



Crowned Ridge Wind II, LLC

230 kV Transmission Line

South Dakota Public Meeting
Waverly, South Dakota
May 30, 2018



Innovate. Invest. Grow.

Tonight's discussion

- ▶ **Applicant overview**
- ▶ **Project overview**
 - » Purpose of project
 - » Why now ...
 - » Prior, current and future filings
- ▶ **Advantages of coordination between NEER and NSP**
- ▶ **Benefits of transmission line project**
- ▶ **Routing criteria and application of routing criteria**
- ▶ **Stakeholder outreach**
- ▶ **Map of route**
- ▶ **Transmission line description**
- ▶ **Construction overview**
- ▶ **Project timeline**
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Applicant overview

- ▶ Crowned Ridge Wind II, LLC is a wholly owned, indirect subsidiary of NextEra Energy Resources, LLC (NEER)
- ▶ NEER is the world's largest generator of renewable energy from the wind and sun
- ▶ NEER affiliates own approximately 8,500 circuit miles of high-voltage transmission lines and generation tie lines across the United States and Canada
 - » NEER currently owns and operates three high voltage generation tie lines in the state of South Dakota



**world's
#1
generator of wind
and solar energy
2017**

Project overview – purpose of project

- ▶ The proposed Crowned Ridge II project is a 5-mile 230-kilovolt generation tie line located in Codington County, South Dakota with a proposed commercial operations date of December 2019
- ▶ The project is needed to deliver the power produced from the 300 megawatt (MW) Crowned Ridge Wind II site, and aggregate with, the power produced from the 300 MW Crowned Ridge Wind site
 - » Crowned Ridge Wind II possesses an executed Purchase and Sale Agreement with Northern States Power (NSP) who will obtain ownership of Crowned Ridge II and the associated 300 MW Crowned Ridge Wind II site upon commercial operations
- ▶ The project supplements the Minnesota Public Service Commission's approval of NSP's Petition for Approval of the Acquisition of Wind Generation from the Company's 2016-2030 Integrated Resource Plan

Project overview – why now

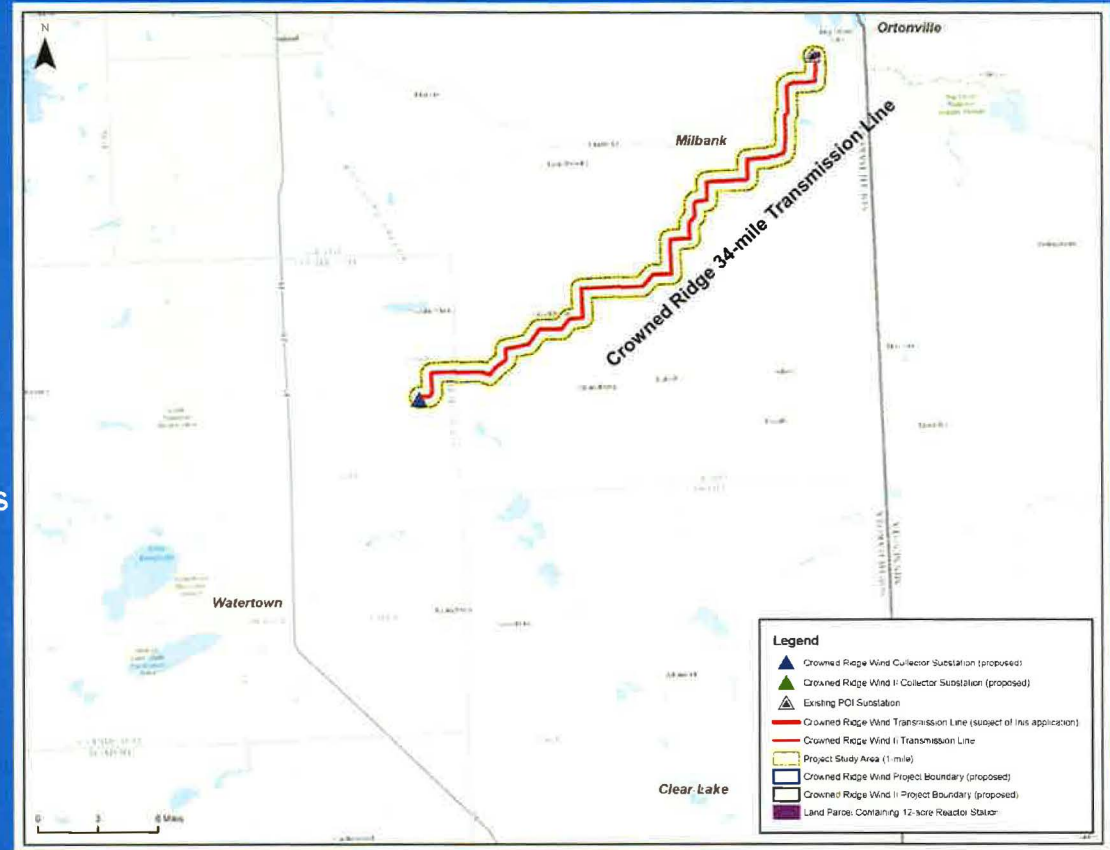
- ▶ Crowned Ridge Wind II, LLC elected to file the Crowned Ridge II 230kV transmission line application in April of 2018 for a number of reasons:
 - » 99% completion of land access and transmission easements
 - » Completed environmental/cultural surveys support the project's proposed corridor and confirm that avoidance strategies can be successfully implemented within the established corridor if needed
 - » The South Dakota PUC's application review process reflects an April 2019 permit approval timeline for the project (12-month process)
 - » Beginning construction in April 2019 supports a construction timeline that allows for resources to work efficiently on the transmission line, at a pace that is safe, and ensures that the transmission lines and both wind farms will meet the project's commercial operations date of December 2019

Project overview – prior filing

Prior Filing (December 2017):

Crowned Ridge, 34-Mile 230 kV Transmission Line and Reactive Compensation Substation

- » The Crowned Ridge 230kV transmission line application was part one of the four part process to complete the transmission lines and wind farms associated with 600 MWs of total wind generation
- » The Crowned Ridge transmission line and reactive power compensation substation are necessary to successfully interconnect the two future wind farms to the grid (600 MWs of total generation)
- » NEER to develop and permit; shared ownership between NEER and NSP
- » PUC filing: December 5, 2017
Status: Under PUC review

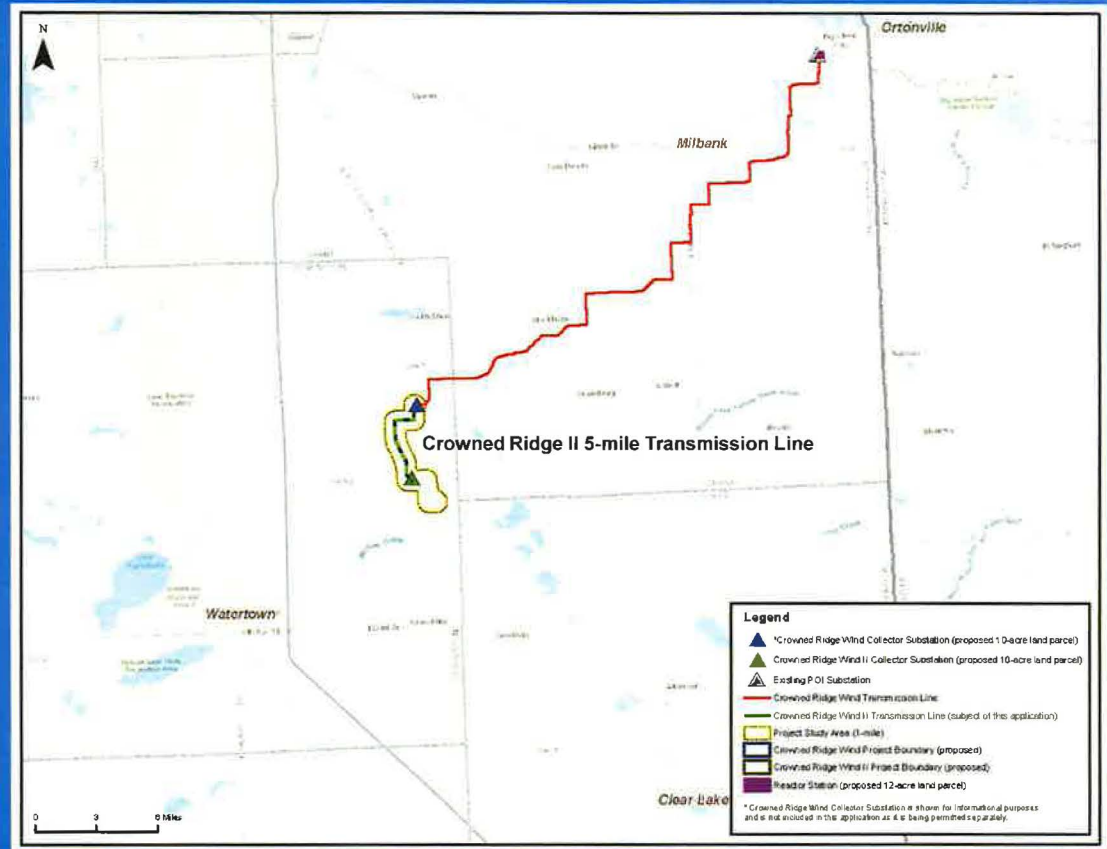


Project overview background current filing

Current Filing (April 2018)

Crowned Ridge II, 5-Mile 230 kV Transmission Line

- » The Crowned Ridge II 230kV transmission line application is part two of the four part process
- » The Crowned Ridge II 230kV transmission line will connect the power produced from the Crowned Ridge Wind II wind farm to the Crowned Ridge Wind collector substation where all 600 MWs are transported to the transmission grid along the Crowned Ridge transmission line
- » The Crowned Ridge II 230kV transmission line was initially filed as a 7-mile transmission line in April 2018. Opportunities to reduce visual impacts and the total length of the line has lead to the reduction in length as depicted today by the Crowned Ridge II 5-mile alignment
- » NEER to develop and permit; ownership transferred to NSP upon commercial operations date
- » PUC filing: April 10, 2018



Project overview – future filings

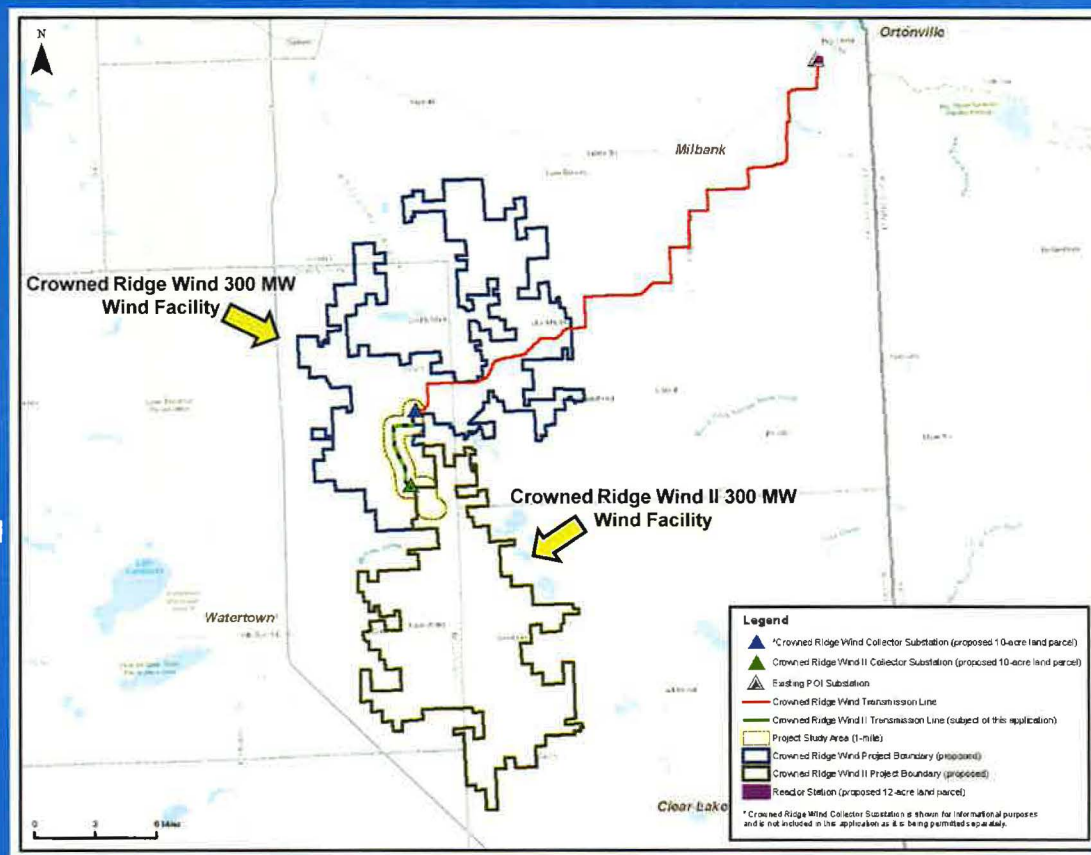
Future Filings (Summer 2018)

Crowned Ridge Wind, 300 MW Wind Energy Facility

- » Crowned Ridge possesses an executed Power Purchase Agreement with Northern States Power (NSP) for the sale of the 300 MW output
- » Crowned Ridge will own and operate the 300 MW site; NEER to develop, permit, own and operate
- » PUC filing: Summer 2018

Crowned Ridge Wind II, 300 MW Wind Energy Facility

- » Crowned Ridge II possesses an executed Purchase and Sale Agreement with NSP who will obtain ownership of the 300 MW site upon commercial operations
- » NEER to develop and permit; ownership transferred to NSP upon commercial operations date
- » The Minnesota Public Service Commission approved NSP's Petition for Approval of the Acquisition of Wind Generation from the Company's 2016-2030 Integrated Resource Plan
- » PUC filing: Summer 2018



Advantages of coordination between NEER and NSP

- ▶ The two wind projects will be effectively designed to utilize one transmission line (Crowned Ridge Transmission Line) to deliver the power produced from both wind projects to the transmission grid
 - » This is made possible by the Crowned Ridge II 5-mile Transmission Line (current project) which aggregates all power produced from the wind projects at the Crowned Ridge Wind collector substation before all power produced is transported to the point of interconnection
 - » Eliminates the need for an additional transmission line to point of interconnection (one transmission line transporting all power produced instead of two separate transmission lines individually transporting 300 MWs to the point of interconnection)
 - › Reduces unnecessary impacts to agricultural lands and lessens aesthetic impacts that would have resulted from a two transmission line configuration
 - › Minimizes the time by which landowners are impacted
 - › The wind projects are less spread out and utilize lands closer to suitable transmission lines (projects maximize generation while minimizing total project footprint)

Benefits of the transmission line project

- ▶ 50 – 60 temporary construction job opportunities
- ▶ Increased local business
 - » Hotel, dining and other places to conduct general business
- ▶ \$100,000 to \$150,000 in sales/use tax
- ▶ Plays an integral role in the delivery of 600 MWs of clean energy
 - » Ensures the future benefits tied with the wind farms (approximately \$3 million per year in property taxes generated)



Routing criteria

- ▶ Minimizing the total length between the Crowned Ridge Wind II collector substation and the Crowned Ridge Wind collector substation;
- ▶ Minimizing impact to human settlements;
- ▶ Maximizing the paralleling of existing road rights-of-ways (ROW) where possible;
- ▶ Utilizing section and half section lines to minimize impacts to agricultural fields and farming operations where paralleling existing ROW is not practicable
- ▶ Avoids sensitive cultural and tribal resources and impacts to USFWS grassland easements;
- ▶ Ability to secure land rights through landowner communication

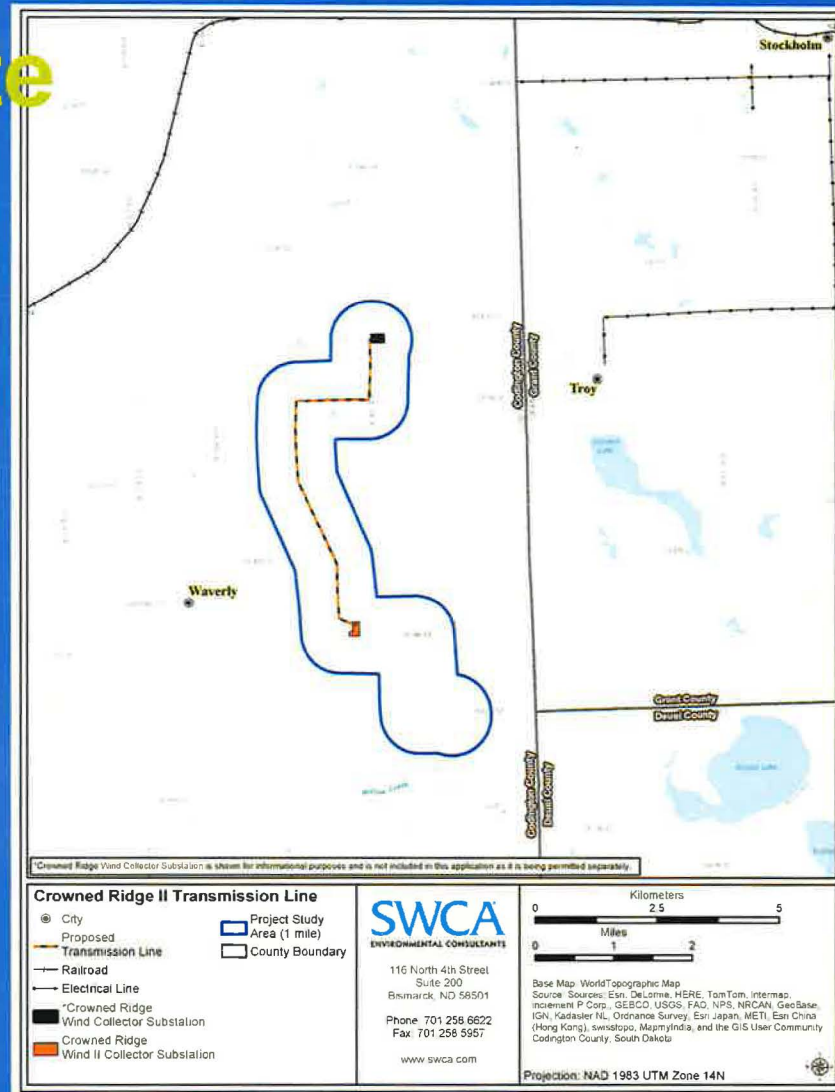
Application of routing criteria

- ▶ Shortest line between the collector substations on the proposed wind projects
 - » Reduced transmission line by 2-miles since April 2018 filing date
- ▶ Worked diligently with county officials and landowners on transmission line route
 - » 99% of the transmission route is under easement
- ▶ Minimizes routing across agricultural fields and, instead, runs along landowner boundaries and half section lines as much as possible
 - » Approximately 3.5 miles, or 70% of the transmission line utilizes section and half section lines which minimize impacts to agricultural fields and farming operations where paralleling existing ROW is not practicable
- ▶ USFWS federal grasslands and protected basins within USFWS wetland easements were avoided

Stakeholder outreach

- ▶ Crowned Ridge'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 in Codington County:
 - » Codington County Planning and Zoning Administrator
 - » Sisseton Wahpeton Oyate Tribe, Spirit Lake Tribe and three others
 - » United States Fish & Wildlife Service (USFWS)
 - » South Dakota Game, Fish & Parks (SDGFP)
 - » Open House conducted on November 16th 2017 in Watertown, SD

Map of route



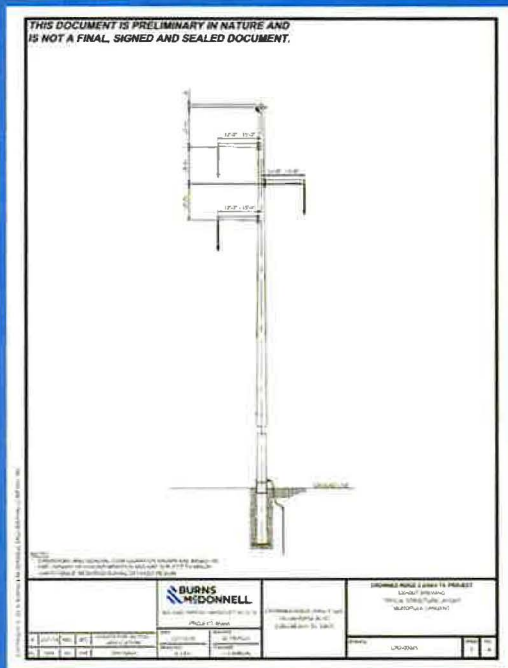
Transmission line description

- ▶ The project's single circuit transmission line consists of the following:
 - » 600 – 1,000 foot long spans between transmission structures
 - » Typical 150 foot wide transmission easement corridor
 - » Typical 100 foot tubular steel structure height
 - » Typical structure will have a single attachment at the pole top to support the optical ground wire

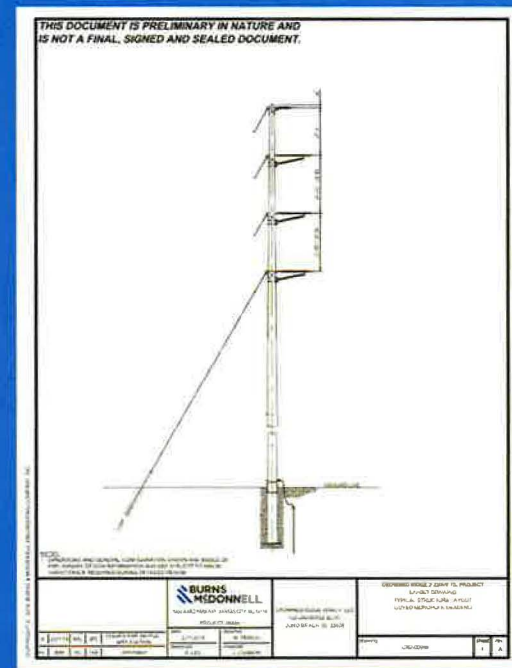
Structure Summary - Single-Circuit Option					
Structure Type	Typical Application	Structure Material	Typical Structure Height Above Ground	Typical Foundation Diameter Per Pole	Typical Span Length
Direct-Embedded Monopole	Tangent, Light Angle	Galvanized Tubular Steel	100 ft.	6-8 ft.	600-1000 ft.
Guyed, Direct-Embedded Monopole	Angles and Deadends	Galvanized Tubular Steel	100 ft.	6-8 ft.	600-1000 ft.
Self-Supporting Monopole	Angles and Deadends	Galvanized Tubular Steel	100 ft.	6-10 ft.	600-1000 ft.

Transmission line description

Monopole Tangent Exhibit



Guyed Monopole Deadend Exhibit



Construction overview

- ▶ The removal of all trees, brush, and other low-growing vegetation will occur within the construction easement and along construction/maintenance travel paths
- ▶ Temporary laydown areas will be staged along the transmission line right-of-way to facilitate material deliveries and house the contractor's vehicles and equipment
- ▶ Foundations for steel structures will require excavating or auguring a hole approximately 20 – 30 ft. deep and approximately 6 – 9 ft. in diameter
- ▶ Construction of permanent access roads along the length of the transmission line will not be required
- ▶ Disturbed areas will be restored and reclaimed; inclusive of debris removal/disposal, dismantling of all temporary facilities, and controlling erosion

Construction overview

- 1) Survey locations
- 2) Deliver structures
- 3) Auger holes and pour foundations if required
- 4) Ground assembly of structure and equipment
- 5) Lift and set structure
- 6) Pulling of conductor
- 7) Restoration and energization



Project timeline

- Submit PUC Facility Permit Application

April 2018

- Material Procurement
- Final Transmission Line / Substation Connection Design

August 2018

- Completion of Construction Easement Acquisition

August 2018

- Anticipated Date of Commission Decision on Facility Permit
- Construction Start for Transmission line

April 2019

- In-Service Operations

December 31, 2019

Contact information

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South Dakota PUC Website

<https://puc.sd.gov>