

## Performance Standards

### 19.07 WINDPOWER DEVELOPMENT

#### A. Purpose

The purpose of this section is to set forth a process for permitting wind energy conversion system (WECS) with a rated capacity of less than 5,000 kilowatts (or five (5) megawatts). Wind energy conversion system with a rated capacity greater than 5,000 kilowatts (or five (5) megawatts) are not permitted within Wilkin County.

#### B. Definitions

WECS – Wind Energy Conversion System: An electrical generating facility comprised of one or more wind turbines and accessory facilities, including but not limited to: power lines, transformers, substations and metrological 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.

Aggregated Project: Aggregated projects are those which 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 entities but are also included as part of the aggregated project.

Commercial WECS: A WECS of equal to or greater than 100 kW in total name plate generating capacity.

Non-Commercial WECS: A WECS of less than 100 kW in total name place generating capacity.

Fall Zone: The area, defined as the furthest distance from the tower base, in which a guyed tower will collapse in the event of a structural failure. This area is less than the total height of the structure.

Feeder Line: 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 substations serving the WECS.

Meteorological Tower: For the purposes of this Wind Energy Conservation System Ordinance, meteorological towers are those towers which are erected primarily to measure wind speed and directions plus other data relevant to siting WECS. Meteorological towers do not include towers and equipment used by airports, the Minnesota Department of Transportation, or other similar applications to monitor weather conditions.

Micro-WECs: Micro-WEC are WECS of 1 kW nameplate generating capacity of less and utilizing supporting towers of 40 feet or less.

Nonconformity: Any legal use, structure or parcel, of land established before the effective date of

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this ordinance, which does not conform to use restrictions of a particular zoning district.

Property line: The boundary line of the area over which the entity applying for a WECS permit has legal control for the purposes of installation of a WECS. This control may be attained through fee title ownership, easement, or other appropriate contractual relationship between the project developer and landowner.

Rotor diameter: The diameter of the circle described by the moving rotor blades.

Substations: Any electrical facility designed to convert electricity produced by wind turbines to a voltage of greater than 35,000 (35 KV) for interconnection with high voltage transmission lines shall be located outside of the road right of way.

Total height: The highest point, above ground level, reached by a rotor tip or any other part of the WECS.

Towers: Towers include vertical structures that support the electrical generator, rotor blades, or meteorological equipment.

Tower height: The total height of the WECS exclusive of the rotor blades.

Transmission Line: Those electrical power lines that carry voltages of at least 41,600 volts (41.6 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.

Public Conservation Lands: Land owned in fee title by State or Federal agencies and managed specifically for conservation purposes, including by not limited to State Wildlife Management Areas, State Parks, State Scientific and Natural Areas, Federal Wildlife Refuges and Waterfowl Production Areas. For the purposed of this section public conservation lands will also include lands owned in fee title by non-profit conservation organizations. Public conservation lands do not include private lands upon which conservation easements have been sold to public agencies or non-profit conservation organizations.

Wind Turbine: A wind turbine is any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy through the use of airfoils or similar devices to capture the wind.

## **C. Permit Standards**

A conditional use permit shall be required for all WECS. All proposed WECS must fill out a conditional use permit application provided by the Wilkin County Environmental Services Office, as regulated in Section 14 of this ordinance.

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**D. District Regulations**

<b>Zoning Classification</b>	Non-Commercial	Commercial	Meteorological Tower
<b>Agriculture</b>	Conditional	Conditional	Conditional
<b>Commercial</b>	Conditional	Conditional	Conditional
<b>Residential</b>	Conditional	Not Permitted	Not Permitted
<b>Floodplain</b>	Not Permitted	Not Permitted	Not Permitted

**E. Setbacks**

<b>Residence</b>	The greater of 750 feet or 1.5 feet for every foot of height of the WECS
<b>Project Boundary/Property Line</b>	The greater of 300 feet or 1.1 times the height of the WECS.
<b>Public Roads</b>	The greater of 300 feet or 1.1 times the height of the WECS.
<b>Other Structures</b>	1.1 times the height of the WECS
<b>New Structures</b>	Maintain at minimum the same setback as current structures have to the WECS.

**F. Standards**

1. All WECS and related improvements shall be in compliance with all other applicable State and Federal Regulatory Standards.
  - Uniform Building Code as adopted by the State of Minnesota
  - The National Electrical Code as adopted by the State of Minnesota
  - FAA Requirements
  - MPCA/EPA Regulations
2. All WECS shall be equipped with redundant braking systems. This includes both aerodynamic (including variable pitch) overspeed controls, and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode, whereby they are engaged in the case of loss of load on the generator. Stall regulation should not be considered a sufficient braking system for overspeed protection.
3. Signs shall be posted at least at facilities entrances to warn of high voltage. Fencing and restricted access measures may be required where necessary to protect public safety.
4. Project developer is responsible for remediation of damaged roads and/or drainage systems upon completion of the project.

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5. All solid waste and hazardous waste shall be removed from the site immediately and managed in a manner consistent with all appropriate rules and regulations.
6. All installed wind turbines must utilize self-supporting tubular towers, if over 100 kilowatts.

## G. Decommissioning

Provisions shall ensure that facilities are properly decommissioned upon end of project life or facility abandonment. Decommissioning shall include: removal of all structures and debris to a depth of 4 feet, restoration of the soil; and restoration of vegetation (consistent and compatible with surrounding vegetation) shall also be required.

Provisions shall include a decommissioning plan. This plan will identify:

- When and how a facility is to be decommissioned.
- Estimated cost of decommissioning.
- Financial resources to be used to accomplish decommissioning, i.e. an escrow account or bond. Such surety shall be for an amount as determined by the County Board in its sole discretion.

## H. Signage

Signs shall be regulated as set forth in Section 18 of this ordinance.

## I. Equipment Design & Performance Standards

The following items are recommended standards to mitigate visual impacts:

- Coatings and Coloring: Non-reflective unobtrusive color. Black blades are acceptable for mitigation of icing.
- Turbine consistency: To the extent feasible, the project shall consist of turbines of similar design and size, including tower height. Further, all turbines in project shall rotate in the same direction. Turbines shall also be consistent in design, color and rotational direction with nearby facilities.
- Lighting: Projects shall utilize minimal lighting. No tower lighting, other than normal security lighting, shall be permitted, except as may be required by the FAA. It may be appropriate for permits to allow for some infrared lights or heat lamps to prevent icing of sensors.
- Intra-project power and communications lines: All power lines used to collect power from individual turbines, and all communication lines shall be buried underground. Allowances shall be provided where shallow bedrock interferes with the ability to bury underground lines.
- Screening: There may be critical vistas or views from public roads to scenic locations, which are negatively impacted by wind turbines. It may be appropriate to require landscaping materials at a scenic overlook, which screens the view of or distracts attention from the turbines in order to minimize the visual impact.

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- Height: Non-commercial WECS shall have a total height of less than 200 feet. Commercial WECS shall have a total height of less than 500 feet.

## **J. Aggregated Projects**

Aggregated projects equal to or less than 5,000 kW (5 W) may jointly submit a single application and be reviewed under joint proceedings, including notices, hearing, reviews, and as appropriate approval. Permits will be issued and recorded separately. Joint applications will be assess fees as one project.

## **K. Permit application**

The following information shall be required with the conditional use permit application:

- A description of the project, including number and capacity of turbines, height and diameter of turbine rotors, turbine color and rotor direction.
- A site plan detailing the location of the project area boundaries, turbines, roads, transformers, power lines, communications lines, interconnection point with transmission lines, and other ancillary facilities or structures.
- Topographic map of the project site and surrounding area.
- Current land use on the site and surrounding area.
- Distance to impacted properties.
- Decommissioning plan.
- Engineering certification of tower and foundation design suitability for turbine and soils.
- Evidence of power purchase contracts and power transmission contracts, or documentation that the power will be utilized on-site.
- Distance to communication towers within 2 miles of the proposed site and documented communications with tower owners of the proposed project.
- Identification and description of neighboring wind power facilities

## **L. Enforcement & Violations**

- This ordinance shall be administered and enforced by the Wilkin County Zoning Administrator.
- In the event of a violations or a threatened violation of this ordinance, the Board of County Commissioners or any member thereof, in addition to other remedies may institute appropriate actions or proceedings to prevent, restrain, correct, or abate such violations or threatened violations, and it shall be the duty of the County Attorney to institute such action.

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