

Highlights from the Winona County Comprehensive Plan:

Sustainability Value Statement

Winona County promotes a sustainable community through the encouragement of sustainable development. A sustainable community uses its resources to meet current needs while ensuring that adequate resources are available for future generations. A sustainable community seeks a better quality of life for all its residents while maintaining nature's ability to function over time by minimizing waste, preventing pollution, promoting efficiency and developing local resources to revitalize the local economy. Decision-making in a sustainable community stems from a rich civic life and shared information among community members. A sustainable community resembles a living system in which human, natural and economic elements are interdependent and draw strength from each other.

CHAPTER 12: ALTERNATIVE ENERGY

12.1 Purpose

The purpose of the Chapter is to promote the installation and construction of alternative energy systems throughout Winona County to ensure residents have the access to affordable, efficient, reliable, and environmentally sound energy options. The provisions contained in this Chapter have the function through reasonable restrictions and standards, to preserve the public health and safety without significantly increasing the cost or decreasing the efficiencies of alternative energy systems, and to protect esthetic resources within the County. The types of systems covered in this chapter include Wind Energy Conversion Systems (WECS), Solar Energy Systems, and Geothermal Energy Systems.

12.2 Wind Energy Conversion Systems (WECS)

Establish regulations relating to the installation and operation of public and private Wind Energy Conversion Systems (WECS) within Winona County Zoning authority not otherwise subject to siting and oversight by the State of Minnesota under the Minnesota Power Plant Siting Act (MS 116C.51-116C.697.)

12.2.1 Procedures

WECS, public and/or private based upon physical total height or KW, require a WECS permit, Conditional Use Permits or Variance and shall be applied for and reviewed under the procedures established in Chapter 5, except where noted below.

A permit shall be required for all WECS according to the specific requirements, exceptions and application procedures as set forth in Chapter 12, Wind Energy Conversion Systems (WECS).

The application for all WECS shall include the following information:

1. The names of project applicant.
2. The name of the project owner.
3. The legal description and address of the project.
4. The parcel number of the project.
5. A description of the project including: number, type, name plate generating capacity, tower height, rotor diameter, total height of all wind turbines, and means of interconnecting with the electrical grid.
6. 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 be drawn to scale.
7. Engineer's certification.
8. Mitigation plan, in reference to public utilities for construction and decommissioning.
9. Documentation of land ownership or legal control of the property.

The application for Commercial WECS shall also include the following:

1. The latitude and longitude of individual wind turbines.
2. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other WECS within ten (10) rotor diameters of the proposed WECS.
3. Location of wetlands, floodplain, shoreland, sensitive natural features, scenic, and natural areas, including bluffs, within quarter (1/4) mile of the proposed WECS.
4. FAA Permit Approval.
5. Location of all known Communications Towers within two (2) miles of the proposed WECS.
6. Decommissioning Plan, including a line of credit, bond, cash deposit for one hundred and five (105) percent of total project cost.
7. Description of potential impacts on nearby WECS and wind resources on adjacent properties.

12.2.2 Conditional Use Permit

Section 5.5.4.6 of Chapter 5 of this Ordinance describes the procedure for obtaining a Conditional Use Permit through the County Board for a Micro and/or Non-Commercial Wind Energy Conversion Systems not complying with the required setbacks.

12.2.3 Aggregated Projects – Procedures

Aggregated Projects may jointly submit a single application and be reviewed under joint proceedings, including notices, hearings, reviews and as appropriate approvals. Permits will be issued and recorded separately. Joint applications will be assessed fees as one project. Aggregated projects having a combined capacity equal to or greater than the threshold for State oversight as set forth in MS Statute 116C.691 through 116C.697 shall be regulated by the State of Minnesota.

12.2.4 District Regulations

WECS will be permitted, conditionally permitted or not permitted based on the generating capacity/height and land use district as established in the Table 12.1.

DISTRICT	MICRO WECS	Non Commercial WECS	Commercial WECS	Meteorological Tower
A/RC	DV*	DV*	CUP	CUP
RR	DV*	DV*	NP	CUP
CD/ CD2	DV*	DV*	NP	CUP
UR	DV*	DV*	NP	CUP
B	DV*	DV*	NP	CUP
I	DV*	DV*	CUP	CUP
Shoreland	DV*	NP	NP	NP
Floodplain	DV*	NP	NP	NP

A/RC	Agricultural Resource Conservation
RR	Rural Residential
CD/CD2	Community Development
UR	Urban Residential
B	Business and Recreation
I	Industrial

DV	Development Permit
CUP	Conditional Use Permit
NP	Not Permitted

* WECS (Micro and Non-Commercial) not meeting the Setbacks as cited in Table 12.4, would have the option to allow a closer setback, if approved through a Conditional Use Permit process.

12.2.5 Performance Standards

I. Setbacks:

*measured from the center of the tower base:

- a. Commercial WECS: 1.1 times the total tower height or five (5) times rotor diameter, whichever is greater, from all Wind Turbines, Meteorological Towers and from property lines.
- b. Micro WECS and Non-Commercial WECS: 1.1 times the overall height from property lines.
- c. Neighboring Dwellings: 1.5 times the total height from all Wind Turbines and Meteorological Towers (dwelling associated with WECS is exempt).
- d. Road Right of Ways: 1.1 times the total height from all Wind Turbines and Meteorological Towers.
- e. Other right of ways (railroad, utility lines, gas lines, etc.): 1.1 times the total height from all Wind Turbines and Meteorological Towers.
- f. Wetlands USFW types III, IV, and V:
 - I. 1.1 times the total height from Micro and Non- Commercial WECS.
 - II. Six hundred (600) feet for Commercial WECS and Meteorological Towers.
- g. Neighboring Accessory Structures: 1.5 times the total height from all Wind Turbines and Meteorological Towers. (Accessory structures on tower property are exempt).
- h. Bluffs:
 - I. Micro WECS: One hundred feet (100) to the top of the bluff.
 - II. Non-Commercial WECS: Three hundred feet (300) to the top of the bluff.
 - III. Commercial WECS: Five hundred feet (500) to the top of the bluff.
 - IV. Meteorological Towers: Three hundred feet (300) to the top of the bluff.

Table 12.4 WECS Setbacks				
	MICRO WECS	Non Commercial WECS	Commercial WECS	Meteorological Tower
Property Lines	1.1 toh*	1.1 toh	1.1 toh or 5 times rotor diameter, whichever is greater	1.1 toh
Neighboring Dwellings	1.5 toh	1.5 toh	1.5 toh	1.5 toh
Road Right of Ways	1.1 toh	1.1 toh	1.1 toh	1.1 toh
Other Right of Ways (railroad, utility, gas lines)	1.1 toh	1.1 toh	1.1 toh	1.1 toh
Wetlands USFW Types III, IV, and V	1.1 toh	1.1 toh	600 feet	600 feet
Neighboring Accessory Structures	1.5 toh	1.5 toh	1.5 toh	1.5 toh
Bluffs	100 feet	300 feet	500 feet	300 feet

*toh is an abbreviation for "times overall height"

2. Safety Design Standards:

- a. For all WECS, the manufacturers 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.
- b. Rotor blades or air foils must maintain at least sixteen (16) feet of clearance between their lowest point and the ground.
- c. For all Non Commercial/Commercial WECS, a sign or signs shall be posted on the tower, transformer and substation warning of high voltage. [Signs with emergency contact information shall also be posted on the turbine or at another suitable point.]
- d. For all guyed towers, visible and reflective objects, such as plastic sleeves, reflectors or tape, shall be placed on the guy wire anchor points and along the outer and innermost guy wires up to a height of eight (8) feet above the ground. Visible fencing shall be installed around anchor points of guy wires.

3. Design Standards

- a. Total height / kW output:
 - I. Micro WECS: shall have a total height of less than or equal to forty-five (45) feet and having five (5) kW nameplate generating capacity or less.
 - II. Non-Commercial WECS: shall have a total height between forty-six (46) feet and two hundred (200) feet and having

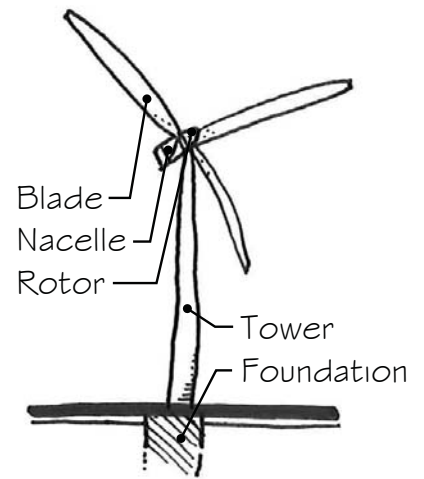


Figure 12.1 WECS Parts Identified

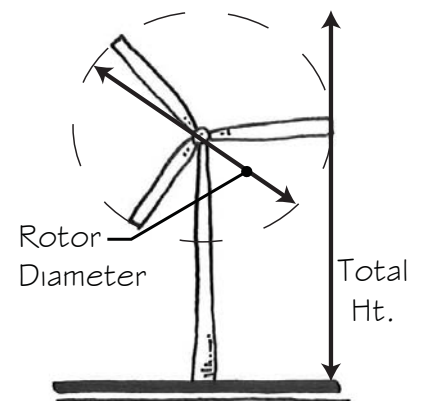


Figure 12.2 WECS Dimensions

- between five (5) kW and one hundred (100) kW nameplate generating capacity.
- III. Commercial WECS: shall have a total height of two hundred (200) feet or more having more than one hundred (100) kW nameplate generating capacity.
- b. All wind turbines, which are part of a commercial WECS, shall be installed with a tubular, monopole type tower. Meteorological towers may be guyed.
 - c. All WECS shall be anchored to objects that have been approved by the manufacture of the WECS. A statement from a licenced structural engineer shall be submitted to the Planning Department stating that the WECS can be mounted to a alternative structure.
 - d. All wind turbines and towers shall be white, grey or of a similar tone in color.
 - e. Blades may be black in order to facilitate deicing.
 - f. Finishes shall be matte or nonreflective.
 - g. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations,. Red strobe lights are preferred for night-time illumination to reduce impacts on migrating birds. Red pulsating incandescent lights should be avoided. Exceptions may be made for metrological towers, where concerns exist relative to aerial spray applicators.
 - h. All advertising devices on site shall comply with Chapter 9. The manufacturer's or owner's company name and logo, relating to the WECS, may be placed upon the nacelle, blades, or the compartment containing the electrical generator, of the WECS. No off site advertising may be placed, attached, or hung upon the nacelle, tower, blades or upon a substation.
 - i. All communications and feeder lines, equal to or less than 34.5 kV 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. This standard applies to all feeder lines subject to Winona County authority.
 - j. 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.
 - k. Commercial WECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Planning Director outlining the steps and schedule for returning the WECS to service.
 - l. All WECS and each Commercial WECS shall have a Decommissioning plan outlining the anticipated means and cost of removing WECS at the end of their serviceable life or upon becoming a discontinued use. The cost of removing Commerical WECS shall be estimated 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 the decommissioning and removal of the WECS and accessory facilities, in the form of a bond, line of credit, or cash in an amount one hundred and five (105) percent of the project cost.

- m. Upon issuance of a Conditional Use Permit, all Commercial WECS shall notify the Environmental Quality Board, indicating the project location and details on the survey form specified by the Environmental Quality Board.
- n. All WECS shall comply with Minnesota Rules 7030 governing noise.
- o. All WECS and accessory equipment and facilities shall comply with the National Electrical Code and other applicable standards.
- p. All WECS shall comply with FAA standards and permits.
- q. All WECS shall comply with the Uniform Building Code adopted by the State of Minnesota.

12.2.6 Interference

The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals cause by any WECS. The applicant shall notify all communication tower operators within five (5) miles of the proposed WECS location upon application to the county for permits. No WECS shall be constructed so as to interfere with County or Minnesota Department of Transportation microwave transmissions.

12.2.7 Avoidance and Mitigation of Damages to Public Infrastructure

Applicants shall:

1. Identify all county, city or township roads to be used for the purpose of transporting commercial 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 road authorities prior to construction.
2. The Applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of the commercial WECS.

12.3 Solar Energy Systems

Solar Energy Systems are a permitted accessory use in all zoning districts, subject to the following standards.

1. Height. Building or roof mounted Solar Energy Systems shall not exceed ten (10) feet above the highest portion of the building.
2. Location within Lot. Solar Energy Systems must meet the accessory structure setback for the zoning district.



Figure 12.3 Roof Mounted Solar Energy Systems Height

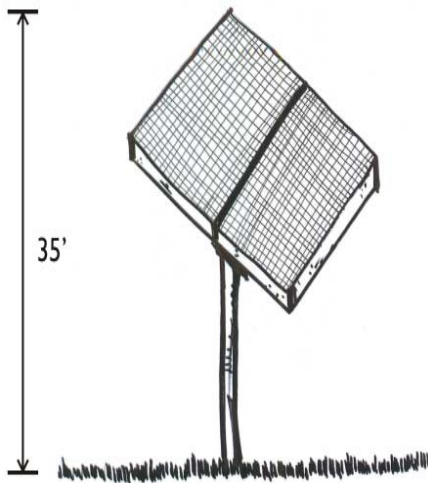


Figure 12.4 Ground Mounted Solar Energy Systems Height

- a. Roof-mounted Solar Energy Systems. In addition to the building setback, the collector surface and mounting devices for roof-mounted Solar Energy Systems that are parallel to the roof surface shall not extend beyond the exterior perimeter of the building on which the system is mounted or built. The collector and racking for roof-mounted systems that have a greater pitch than the roof surface shall be set back from all roof edges by at least two (2) feet. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side yard exposure.
 - b. Ground-mounted Solar Energy Systems. Ground-mounted Solar Energy Systems may not extend into the side-yard or rear setback when oriented at minimum design tilt.
 - c. Ground-mounted Solar Energy Systems. Ground-mounted Solar Energy Systems shall not exceed thirty five (35) feet in overall height.
 - d. Large Ground-mounted Systems. In the A/RC Ground-mounted Solar Energy Systems that result in the creation of (1) one or more acres of impervious surface or are a commercial solar system must apply for a Conditional Use Permit.
3. Approved Solar Components. Electric Solar Energy System components must have an Underwriters Laboratory (UL) listing.
 4. Compliance with State Electric Code. All Solar Energy Systems shall comply with the Minnesota State Electric Code.
 5. Utility Notification. No grid-intertie Solar Energy System shall be installed until evidence has been given to the Planning Department that the owner has notified the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement
 6. No owner, occupier or person in control of property shall allow vegetation or structures to be placed or grow so as to cast a shadow on a Solar Energy System which is greater than the shadow cast by a hypothetical wall ten (10) feet high located along the boundary line of said property between the hours of 9:30 a.m. and 2:30 p.m. Central Standard Time on December 21 provided, however, this standard shall not apply to vegetation or structures which casts a shadow upon the Solar Energy System at the time of installation of said Solar Energy System or to vegetation existing at the time of installation of said Solar Energy System.
 - a. Violation of this standard shall constitute a private nuisance, and any owner or occupant whose solar energy system is shaded because of such violation, so that performance of the system is impaired, may have in tort for damages sustained thereby and may have such nuisance abated.
 7. As a means of evidencing existing conditions, the owner of a Solar Energy System may file notarized photographs of the affected area with the County prior to installation of said system.

12.4 Geothermal Energy Systems

Geothermal Energy Systems are allowed in all zoning districts, subject to the following standards.

12.4.1 Land Disturbance Permit

A Land Disturbance Permit is required for the following situations when installing a Geothermal Energy System:

- a. When there is to be excavation or filling of land that would deprive an adjoining property owner of lateral support.
- b. When there is to be excavation of earthen material of more than one thousand (1,000) cubic yards, for the installation of a geothermal heat pump system.
- c. When there is to be excavation of earthen material, for the installation of a geothermal heat pump system located within Shoreland, Floodplain, or on steep slopes as described in Chapter 11.