

**Wind Energy Conversion Facilities
Cherry County Addition to Current Zoning Regulations**

SECTION 613 WIND ENERGY CONVERSION FACILITIES

613.01 Wind Energy Installation.

In any zoning district, a conditional use permit may be granted to allow wind energy conversion system, including such devices as wind charger, windmill, or wind turbine; subject to the regulations established in this section.
Individual towers within a WECS shall require a zoning permit issued by the Zoning Administrator.

613.02 Small Wind Energy Systems

Purpose

It is the purpose of this regulation to promote the safe, effective and efficient use of small wind energy systems installed to reduce the on-site consumption of utility supplied electricity.

Definitions

The following are defined for the specific use of this section.

1. *Small Wind Energy System* shall mean a wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended to primarily reduce on-site consumption of utility power.
2. *Tower Height* shall mean the height above grade of the hub portion of the tower, excluding the wind turbine itself.

Requirements

Small wind energy systems shall be permitted as an Accessory Use within any district where the use is listed and allowed. Certain requirements as set forth below shall be met:

1. Tower Height
 - a. For property sizes between ½ acre and one acre the tower height shall be limited to 80 feet.
 - b. For property sizes of one acre or more, there is no limitation on tower height, except as imposed by FAA regulations.

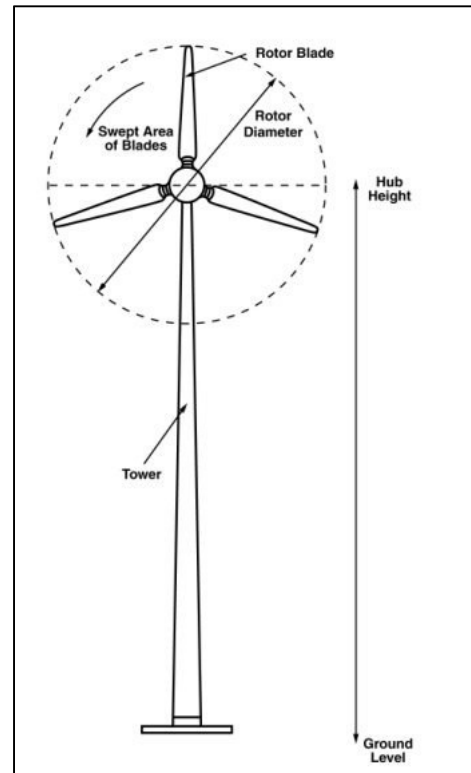


Figure 1

2. Setbacks
 - a. No part of the wind system structure, including guy-wire anchors, may extend closer than accessory building setbacks of the appropriate zoning district to the property lines of the installation site.
3. Noise

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- a. Small wind energy systems shall not exceed 50 dBA, as measured at the closest neighboring inhabited dwelling unit.
 - b. The noise level may be exceeded during short term events such as utility outages and/or severe wind storms.
4. Approved Wind Turbines
- a. Small wind turbines must have been approved under the Emerging Technologies program of the California Energy Commission or any other small wind certification program recognized by the American Wind Energy Association.
5. Compliance with Building and Zoning Codes
- a. Applications for small wind energy systems shall be accomplished by standard drawings of the wind turbine structure, including the tower base, and footings.
 - b. An engineering analysis of the tower showing compliance with official building code of the governing body and/or the State of Nebraska certified by a professional engineer licensed and certified in Nebraska shall also be submitted.
 - c. The manufacturer frequently supplies this analysis.
 - d. Wet stamps shall not be required.
6. Compliance with FAA Regulations
- a. Small wind energy systems must comply with applicable FAA regulations, including any necessary approvals for installations close to airports.
7. Compliance with National Electrical Code
- a. Permit applications for small wind energy systems shall be accompanied by a line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code.
 - b. The manufacturer frequently supplies this analysis.
8. Utility Notification
- a. No small wind energy system shall be installed until evidence has been given that the utility company has been informed of the customer's intent to install an interconnected customer-owned generator.
 - b. Off-grid systems shall be exempt from this requirement.

613.03 Commercial/Utility Grade Wind Energy Systems

Purpose

It is the purpose of this regulation to promote the safe, effective and efficient use of commercial/utility grade wind energy systems within Cherry County.

Definitions

The following are defined for the specific use of this section.

1. *Aggregate Project* shall mean projects that are developed and operated in a coordinated fashion, but which have one or more entities separately owning one or more of the individual WECS within the larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also part of the aggregated project.

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2. *Commercial WECS* shall mean a wind energy conversion system of equal to or greater than 100 kilowatts in total name plate generating capacity.
3. *Feeder Line* shall mean any power line that carries electrical power from one or more wind turbines or individual transformers associated with individual wind turbines to the point of interconnection with the electric power grid. In the case of interconnection with the high voltage transmission systems the point of interconnection shall be the substation serving the wind energy conversion system.
4. *Meteorological Tower* shall mean, for purposes of this regulation, a tower which is erected primarily to measure wind speed and directions plus other data relevant to siting a Wind Energy Conversion System. Meteorological towers do not include towers and equipment used by airports, the Nebraska Department of Roads, or other applications to monitor weather conditions.
5. *Dwelling* shall mean, any building or portion thereof, other than a building used for short term occupancy by human beings, which is designed and / or used for living purposes on an on-going basis.
6. *Public Conservation Lands* shall mean land owned in fee title by State or Federal agencies and managed specifically for conservation purposes, including but not limited to State Wildlife Management Areas, State Parks, federal Wildlife Refuges and Waterfowl Production Areas. For purposes of this regulation, public conservation lands will also include lands owned in fee title by non-profit conservation organizations, Public conservation lands will also include private lands upon which conservation easements have been sold to public agencies or non-profit conservation organizations.
7. *Bluff* shall mean, generally, the steep slopes along the Niobrara River Corridor. More specifically, the land included in the following soils mapping units as identified on the field sheets of the Cherry County Soil Survey, 1996: McF/MCP – McKelvie Loamy Sand 9-30% slopes; MeG/MuG – McKelvie-Fishberry Rock Outcrop complex, 11-60% slopes; MfG/MtG – McKelvie-Rock Outcrop complex, 20-6-% slopes; and, MsF/MtF – McKelvie-Fishberry complex, 9-30% slopes.
8. *Rotor Diameter or Diameter* shall mean the diameter of the circle described by the moving rotor blades as shown in Figure 1.
9. *Small Wind Energy System* shall mean a wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended to primarily reduce on-site consumption of utility power.
10. *Substations* shall mean any electrical facility to convert electricity produced by wind turbines to a voltage greater than 35,000 (35 kV) for interconnection with high voltage transmission lines.

11. *Total Height* shall mean the highest point, above ground level, reached by a rotor tip or any other part of the Wind Energy Conversion System.
12. *Tower* shall mean the vertical structures that support the electrical, rotor blades, or meteorological equipment.
13. *Tower Height* shall mean the total height of the Wind Energy Conversion System from grade to the hub.
14. *Transmission Line* shall mean the electrical power lines that carry voltages of at least 69,000 volts (69 KV) and are primarily used to carry electric energy over medium to long distances rather than directly interconnecting and supplying electric energy to retail customers.
15. *Wind Energy Conservation System* shall mean an electrical generating facility comprised of one or more wind turbines and accessory facilities, including but not limited to: power lines, transformers, substations and meteorological towers that operate by converting the kinetic energy of wind into electrical energy. The energy may be used on-site or distributed into the electrical grid.
16. *Wind Turbines* shall mean any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy using airfoils or similar devices to capture the wind.
17. *Participant* shall mean one that receives annual monetary compensation from the WECS owner/operator.
18. *Non-participant* shall mean one that does not receive annual monetary compensation from the WECS owner/operator.

Requirements

Commercial/Utility Grade wind energy systems shall be permitted as a Conditional Use within any district where the use is listed and allowed. The following requirements and information shall be met and supplied when available but no later than the date of construction:

1. The name(s) of project applicant.
2. The name of the project owner.
3. The legal description and address of the project.
4. A description of the project including; Number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines and means of interconnecting with the feeder lines. The description may be approximate and may include a range of estimates for each item.
5. Site layout, including the location of property lines, wind turbines, electrical grid, and all related accessory structures. This site layout shall include distances and be drawn to scale. The site layout may include corridors within which the siting of wind turbines is flexible, as well as approximate or preliminary locations of electrical and related accessory structures.
6. Certification by an Engineer competent in disciplines of WECS.

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7. Documentation of land ownership or legal control of the property.
8. The latitude and longitude of individual wind turbines. These coordinates may be located in proposed corridors within which the siting of wind turbines is flexible.
9. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other Wind Energy Conversion System not owned by the applicant, within 10 rotor diameters of the proposed Wind Energy Conversion System.
10. Location of known wetlands, designated scenic areas, and natural areas (including bluffs) within 1,320 feet of the proposed Wind Energy Conversion System.
11. An Acoustical Analysis that certifies that the noise requirements within this regulation can be met.
12. Applicant shall submit FAA notices of determination of no hazard to air navigation, & FCC permit or evidence that the permit has been filed with the appropriate agency.
13. Evidence that there will be no interference with any commercial and/or public safety communication towers, including but not limited to radio, telephone, or television signals.
14. Decommissioning Plan as required by *Special Safety & Design Standards, #12* of this regulation.
15. Description of potential impacts on nearby Wind Energy Conversion Systems and wind resources on adjacent properties not owned by the applicant.
16. Documentation of all easement agreements for all transmission lines, feeder lines and substations required for the operation of the WECS, shall be filed with Register of Deeds. Voluntary easements for the crossing of any form of neighboring properties shall be required.

Aggregate Projects

1. Aggregate projects may jointly submit a single application and be reviewed under joint proceedings, including notices, public hearings, reviews and as appropriate approvals.
2. Permits may be issued and recorded separately.
3. Aggregate projects will be assessed fees as one project.
4. Setbacks to property lines, not road rights-of way, may be less when adjoining property owners are within the same aggregate project.

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Proposed changes in BLUE

Setbacks

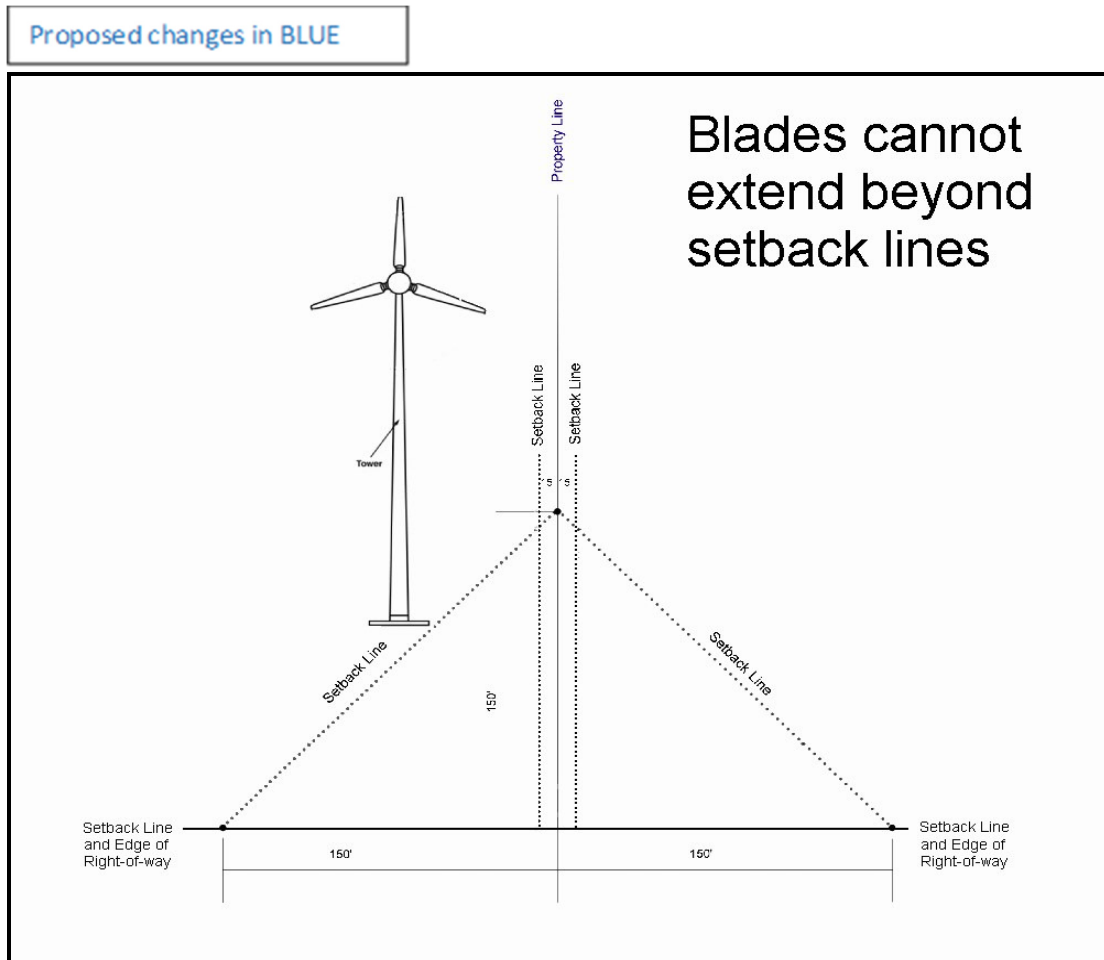
All towers shall adhere to the setbacks as measured from centerline of turbine established in the following table:

	Wind Turbine – Non Commercial	WECS Wind Turbine – Commercial/Utility WECS	Meteorological Towers
PARTICIPATING PROPERTY LINES		NO SETBACK	
Non-participating Property Lines (other than right angle corners)	Diameter plus applicable building setback	One Mile ***	1.1 times the total height
Right angle corner property lines	Diameter plus applicable building setback from both property lines	Behind a line on the property lines drawn between two points 150' from the property line intersection. Generator blades must not exceed the building setback lines on the non-road side, and shall not encroach on the right-of-way on the road side. (See Figure 2)	1.1 times the total height from both property lines
Dwelling *	Diameter plus applicable building setback for owner ½ mile for non-owner dwelling	<u>1,000'</u> feet for participant *** <u>Two</u> mile for non-participant ***	1.1 times the total height plus applicable building setback
Road Rights-of-Way**	Diameter plus applicable building setback	Three Times Total Tower Height	1.1 times the total height plus applicable building setback
Other Rights-of-Way	Diameter plus applicable building setback	Three Times Total Tower Height	1.1 times the total height plus applicable building setback
Public Conservation Lands including Wildlife Management Areas and State Recreation Areas	Applicable building setback	One Mile ***	1.1 times the total height plus applicable building setback
Wetlands, USFW Types III, IV, and V	NA	600'	1.1 times the total height
Other structures not on the applicant's project site	NA	Diameter	1.1 times the total height
Bluffs of over 15 feet		1,320'	

* The setback for dwelling units shall be reciprocal in that no dwelling unit shall be constructed within the same distance required for a commercial/utility Wind Energy Conversion System.

** The setback shall be measured from any future Rights-of-Way if a planned change or expanded right-of-way is known.

*** Participants or non-participants may waive or reduce the required setback by any amount.



Special Safety and Design Standards

All towers shall adhere to the following safety and design standards:

1. The Commercial/Utility WECS owner(s) and/or operator(s) shall conduct an analysis on potential shadow flicker at any occupied building with direct line-of-sight to the WECS. The analysis shall identify 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 identify situations where shadow flicker may affect the occupants of the buildings for more than 30 hours per year, and describe measures that shall be taken to eliminate or mitigate the problems. Shadow Flicker on a building shall not exceed thirty (30) hours per year. **No WECS shall cast a shadow flicker on any public road.**
2. Clearance of rotor blades or airfoils must maintain a minimum of 12 feet of clearance between their lowest point and the ground.
3. All Commercial/Utility WECS shall have a sign or signs posted on the tower, transformer and substation, warning of high voltage. Other signs shall be posted on the turbine with emergency contact information.

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4. All wind turbines, which are a part of a commercial/utility WECS, shall be installed with a tubular, monopole type tower.
5. Consideration shall be given to painted aviation warnings on all towers less than 200 feet.
6. Color and finish:
All wind turbines and towers that are part of a commercial/utility WECS shall be white, grey, or another non-obtrusive color. Blade finishes shall be matte or non-reflective.
8. Lighting:
Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by the FAA permits and regulations. Red strobe lights shall be used during nighttime illumination to reduce impacts on neighboring uses and migratory birds. Red pulsating incandescent lights should be avoided.
9. Other signage:
All other signage shall comply with the sign regulations found in these regulations.
10. Feeder Lines:
All communications and feeder lines installed as part of a WECS shall be buried, where practicable. Feeder lines installed as part of a WECS shall not be considered an essential service.
11. Waste Disposal:
Solid and Hazardous wastes, including but not limited to crates, packaging materials, damaged or worn parts, as well as used oils and lubricants, shall be removed from the site promptly and disposed of in accordance with all applicable local, state and federal rules and regulations.
12. Discontinuation and Decommissioning;
A WECS shall be considered a discontinued use after one year without energy production, unless a plan is developed and submitted to the Zoning Administrator outlining the steps and schedule for returning the WECS to service. All WECS and accessory facilities shall be removed to four (4) feet below ground level within 180 days of the discontinuation of use. This period may be extended by the Zoning Administrator following a written request by an agent of the owner of the WECS.

Each Commercial/Utility WECS shall have a Decommissioning plan outlining the anticipated means and cost of removing WECS at the end of their serviceable life or upon being discontinued use. The cost estimates shall be made by a Professional Engineer, **approved by the Cherry County Board of Commissioners at project owners cost.** The plan shall also identify the financial resources that will be available to pay for decommissioning and removal of the WECS and accessory facilities.

Financial assurance in an amount sufficient to perform the required decommissioning per this plan will be required. Cost estimates will be re-evaluated every 5 years.

13. Noise:

No Commercial/Utility WECS shall exceed 35 dBA at the nearest non participating dwelling. Exception: a Commercial/Utility WECS may exceed 50 dBA during periods of severe weather as defined by the US Weather Service.

14. Interference:

The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by any WECS. The applicant shall notify all communication tower operators within five miles of the proposed WECS location upon application to the county for permits.

15. Roads:

Applicants shall:

- a. Identify all county, municipal or township roads to be used for the purpose of transporting WECS, substation parts, cement, and/or equipment for construction, operation or maintenance of the WECS and obtain applicable weight and size permits from the impacted jurisdictions prior to transportation and construction.
- b. Conduct a pre-construction survey, in coordination with the appropriate jurisdictions to determine existing road conditions. The survey shall include photographs to document the condition of the public facility.
- c. Be responsible for restoring the road(s) and bridges to preconstruction conditions.
- d. Conduct a post-construction survey, in coordination with the appropriate jurisdictions to determine whether road conditions have been restored to pre-construction conditions.

16. Drainage System:

The applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of the WECS.

17. Public Inquiries & Complaints:

1. Should an aggrieved property owner allege that the WECS is not in compliance with the noise requirements of this Regulation, the procedure shall be as follows:
 - a) Noise Complaint
 - i) Notify the Cherry County Zoning Administrator in writing regarding concerns about noise level.
 - ii) If the complaint is deemed sufficient by the Zoning Administrator to warrant an investigation, the Zoning Administrator will request the aggrieved property owner deposit funds in an amount sufficient to pay for a noise level test conducted by a certified acoustic technician to determine compliance with the requirements of these regulations.
 - iii) If the test indicates that the noise level is within Regulation noise requirements, the Zoning Administrator will use the deposit to pay for the test.

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- iv) If the WECS Owner(s) is in violation of the Regulation noise requirements, the Owner(s) shall reimburse the Zoning Administrator for the noise level test and take immediate action to bring the WECS into compliance which may include ceasing operation of the WECS until Regulation violations are corrected. The Zoning Administrator will refund the deposit to the aggrieved property owner.