Crowned Ridge Wind II

South Dakota PUC
Public Input Meeting
Watertown, SD
August 26, 2019

Applicant Overview

- **Crowned Ridge Wind II, LLC (CRW II) 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
- **CRW II possesses a Purchase and Sale Agreement (PSA) with Northern States Power (NSP)**
  - NEER is responsible for the development, permitting and construction of CRW II
  - NSP will own and operate CRW II upon the Project's proposed Commercial Operations Date (COD) of Q4 2020

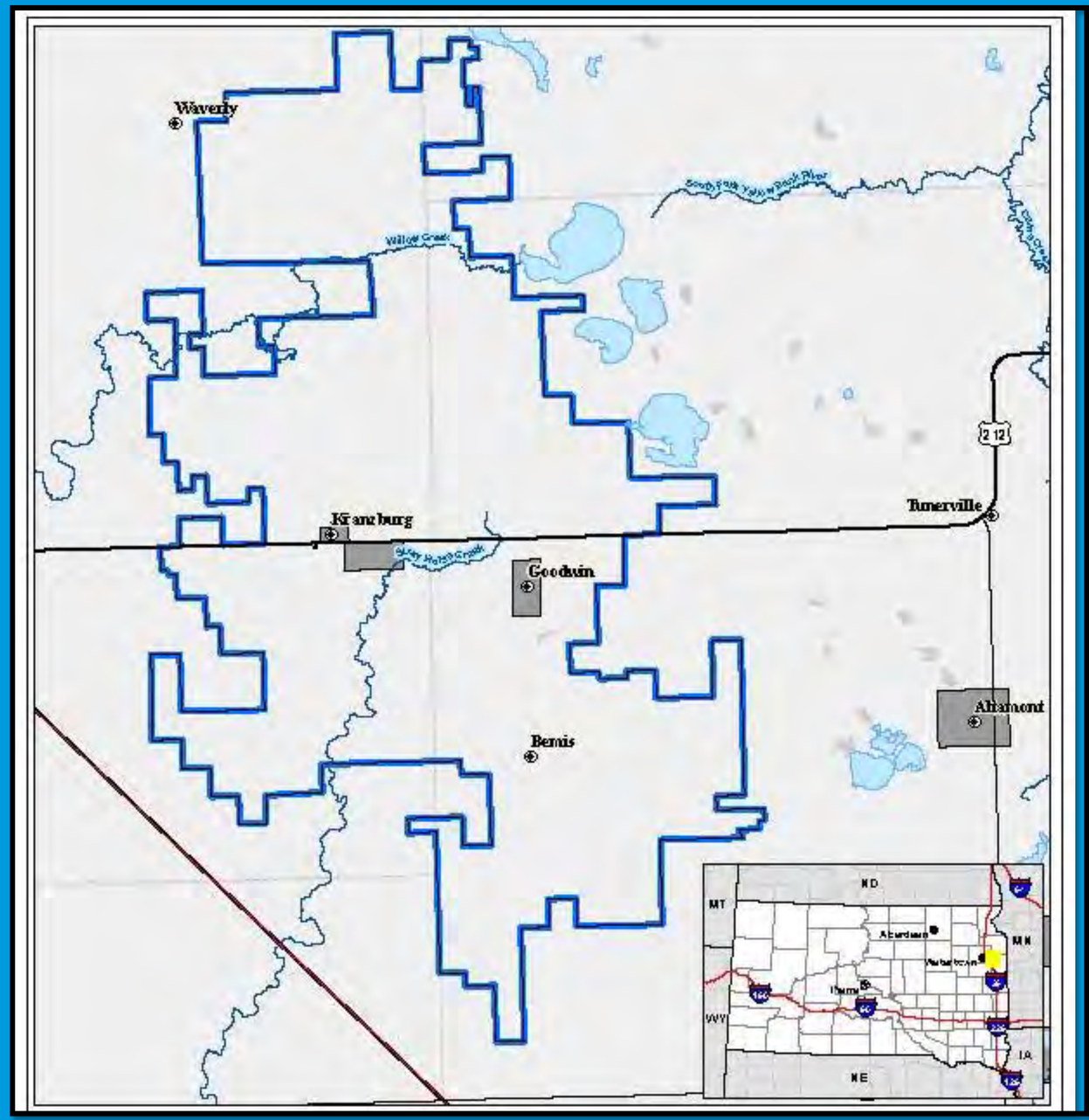
world's #1 generator of wind and solar energy 2018

Project Overview – Purpose of Project

- **Crowned Ridge Wind II, LLC is seeking Energy Facility Permit approval for the proposed up to 300.6 MW Project located in Codington, Deuel and Grant Counties, South Dakota …**
  - To satisfy renewable energy requirements 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/approved by the Minnesota Public Utilities Commission and the North Dakota Public Service Commission
  - To supplement NSP's pursuit of a higher renewable energy generation mix across their generation portfolio

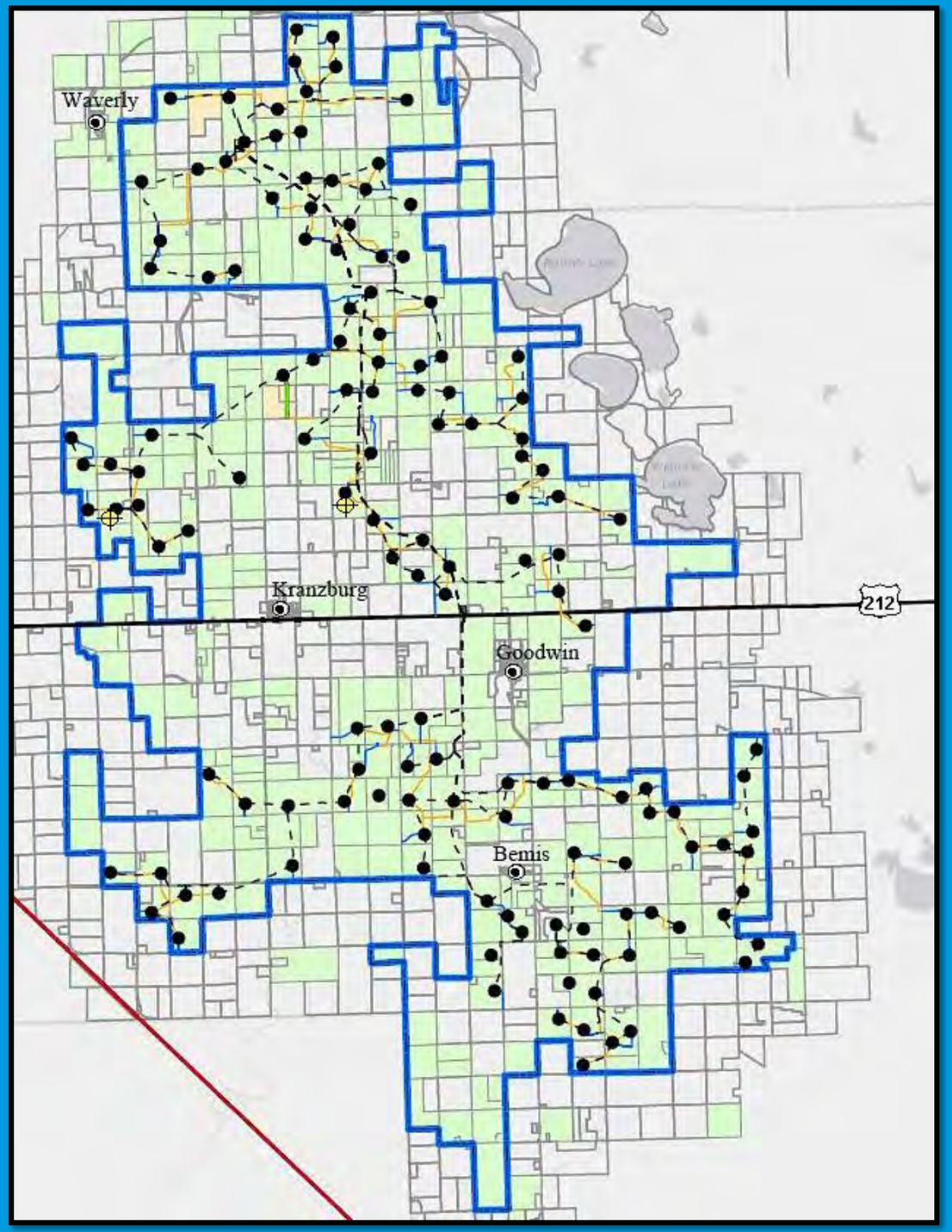
Project Overview

- **CRW II Energy Facility Application**
  - PUC filing date: July 9, 2019
  - PUC Status: Under review
- **CRW II is seeking Energy Facility Permit approval to construct the up to 300.6 MW wind Project**
  - CRW II would commence construction in Q2 2020 assuming the South Dakota PUC's 9-month review/approval timeline
- **The Project reflects a $400 million investment in the state of South Dakota**
  - Located in Codington County, Deuel County and Grant County



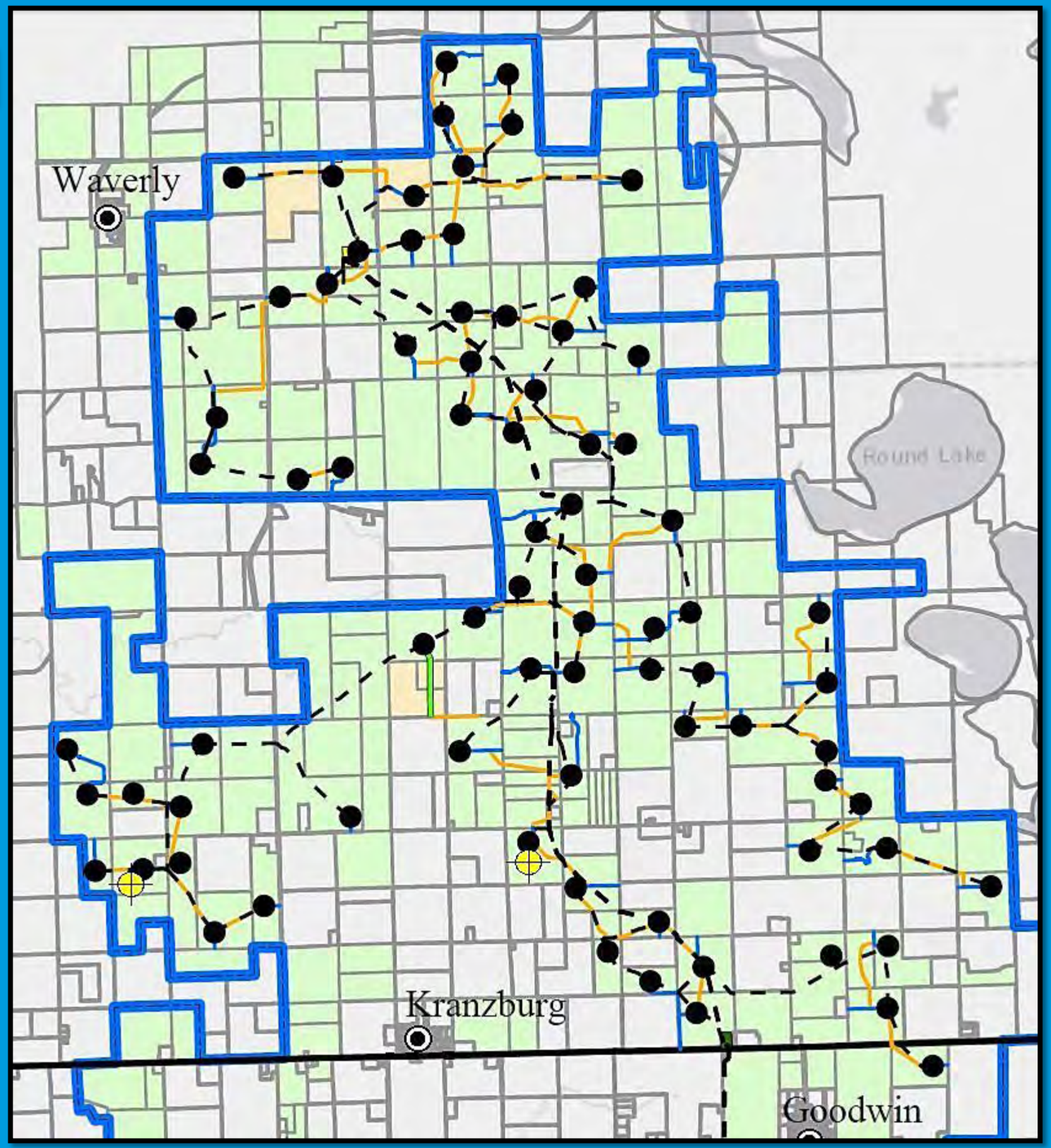
Project Overview – Site Map

- **Project Size:** **300.6 MW**
- **Project Area:** **60,996 acres**
- **Participation:** **40,911 acres**
- **Project Turbines:** **132 GE turbines**
  - 66 locations proposed in Codington
  - 66 locations proposed in Deuel
  - 2 locations proposed in Grant County
- **Additional Project Facilities:**
  - Access roads to Project facilities
  - Underground collection cabling
  - Two permanent MET tower locations
  - An Operations and Maintenance (O&M) Facility



Project Overview – Land

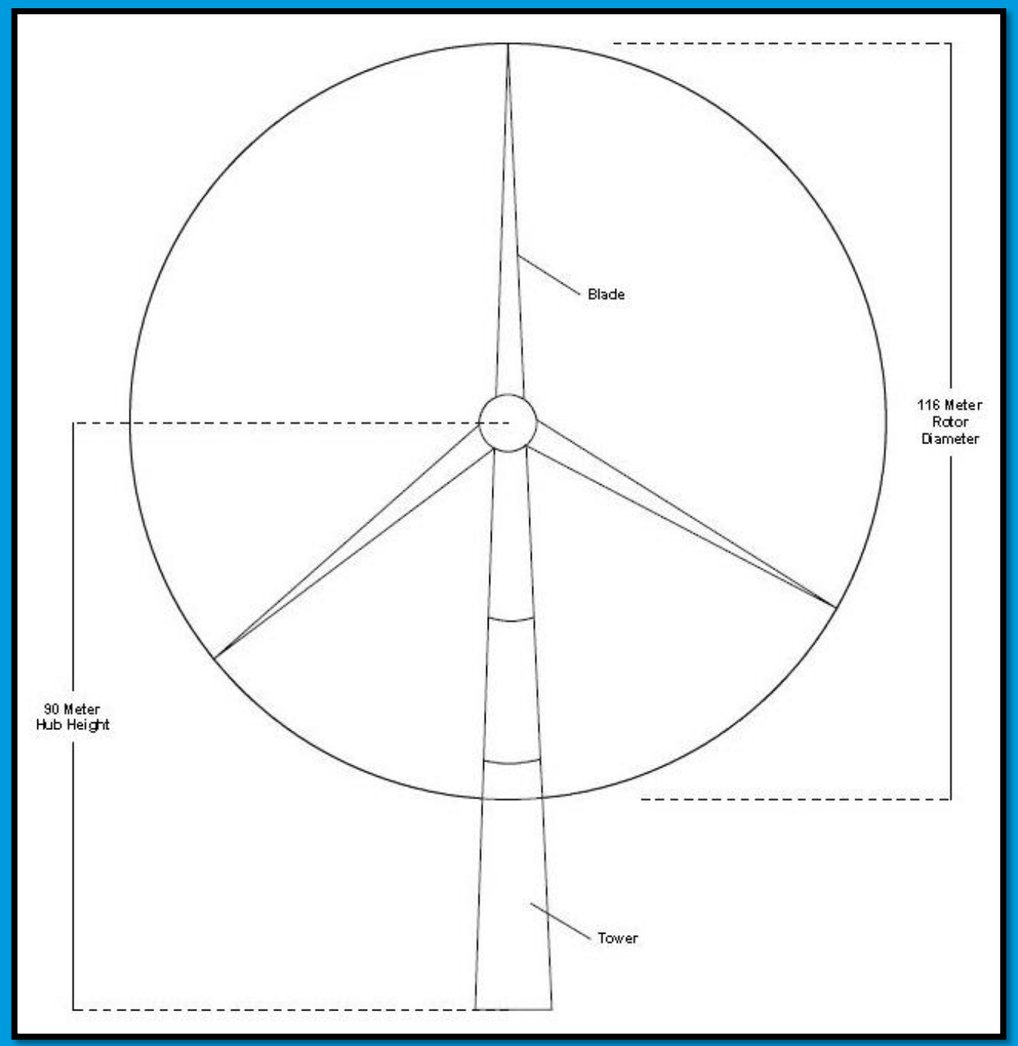
- **Land acquisition process is near complete pending approval of three easements**
  - One turbine location pending easement approval
  - One collection corridor pending easement approval
  - One construction access road pending easement approval
- **CRW II anticipates all necessary easements to be obtained by Sep. 20, 2019**
  - Easements obtained post filing of application to support two turbine locations formerly pending approval



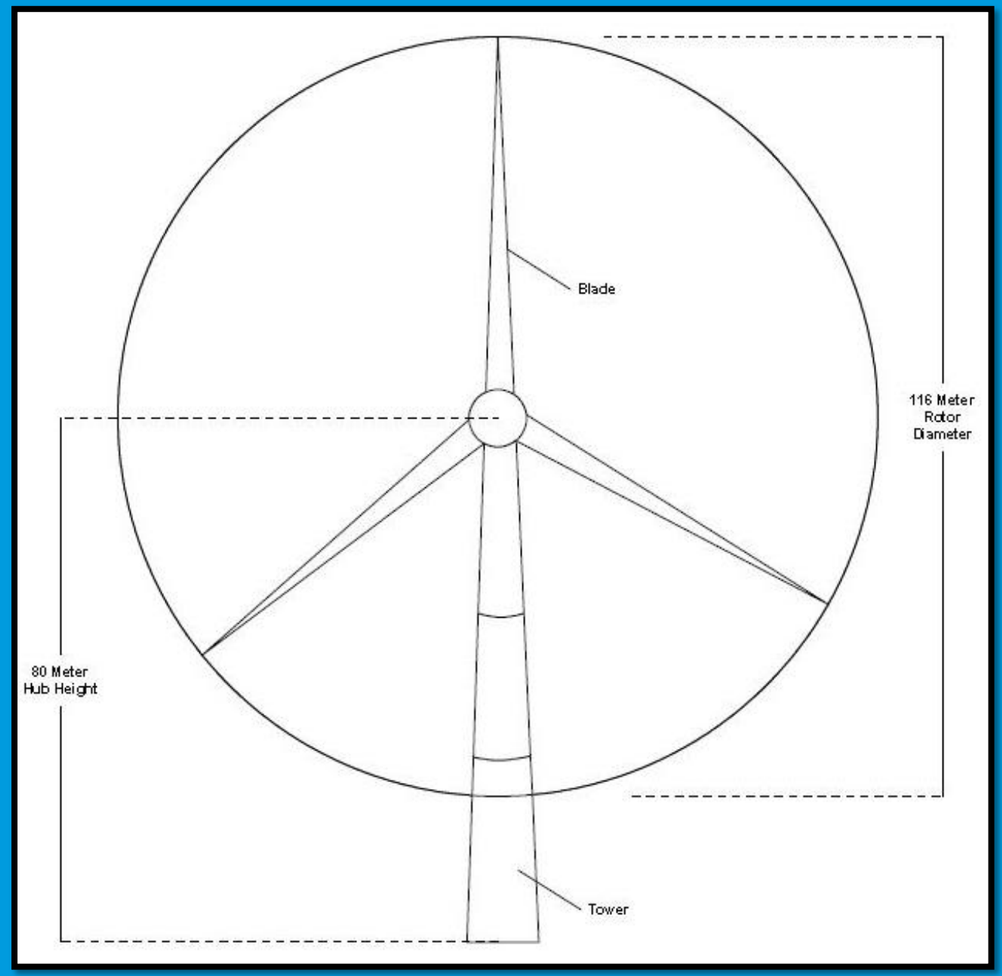
Project Overview – Turbine Technology

GE 2.3 MW Turbine		
Count	**Rotor Diameter**	**Hub Height**
117	116 meters	90 meters

485 feet



GE 2.1 MW Turbine		
Count	**Rotor Diameter**	**Hub Height**
15	116 meters	80 meters



452 feet

Community Benefits

- **Boost to local economy**
  - 250 temporary construction jobs will increase local spend (hotels, dining, places to conduct general business)
  - Up to 12 full time, long term O&M jobs created for the life of the Project
  - Improvements to existing county and township roads
- **Landowner benefits**
  - Additional revenue stream
  - Approx. $40 million in payments to landowners over life of the Project

Community Benefits

Crowned Ridge Wind II – 25 year expected tax revenues generated

Deuel County Jurisdictions	Estimated Tax Revenue
Deuel County	$ 4,460,000
Goodwin Township	$ 1,720,000
Rome Township	$ 620,000
Deuel School District	$ 5,540,000
	$ 12.3 million

Codington County Jurisdictions	Estimated Tax Revenue
Codington County	$ 4,320,000
Waverly Township	$ 860,000
Kranzburg Township	$ 570,000
Waverly School District	$ 5,630,000
Watertown School District	$ 1,580,000
	$ 12.9 million

Grant County Jurisdictions	Estimated Tax Revenue
Grant County	$ 140,000
Troy Township	$ 50,000
	$ 190,000

Community Benefits

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

FEATURED

New contract keeps MFG open; 60 jobs to be added

By Elisa Sand, esand@aberdeennews.com Jul 2, 2018 0 1 min to read

Stakeholder Outreach

- **Stakeholder outreach involved communication with landowners, local tribes, wildlife agencies and government officials:**
  - Open House
  - Codington, Deuel and Grant County Planning and Zoning Boards
  - Codington, Deuel and Grant County Commissions
  - Sisseton Wahpeton Oyate Tribe
  - United States Fish & Wildlife Service
  - South Dakota Game, Fish & Parks
  - South Dakota State Historical Society

Project Compliance

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

	Codington	Grant	Deuel
Setbacks	- 550’ from participant - 1,500’ from non-participant - 1-mile from municipal boundary	- 1,500’ from participant - 1,500’ from non-participant - 1 mile from municipal boundary	- 1,500’ from participant - 4 times turbine height from non- participant - 1 mile from municipality of Goodwin - 1 mile from lake district at Bullhead Lake
Noise	- Shall not exceed 50 dBA; measured at property line of existing non-participating residence	- Shall not exceed 45 dBA; measured 25 feet from perimeter of non-participating residences - Shall not exceed 50 dBA, measured 25 feet from perimeter of participating residences	- Shall not exceed 45 dBA; measured from perimeter of non-participating residences
Flicker Analysis	- Flicker at any receptor shall not exceed thirty (30) hours per year	- Flicker at any receptor shall not exceed thirty (30) hours per year	- Flicker at any receptor shall not exceed thirty (30) hours per year

Wind Farm Description

- **The Project will consist of up to 132 turbines, a collector substation, underground collection lines and an O&M facility:**
  - **Turbines** – 117 GE 2.3 MW, 90m HH and 15 GE 2.1 MW 80m HH
  - **Associated Collector Substation** – 34.5 kV to 230 kV fenced area with breakers, switches, control house and two power transformers
  - **Underground Collection Line**s – 34.5 kV power cables buried at least 48 inches below the surface to connect the turbines to the substation, and 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 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 capable of lifting up to 1,800 tons and reaching a height of 350 feet**
  - 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 communication lines are laid simultaneously while trench is being cut
  - Trenches are back filled with native soil and compacted
- **The collector substation is designed and constructed to meet all applicable codes and standards**
  - Clear and grub site, grade and compact site
  - Install below grade infrastructure, equipment foundations, wire and termination
  - Test and commission equipment

Operations Overview

- **The Project will be monitored 24/7 by a Supervisory Controls and Data Acquisitions (SCADA) system**
  - NSP's Commercial Operations Center, a fulltime remote monitoring and control facility located in Denver Colorado, ensures safe and reliable operations by providing remote real-time monitoring and controlling of the entire Project, including the wind turbines
- **The O&M building (approx. 8,000 sq. ft.) will provide accommodation for the operations personnel**
  - Up to 12 permanent employees, consisting of an operations manager and wind technicians, will operate the windfarm and substation after construction is completed
  - During operations, the site team will perform scheduled, preventive maintenance on wind turbines
  - The O&M will house operating personnel, offices, operations and communication equipment, parts storage, outdoor lighting and perimeter fencing

Decommissioning Overview

- **CRW II, under the ownership of NSP, is responsible for Project decommissioning and all costs with decommissioning the associated facilities**
  - Removal of 132 wind turbines and all existing above ground facilities
  - Removal of all ancillary, underground equipment to a depth of 4 feet
  - Removal of roads and staging areas unless the private landowners desire for roads and staging areas to be retained
  - Restoration to pre-construction conditions to the extent possible including:
    - Vegetation, drainage and other environmental features
  - Repair to county/township roads impacted by movement of heavy vehicles and frequent vehicle trips

Contact Information

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South Dakota PUC Website

https://puc.sd.gov