9.4 Utility and Communication Uses

A. Wind Energy Conversion Systems (WECS)

Sustainability Tip
A wind energy facility, when properly designed, located, and operated, can provide a renewable source of energy that can help reduce our dependence on fossil fuels.

1. **Intent.** The intent of this Subdivision is to promote safe, effective and efficient use of alternative energy sources and systems as the technology becomes available. The intent is also to establish standards and procedures by which the installation and operation of wind energy conversion systems (WECS) shall be governed within the City.

2. **Procedure.**

   a. The erection of wind energy conversion system shall require a Conditional Use Permit, subject to the requirements of this *Subdivision 8.21: Conditional Use Permit*.

   b. Wind energy conversion systems (WECS) governed by this *Subdivision* shall be allowed within the PB – Public Building zoning districts.

3. **Submittal Requirements.**

   a. Site Plan Drawing. All applications for a WECS Conditional Use Permit shall be accompanied by a detailed certified survey / site plan drawn to scale and dimensioned, displaying the following information:

      (1) Lot lines and dimensions;

      (2) Location and height of all buildings, structures, aboveground utilities and trees on the lot, including both existing and proposed structures and guy wire anchors.

      (3) Location and height of all adjacent buildings, structures, aboveground utilities and trees located within three hundred fifty (350) feet of the exterior boundaries of the property in question;

      (4) An elevation drawing of the premises accurately depicting the proposed WECS and its relationship to structures on the subject site and adjacent lots.

      (5) Existing and proposed setbacks of all structures located on the property in question.

   b. Additional Submittal Requirements. In addition to the information required elsewhere in this Ordinance, development applications for WECS, and temporary towers for meteorological equipment shall include the following supplemental information:

      (1) A significant tree inventory in conformance with *Subdivision 10.5: Slopes / Woodland Protection, Preservation and Replacement* showing the loss of significant trees within the construction area for the WECS and / or temporary meteorological tower;

      (2) A letter or copy of the review response from the Federal Aviation Administration concerning the development application and their requirements for warning devices, height restrictions, etc;

      (3) The technical specifications for the WECS including, but not limited to, the type, height, blade length, operating parameters, the anticipated sound level at the property line, and lightning protection; and

      (4) Clearance distance between the farthest extensions of the WECS blades to the property lines.

4. Criteria for Approval.

a. Declaration of Conditions. The Planning Commission may recommend and the City Council may impose such conditions on the granting of a WECS conditional use permit as may be necessary to carry out the purpose and provisions of this *Subdivision*. The Council must consider the following criteria in determining whether to grant or deny a conditional use permit for a Wind Energy Conversion System (WECS):

(1) The proposed WECS compliance with the performance standards described in this Subpart;

(2) The potential for the WECS to cause a condition that may pose an unreasonable threat or cause unreasonable damage to any other property or person; and

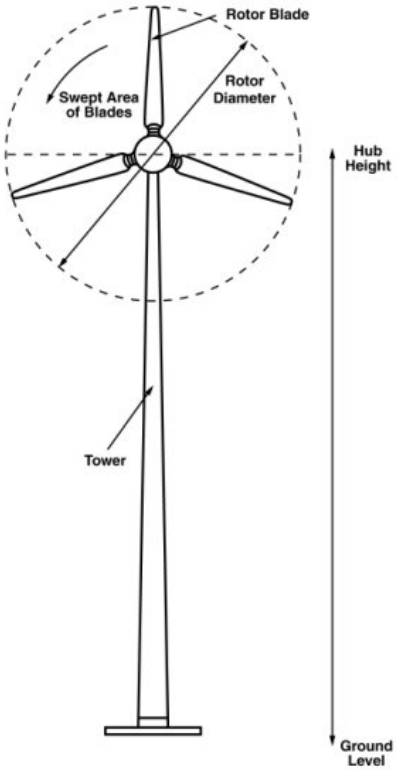
(3) The proposed WECS impact on the environment and on the visual image of the surrounding area.

5. Performance Standards.

a. Number of Systems. No more than one (1) wind energy conversion system (WECS) shall be permitted per lot.

b. Capacity. A wind energy conversion system shall have a nameplate capacity of forty (40) kilowatts or less.

c. Height. The permitted maximum height of a WECS shall be determined in one of the following two ways. In determining the height of the WECS, the total height of the system shall be measured from the base of the tower to the center of the systems hub (also known as the hub height).



(1) A ratio of one foot to one foot (1':1') between the distance of the closest property line to the base of the WECS to the height of the system.

(2) A maximum system height of one hundred twenty – five (125) feet. The City Council, at its discretion, may waive the maximum system height requirements provided the City Council finds that the overall height is not feasible for the WECS to function properly in the proposed location based on meteorological data that was taken.

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 regulations part 77 'Objects Affecting Navigable Air Space'* and / or *MNDOT Rule 14, MCAR 1.3015 (Minnesota Administrative Rule 8800.1200 'Criteria for Determining Obstruction to Air Navigation').*

d. Setbacks. WECS shall be set back a distance equal to its height from the following:

(1) Any public road right – of – way, unless written permission is granted by the governmental entity with jurisdiction over the road;

(2) Any overhead utility lines, unless written permission is granted from the affected utility; and

(3) All property lines, unless written permission is granted from the affected property owner or neighbor.

e. Rotor Size. All WECS rotors shall not have rotor diameters greater than forty – five (45) feet.

f. 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.

g. Rotor Safety. Each WECS shall be equipped with both a manual and automatic braking device capable of stopping the WECS operation in high winds (40mph or greater).

h. Color and Finish. All wind turbines and towers shall be white, gray, or another non – obtrusive color. Finishes shall be matte or non – reflective.

i. Tower Access. To prevent unauthorized climbing, WECS towers must comply with one of the following provisions:

(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) Towers capable of being climbed shall be enclosed by a locked, protective fence at least six (6) feet high.

k. Signs. WECS shall have one (1) sign, not to exceed two (2) square feet posted at the base of the tower and said shall contain the following information:

(1) Warning high voltage.

(2) Manufacturer's name.

(3) Emergency phone number.

(4) Emergency shutdown procedures.

l. Lighting. WECS shall not have affixed or attached lights, reflectors, flashers, or any other illumination except for illumination devices required by *FAA regulations part 77 'Objects Affecting Navigable Air Space'* and *FAA Advisory circular 70 / 7460 – 1K ' Objects Marking and Lighting'*.

m. Electromagnetic Interference. WECS shall be designed and constructed so as not to cause radio and television interference.

n. Noise Emission. Audible noise from wind energy facilities shall not exceed fifty (50) dB(A) when measured from the outside of the nearest residence, business, school, hospital, religious institution, or other inhabited structure. In the event the noise emitted from the wind energy facility contains a steady pure tone such as a whine, screech, or hum the wind energy facility shall not exceed forty – five (45) dB(A) when measured outside the nearest inhabitable structure. The audible noise from

wind energy facilities may periodically exceed allowable noise levels during extreme wind events (winds above 30 mph or greater).

o. Utility Company Interconnection. No WECS shall be interconnected with a local electrical utility company until the utility company has reviewed and comments upon it. All connections shall be underground.

p. Compliance with State Building Code. A standard drawing of the structural components of the wind energy conversion system and support structures, including base and footings shall be provided along with engineering date and calculations to demonstrate compliance with the structural design provisions of the State Building Code. Drawings and engineering calculations shall be certified by a registered engineer.

q. Compliance with National Electrical Code. WECS electrical equipment and connection shall be designed and installed in adherence to the National Electrical Code.

r. 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 of Mahtomedi. The WECS shall be warranted against any system failures reasonable expected in severe weather operation conditions.

6. **Inspection.** The City herby 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 conditions and poses a potential safety hazard, the owner shall take expeditious action to correct the situation.

7. **Abandonment.** A wind energy conversion system that is out of service for a continuous twelve (12) month period shall be deemed to have been abandoned. The Zoning Administrator or other Authorized Agent may issue a notice of abandonment to the owner of the wind energy facility that is deemed to have been abandoned. The owner shall have the right to respond to the notice of abandonment within thirty (30) days of notice receipt date. The Zoning Administrator or other Authorized Agent shall withdraw the notice of abandonment and notify the owner that the notice has been withdrawn if the owner provided information that demonstrates the Wind Energy Conversion System has not been abandoned.

   If the wind energy conversion system is determined to be abandoned, the owner of the WECS shall remove the WECS and return the property in which the WECS was located on to its original condition prior to the placement of a WECS, at the owner's sole expense within three (3) months of receipt of notice of abandonment. If the owner fails to remove the WECS, the Zoning Administrator or other Authorized Agent may pursue a legal action to have the wind generator removed at the owners expense.

8. **Temporary Meteorological Equipment.** Temporary meteorological equipment located upon a temporary tower used on an interim basis to gather wind and meteorological data to determine feasibility of the WECS shall require written approval by the Zoning Administrator or other Authorized Agent, and shall comply with the following standards:

   a. No more than one (1) such temporary tower shall be permitted on a lot at one time.

   b. The tower shall be placed on property for no longer than eighteen (18) months from the date of the Administrative Review issuance. Any abandoned or obsolete

temporary tower shall be removed within thirty (30) days from the cessation of operation at the site.

c. The tower shall be temporary by nature and shall not have permanent foundations. Guy wires may be used as long as the connections to the ground are temporary and the wires are designed to support the wind and ice load of the tower.

d. The tower shall meet the minimum wind and ice load design required by the City Code and the Uniform Building code.

e. The tower and any related guy wires shall be protected against unauthorized climbing.

f. The tower shall be set back a distance at least equal to its height from any lot line, recreational field, dwelling, school, business or other habitable structure.

g. The tower shall be grounded and shielded to protect against natural lightning strikes, in conformance with the National Electrical Code.

h. No tower shall have affixed or attached lights, reflectors, flashers or any other illumination, except for those devices required by the Federal Aviation Administration.

B. Solar Equipment and Solar Rights

1. Solar equipment shall be consistent with the setback and height requirements of the principal or accessory building, whichever is applicable. Solar equipment that is not consistent with the setback and height requirements may be considered pursuant to the conditional use permit procedures as specified in *Subdivision 8.21: Conditional Use Permit*.

2. No person in control of property shall allow a tree or shrub to be placed or grow as to cast a shadow between the hours of 9:00 a.m. and 3:00 p.m. upon a solar collector energy system capable of generating more than one million (1,000,000) British thermal units (BTUs) per year, and that supplies a part of energy requirements for improvements on the property where the solar energy system is permanently located.