

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

**Text Amendment as noted below**

**Article XIV General Provisions:**

Add New Section 14.29 Wind Energy Conversion Systems [WECSs in all districts]

**Section. 14.29. On-Site Wind Energy Conversion Systems.** [all districts]

**Sec. 14.29.01. Purpose.**

The regulation of on-site wind energy conversion systems, including the height, minimum lot area and required setbacks for such systems, is intended to provide for an alternative source of power generation, while protecting the health, safety, or welfare of residents.

**Sec. 14.29.02 Scope of Regulations.**

On-site wind energy conversion systems (WECSs) may be erected, relocated, enlarged, structurally changed, or altered in accordance with the provisions of this article.

**Sec. 14.29.03. Definitions.**

Certain words and phrases used in this article shall have the meaning set forth in this section. Words and phrases not defined in this section but defined in article II shall be given the meanings set forth in article II. All other words and phrases shall be given their common, ordinary meaning, unless the context clearly requires otherwise.

**Adjacent occupied structure** means a residence, school, hospital, church, public library, business or other buildings used for public gathering, excluding accessory structures, that is located on an adjoining property when the permit application is submitted.

**Applicant** means the person, whether natural or legal entity, filing an application under this article.

**Decibel** means a unit expressing relative difference in power, usually between acoustic or electric signals, equal to ten times the common logarithm of the ratio of the two levels. A decibel (dB) is a unit that expresses the magnitude of sound pressure and sound intensity.

**Height** means the height of a wind energy conversion system measured from natural grade at the point of installation to the tip of the rotor blade or assembly at its highest point or blade-tip height.

**Mechanical shadow** means the entire envelope that is occupied by the circle swept by the furthest extension of any blade or other exposed moving component of a wind energy conversion system.

**On-Site Wind Energy Conversion System** means a device or system designed to supplement other electricity sources as an accessory use for agricultural, residential, commercial, waterfront, office, and industrial buildings or facilities, wherein the power generated is used primarily for onsite consumption. A WECS converts wind energy into electricity through the use of a wind turbine generator, and may include a nacelle, rotor, tower, foundation, blades, guy wires and pad transformer.

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

**Roof-mounted** means any part of a wind energy conversion system that is located on the roof of a building, fire or parapet walls; stage lofts, chimneys, smokestacks, water tower, or roof structures for the housing of elevators, stairways, tanks, ventilating fans, or similar equipment required to operate and maintain the building.

**Shadow flicker** means the visible flicker effect when rotating turbine blades cast shadows on the ground and nearby structures causing the repeating pattern of light and shadow.

**System operator** means the persons who has any responsibility for the day-to-day operation and maintenance of the wind energy conversion system.

**System owner** means the person having controlling or majority equity interest in the wind energy conversion system, including their respective successors and assigns.

**Tower** means any structure, including its supports, that are ground-mounted, designed and constructed primarily for the purpose of supporting one or more wind turbines. This includes self-supporting lattice towers, guyed lattice towers, or monopole towers.

**Sec. 14.29.04. Development Standards.**

All On-Site Wind Energy Conversion Systems - On-Site WECSs - shall conform to the following standards:

**A. General Regulations.**

Prior to installation of an on-site WECS, an application for a site permit must be filed and subsequently approved by the Zoning Administrator or Planning Commission, as applicable. The following information shall be provided:

1. Application. Name, address and contact information, including a legal description (property identification number) of the property on which the project would be located.
2. Project description. Provide the WECS's specifications, including manufacturer and model, rotor diameter, tower height where applicable, tower type (freestanding, guyed, building or roof mounted), total system height (i.e., tower height plus ½ rotor diameter).
3. Site plan. The site plan shall include maps/drawings showing the physical features and land uses of the project area, both before and after construction of the proposed project. The site plan shall include:
  - a. The property boundaries and dimensions of the property.
  - b. The location, height and dimensions of all existing and proposed structures and fencing on the site as well as on adjacent parcels. Indicate location of proposed WECS
  - c. If the parcel has a waterfront setting, identify location of watercourse or waterbody, including

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

location & elevation of the Ordinary High Water Mark (OHWM).

- d. Identify any known wetland or county drains (or drain easements) located on the property.
- e. Insurance. Proof of applicant's liability insurance which includes coverage for off-site damage or loss to persons or property.
- f. Consent documents. Copies of any written waivers from neighboring property owners, as applicable.
- g. Sound pressure level. A copy of the modeling and analysis report from the manufacturer of the WECS.
- h. Certification. Certification that applicant has complied or will comply with all applicable state and federal laws and regulations, including all local building & electrical codes. Manufacturers plans and specifications for foundations, tower design, roof mounting devises, etc. shall be provided or in the alternative, certification information as required herein shall be provided by a professional engineer licensed in the State of Michigan.
- i. Utility notification. No onsite WECS shall be installed until evidence is provided that the area's electrical utility company has been informed of the customer's intent to install an interconnected customer-owned generator (interconnection and parallel operating agreement). Off-grid systems are exempt from this requirement.

**B. Construction and Design.** All reference to WECSs shall assume on-site accessory use.

1. Exterior Finish. *Tower-mounted WECSs* : shall typically maintain a neutral, non-reflective exterior color, or a galvanized steel finish, unless Federal Aviation Administration (FAA) or other applicable authority require otherwise. In addition, the Planning Commission may require that such WECSs be painted in such a way as to reduce visual obtrusiveness, in order to conform to the surrounding environment and/or architecture.

Roof-mounted WECSs: WECSs and associated wires and equipment shall be painted so as to be architecturally compatible with the building to which they are attached.

2. WECSs may not be artificially lighted unless otherwise required by the FAA or approved authority or authorized by the Planning Commission.

3. WECSs may include one or more small signs, emblems, or decals to identify the following:

The name or logo of the manufacturer and/or installer. The make, serial number, and other pertinent information about the wind energy conversion system. Such signs shall not contain advertising copy.

4. Minimum clearances.

The minimum clearance between the mechanical shadow (lowest projection of blade/rotor or moving

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

part) and ground at the base shall be 15 feet. The minimum clearance between the mechanical shadow and any nearby structure shall be 10 feet, excluding roof-mounted wind energy conversion systems.

5. Provisions for safety.

- a. Towers that are not roof-mounted shall be enclosed with a 6-foot tall fence *or* the base of the tower shall not be climbable for a distance of 12 feet.
- b. When roof-mounted WECSs can be accessed by the public, adequate guards, gates, locks and/or warning devices, as determined by the building official, shall be provided to ensure safety..
- c. When towers are supported by guy wires (in approved areas) the wires shall be clearly visible to a height of at least six feet above the guy wire anchors.
- d. WECSs shall have automatic braking, governing or a feathering system to prevent uncontrolled rotation or movement.

6. Noise. A WECS shall not exceed 45 decibels, as measured from the closest lot line. Product specifications & modeling shall be provided. This level may be exceeded during short-term events, such as severe wind storms.

7. Unsafe or inoperative systems. Any WECS found to be unsafe by the building official shall be repaired by the owner to meet all code requirements, or removed as directed.

- a. If any WECS is not used for a period of 12 months, the owner will be notified by certified mail to set forth reasons for the operational difficulty and provide a reasonable timetable for corrective action. If one is not provided to the satisfaction of the County, the landowner shall remove the WECS within 60 days of receipt of the notice to remove.

8. Signal Interference. WECSs shall not materially interfere with communication systems such as, but not limited to, radio, telephone, television, satellite, or emergency communication.

**Sec. 14.29.05. Specific Standards for Wind Energy Conversion Systems.**

**A. R-1, R-2, RM-1 Districts.** WECSs in the R-1 Single Family Residential, R-2 Single and Two-Family Residential, and RM-1 Multiple-Family Residential Districts are a permitted accessory use subject to the following standards:

*1. Height.* WECSs shall meet the following height standards:

- a. Height of WECSs mounted on towers shall not exceed 60 feet.
- b. Height of WECSs that are roof-mounted may exceed the height of the tallest part of the roof to which it is attached by no more than 20 feet.

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

c. Applicants may request special use approval from the Planning Commission to waive height restrictions for towers located at institutional or governmental properties [where principal uses are allowed by right or special approval in R-1, R-2 or RM-1 Districts; WECS is accessory to a principal use or special approval use].

2. *Setback requirements.* WECSs shall meet the following setback requirements:

a. WECSs General rules: WECSs, including mechanical shadow, may not encroach into setback requirements for uses for the zoning district in which they are to be located; nor shall a WECS be located between the road/street side lot line and the front wall of principal buildings, unless specifically approved by the Planning Commission. On a waterfront lot, the 'shoreline setback' and/or waterfront setback provision(s) of this ordinance shall not prohibit the placement of a WECS between the ordinary high-water mark (OHWM) and the principal structure, subject to other provisions for WECSs (height, side yard setback, etc.) and this ordinance.

b. WECSs on towers: WECSs shall be set back a distance equal to the mechanical shadow from all adjacent occupied structures.

c. WECS roof-mounted: WECSs shall be set back a distance equal to the mechanical shadow from all adjacent occupied structures, or other wind energy conversion systems.

3. *Waiver of Setbacks* provisions for WECS s if the following conditions are met:

When the mechanical shadow encroaches onto an adjacent property, the Planning Commission may waive the setback requirements provided that the affected property owner(s) sign a waiver that sets forth the applicable setback provision(s) and the proposed changes. Said waiver(s) run with the land and shall not exceed the life of the WECS that is being installed at the time.

a. The written waiver shall notify all applicable property owner(s) of the setback required by this article, describe how the wind energy conversion system is not in compliance, and state that consent is granted to waive the setback as required by this article for the wind energy conversion system.

b. Any such waiver shall be in recordable form, signed by the participating land owner(s) and non-participating landowner(s), recorded in the office of the Huron County Register of Deeds with a copy of the recorded original returned to the Planning Department.

c. When the mechanical shadow encroaches upon an adjacent public property or public right-of-way the Planning Commission may waive the setback requirements on the participating landowner property and/or County property or public right-of-way provided that the participating landowner obtains an encroachment permit from the Huron County Road Commission or other appropriate agency.

4. *Number.* WECSs may consist of one to five wind turbines, towers, or pedestals and associated control or conversion electronics

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

5. *Installation.* WECSs may be mounted on towers, pedestals, or roof-mounted.

6. *Guy Wires.* Tower structures requiring guy wires are not permitted.

7. *Rotor Diameter.* Rotor diameter shall not exceed 24' (12' blades).

8. *Minimum lot size.* None.

**B. AGR., BUS. & IND Districts., WECSs 80 feet** or less in height, in all agricultural, general business and general industrial districts are a permitted accessory use subject to the following standards:

1. *Height.* WECSs shall meet the following height standards:

a. Tower installation: Height of WECSs mounted on towers shall not exceed 80 feet.

b. Roof-Mounted installation: Height of WECSs that are roof-mounted may exceed the height of the tallest part of the roof to which it is attached by no more than 20 feet.

2. *Setback requirements.* WECSs shall meet the following setback requirements:

a. General rules for location on lot. WECSs, including mechanical shadow, may not encroach into setback requirements for principal uses for the zoning district in which they are to be located, nor shall they be located between the front lot line and the front wall of the principle buildings, unless specially specifically approved by the Planning Commission.

b. WECSs on towers. WECSs, including mechanical shadow, 60 feet or less in height may not encroach into setback areas for uses for the zoning district in which they are to be located; nor shall WECSs be located between the front lot line and the front wall of a principal building- WECSs, including mechanical shadow, exceeding a height of 60 feet shall be set back a distance equal to 110 percent of the system height from all property boundaries, public rights-of-way, utility lines or other wind energy conversion systems.

c. WECSs roof-mounted. Wind energy conversion systems shall be set back a distance equal to the mechanical shadow from all adjacent occupied structures, or other wind energy conversion systems.

3. *Waiver of Setbacks provisions.* Setbacks may be waived if the following conditions are met: When the mechanical shadow encroaches onto an adjacent property, the Planning Commission may waive the setback requirements on the participating landowner property and/or non-participating landowner property provided that the affected property owners sign a waiver that sets forth the applicable setback provision(s) and the proposed changes:

a. The written waiver shall notify all applicable property owner(s) of the setback required by this article, describe how the wind energy conversion system is not in compliance, and state that consent is granted to waive the setback as required by this article for the wind energy conversion system.

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECSs**  
**[all districts]**

b. Any such waiver shall be in recordable form, signed by the participating land owner(s) and non-participating landowner(s), recorded in the office of the Huron County Register of Deeds with a copy of the recorded original returned to the Building & Zoning Department.

c. When the mechanical shadow encroaches upon an adjacent public property or public right-of-way the Planning Commission may waive the setback requirements on the participating landowner property and/or County property or public right-of-way provided that the participating landowner receive an encroachment permit from the Huron County Road Commission.

4. *Number.* Wind energy conversion systems may consist of one or more wind turbines, towers, or pedestals and associated control or conversion electronics.

5. *Installation.* Wind energy conversion systems may be mounted on towers, pedestals or roof-mounted.

6. *Rotor Diameter.* Rotor diameter is not limited.

7. *Minimum lot size.* None.

**C. AGR., BUS., & IND. Districts with WECSs above 80 feet in height are a permitted use after special use approval** in agricultural, general business & general industrial districts, subject to the following standards:

1. *Height.* Height of WECSs mounted on towers shall not exceed 150 feet.

2. *Setback requirements.* WECSs shall meet the following setback requirements:

a. WECSs may not encroach into setback requirements for principal uses for the zoning district in which they are to be located.

b. No part of WECS structures, including guy wire anchors, may extend closer than ten (10) feet to the property boundaries of the site.

c. WECSs, including mechanical shadow, shall be set back a distance equal to 150 percent of the system height from all adjacent occupied structures and 110 percent of the system height from all property boundaries, public rights-of-way, utility lines or other wind energy conversion systems.

3. *Number.* Wind energy conversion systems may consist of one or more wind turbines, towers, or pedestals and associated control or conversion electronics.

4. *Installation.* Wind energy conversion systems are mounted on towers.

5. *Rotor Diameter.* Rotor diameter is not limited.

6. *Minimum lot size.* 2.5 acres.

**Zoning Ordinance of Huron County**  
**Draft Zoning Amendment**  
**ZA 2009-03**  
**On-site WECs**  
**[all districts]**

7. *Shadow Flicker.* The Planning Commission may require that the applicant conduct an analysis on potential shadow flicker at adjacent occupied structures. The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sunrise to sunset over the course of a year. The analysis shall identify problem areas where shadow flicker may affect residents and describe measures that shall be taken to eliminate or mitigate the problems.

8. *Decommissioning.* The applicant shall submit a decommissioning plan. The plan shall include the anticipated life of the project, the estimated decommissioning costs, net of salvage value in current dollars, the method of ensuring that funds will be available for decommissioning and restoration and the anticipated manner in which the project will be decommissioned and the site restored.

9. *Surety Agreement.* The Planning Commission may require that applicants provide a form of surety, either through escrow account, bond or otherwise, to cover the cost of removal in the event the County must remove the wind energy conversion system, of an amount and form determined to be reasonable by the Planning Commission, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the applicant. Such surety will not be required for municipally or state-owned wind energy conversion systems. If required, the applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for Cost of Living Adjustment.

**Article IV. AGR District:**

Repeal current language in Section 4.02 (O)

Add new Sections 4.02 (O) [Principal Permitted Uses] & 4.03 (L) [Uses Approved After Special Approval]: WECs subject to provisions of Section 14.29.

**Article V. R-1 & R-2 Districts:**

Add new Sections 5.02 (M) [Principal Permitted Uses] & 5.03 (K) [Uses After Special Approval]: WECs subject to provisions of Section 14.29.

**Article VI. RM-1 District:**

Add new Sections 6.02 (G) [Principal Permitted Uses] & 6.03 (H) [Uses After Special Approval]: WECs subject to provisions of Section 14.29.

**Article VII. BUS Districts:**

Add new Sections 7.02 (L) [Principal Permitted Uses] & 7.03 (T)[Uses After Special Approval]: WECs subject to provisions of Section 14.29.

**Article VII. IND Districts:**

Add new Sections 8.02 (L) [Principal Permitted Uses] & 8.03 (G) [Uses After Special Approval]: WECs subject to provisions of Section 14.29