

## Article 25 Supplemental District Regulations – Section 23 Wind Energy Conversion Facilities

### 23.1 Wind Energy Installation

In the A-1, A-2, I-1, I-2 and PRC Zoning Districts, 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.

### 23.2 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 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 the A-1, A-2, I-1, I-2 and PRC zoning districts where the use is listed and allowed. Certain requirements as set forth below shall be met:

1. Tower Height
  - a. For property sizes of 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.
2. Noise
  - a. Small wind energy systems shall not exceed 60 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 windstorms.
3. 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.
4. Compliance with Building and Zoning Codes
  - a. Applications for small wind energy systems shall be accompanied 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 State of Nebraska and certified by a licensed professional engineer shall also be submitted.
5. Compliance with FAA Regulations
  - a. Small wind energy systems must comply with applicable FAA regulations, including any necessary approvals for installations close to airports.
6. 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.
7. Utility Notification
  - a. No small wind energy system shall be interconnected until approval of utility company.
  - b. Off-grid systems shall be exempt from this requirement.

8. 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.
- b. All towers shall adhere to the setbacks established in table 1:

Wind Energy Installation Setbacks Table 1

	Wind Turbine Non-Commercial	Wind Turbine – Commercial/Utility WECS	Meteorological Towers
Property Lines	Diameter Plus applicable building setback	Diameter plus applicable building setback	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 set back lines on the non-roadside and shall not encroach on the right-of-way on the roadside	1.1 times the total height from both property lines
Neighboring Dwelling Units *	Diameter Plus applicable building setback	1000 feet	1.1 times the total height plus applicable building setback
Road Right-of-Way *	Diameter plus applicable building setback	Generator Blades shall not encroach on the right-of-way	1.1 times the total height plus applicable building setback
Other Right-of-Way	Diameter plus applicable building setback	Generator Blades shall not encroach on the right-of-way	1.1 times the total height plus the applicable building setback
Public Conservation Lands Including Wildlife Management Areas and State Recreation Areas	Applicable building setback	Diameter plus applicable building setback	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 applicants site	NA	Diameter	1.1 times the total height

- 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.

C. **Permit Fees:** Applicant shall remit an application fee of One Hundred (\$100.00).

23.3 Commercial/Utility Grade Wind Energy Systems

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

- A. **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 multiple 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.
  2. **Commercial WECS** shall mean a wind energy conversion system of equal to or greater than 100 kW in total name plate generating capacity.

3. **Hub Height** shall mean the distance from ground level as measured to the centerline of the rotor.
4. **Fall Zone** shall mean the area, defined as the furthest distance from the tower base, in which a guyed or tubular tower will collapse in the event of a structural failure. This area may be less than the total height of the structure.
5. **Feeder Line** shall mean any power line that carries electrical power from one or more wind turbines to the point of interconnection with the project distribution system, 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.
6. **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.
7. **Nameplate Capacity** shall mean the amount of electricity that the wind turbine generating unit can produce given a certain operating capacity as rated by the manufacturer.
8. **Property Line** shall mean the boundary line of the area over which the entity applying for a Wind Energy Conversion System permit has legal control for the purpose of installing, maintaining and operating a Wind Energy Conversion System.
9. **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.
10. **Rotor Diameter** shall mean the diameter of the circle described by the moving rotor blades.
11. **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.
12. **Substations** shall mean any electrical facility to convert electricity produced by wind turbines to a higher voltage for interconnection with high voltage transmission lines.
13. **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.
14. **Tower** shall mean the vertical structures, including the foundation, that support the electrical generator, rotor blades, meteorological equipment or any other part of the WECT known commonly as the "wind turbine".
15. **Tower Height** shall mean the total height of the Wind Energy Conversion System exclusive of the rotor blades.
16. **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.
17. **Wind Energy Conversion System-WECS** 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.
18. **Wind Turbines** shall mean the integrated system of equipment affixed to the tower including the hub, rotor, nacelle, rotor shaft, generator and housing and any monitoring equipment. A wind turbine converts the kinetic energy of moving wind into electrical energy through the operation of the system.

**B. Requirements:** Commercial/Utility Grade wind energy systems shall be permitted as a Conditional Use within A-1, A-2, I-1, I-2 and PRC districts. The following requirements and information shall be met and supplied:

1. The name(s) of the 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 electrical grid.
5. Site layout, including the location of property lines, wind turbines, feeder lines, and all related accessory structures. This site layout shall include distances and be drawn to scale.
6. Certification by an Engineer competent in disciplines WEC's.
7. Documentation of land ownership or legal control of the property.
8. The latitude and longitude of individual wind turbines; included with this shall be an area or zone in close proximity that meets all set-backs; where actual WEC will be considered.
9. A USGS topographical map, or with similar data, of the property and surrounding area, including any other Wind Energy Conversion System, within 10 rotor distances of the proposed Wind Energy Conversion System not owned by the applicant.
10. Location of wetlands, scenic and natural areas 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. The applicant shall supply the emergency management agency and/or fire departments with a basic emergency response plan.
13. FAA and FCC permit, if necessary. Applicant shall submit permit or evidence that the permit has been filed with the appropriate agency.
14. Decommissioning Plan

**C. Aggregated Projects:**

1. Aggregated 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. Joint projects will be assessed fees as one project.

**D Setbacks:**

All towers shall adhere to the setbacks established in Table 1:

**E Special Safety and Design Standards:** All towers shall adhere to the following safety and design standards.

1. Clearance of rotor blades or airfoils must maintain a minimum of 24 feet of clearance between their lowest point and the ground.
2. Tower access: Climbing access to the WECS tower shall be limited either by means of a fence six feet high around the tower base with a locking portal, or by limiting tower climbing apparatus so there is access to it no lower than 12 feet from the ground.
3. Interconnect: The WECS, if interconnected to an electric utility distribution system, shall meet the interconnect requirements of the electric utility company.
4. 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.
5. All wind turbines, which are a part of a commercial/utility WECS, shall be installed with a tubular, monopole type tower.
6. Consideration shall be given to painted aviation warnings on all towers less than 200 feet.
7. Color and finish: All wind turbines shall be white, grey or another non-obtrusive color. Blades may be black in order to facilitate deicing. 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 associated with the project distribution system installed as part of a WECS shall be buried, where physically feasible. Where obstacles to the buried lines create a need to go above ground, these lines may be placed above ground only to miss the obstacle. All distribution and/or transmission lines outside of the project distribution system may be above ground.
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 regulations.
12. Discontinuation and Decommissioning:
  - a. 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 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.
  - b. 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 competent party; such as a Professional Engineer, a contractor capable of decommissioning or a person with suitable expertise or experience with decommissioning. The plan shall also identify the financial resources that will be available to pay for decommissioning and removal of the WECS and accessory facilities.
13. Noise: No Commercial/Utility WECS shall exceed 50 dBA as measured at the closest neighboring inhabited dwelling unit. 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 any commercial or public safety 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 construction.
  - b. Conduct a pre-construction survey, in coordination with the appropriate jurisdictions to determine existing road conditions. The survey shall include photographs and a written agreement to document the condition of the public road.
  - c. Be responsible for restoring the road(s) and bridges to preconstruction 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. Control of Dust: The permittees shall utilize all reasonable measures and practices of construction to control dust.
18. 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 informational 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 continuing 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.

**F Federal and State Regulation:** All WECS shall meet or exceed standards and regulations of the Federal Aviation Administration and any other agency of federal or state government with the authority to regulate WECS.

G **Waiver of General Conditions:** Upon proper application for waiver, the county board may grant a waiver to general conditions (subject to control prevailing NE law, FAA, FCC etc.).

H **Permit Fees:** Applicant shall remit an application fee of Two Hundred dollars (\$200.00) per generator.

I **Permit Expiration** The permit shall become void if no substantial construction has been completed within three (3) years of issuance.

Matrix:

Addition of Wind Energy Installation as a Conditional Use in A-1, A-2, I-1, I-2 and PRC