Hazard ("DNH") from the Federal Aviation Administration ("FAA") require a new aeronautical study to be performed and a new FAA DNH to be issued in the event the turbine relocation results in:

(a) a latitude or longitude change by exactly one arc-second or more; or

(b) an increase to the overall height above mean sea level (site elevation + turbine tip height above ground level) by one foot or more than as listed on the determination letter.

The typical Commission permit condition allows a turbine to be relocated up to 250 feet, provided the developer provides an affidavit that the relocation complies with, for example, cultural, environmental, sound and shadow flicker requirements. However, given that not all turbine relocations less than 250 feet will implicate criteria "a" and "b", whether a new aeronautical study and DNH is required will depend on the distance of the move. For example, a general approximation for a CRW II turbine relocation of one arc-second would be +/- 100 feet of movement to the north or south and anywhere from +/-

68 to feet +/- 90 feet of movement to the east or west. Hence, criteria "a" will only be implicated if these arc-second distances are exceeded. Thus, for instance, for a 50-foot lateral relocation with no increase in height above sea level neither criteria "a" or "b" would be implicated, and, therefore, no FAA involvement would be needed to relocate the turbine.

UPDATES

Q. THE CRW II APPLICATION AT PAGE 20 STATES CRW II IS EXPLORING THE POTENTIAL FOR 4-8 ADDITIONAL ALTERNATIVE TURBINE LOCATIONS. PLEASE PROVIDE THE STATUS OF THE ASSESSMENT OF THESE 4-8 ALTERNATIVE LOCATIONS.

A. CRW II has completed the necessary review of all eight additional turbine locations. While field surveys confirmed that all eight locations would not result in permanent impacts to environmental or cultural resources, only five of the additional turbine locations are viable locations moving forward due to cumulative exceedances of sound and shadow flicker. All five of these additional turbine locations are sited on landowner properties that possess wind easement option agreements and comply with all applicable local and state turbine siting requirements.

The maps submitted by CRW II with its application used an alternative turbine name based on the names used during the development. With the addition of the five additional alternative locations, we decided not to re-number the original and not to rename five potential now new turbine locations, but rather to identify which are primaries and which are alternate locations. Exhibit TW-S-4 is a table that identifies

which are primary locations and which are alternate locations, and also the maps (Exhibit DH-S-2) submitted by witness Daryl Hart are color coded with the primary and alternative locations.

Q. WHAT IS THE CURRENT LAND STATUS FOR THE CRW II PROJECT?

A. All necessary property rights have been obtained for all proposed turbine locations and all other associated project facilities and no pending agreements remain. Since the filing of the application, CRW II has obtained five new easement agreements and no existing easement agreements have expired. The new easement agreements obtained support three turbine locations, two collection corridors, and one temporary access road needed for construction. Prior to commencement of construction, CRW II will be required to renew three existing wind easement agreements. Also, see Exhibit TW-S-2 for map of the land status.

Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?

A. Yes, it does.

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STATE OF FLORIDA)
) ss
COUNTY OF PALM BEACH)

I, Tyler Wilhelm, being duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.

Tyler Wilhelm

Subscribed and sworn to before me this 19th day of September 2019.

SEAL

Notary Public

My Commission Expires _____

NANCY E. LLAMA
MY COMMISSION # FF 900481
EXPIRES: November 14, 2019
Bonded Thru Notary Public Underwriters

Ordinance B2004-01-23B

AN ORDINANCE ENTITLED, An Ordinance to Amend Section 1215 Wind Energy System (WES) Requirements Adopted by Ordinance B2004-01, July 6, 2004, as amended, of the Zoning Ordinance of Deuel County.
Be it ordained by the Board of County Commissioners of Deuel County, South Dakota: that section 1215 Adopted by Ordinance B2004-01 July 6, 2004, as amended, of the Zoning Ordinance of Deuel County be amended to change Section 1215 Wind Energy System Requirements as follows: (Changes are printed with those parts in bold as additions and those parts with a line through as deletions to the ordinance.)

Section 1215. Wind Energy System (Wes) Requirements

Section 1215.01 Applicability
The requirements of these regulations shall apply to all WES facilities except private non-commercial facilities with a single tower height of less than one-hundred forty (140) feet and used primarily for on-site consumption of power.

Section 1215.02 Federal and State Requirements
All WESs shall meet or exceed standards and regulations of the Federal Aviation Administration and South Dakota State Statutes and any other agency of federal or state government with the authority to regulate WESs.

Section 1215.03 General Provisions

1. Mitigation Measures

a. Site Clearance. The permittees shall disturb or clear the site only to the extent necessary to assure suitable access for construction, safe operation and maintenance of the WES.

b. Topsoil Protection. The permittees shall implement measures to protect and segregate topsoil from subsoil in cultivated lands unless otherwise negotiated with the affected landowner.

c. Compaction. The permittees shall implement measures to minimize compaction of all lands during all phases of the project's life and shall confine compaction to as small an area as practicable.

d. Livestock Protection. The permittees shall take precautions to protect livestock during all phases of the project's life.

e. Fences. The permittees shall promptly replace or repair all fences and gates removed or damaged during all phases of the project's life unless otherwise negotiated with the affected landowner.

f. Roads

i. Public Roads. Prior to commencement of construction, the permittees shall identify all state, county or township "haul roads" that will be used for the WES project and shall notify the state, county or township governing body having jurisdiction over the roads to determine if the haul roads identified are acceptable. The governmental body shall be given adequate time to inspect the haul roads prior to use of these haul roads. Where practical, existing roadways shall be used for all activities associated with the WES. Where practical, all-weather roads shall be used to deliver cement, turbines, towers, assemble nacelles and all other heavy components to and from the turbine sites.

ii. The permittees shall, prior to the use of approved haul roads, make satisfactory arrangements with the appropriate state, county or township governmental body having jurisdiction over approved haul roads for construction of the WES for the maintenance and repair of the haul roads that will be subject to extra wear and tear due to transportation of equipment and WES components. The permittees shall notify the County of such arrangements upon request of the County.

iii. Turbine Access Roads. Construction of turbine access roads shall be minimized. Access roads shall be low profile roads so that farming equipment can cross them and shall be covered with Class 5 gravel or similar material. When access roads are constructed across streams and drainageways, the access roads shall be designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed.

iv. Private Roads. The permittees shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the site, unless otherwise negotiated with the affected landowner.

v. Control of Dust. The permittees shall utilize all reasonable measures and practices of construction to control dust.

vi. Soil Erosion and Sediment control Plan. The permittees shall develop a Soil Erosion and Sediment Control Plan prior to construction and submit the plan to the County. The Soil Erosion and Sediment Control Plan shall address the erosion control measures for each project phase, and shall at a minimum identify plans for grading, construction and drainage of roads and turbine pads; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive revegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The plan shall identify methods for disposal or storage of excavated material.

2. Setbacks

Wind turbines shall meet the following minimum spacing requirements.

a. Distance from existing Non-Participating residences and businesses shall be not less than four times the height of the wind turbine. Distance from existing Participating residences, business and public buildings shall be not less than fifteen hundred feet. Non-Participating property owners shall have the right to waive the respective setback requirements.

~~Distance from existing off-site residences, business and public buildings shall be not less than one thousand (1,000) feet. Distance from on-site or lessor's residence shall be not less than five hundred (500) feet or one hundred and ten percent (110%) of the wind turbine height, whichever is greater.~~ For purposes of this section only, the term "business" does not include agricultural uses.

b. Distance from public right-of-way shall be one hundred and ten percent (110%) the height of the wind turbines, measured from the ground surface to the tip of the blade when in a fully vertical position.

c. Distance from any property line shall be one hundred and ten percent (110%) the height of the wind turbine, measured from the ground surface to the tip of the blade when in a fully vertical position unless wind easement has been obtained from adjoining property owner.

d. Distance from the Lake Park District located at Lake Cochrane 3 miles, Lake Alice 2 miles and 1 mile from the Lake Park District at Bullhead Lake.

e. Distance from the municipalities of Altamont, Astoria, Brandt and Goodwin of 1 mile from the nearest residence and 1 1/2 miles from the city limits of the towns of Gary, Toronto and Clear Lake, except the area of Clear Lake located in sections 11, 12 and 14.

3. Electromagnetic Interference. The permittees shall not operate the WES so as to cause microwave, television, radio, or navigation interference contrary to Federal Communications

Commission (FCC) regulations or other law. In the event such interference is caused by the WES or its operation, the permittees shall take the measures necessary to correct the problem.

4. Lighting. Towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the monitoring equipment. Upon commencement of construction of a Tower, in cases where there are residential uses located within a distance which is three hundred (300) percent of the height of the Tower from the Tower and when required by federal law, dual mode lighting shall be requested from the FAA. Beacon lighting, unless required by FAA, shall not be utilized.

5. Turbine Spacing. The turbines shall be spaced no closer than is allowed by the turbine manufacturer in its approval of the turbine array for warranty purposes.

6. Footprint Minimization. The permittees shall design and construct the WES so as to minimize the amount of land that is impacted by the WES. Associated facilities in the vicinity of turbines such as electrical/electronic boxes, transformers and monitoring systems shall to the greatest extent feasible be mounted on the foundations used for turbine towers or inside the towers unless otherwise negotiated with the affected landowner.

7. Electrical Cables. The permittees shall place electrical lines, known as collectors, and communication cables underground when located on private property except when total distance of collectors from the substation require an overhead installation due to line loss of current from an underground installation. Collectors and cables shall also be placed within or immediately adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner. This paragraph does not apply to feeder lines.

8. Feeder Lines. The permittees shall place overhead electric lines, known as feeders, on public rights-of-way if a public right-of-way exists. Changes in routes may be made as long as feeders remain on pubic rights-of-way and approval has been obtained from the governmental unit responsible for the affected right-of-way. If no public right-of-way exists, the permittees may place feeders on private property. When placing feeders on private property, the permittees shall place the feeder in accordance with the easement negotiated with the affected landowner. The permittees shall submit the site plan and engineering drawings for the feeder lines before commencing construction.

9. Decommissioning/Restoration/Abandonment

a. Decommissioning Plan. Within 120 days of completion of construction, the permittees shall submit to the County a decommissioning plan describing the manner in which the permittees anticipate decommissioning the project in accordance with the requirements of paragraph (b) below. The plan shall include a description of the manner in which the permittees will ensure that it has the financial capability to carry out these restoration requirements when they go into effect. The permittees shall ensure that it carries out its obligation to provide for the resources necessary to fulfill these requirements. **The decommissioning plan shall include the requirement that Permittee post a bond or other adequate security sufficient to pay the entire cost of the decommission process.**

b. Site Restoration. Upon expiration of this permit, or upon earlier termination of operation of the WES, the permittees shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead and underground cables, foundations, buildings and ancillary equipment to a depth of forty two (42) inches. To the extent possible the permittees shall restore and reclaim the site to its pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. Any agreement for removal to a lesser depth or for no removal shall be recorded with the County and shall show the locations of all such foundations. All such agreements between the permittees and the affected landowner

shall be submitted to the County prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within eighteen months after expiration.

10. Abandoned Turbines. The permittees shall advise the County of any turbines that are abandoned prior to termination of operation of the WES. The County may require the permittees to decommission any abandoned turbine.

11. Height from Ground Surface. The minimum height of blade tips, measured from ground surface when a blade is in fully vertical position, shall be twenty-five (25) feet.

12. Towers.

a. Color and Finish. The finish of the exterior surface shall be non-reflective and non-glass.

b. All towers shall be singular tubular design. With the exception of those towers identified in Section 12.15.01.

13. Noise & **Shadow Flicker.**

a. ~~Noise level shall not exceed 50 dBA average A-Weighted Sound pressure at the perimeter of existing residences.~~ **Noise level shall not exceed 45 dBA average A-Weighted Sound pressure at the perimeter of existing residences, for non-participating residences.**

b. **Limit for allowable shadow flicker at existing residences to no more than 30 hours annually.**

14. Permit Expiration. The permit shall become void if no substantial construction has been completed within three (3) years of issuance.

15. Required Information for Permit.

a. Boundaries of the site proposed for WES and associated facilities on United States Geological Survey Map or other map as appropriate.
b. Map of easements for WES.
c. Copy of easement agreements with landowners.
d. Map of occupied residential structures, businesses and public buildings.
e. Map of sites for WES, access roads and utility lines.
f. Proof of utility right-of-way easement for access to transmission lines.
g. Location of other WES in general area.
h. Project schedule.

Passed and adopted this 23rd day of May, 2017.

Gary Jaeger
Chairperson

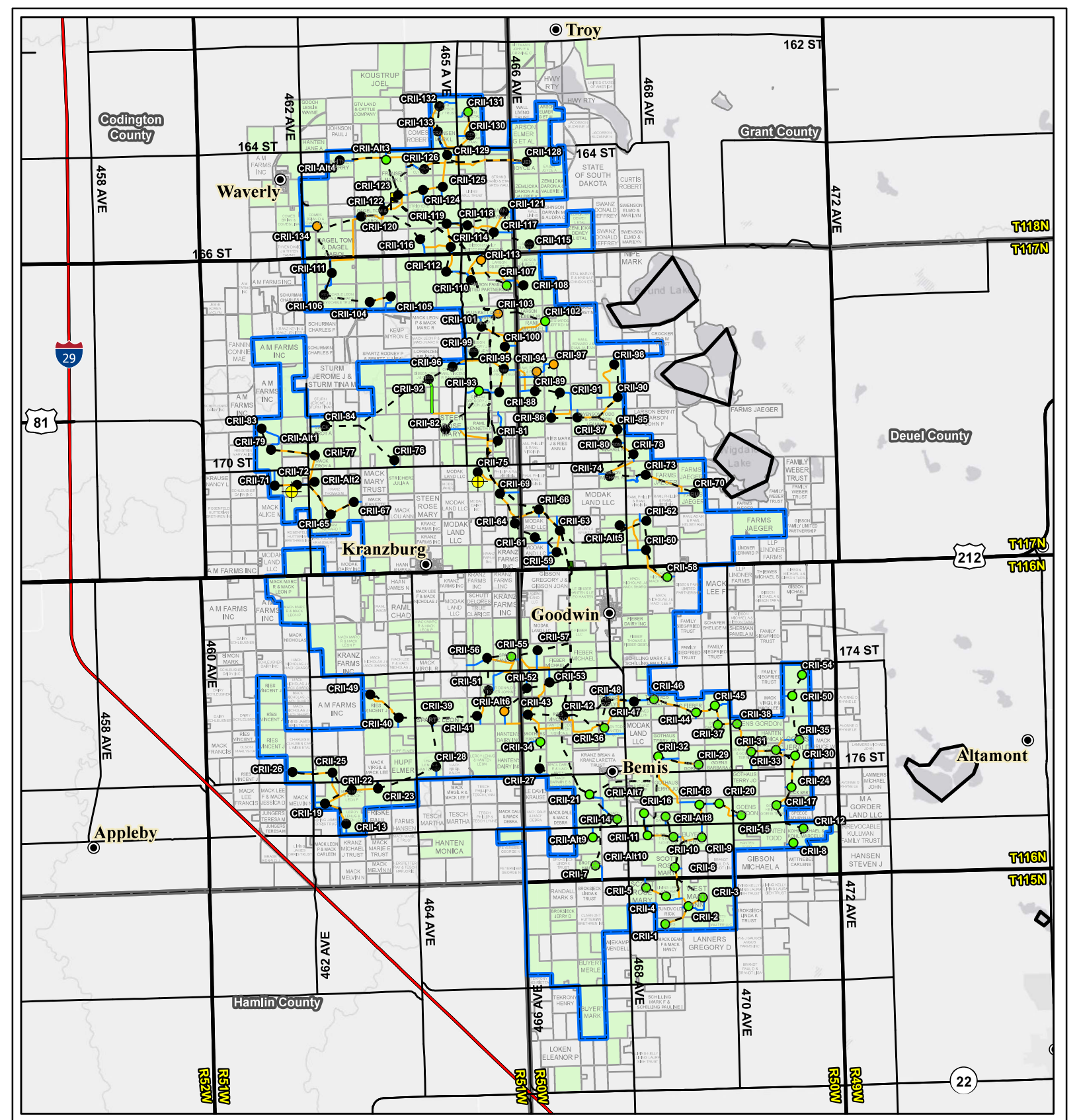
(SEAL)

Pam L. Lynde
Auditor

First Reading May 16, 2017
Second May 23, 2017
Approved & Adopted May 23, 2017
Notice of Adoption Published May 31, 2017

Effective Date June 20, 2017

This ordinance shall become effective 20 days after publication of this notice in the official newspaper, thereby repealing all ordinances or parts thereof in conflict herewith unless a referendum is timely involved prior thereto.



PUC Supplemental

Crowned Ridge II Wind Farm

- MET Tower
- **100 MW Array**
  - Primary Turbine
- **200 MW Array**
  - Primary Turbine
  - Alternate Turbine
- City
- Proposed Turbine Access Road
- Temporary Construction Easement (Needed for Construction)
- Collector Line
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- County Road
- Substation
- O&M Facility
- Batch Plant
- Project Boundary
- Township/Range Boundary
- County Boundary
- **Land Status**
  - Leased, Signed
  - Parcel Boundary

Kilometers
0 2.5 5

Miles
0 2.5 5

N W E S

Base Map: World Light Gray Canvas Base
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
Codington, Deuel, and Grant Counties, South Dakota

003206

SWCA ENVIRONMENTAL CONSULTANTS

Projection: NAD 1983 UTM Zone 14N

ORDINANCE 2016-01C

AN ORDINANCE AMENDING GRANT COUNTY ORDINANCE #2004-1, AN ORDINANCE ESTABLISHING ZONING REGULATIONS FOR GRANT COUNTY, SOUTH DAKOTA, AND PROVIDING FOR THE ADMINISTRATION, ENFORCEMENT, AND AMENDMENT THEREOF, IN ACCORDANCE WITH THE PROVISIONS OF CHAPTERS 11-2, 1967 SDCL, AND AMENDMENTS THEREOF, AND FOR THE REPEAL OF ALL RESOLUTIONS AND ORDINANCES IN CONFLICT THEREWITH

WHEREAS, the Grant County, South Dakota, Board of County Commissioners, hereinafter referred to as the Board of County Commissioners, deems it necessary, for the purpose of promoting the health, safety, and the general welfare of the County, to enact zoning regulations and to provide for its administration, and

WHEREAS, the Board of County Commissioners has appointed a County Planning Commission, hereinafter referred to as the Planning Commission, to recommend the district boundaries and to recommend appropriate regulations to be enforced therein, and

WHEREAS, the Planning Commission has divided Grant County into districts, and has established by reference to maps the boundaries of said districts for administration and interpretation; has provided for definitions and for amendments to this Ordinance; has provided for the enforcement; prescribed penalties for violation of provisions; has provided for building permits within the districts; has provided for invalidity of a part and for repeal of regulations in conflict herewith; and has prepared regulations pertaining to such districts in accordance with the county comprehensive plan and with the purpose to protect the tax base, to guide the physical development of the county, to encourage the distribution of population or mode of land utilization that will facilitate the economical and adequate provisions of transportation, roads, water supply, drainage, sanitation, education, recreation, or other public requirements, to conserve and develop natural resources, and

WHEREAS, the Planning Commission has given reasonable consideration, among other things, to the character of the districts and their peculiar suitability for particular uses, and

WHEREAS, the Planning Commission and Board of County Commissioners has given due public notice to a hearing relating to zoning districts, regulations, and restrictions, and has held such public hearings, and

WHEREAS, all requirements of SDCL 11-2, with regard to the preparation of these regulations and subsequent action of the Board of County Commissioners, has been met, and

WHEREAS, copies of said zoning regulations have been filed with the Grant County Auditor for public inspection and review during regular business hours, and

WHEREAS, all ordinances, or parts of regulations in conflict herewith are hereby expressly repealed;

THEREFORE BE IT ORDAINED that Ordinance **2016-01C** is hereby adopted by the Board of County Commissioners, Grant County, South Dakota.

Voting aye: Commissioners Buttke, Dummann, Mach, Stengel Voting nay: Commissioner Street

Adopted this 28th day of December, 2018.

marty Buttke
Chairperson
Grant County Board of County Commissioners

ATTEST:
Grant County Auditor

This ordinance shall become effective 20 days after publication of this notice in the official newspaper, thereby repealing all ordinances or parts thereof in conflict herewith unless a referendum in a timely manner is file.

First Reading: December 18, 2018
Second Reading: December 28, 2018
Adopted: December 28, 2018
Published: January 9, 2019
Effective: January 28, 2019

Published once for an approximate cost of_____.

ORDINANCE 2016-01C

AN ORDINANCE AMENDING GRANT COUNTY ORDINANCE #2004-1, AN ORDINANCE ESTABLISHING ZONING REGULATIONS FOR GRANT COUNTY, SOUTH DAKOTA, AND PROVIDING FOR THE ADMINISTRATION, ENFORCEMENT, AND AMENDMENT THEREOF, IN ACCORDANCE WITH THE PROVISIONS OF CHAPTERS 11-2, 1967 SDCL, AND AMENDMENTS THEREOF, AND FOR THE REPEAL OF ALL RESOLUTIONS AND ORDINANCES IN CONFLICT THEREWITH

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF GRANT COUNTY, SOUTH DAKOTA: THAT ARTICLE XII SECTION 1211 ENERGY SYSTEM (WES) REQUIREMENTS, BE AMENDED AS FOLLOWS: (**Bolded Highlighted** text represent new language to be included - ~~Strikethrough highlighted~~ text represents language to be deleted)

Section 1211. Wind Energy System (Wes) Requirements

Section 1211.01 Applicability

The requirements of these regulations shall apply to all WES facilities except private facilities with a single tower height of less than seventy-five (75) feet and used primarily for on-site consumption of power.

Section 1211.0~~1~~2 Purpose

The purpose of this ordinance is to insure that the placement, construction and modification of a Wind Energy System (WES) facility is consistent with the County's land use policies, to minimize the impact of WES facilities, to establish a fair and efficient process for review and approval of applications, to assure a comprehensive review of environmental impacts of such facilities, and to protect the health, safety and welfare of the County's citizens.

Section 1211.0~~2~~3 Federal and State Requirements

All WESs shall meet or exceed standards and regulations of the Federal Aviation Administration and South Dakota State Statutes and any other agency of federal or state government with the authority to regulate WESs.

Section 1211.0~~3~~4 General Provisions

1. Mitigation Measures

    a. Site Clearance. The permittees shall disturb or clear the site only to the extent necessary to assure suitable access for construction, safe operation and maintenance of the WES.

    b. Topsoil Protection. The permittees shall implement measures to protect and segregate topsoil from subsoil in cultivated lands unless otherwise negotiated with the affected landowner.

    c. Compaction. The permittees shall implement measures to minimize compaction of all lands during all phases of the project's life and shall confine compaction to as small an area as practicable.

d. Livestock Protection. The permittees shall take precautions to protect livestock during all phases of the project's life.

e. Fences. The permittees shall promptly replace or repair all fences and gates removed or damaged during all phases of the project's life unless otherwise negotiated with the affected landowner.

f. Roads

i. Public Roads. Prior to commencement of construction, the permittees shall identify all state, county or township "haul roads" that will be used for the WES project and shall notify the state, county or township governing body having jurisdiction over the roads to determine if the haul roads identified are acceptable. The governmental body shall be given adequate time to inspect the haul roads prior to use of these haul roads. Where practical, existing roadways shall be used for all activities associated with the WES. Where practical, all-weather roads shall be used to deliver cement, turbines, towers, assemble nacelles and all other heavy components to and from the turbine sites.

ii. The permittees shall, prior to the use of approved haul roads, make satisfactory arrangements with the appropriate state, county or township governmental body having jurisdiction over approved haul roads for construction of the WES for the maintenance and repair of the haul roads that will be subject to extra wear and tear due to transportation of equipment and WES components. **A haul road agreement in accordance with county standards shall be executed between the applicant and appropriate road authority**. The permittees shall notify the County of such arrangements upon request of the County.

iii. Turbine Access Roads. Construction of turbine access roads shall be minimized. Access roads shall be low profile roads so that farming equipment can cross them and shall be covered with Class 5 gravel or similar material. When access roads are constructed across streams and drainageways, the access roads shall be designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed.

iv. Private Roads. The permittees shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the site, unless otherwise negotiated with the affected landowner.

v. Control of Dust. The permittees shall utilize all reasonable measures and practices of construction to control dust.

g. Soil Erosion and Sediment control Plan. The permittees shall develop a Soil Erosion and Sediment Control Plan prior to construction and submit the plan to the County. The Soil Erosion and Sediment Control Plan shall address the erosion control measures for each project phase, and shall at a minimum identify plans for grading, construction and drainage of roads and turbine pads; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive revegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The plan shall identify methods for disposal or storage of excavated material.

2. Setbacks

Wind turbines shall meet the following minimum spacing requirements.

a. ~~Distance from existing off-site residences, businesses, churches, and buildings owned and/or maintained by a governmental entity shall be at least one thousand (1,000) feet. Distance from on site or lessor's residence shall be at least five hundred (500) feet. Distance to be measured from the wall line of the neighboring principal building to the base of the WES tower.~~ **Distance from participating and non-participating residences, businesses, churches, schools, buildings owned and/or operated by a governmental entity, centerline of public roads and property lines shall be in accordance with Table 1211-1.**

~~b. Distance from centerline of public roads shall be at least five hundred (500) feet or one hundred ten percent (110%) the height of the wind turbines, whichever distance is greater, measured from the ground surface to the tip of the blade when in a fully vertical position.~~

~~c. Distance from any property line shall be at least five hundred (500) feet or one hundred ten percent (110%) the height of the wind turbine, whichever distance is greater, measured from the ground surface to the tip of the blade when in a fully vertical position unless wind easement has been obtained from adjoining property owner.~~

Table 1211-1
WES Setbacks

	Setback Distance*
Participating Residence, business, church, school, building owned and/or operated by a governmental entity	**1,500 Feet****
Non-Participating Residence, business, church, school, building owned and/or operated by a governmental entity	**1,500 Feet**
Municipal Boundaries existing at the time of Conditional Use Permit Application	**5,280 Feet**
Distance from Public Right-of-Way	**500 Feet or 110% of the vertical height of the wind turbine, whichever is greater*****
Distance from Property Line	**500 Feet or 110% of the vertical height of the wind turbine, whichever is greater ********

* **Setback distance to be measured from the wall line of the neighboring principal building to the base of the WES tower. The vertical height of the wind turbine is measured from the ground surface to the tip of the blade when in a fully vertical position.**

** **No less than 110% of the vertical height of the wind turbine if agreed upon by participating entity**

*** **The horizontal setback shall be measured from the base of the tower to the public right-of-way.**

**** **The horizontal setback shall be measured from the base of the tower to the adjoining property line unless wind easement has been obtained from adjoining property owner.**

d. Exception: The Board of Adjustment may allow setback/separation distances to be less than the established distances identified above, if the ~~adjoining landowners~~ **road authority, participating or non-participating landowners, or municipality (by resolution of the Governing Body)** agree to a lesser setback/separation distance. If approved, such agreement is to be recorded and filed with the Register of Deeds. **Said agreement shall be binding upon the heirs, successors, and assigns of the title holder and shall pass with the land.**

3. Electromagnetic Interference. The permittees shall not operate the WES so as to cause microwave, television, radio, or navigation interference contrary to Federal Communications Commission (FCC) regulations or other law. In the event such interference is caused by the WES or its operation, the permittees shall take the measures necessary to correct the problem.

4. Lighting. Towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the monitoring equipment. ~~Upon commencement of construction of a Tower, in cases where there are residential uses located within a distance which is three hundred (300) percent of the height of the Tower from the Tower and when required by federal law, dual-mode lighting shall be requested from the FAA.~~ **The preferred manner of lighting is by means of an Aircraft Detection Lighting System (ADLS). Subject to FAA approval, applicants will install an ADLS within one (1) year of approval by FAA for the specified project. In the event FAA does not approve an ADLS system, the turbine owner will comply with all lighting and markings otherwise required by FAA.** Beacon lighting, unless required by FAA, shall not be utilized.

5. Turbine Spacing. The turbines shall be spaced no closer together than three (3) rotor diameters (RD) (measurement of blades tip to tip) within a string. If required during final micro siting of the turbines to account for topographic conditions, up to ten (10) percent of the towers may be sited closer than the above spacing but the permittees shall minimize the need to site the turbines closer.

6. Footprint Minimization. The permittees shall design and construct the WES so as to minimize the amount of land that is impacted by the WES. Associated facilities in the vicinity of turbines such as electrical/electronic boxes, transformers and monitoring systems shall be mounted on the foundations used for turbine towers or inside the towers unless otherwise negotiated with the affected landowner.

7. Collector Lines. Collector lines are the conductors of electric energy from the Wind Energy System to the feeder lines. When located on private property, the permittees shall place electrical lines, known as collectors, and communication cables underground between the WES and the feeder lines. The exception to this requirement is when the total distance of collectors from the substation require an overhead installation due to line loss of current from an underground installation. Collectors **lines** and cables shall ~~also~~ be placed within or immediately adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner. This paragraph does not apply to feeder lines.

8. Feeder Lines. Feeder lines are the conductors of electric energy from the collector lines to the main electric terminal. **They may be located either above or below ground.** The permittees shall place overhead electric lines, known as feeders, on public rights-of-way or private property. **Changes in routes on pubic rights-of-way may be made as long as approval has been obtained from the governmental unit responsible for the affected right-of-way.** When placing feeders on private property, the permittees shall place the feeder in accordance with the easement negotiated with the affected landowner. The permittees shall submit the site plan and engineering drawings for the feeder lines before commencing construction. Feeder line support structures (power poles) shall be placed on private property where concrete or other similar materials are used as an exposed or above-ground permanent foundation.

9. Flicker Analysis. A Flicker Analysis shall include the duration and location of flicker potential for all schools, churches, businesses and occupied dwellings within a one (1) mile radius of each turbine within a project. The applicant shall provide a site map identifying the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sun-rise to sun-set over the course of a year. The analysis shall account for topography but not for obstacles such as accessory structures and trees. Flicker at any receptor shall not exceed thirty (30) hours per year within the analysis area.

a. Exception: The Board of Adjustment may allow for a greater amount of flicker than identified above if the participating or non-participating landowners agree to said amount of flicker. If approved, such agreement is to be recorded and filed with the Grant County Register of Deeds. Said agreement shall be binding upon the heirs, successors, and assigns of the title holder and shall pass with the land.

~~9.~~**10.** Decommissioning/Restoration/Abandonment

a. Cost Responsibility. The owner or operator of a WES is responsible for decommissioning that facility and for all costs associated with decommissioning that facility and associated facilities.

b. Decommissioning Plan. ~~Within 120 days of completion of construction, the permittees shall submit to the County a decommissioning plan describing the manner in which the permittees anticipate decommissioning the project~~ **At least thirty (30) days prior to construction, the applicant shall file a decommissioning plan for Board approval** in accordance with the requirements of paragraph**s (b), (c) and** (d) below. The plan shall include **an acceptable financial assurance plan which estimates** the ~~estimated~~ decommissioning cost per turbine and a description of the manner in which the permittees will ensure that it has the financial capability to carry out these restoration requirements when they go into effect. The permittees shall ensure that it carries out its obligation to provide for the resources necessary to fulfill these requirements. The County may at any time request the permittees to file a report with the County describing how the permittees are fulfilling this obligation.

c. Financial Assurance. ~~After the tenth (10th) year of operation of a WES facility,~~ The Board ~~may~~ **shall** require a performance bond, surety bond, **escrow account,** letter of credit, corporate guarantee or other form of financial assurance that is acceptable to the Board to cover the anticipated costs of decommissioning the WES facility. **The financial assurance plan is subject to the following provisions:**

i. **A decommissioning account is to be funded by the turbine owner annually at a rate of five thousand dollars ($5,000) per turbine for a period of thirty (30) years.**

ii. **The Board may allow a decreased annual payment, if the Board determines the full rate as identified in the financial assurance plan is not necessary to cover costs of decommissioning.**

iii. **All interest earned by any financial assurance account remains in the account.**

iv. **A financial assurances statement is to be provided upon request to the administrative official.**

v. **The financial assurance plan follows ownership of the wind turbines.**

vi. **The financial assurances are not subject to foreclosure, lien, judgment, or bankruptcy.**

vii. **Beginning in year ten (10) following the beginning of operation and each fifth year thereafter, the turbine owner shall submit to the Board an estimated decommissioning date, if established, and estimated decommissioning costs and salvage values. Based on the verification of the information in this filing the Board may change the annual financial assurance funding rate to more closely match the estimated amount needed for decommissioning.**

viii. **Funds from the financial assurances are to be paid to the turbine owner at the time of decommissioning. Said funds are to be paid as decommissioning costs are incurred and paid for by the turbine owner.**

ix. **If the turbine owner fails to execute the decommissioning requirement, the funds are payable to the landowner as the landowner incurs and pays decommissioning costs.**

d. Site Restoration. The decommissioning of the WES shall begin within eight (8) months of the expiration of this permit, or earlier termination of operation of the WES and be completed within eighteen (18) months of the expiration of this permit or earlier termination of operation of the WES. The permittees shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead **and underground** collector and feeder lines, foundations, buildings and ancillary equipment to a depth of four (4) feet. To the extent possible the permittees shall restore and reclaim the site to its pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. Any agreement for removal to a lesser depth or for no removal shall be recorded with the County and shall show the locations of all such foundations. All such agreements between the permittees and the affected landowner shall be submitted to the County prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within eighteen (18) months after expiration.

e. Failure to Decommission. If the WES facility owner or operator does not complete decommissioning, the Board may take such action as may be necessary to complete decommissioning, including requiring forfeiture of the bond. The entry into a participating landowner agreement shall constitute agreement and consent of the parties to the agreement, their respective heirs, successors, and assigns, that the Board may take such action as may be necessary to decommission a WES facility.

~~10.~~**11**Abandoned Turbines. The permittees shall advise the County of any turbines that are abandoned prior to termination of operation of the WES. The County may require the permittees to decommission any abandoned turbine.

~~11.~~**12**Height from Ground Surface. The minimum height of blade tips, measured from ground surface when a blade is in fully vertical position, shall be twenty-five (25) feet.

~~12.~~**13**Towers.

a. Color and Finish. The finish of the exterior surface shall be non-reflective and non-glass.

b. All towers shall be ~~singular~~ tubular design

~~13.~~**14**Noise. Noise level shall not exceed ~~50~~ **45** dBA, average A-weighted Sound pressure including constructive interference effects **measured twenty-five (25) feet from** ~~at~~ the perimeter of the ~~principal and accessory structures~~ ~~of~~ existing ~~off site~~ **non-participating** residences, businesses, and buildings owned and/or maintained by a governmental entity.

Noise level 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.

Noise level measurements shall be made with a sound level meter using the A-weighting scale, in accordance with standards promulgated by the American National Standards Institute. A L90 measurement shall be used and have a measurement period no less than ten (10) minutes unless otherwise specified by the Board of Adjustment.

~~14.~~**15**Permit Expiration. The permit shall become void if no substantial construction has ~~been completed~~ **commenced** within ~~two (2)~~ **three (3)** years of issuance~~.~~**; or if a State Permit from the South Dakota Public Utility Commission has not been issued within two (2) years of issuance of the permit**.

~~15.~~**16**Required Information for Permit.

a. Boundaries of the site proposed for WES and associated facilities on United States Geological Survey Map or other map as appropriate.

b. Map of easements for WES.

c. Affidavit attesting that necessary easement agreements with landowners have been obtained.

d. Map ~~of~~ **including any** occupied residential structures, businesses, churches and buildings owned and/or maintained by a governmental entity **within one (1) mile of the project area**.

e. Preliminary map of sites for WES, access roads and collector and feeder lines. Final map of sites for WES, access roads and utility lines ~~to be submitted sixty (60) days prior to construction~~ **is required prior to the issuance of any building permits associated with the conditional use permit**.

f. Proof of right-of-way easement for access to utility transmission lines and/or utility interconnection **to be submitted prior to construction**.

g. Location of other WES in general area.

h. ~~Project-specific environmental concerns (e.g. native habitat, rare species, and migratory routes). This information shall be obtained by consulting with state and federal wildlife agencies.~~ Evidence of ~~such~~ consultation **with State and Federal wildlife agencies regarding project-specific environmental concerns (e.g. native habitat, rare species, and migratory routes)** shall be included in the application.

i. Final haul road agreements to be submitted ~~sixty (60) days~~ prior to construction.

WTG #	300 MW Status
1	Primary
2	Primary
3	Primary
4	Primary
5	Primary
6	Primary
7	Primary
8	Primary
9	Primary
10	Primary
11	Primary
12	Primary
13	Primary
14	Primary
15	Primary
16	Primary
17	Primary
18	Primary
19	Primary
20	Primary
21	Primary
22	Primary
23	Primary
24	Primary
25	Primary
26	Primary
27	Primary

28	Primary
29	Primary
30	Primary
31	Primary
32	Primary
33	Primary
34	Primary
35	Primary
36	Primary
37	Primary
38	Primary
39	Primary
40	Primary
41	Primary
42	Primary
43	Primary
44	Primary
45	Primary
46	Primary
47	Primary
48	Primary
49	Primary
50	Primary
51	Primary
52	Primary
53	Primary
54	Primary
55	Primary
56	Primary

57	Primary
58	Primary
59	Primary
60	Primary
61	Primary
62	Primary
63	Primary
64	Primary
65	Primary
66	Primary
67	Primary
69	Primary
70	Primary
71	Primary
72	Primary
73	Primary
74	Primary
75	Primary
76	Primary
77	Primary
78	Primary
79	Primary
80	Primary
81	Primary
82	Primary
83	Primary
84	Primary
85	Primary
86	Primary

87	Primary
88	Primary
89	Primary
90	Primary
91	Primary
92	Primary
93	Primary
94	Alt
95	Primary
96	Primary
97	Alt
98	Primary
99	Primary
100	Primary
101	Primary
102	Primary
103	Alt
104	Primary
105	Primary
106	Primary
107	Primary
108	Primary
110	Primary
111	Primary
112	Primary
113	Alt
114	Primary
115	Primary
116	Primary

117	Primary
118	Primary
119	Primary
120	Primary
121	Primary
122	Primary
123	Primary
124	Primary
125	Primary
126	Primary
128	Primary
129	Primary
130	Primary
131	Primary
132	Primary
133	Primary
134	Alt
Alt1	Dropped
Alt2	Primary
Alt3	Primary
Alt4	Primary
Alt5	Primary
Alt6	Alt
Alt7	Dropped
Alt8	Primary
Alt9	Primary
Alt10	Dropped

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY CROWNED RIDGE WIND II, LLC FOR A PERMIT OF A WIND ENERGY FACILITY IN DEUEL, GRANT AND CODINGTON COUNTIES	)))))	EL19-027 **CERTIFICATE OF SERVICE**

I hereby certify that true and correct copies of the following documents:

1. Chris Ollson Testimony with exhibits;
2. Daryl Hart Testimony with exhibits;
3. Jay Haley Testimony with exhibits;
4. Mark Thompson Testimony;
5. Michael Marous Testimony with exhibits;
6. Robert McCunney Testimony with exhibits;
7. Sarah Sappington Testimony with exhibits; and
8. Tyler Wilhelm with exhibits

in this matter were served electronically on the parties listed below on the 20th day of September, 2019, addressed to:

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