

SECTION 34

WIND ENERGY CONVERSION SYSTEMS (WECS)

Section

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20-34-1: **PURPOSE:** The purpose of this Section is to establish standards and procedures by which the installation and operation of WECS shall be governed within the City.

20-34-2: **APPLICATION:** Wind conversion systems may be allowed as an accessory use, conditional use within any zoning district of the City, subject to the regulations and requirements of this Section, provided the property upon which the system is to be located is agricultural, commercial or industrial or is constructed and maintained on any parcel of land of at least five (5) acres in size.

20-34-3: **DECLARATION OF CONDITIONS:** The City Council may impose such conditions on the granting of WECS conditional use permit as may be necessary to carry out the purpose and provisions of this Section and to maintain compatibility.

20-34-4: **SITE PLAN DRAWING:** All applications for WECS conditional use permit shall be accompanied by a detailed site plan drawn to scale and dimensioned, displaying the following information:

- A. Lot lines and dimensions.
- B. Location and height of all buildings, structures, above ground utilities, and trees on the lot, including both existing and proposed structures and guy wires anchors.

- C. Locations and height of all adjacent buildings, structures, above ground utilities and trees located within three hundred (350) feet of the exterior boundaries of the property in question.
- D. Existing and proposed setbacks of all structures located on the property in question.
- E. Sketch elevation of the premises accurately depicting the proposed WECS and its relationship to structures on adjacent lots.

20-34-5: **COMPLIANCE WITH STATE BUILDING CODE:** Standard drawings of the structural components of the wind energy conversion system and support structures, including base and footings shall be provided along with the engineering data and calculations to demonstrate compliance with the structural design provisions of the State Building Code especially with regards to wind and icing loads. Drawings and engineering calculations shall be certified by a registered engineer.

20-34-6: **COMPLIANCE WITH NATIONAL ELECTRICAL CODE:** WECS electrical equipment and connections shall be designed and installed in adherence to the National Electrical Code as adopted by the City.

20-34-7: **MANUFACTURER WARRANTY:** The applicant shall provide documentation or other evidence from the dealer or manufacturer that the WECS has been successfully operated in atmospheric conditions similar to the conditions within the City. The WECS shall be warranted against any system failures reasonably expected in severe weather operation conditions.

20-34-8: **DESIGN STANDARDS:**

- A. Height: The permitted maximum height of a WECS shall be determined in one of two ways. In determining the height of the WECS, the total height of the system shall be included. System height shall be measured from the base of the tower to the highest possible extension of the rotor.
 - 1. A ratio of one (1) foot to one (1) foot between the distance of the closest property line to the base of WECS to the height of the system.
 - 2. A maximum system height of one hundred fifty (150) feet.

The shortest height of the two above mentioned methods shall be used in determining the maximum allowable height of a WECS system. The height of a WECS must also comply with FAA Regulation Part 77 "Objects Affecting

Navigable Air Space” and/or MnDOT Rule 14, MCAR 1.3015 “Criteria for Determining Obstruction to Air Navigation.”

- B. Setbacks: No part of a WECS (including guy wire anchors) shall be located within or above any required front, side or rear yard setback and no part of the system shall be within ten (10) feet of any property line, whichever is greater. WECS towers shall be setback from the closest property line one foot for every one foot of system height. WECS shall not be located within fifty (50) feet of an above ground utility line.
- C. Rotor Size: All WECS rotors shall not have rotor dimensions greater than twenty-six (26) feet.
- D. Rotor Clearance: Blade-arcs created by the WECS shall have a minimum of thirty (30) feet of clearance over any structure or tree within a two hundred (200) foot radius.
- E. Rotor Design: The blade design and materials are to be designed and constructed to ensure safe operation in an urban/rural area.
- F. Rotor Safety: Each WECS shall be equipped with both a manual and automatic braking device capable of stopping WECS operation in high wind (40 MPH or greater) or in conditions of imbalance.
- G. Lightning Protection: Each WECS shall be grounded to protect against natural lightning strikes in conformance with the National Electrical Code as adopted by the City.
- H. Component Compatibility: The Wind turbine and wind turbine tower are to be designed and constructed to be compatible.
- I. Tower Access: To prevent unauthorized climbing, WECS towers must comply with one of the following provision:
 - 1. Tower climbing apparatus shall not be located within twelve (12) feet of the ground.
 - 2. A locked anti-climb device shall be installed on the tower.
 - 3. Tower capable of being climbed shall be enclosed by a locked, protective fence at least eight (8) feet high.
- J. Signs: WECS shall have one sign, not to exceed two (2) square feet at the base of the tower and said sign shall contain the following information:
 - 1. Warning high voltage.
 - 2. Manufacturer’s name.
 - 3. Emergency phone number.

4. Emergency shutdown procedures.

- K. Lightning: WECS shall not have affixed or attached any lights, reflectors, flashers or any other illumination, except for illumination devices required by FAA Regulations Part 77 "Objectives Affecting Navigable Air Space" and Lighting."
- L. Electromagnetic Interference: WECS shall be designed and constructed so as not to cause radio and television interference.
- M. Noise Emissions: Noises emanating from the operation of WECS shall be in compliance with and regulated by the State of Minnesota Pollution Control Standards, Minnesota Regulations NPC 1 and 2, as amended.
- N. Utility Company Interconnection: No WECS shall be interconnected with the local electrical utility company until the utility company and the City Engineer have commented upon such proposal. The interconnection of the WECS with the utility company shall adhere to the National Electrical Code as adopted by the City.

20-34-9: **ORNAMENTAL WIND DEVICES:** Ornamental wind devices that are not a WECS shall be exempt from the provisions of this Section and shall conform to other applicable provisions of this Chapter and the City Code.

20-34-10: **BUILDING PERMIT REQUIRED:** A building permit shall be required for the installation of a WECS in the City.

20-34-11: **INSPECTION:** The City hereby reserves the right upon issuing any WECS conditional use permit to inspect the premises on which the WECS is located. If a WECS is not maintained in operational condition and poses a potential safety hazard, the owner shall upon written notice from the City, take expeditious action to correct the situation.

20-34-12: **ABANDONMENT:** Any WECS or tower which is not used for six (6) successive months shall be deemed abandoned and shall be dismantled and removed from the property at the expense of the property owner.