



Appendix E
The Brookings County Zoning Ordinance Article 23,
Wind Energy System (WES) Requirements

and

The Deuel County Zoning Ordinance Section 1215, WES Requirements

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2007 REVISED ZONING ORDINANCE
OF BROOKINGS COUNTY, SOUTH DAKOTA

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**ARTICLE 23.00
WIND ENERGY SYSTEM (WES) REQUIREMENTS**

Section 23.01. Wind Energy System (WES) Requirements (Ord. 2001-03, 10-02-2001)

A. 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.

B. Federal and State Requirements

All WES 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 WES.

C. Definitions

Construction. "Construction" means any clearing of land, excavation, or other action that would adversely affect the natural environment of the site or route but does not include changes needed for temporary use of sites or routes for non- utility purposes, or uses in securing survey or geological data, including necessary borings to ascertain foundation conditions.

High voltage transmission line. "High voltage transmission line" means a conductor of electric energy and associated facilities.

Large electric power facilities. "Large electric power facilities" means high voltage transmission lines.

Person. "Person" shall mean an individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

Route. "Route" means the location of a high voltage transmission line between two end points. The route may have a variable width of up to 1.25 miles.

Utility. "Utility" shall mean any entity engaged in this state in the generation, transmission or distribution of electric energy including, but not limited to, a private investor owned utility, cooperatively owned utility, and a public or municipally utility.

D. 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**
 - (1) **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 concrete,

**WIND ENERGY SYSTEM
(WES) REQUIREMENTS**

turbines, towers, assemble nacelles and all other heavy components to and from the turbine sites.

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 Zoning Office of such arrangements.

- (2) **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.
 - (3) **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.
 - (4) **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 Zoning Office. 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,

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(WES) REQUIREMENTS**

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, business and public buildings shall be one thousand (1,000) feet. Distance from on-site or lessor's residence shall be one thousand (1,000) feet. (Ord. 2005-01, 1-25-2005)
- b. Distance from right-of-way (ROW) of public roads shall be 500 feet or one point one (1.1) times the height of the wind turbines depending upon which is greater, measured from the ground surface to the tip of the blade when in a fully vertical position. (Ord. 2005-01, 1-25-2005)
- c. Distance from any property line shall be 500 feet or one point one (1.1) times the height of the wind turbines depending upon which 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. (Ord. 2005-01, 1-25-2005)

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.

5. **Turbine Spacing.** The turbines shall be spaced no closer than three (3) rotor diameters (RD) measurement of blades tip to tip. If required during final micro siting of the turbines to account for topographic conditions, up to 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.

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(WES) REQUIREMENTS**

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. 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 public 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 Zoning Office 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 Zoning Office may at any time request the permittees to file a report with the County Zoning Office describing how the permittees are fulfilling this obligation.

**WIND ENERGY SYSTEM
(WES) REQUIREMENTS**

- 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 four 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 Zoning Office 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 Zoning Office prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within eighteen months after expiration.
 - c. **Abandoned Turbines.** The permittees shall advise the County Zoning Office of any turbines that are abandoned prior to termination of operation of the WES. The County Zoning Office may require the permittees to decommission any abandoned turbine.
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 singular tubular design.**
12. **Noise.** Noise level shall not exceed 50 dBA, including constructive interference effects at existing off-site residences, businesses, and public buildings. (Ord. 2006-02, 3-28-2006).
13. **Permit Expiration.** The permit shall become void if no substantial construction has been completed within three (3) years of issuance.

**WIND ENERGY SYSTEM
(WES) REQUIREMENTS**

14. 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. Map of occupied residential structures, businesses and public buildings.
 - d. Map of sites for WES, access roads and utility lines.
 - e. Location of other WES in general area.
 - f. Project schedule.
 - g. Mitigation measures.

ZONING ORDINANCE

FOR

DEUEL COUNTY

PREPARED BY

THE DEUEL COUNTY PLANNING COMMISSION

**WITH ASSISTANCE FROM
THE FIRST DISTRICT ASSOCIATION OF LOCAL GOVERNMENTS**

Zoning Ordinance

Deuel County, South Dakota

Notice of Public Hearing (Planning Commission/County Commission) Published: March 24 & 25, 2004

Public Hearing held by Planning Commission: April 6, 2004 and May 11, 2004
Planning Commission Adoption and Recommendation: May 11, 2004

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Effective Date: August 12, 2004

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- b. Each sign shall not be closer than three hundred (300) feet from any street intersection and five hundred (500) feet from another permitted off-site sign on the same side of the street or road.
- c. Signs shall not be located within the street right-of-way.

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 off-site residences, business and public buildings shall be one thousand (1,000) feet. Distance from on-site or lessor's residence shall be five hundred (500) feet.
 - b. Distance from public right-of-way shall be one (1) times 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 two (2) times 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.
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 three (3) rotor diameters (RD) within a string and five (5) RDs between strings. If required during final micro siting of the turbines to account for topographic conditions, up to 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.

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7. **Electrical Cables.** The permittees shall place electrical lines, known as collectors, and communication cables underground when located on private property. 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 public 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 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.** 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 four 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 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. Noise level shall not exceed 50 dBA, including constructive interference effects at the property line of existing off-site residences, businesses, and public buildings.

14. Permit Expiration. The permit shall become void if no substantial construction has been completed within two (2) 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.

Section 1216. Wireless Telecommunications Towers And Facilities

Section 1216.01 Purpose

The general purpose of this Section is to regulate the placement, construction, and modification of Towers and Telecommunications Facilities in order to protect the health, safety, and welfare of the public, while at the same time not unreasonably interfering with the development of the competitive wireless telecommunications marketplace in the County.

Specifically, the purposes of this Ordinance are:

1. To regulate the location of Towers and Telecommunications Facilities in the County;