

# **Decommissioning Plan Crowned Ridge Wind Energy Facility**

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## **1.0 Introduction**

### **1.1 Background**

Crowned Ridge Wind, LLC (CRW or Applicant) an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC (NEER) has prepared this Decommissioning Plan (Plan) to provide documentation of activities necessary to decommission the proposed Crowned Ridge Wind (CRW) Facility (Wind Facility or Project) located in Codington County and Grant County, South Dakota. The Project would be situated within an approximately 53,200-acre Project Area and would consist of 130 three bladed, upwind, horizontal axis wind turbines which originate from the GE 2MW-116 model series. The proposed Project would utilize 117 GE 2.3MW turbines with 116-meter (381-foot) rotor diameter and 90-meter (295-foot) hub height as the Project's primary turbine technology, and 13 GE 2.3MW turbines with 116-meter (381-foot) rotor diameter and an 80- meter (262-foot) hub height as the Project's secondary technology which will be utilized in select locations. The 130 turbines to be constructed would result in a total installed capacity of approximately 300 MW.

The decommissioning plan assumes the removal of 130 wind turbine generators as well as other associated Project facilities. This Plan is intended to provide an overview of the industry-standard approach to decommissioning and restoring the project site, as well as the local requirements of Codington County and Grant County concerning the decommissioning of the Project.

In preparing this Decommissioning Plan, CRW submitted the following local land use permit applications:

- A combined application for a Conditional Use Permit (CUP) to Codington County dated June 8, 2018. CRW received CUP approval on July 16, 2018; and
- A combined application for a Conditional Use Permit (CUP) to Grant County dated September 17, 2018. CRW received CUP approval on December 17, 2018.

## 1.2 Objective and Goals

The goal of this Decommissioning Plan is to establish the approach to:

1. Disassembly and removal of existing turbines;
2. Abandonment or removal of existing infrastructure associated with the turbines;
3. Scarification and reseeded of disturbed areas, where applicable;
4. Revegetation of newly-disturbed ground; and
5. Mitigation for potential impacts on sensitive environmental features.

## 1.3 Decommissioning Plan Schedule of Key Tasks

Key schedule tasks pertaining to the decommissioning plan are summarized in the following table.

<b>Task</b>	<b>Supporting Information</b>
Submittal of Decommission Plan	At least thirty 30-days prior to construction, CRW is required to file a decommissioning plan for Board approval (Grant County); and Within 120-days of completion of construction, the CRW shall submit to the County a decommissioning plan describing the manner in which the permittees anticipate decommissioning the project (Codington County).
Commencement of Decommissioning	Decommissioning of the Project shall begin within 8-months of the expiration of this permit, or earlier termination of operation of the Project (Codington County & Grant County).
Completion of Decommissioning	Decommissioning of the Project shall be completed within 18-months of the expiration of this permit or earlier termination of operation of the Project.
Completion of Restoration	Decommissioning of the Project shall be completed within 18-months of the expiration of this permit or earlier termination of operation of the Project.

The Project possesses an initial Power Purchase Agreement contract term of 25 years, which is also the estimated life of the facility or when termination of operations of the Project may occur. The estimated life of the Project can be increased through repowering of the Project.

## **2.0 Project Decommissioning**

The Project shall be decommissioned in accordance with the local requirements of Codington County (Appendix A) and Grant County (Appendix B).

### **2.1 Decommissioning Preparation Activities**

Prior to the physical decommissioning of the existing facilities, the following activities will be conducted:

- CRW will provide a 1-year notice to both Codington and Grant County in advance of the anticipated timing of the Project's decommissioning;
- CRW will identify locations of Project infrastructure that are to be removed per local decommissioning requirements;
- CRW will identify the locations of Project infrastructure that are to remain in place if per preference of Project's lease holders;
- CRW will identify work areas to enable the decommissioning of equipment;
- Transportation planning for conveyance of oversize turbine components will be reviewed to address traffic considerations by CRW; and
- CRW will receive applicable permits, approvals, and agreements that need to be obtained prior to physical removal of infrastructure.

### **2.2 Decommissioning of Facilities**

The goal of Project decommissioning is to remove the Project infrastructure in accordance with local requirements of Codington County and Grant County and to return the site to a condition as close to a pre-construction state as feasible. The major activities required for the decommissioning may be as follows:

- Removal of 130 wind turbine generators and all existing above ground facilities;
- Removal of underground facilities such as turbine foundations up to a depth of four- feet; and
- Removal of roads and staging areas that are not desired by land owners to remain in place.

**Turbines:**

The decommissioning activity most notable to the general public will be the removal of the wind turbines. The disassembly and removal of this equipment will essentially be the same as its installation, but in reverse order. The large components that make up a wind turbine will be disassembled in the reverse order they were assembled.

The rotor (hub and blades) are removed from the nacelle and, with the help of a smaller crane, turned horizontally and set on the ground. Next, the nacelle will be removed from the top of the tower, followed by each portion of the tower. Once the turbine rotor has been removed, a crew and small crane will disassemble it into the hub and three loose turbine blades. The most efficient manner for component removal will be for each large component (other than the rotor) to be placed directly onto a truck bed when it is removed from the turbine. These trucks could then immediately take the component off the site. This approach will limit the need for clearing an area around the turbine base to just enough area to set down the rotor. When the rotor is disassembled, the blades will be placed into a carrying frame, which can then be loaded onto a truck for removal from the site. The hub can also be removed once it is disassembled from the blades.

Turbine tower sections will be dismantled utilizing cranes. A single large crane is typically used to disassemble the turbines, and smaller cranes would lift the parts onto trucks to be hauled away. Meteorological towers will also be similarly removed noted later in Section 2.3. After dismantling and excavating the facility, high value components will be removed for scrap value. The remaining materials will be reduced to transportable size and removed from the site for disposal. Materials will be disposed where disposal is permitted and where there is capacity for the disposal. Generally, turbines, transformers, electrical components, and towers are refurbished and resold or are recycled for scrap. All unsalvageable materials will be disposed of at authorized sites in accordance with applicable regulations. Decommissioning of the existing turbines will include removal and transport of generators and towers offsite to disposal facilities and/or sale of towers and generators. Some wind turbine generator components may be stored onsite within the existing laydown areas. Inert materials, such as foundations, will be decommissioned in place to avoid potential adverse environmental impacts.

**Met Tower:**

The meteorological tower will similarly be disassembled by a crane, starting with the upper tower section and moving downward.

**Access Roads:**

It is anticipated that several existing access roads will remain where preferred with landowners. CRW will work with landowners regarding whether the landowner prefers to keep the access

road in place. In the event landowners do not want the access road, or portions thereof, the access roads will be removed.

**Substation:**

Once the Project is de-energized, the substation will be disassembled. Major components will be removed from their foundations and placed onto trucks using a small crane. Fences and fence posts will be taken down and removed. The aggregate base and concrete foundations at the collection substation will be removed, and native soils will be spread on-site to return it to its prior condition and to assist in preventing erosion. The Project owners will review if the substation grounding grid is to be removed or left in place.

**O&M Facility:**

The O&M facility will be sold or disassembled. For disassembly, the roofing, siding and structural members will be removed and placed onto trucks using a small crane or forklift. Fences and fence posts will be taken down and removed. The aggregate base and concrete foundations at the facility will be removed, and native soils will be spread on-site to return it to its prior condition and to assist in preventing erosion.

**Collector System:**

Between each of the turbine locations will be a buried electrical cable and fiber optic cable. The respective Project owners will consult with the landowners at the time of decommissioning to determine if the landowners desire the Project owners to remove the cables or to leave to them in place.

Removing the cables will cause some environmental impact that would need to be mitigated. If the cables are to be removed, a trench will be opened and the cables pulled out. The cables will be cut into manageable sections and removed from the site. The trenches will then be filled with native soil, compacted, tilled and returned to a condition suitable for growing crops.

It is anticipated that some sections of underground cables will remain in place to avoid environmental impacts in sensitive areas. Underground cables will be identified for removal generally to a depth of four feet; however, in some cases, and in coordination with appropriate entities such as Northern States Power Company, county and state agencies, the landowner, and other applicable entities, underground cables may be identified to remain in place to avoid surficial disturbance of sensitive features, such as prairies, wetlands, other natural habitat, or cultural, tribal, and archaeological resources.

**Transmission Line:**

Initially, the wires will be removed from the tower hangers and collected for recycling. The tower structures will then be disassembled and removed, including grounding rods to 4 feet

below grade unless a lesser depth is otherwise agreed to by the landowner. The areas around the poles, along with any access roads that were necessary, will be reclaimed.

## **3.0 Restoration and Reclamation**

### **3.1 Restoration Area**

The areas subject to the provisions of this Plan are those areas that will be impacted during decommissioning activities, including all areas where decommissioning activities occur, as discussed in Section 3.2.

### **3.2 Restoration**

Restoration activities will include, but not be limited to, the following:

- Restore property or properties to pre-construction conditions to the extent feasible.
- Restore property or properties with site specific characteristics such as topography, vegetation, drainage and other unique environmental features.
- Repair county roads impacted by movement of oversized loads or heavy haul vehicles and frequent vehicle trips.
- Remove graveled access roads and restore to pre-construction conditions to the extent feasible.
- Unexcavated areas compacted by equipment used in the decommissioning, including crane path areas, may be tilled in a manner adequate to restore the topsoil and subgrade material to a density consistent with the surrounding areas and then will be reseeded.
- Existing roadways will remain in place when desired by the landowner. Those roadways to be removed will be removed, scarified and reseeded to return the roadbed to pre-construction conditions to the extent feasible.
- Appropriate levels of soil compaction for earthwork required to bury turbine foundations will consider burrow establishment. Decommissioned surfaces identified for reclamation will be scarified, tilled, or harrowed, as appropriate. The depth of compaction relief will depend on site-specific conditions. The site will be left adequately rough after surface soil placement to provide micro sites for seed germination and to reduce soil movement.
- CRW will coordinate to revegetate non-cropland and pasture areas disturbed during decommissioning with native seed mixes appropriate to the region. Topsoil removed during decommissioning activities will be separated from other excavated material and will be reused as topsoil during reseeded and restoring plant communities. Reseeding with native seed mixtures will be used on restoration areas except in cropland areas and in areas where landowners indicate preference for other seeding plans. Reseeding of cropland areas will be conducted in coordination with the landowner.

- In areas where native seed mixes are applied, seed will be broadcast using manually operated, cyclone-type bucket spreaders, mechanical seed spreaders, blowers, hydroseeders, or rubber-tired all-terrain vehicles equipped with mechanical broadcast spreaders. Seed in the spreader hoppers will be mixed to discourage separation of the component seed types. Soils will be protected from wind erosion, if necessary, using biodegradable erosion control blankets or appropriate mulch cover until vegetation is established.
- Where applicable, restoration areas will be designated as areas for all onsite construction and operation and maintenance personnel to avoid and allow for timely seed germination and soil stabilization. Avoidance areas may be marked using temporary signage and/or fencing (for example, orange snow fence attached to t-posts), as determined necessary by CRW.
- When the wind turbines and substation components are removed from their foundations, the concrete and steel within the deeper wind turbine foundations will be broken-up and removed to a depth of four (4) feet below grade unless a lesser depth is otherwise agreed to by the landowner. Fully removing the wind turbine foundations would require major excavation/disturbance at each tower site, as well as additional truck haul-away traffic. The foundation sections below 4 feet that are proposed to remain are composed of non-leaching elements, concrete and steel, that should not present a hazard to the environment.
- The landowners will have the choice, when the Project is decommissioned, as to whether the Project access roads are to be removed. To facilitate the various uses for the property, the owner may choose to leave the roads in place. If the roads are left, maintenance of the roads will become the responsibility of the respective landowner. If the landowner does not want to leave the road in place, it will be removed once all the necessary equipment and materials have been removed from an area and the road to that area is no longer needed. The road surface and bed materials will be removed down to grade. Any materials native to the site will be scattered across the site, and foreign materials will be removed.
- For areas where equipment or materials are removed, those areas will be re-graded back to near pre-construction contours to the extent feasible. Removed roads will be regraded to original contours if cuts and fills make such re-grading practical. Crane pads will also be regraded. All disturbed areas will be seeded and mulched.
- Restoration areas shall be filled and covered with topsoil and restored to a state compatible with the surrounding land and will be completed within 18 months after expiration of the site permit.

### **3.3 Roadway and Facilities Repair and Reclamation**

- County roadways will be repaired from damage that may result from the hauling away of materials, movement of oversized loading or heavy-haul vehicles, and traffic management. In addition, County roads used during the decommissioning process may be damaged due to use of heavy equipment used to off-haul turbine components. County roads used will be restored to their pre-decommissioning state as verified and approved by Codrington County and Grant County.
- CRW will coordinate with landowners to identify property features, such as drain tiles, that need to be avoided during decommissioning activities and will avoid these features where practicable. Where identified features, such as drain tiles cannot be avoided, the drain tile or other features will be repaired following decommissioning and landowners will be compensated for crop damages or losses related to the damage.
- Livestock in pastureland may be temporarily disrupted during decommissioning due to temporary activities, but appropriate measures will be made to ensure fenced pastureland is secure. Temporary fencing may be put in place if fencing is impacted and will be repaired or replaced after decommissioning.

## **4.0 Cost Estimate**

The cost to decommission the existing facility as described in this Plan is estimated to range between \$10 million and \$15 million. CRW will be responsible for all decommissioning costs. The funding for the decommissioning of the Project will be provided in a form of financial assurance that is acceptable to each county to cover the anticipated costs of the decommissioning of the Project.

Within 5-years from the date of issuance of a conditional use permit in Codrington County, the Board may require such financial assurance while in Grant County a decommissioning account is to be funded by the turbine owner annually for a period of 30-years. Beginning in year ten following the beginning of operation and each fifth year thereafter, the turbine owner shall submit to Grant County the Project's estimated decommissioning costs and salvage values. Based on the verification of the information filed in the Grant County conditional use permit application, the County may change the annual financial assurance funding rate to more closely match the estimated amount needed for decommissioning.

## Appendix A:

### Codington County: Section 5.22.03.09 - Decommissioning, Restoration and Abandonment

Subject	Requirements
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 County may at any time request the permittees to file a report with the County describing how the permittees are fulfilling this obligation.
b) 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 cables, 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.
c) 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.
d) 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.
e) Financial Assurance	Five (5) years from the date of issuance of a conditional use permit, the Board may require a performance bond, surety bond, 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.
f) 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 above referenced financial assurance. 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.

## Appendix B:

### Grant County: Section 1211.04.10 – Decommissioning, Restoration and Abandonment

Subject	Requirements
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	At least thirty (30) days prior to construction, the applicant shall file a decommissioning plan for Board approval in accordance with the requirements of paragraphs (b), (c) and (d) below. The plan shall include an acceptable financial assurance plan which estimates the 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	<p>The Board 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:</p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>iii. All interest earned by any financial assurance account remains in the account.</li> <li>iv. A financial assurances statement is to be provided upon request to the administrative official.</li> <li>v. The financial assurance plan follows ownership of the wind turbines.</li> <li>vi. The financial assurances are not subject to foreclosure, lien, judgment, or bankruptcy.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
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	If the WES facility owner or operator does not complete decommissioning, the Board may take

Decommission	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.
f) 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.