

ARTICLE IX. Supplemental Regulations

DIVISION 4. Wind Energy Conversion Systems (WECS)

Section 74-560. Purpose and Intent.

This ordinance is established to regulate the installation and operation of Wind Energy Conversion Systems (WECS) within the City of Anoka, not otherwise subject to siting and oversight by the State of Minnesota under the Minnesota Power Plan Siting Act (Minn. Stat. § 116C.51 – 116C.697).

Section 74-561. Definitions.

The definitions in Section 74-2 of this Chapter apply herein. In addition, the following definitions shall apply in the interpretation and enforcement of this division.

Commercial WECS means a WECS of 40 kilowatts or more in total name plate generating capacity.

Fall zone means the area defined as the furthest distance from the tower base, in which a tower will collapse in the event of a structural failure.

Feeder Line means 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 on interconnection with the high voltage transmission systems, the point of interconnection shall be the substation serving the WECS.

Meteorological Tower means towers that are erected primarily to measure wind speed and directions plus other data relevant to siting a WECS. For purposes of this ordinance, meteorological towers does not mean towers and equipment used by airports, the Minnesota Department of Transportation, or other similar applications to monitor weather conditions.

Nacelle means the part of the WECS that contains the key components of the wind turbine, including the gearbox, yaw system and the electrical generator.

Non-commercial WECS means a WECS of less than 40 kilowatts (KW) in total name plate generating capacity.

Rotor diameter means the diameter of the circle described by the moving rotor blades.

Substations means any electrical facility designed to convert electricity produced by a wind turbine to a voltage greater than 35,000 volts (35 kilovolts) for interconnection with high voltage transmission lines.

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

Tower means vertical structures that support the electrical generator, rotor blades, or meteorological equipment.

Tower height means the total height of the WECS exclusive of the rotor blades.

Transmission line means those electrical power lines that carry voltages of at least 69,000 volts (69 kilovolts) and are primarily used to carry electric energy over medium to long distances rather than directly interconnecting and supplying electric energy to retail customers.

WECS – Wind Energy Conversion System means 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 may be distributed into the electrical grid.

Wind turbine means 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.

Section 74-562.

Application, process, building permits, fees and inspections.

- (a) *Application.* Applications for approval to construct a commercial WECS shall include the following information:
- (1) The name(s) of the project applicant.
 - (2) The name(s) of the property owner.
 - (3) The legal description and address of the project.
 - (4) A description of the project including the type, name plate generating capacity, tower height, rotor diameter, and means of interconnecting with the electrical grid.
 - (5) The proposed site layout, including the location of property lines, wind turbines, electrical wires, interconnection points with the electrical grid, and all related accessory structures. The site layout shall include distances and shall be drawn to scale.
 - (6) An engineer's certification.
 - (7) Documentation of land ownership or legal control of the property.
 - (8) The latitude and longitude of individual wind turbines.
 - (9) A USGS topographical map, or map with similar date, of the property and surrounding area, including any other WECS within ten (10) rotor diameters of the proposed WECS.
 - (10) The location of wetlands, scenic and natural areas within 1,320 feet of the proposed WECS.
 - (11) An acoustical analysis.
 - (12) A Federal Aviation Administration (FAA) Permit Application, if applicable.
 - (13) The location of all known Communication Towers within two (2) miles of the proposed WECS.
 - (14) A decommissioning plan.
 - (15) A description of potential impacts on nearby WECS and wind resources on adjacent properties.
- (b) *Process.* WECS applications will be processed under the procedures for applicable approvals contained within this Chapter.
- (c) *Building permits.*
- (1) It shall be unlawful for any person to erect, construct in place, place or re-erect, replace, or repair any tower without first making application to

the building inspections department and securing a building permit therefore as required in this sub-section.

- (2) The applicant shall provide, at the time of application, sufficient information to indicate that construction, installation and maintenance of the WECS will not create a safety hazard or damage to the property of other persons.
 - (3) Only one tower shall exist at any one time on any one property.
 - (4) Before issuance of a building permit, the following information shall be submitted by the applicant:
 - a. Proof that the proposed tower complies with regulations administered by the Federal Aviation Administration; and
 - b. A report from a State-licensed professional engineer that demonstrates the WECS compliance with structural and electrical standards.
 - c. A conditional use permit approved by the City.
 - (5) Any city cost of testing or verification of compliance shall be borne by the applicant.
- (d) *Fees.* The fee(s) to be paid shall be as prescribed by the City Council.
- (e) *Inspections.* WECS may be inspected by an official of the building department to determine compliance with original construction standards. Deviation from the original construction for which a permit is obtained constitutes a violation of this section. Notice of violations will be sent by registered mail to the owner of the WECS and the property owner upon which the WECS is located who will have thirty (30) days from the date notification is issued to make repairs. Upon completion of the repairs, the owner/applicant shall notify the building official that the repairs have been made.

Section 74-563.

Conditionally Permitted and Prohibited WECS.

- (a) *Conditionally permitted WECS.* Commercial WECS are permitted in all zoning districts, except as noted in subpart (b) below, upon issuance of a conditional use permit, and are subject to the provisions of Section 74-552.
- (b) *Prohibited WECS.* All WECS are prohibited in the environmental overlay districts – Mississippi National River Recreation Area (MNRRA) and the Rum River Wild and Scenic District and are prohibited in the flood plain or shoreland areas. Non-commercial WECS are prohibited in all areas of the City.

Section 74-564.

Performance Standards.

- (a) *Safety Design Standards.*
 - (1) **Engineering Certification.** For all WECS, the manufacture's engineer or another qualified engineer shall certify that the turbine, foundation and tower design of the WECS is within accepted professional standards, given local soil and climate conditions.

- (2) Clearance. Commercial WECS: Rotor blades must maintain at least fifteen (15) feet of clearance between their lowest point and the ground.
- (3) Rotor Safety. Each commercial WECS shall be equipped with both a manual and an automatic braking device capable of stopping the WECS operation in high winds (40 miles or greater).
- (4) Lightning Protection. Each commercial WECS shall be grounded to protect against natural lightning strikes in conformance with the National Electrical Code.
- (5) Warnings. For all commercial WECS, a sign or signs shall be posted on the tower, transformer and substation warning of high voltage, stating the manufacturer's name and listing an emergency phone number.

(b) *Standards.*

- (1) Total Height.
 - a. Commercial WECS shall have a total height of no more than one hundred fifty (150) feet.
 - b. WECS shall not be roof-mounted.
- (2) Tower Configuration.
 - a. All towers that are part of a WECS, except meteorological towers, shall be installed with a tubular, monopole type tower.
 - b. Meteorological towers may be guyed.
- (3) Setbacks.

| | Commercial WECS | Meteorological Towers |
|-----------------------|---|---|
| Property lines | 1.1 times the total height plus ten feet | The lesser of the fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height |
| Neighboring Dwellings | 1.25 times the total height | The lesser of the fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height |
| Road Rights-of-Way | The lesser of the fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height | The lesser of the fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height |
| Other Rights- | The lesser of the | The lesser of the fall zone, |

| | Commercial WECS | Meteorological Towers |
|---------------------|--|--|
| of-Way | fall zone, as certified by a professional engineer, plus ten feet or 1.1 times the total height. | as certified by a professional engineer plus ten feet or 1.1 times the total height |
| Other Structures | The lesser of the fall zone, as certified by a professional engineer plus ten feet or 1.1 times the total height | The lesser of the fall zone, as certified by a professional engineer plus ten feet or 1.1 times the total height |
| Other Existing WECS | To be determined through the CUP review based on relative size of existing and proposed WECS, alignment of WECS relative to predominant winds, topography, extent of wake interference on existing WECS, and other setbacks required; may be waived for multiple turbine projects. | |

- (4) Color and Finish.
 - a. All wind turbines and towers that are part of a WECS shall be white, grey or another non-reflective, non-obtrusive color.
 - b. Finishes shall be matte or non-reflective.
- (5) Lighting. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration (FAA) permits and regulations. No additional lighting, other than building security lighting, is permitted.
- (6) WECS sites. The design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening and landscaping that will blend the WECS to the natural setting and then existing environment.

- (7) Signs. The manufacturer's or owner's company name and/or logo may be placed on the nacelle of the WECS. No other signage, other than as required in this Division, shall be permitted.
- (8) Feeder Lines. All communications and feeder lines, equal or less than 34.5 kilovolts in capacity, installed as part of a WECS shall be buried where reasonably feasible. Feeder lines installed as part of a WECS shall not be considered an essential service.
- (9) Waste Disposal. All 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.
- (10) Maximum Vibration and Shadow Flicker.
 - a. No WECS shall produce vibrations through the ground that are humanly perceptible beyond the property on which it is located.
 - b. Commercial WECS shall include a shadow flicker analysis study with the application submission.
- (11) Discontinuation and Decommissioning. A WECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the City outlining the steps and schedule for returning the WECS to service.
 - a. All WECS and accessory buildings shall be removed in their entirety including all footings and foundations within ninety (90) days of the discontinuation of use.
 - b. Each Commercial WECS shall submit a Decommissioning Plan outlining the anticipated means and cost of removing the WECS at the end of its serviceable life or upon becoming a discontinued use. The plan shall also identify the financial resources that will be available to pay for the decommissioning and removal of the WECS and accessory facilities. The Decommissioning Plan shall be submitted as part of the conditional use permit application.
 - c. The City may require financial surety in the form of a cash escrow, irrevocable letter of credit or performance bond to ensure that decommissioning of the Commercial WECS is completed.

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Other Applicable Standards.

- (a) Noise. All WECS shall comply with the MPCA and City of Anoka standards for noise.

- (b) Electrical Codes and Standards. All WECS and accessory equipment and facilities shall comply with the National Electrical Code and other applicable standards.
- (c) Federal Aviation Administration (FAA). All WECS shall comply with FAA standards and permit requirements.
- (d) Building Code. All WECS shall comply with the Minnesota Building Code as adopted by the State of Minnesota and the City of Anoka.
- (e) Interference.
 - (1) The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by WECS.
 - (2) The applicant shall notify all communication tower operators within two (2) miles of the proposed WECS location upon application to the City for a permit to operate a WECS.
 - (3) No WECS shall be constructed so as to interfere with public safety telecommunications.

Section 74-566 – 74-600. Reserved.