

## **CHAPTER 5.22 WIND ENERGY SYSTEM (WES) REQUIREMENTS.**

### **Section 5.22.01 Applicability.**

1. 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 5.22.02 Federal And State Requirements.**

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

### **Section 5.22.03 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 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.
  - 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 drainage ways, 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. 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.
- i. Distance from participating and non-participating residences, businesses, churches, and schools shall be in accordance with Table 5.22.03.2.

**Table 5.22.03.2  
WES Setbacks**

		Setback Distance*	
		Vertical Height of Tower 75' to 500'	Vertical Height of Tower Over 500'
<b>Participating occupied residence, business, church, or school</b>		550'	550' plus 2.5' feet for each additional vertical foot more than 500' in height
<b>Municipal Boundaries at the time of Conditional Use Permit Application</b>		5,280'	5,280'
<b>Non-Participating occupied residence, business, church, or school</b>	<b>Town District</b>	5,280'	5,280'
	<b>All other Districts</b>	1,500'	1,500' plus 2.5' feet for each additional vertical foot more than 500' in height
<b>Distance from the Right-of-Way of Public Road</b>		110% of the height of the wind turbine**	
<b>Distance from Property Line</b>		110% of the height of the wind turbine***	

\* 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.

\*\* 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.

- ii. Exception: The Board of Adjustment may allow setback/separation distances to be less than the established distances identified above if the 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 Codrington County Zoning Officer. 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. 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 applicant will comply with all lighting and markings otherwise required by FAA.
5. Turbine Spacing. The turbines shall be spaced no closer than three (3) rotor diameters (RD) (measurement of blades tip to tip) within a straight line. 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 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. Collector Lines. Collector lines are the conductors of electric energy from the WES 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 the collectors from the substation requires 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. Feeder lines are the conductors of electric energy from the collector lines to the main electric terminal, and may be located either above or below ground. Overhead electric lines, known as feeders, may be placed on private property or on public rights-of-way. Changes in routes in public 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.

## 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 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.

10. 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.

11. Towers.

- a. Color and Finish. The finish of the exterior surface shall be non-reflective and non-glass.
- b. All towers shall be tubular design.

12. Noise.

- a. Noise level generated by wind energy system shall not exceed 50 dBA, average A-weighted Sound pressure level effects at the property line of existing non participating residences, businesses, and buildings owned and/or maintained by a governmental entity.
- b. 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. An L90 measurement shall be used and have a measurement period no less than ten minutes unless otherwise specified by the Board of Adjustment.

13. 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 Codington County Zoning Officer. Said agreement shall be binding upon the heirs, successors, and assigns of the title holder and shall pass with the land.

14. Permit Expiration. The permit shall become void if either no construction as described in the application has commenced within 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.

15. Information Required to Obtain a 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; and affidavit attesting that necessary easement agreements with landowners have been obtained.
- c. Map 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.
- d. Preliminary map of sites for WES, access roads and collector and feeder lines. Final map of sites for WES, access roads and utility lines is required prior to issuance of any building permits associated with the conditional use permit.
- e. Location of other WES in general area.

- f. Project schedule.
- g. Mitigation measures, if applicable (i.e. haul roads, communication, aviation, environmental, etc.)
- h. Final haul road agreements to be submitted sixty (60) days prior to construction.
- i. Proof of right-of-way and private easements or licenses for access to transmission lines and/or utility interconnection shall be submitted sixty (60) days prior to construction.
- j. Evidence of consultation with state and federal wildlife agencies regarding project-specific environmental concerns (e.g. native habitat, rare species, and migratory routes).