

SHIAWASSEE COUNTY ZONING ORDINANCE
Article 4
Specific Use Regulations

Section 4.3.76 Wind Energy Conversion Systems

1. Purpose

- A. Through this section it is hereby set forth that Shiawassee County promotes the effective and efficient use of wind energy conversion systems. The following provisions establish regulations for the siting, design, and installation of wind energy conversion systems and testing facilities so that the public health, safety, and welfare of property owners, residents, business owners and farmers will not be jeopardized.

2. Definitions

- A. Wind Energy Conversion System (“WECS”) shall mean any device (such as a wind generator, windmill, or wind turbine) that converts wind energy to a form of usable energy: Forms of WECS include:
1. Agricultural WECS shall mean any WECS that is accessory to a permitted farm or agricultural operation, and is designed and built to directly and immediately serve the needs of the farm or agricultural operation.
 2. Private WECS shall mean any WECS that is accessory to a principal non-agricultural use located on the same lot, and is designed and built to serve the principal residential use. Excess electricity generation may be sold to a utility but shall not exceed fifty (50) percent of the principal uses monthly electricity use or such WECS shall be considered a commercial WECS. Private WECS shall not exceed one hundred (100) feet in height.
 3. Commercial WECS shall mean any WECS turbine and accessory structure or use that is designed and built to exclusively provide electricity to the electric utility’s power grid and is not accessory to any other use. The commercial WECS is a principal use of property and may occupy the same property as another principal use. Accessory structures and uses associated with a commercial WECS may include sub-stations, collection lines, transmission lines, etc.
- B. WECS Testing Facility (“Testing Facility”) shall mean the structure and equipment used to determine the potential for the placement of one or more WECS improvements and contains instrumentation, such as anemometers or other meteorological devices, designed to provide wind and other data.
- C. Manual and Automatic Controls give protection to power grids and limit rotation of WECS blades so as not to exceed the designed limits of the conversion system.
- D. Authorized Factory Representative shall mean an individual with technical training of a WECS who has received factory installation instructions and is certified in writing by the manufacturer of the WECS.
- E. Professional Engineer shall mean a licensed structural and/or mechanical engineer registered in the State of Michigan.

- F. Utility Scale Wind Farm shall mean multiple WECS as applied for under one (1) special use permit and final site plan that produce greater than twenty (20) kilowatts of energy.
- G. Facility Abandonment shall mean a WECS that no longer converts wind into energy for a one (1) year period of time no matter the cause.
- H. Participating Parcel shall mean a parcel or parcels of record that are to be used, occupied, maintained, let, leased or authorized to be used for purposes of implementing, providing access to , or to meet setback requirements for wind energy facilities and systems.
- I. Non-Participating Parcel shall mean a parcel of record that is not in any manner used, occupied, maintained, let, leased or authorized to be used for wind energy systems or facilities.
- J. Decibel Measurement or dB(A) is defined as the sound pressure level in decibels. Refers to the “a” weighted scale defined by the American National Standards Institute (“ANSI”). A method for weighting the frequency spectrum to mimic the human ear.
- K. Height is defined as the measurement from the base of a WECS to the greatest extent of any part or moving parts of the WECS.

3. Approval Required

- A. Except where noted in this section, it shall be unlawful to construct, erect, install, use or locate a WECS within Shiawassee County unless a special use permit, final site plan and zoning permit have been approved pursuant to this Ordinance.
- B. Agricultural WECS that are accessory to permitted farm and agricultural operations shall be exempt from the general standards, provisions and requirements of this section. Agricultural WECS projects shall otherwise conform to the regulations of the zoning district for an agricultural accessory structure, including maximum height and minimum setback standards. Such compliance shall be verified upon application of a zoning permit.
- C. Private WECS that are accessory to one or more single-family residences is permitted by-right subject to administrative site plan review and compliance with the general standards, provisions and requirements of this section and this Ordinance.
- D. Commercial WECS are permitted by issuance of a special use permit and approval of a final site plan by the Planning Commission. Multiple WECS or WECS as part of a Utility Scale Wind Farm may be applied for under a single special use permit as long as all properties under application are located within a single township. An application for special use permit and final site plan shall contain information required pursuant to Article 12 for special use permit approval, Article 14 for final site plan approval, and other information as required in this section and in this Ordinance.
- E. Testing Facilities are permitted by issuance of a special use permit and approval of a final site plan. An application for special use permit and final site plan shall meet the following standards and shall contain information required pursuant to Article 12 for special use permit approval, Article 14 for final site plan approval, and other information as required in this section and in this Ordinance.

1. A Testing Facility is a temporary improvement and shall be restricted to being located on the premise not more than two (2) years from date of final building inspection permitting operation. Testing Facilities preceding implementation of multiple WECS shall be considered temporary improvements and temporary shall be considered to be less than two (2) years. Continuation of operation beyond two (2) years shall require a new special use permit to be reviewed and approved. In the event that multiple WECS are proposed as a coordinated development and it is necessary that a temporary Test Facility be erected to monitor meteorological conditions for the life of WECS project, such facility shall be included as part of the approval process for the multiple WECS.
 2. The Testing Facility is assumed to be placed to provide satisfactory evidence that a potential WECS project is feasible. The applicant shall provide general information regarding the extent of the area under study that will be served by the test results from the Testing Facility.
4. General Standards. The following standards shall apply to all Testing Facilities, Private and Commercial WECS in Shiawassee County unless otherwise specifically noted:
- A. Design Safety Certification. The safety of the design of all Testing Facilities, private and commercial WECS turbines shall be certified by a Professional Engineer registered in the State of Michigan. The standard for certification shall be included with the application for development.
 - B. Controls and Brakes. All private and commercial WECS turbines shall be equipped with manual and automatic controls to limit rotation of blades to a speed below the designed limits of the WECS. The Professional Engineer must certify that the rotor and over-speed control design and fabrication conform to applicable design standards. No changes or alterations from certified design shall be permitted unless accompanied by a Professional Engineer's statement of certification.
 - C. Electrical and Building Codes. All electrical compartments, storage facilities, wire conduit, interconnections with utility companies and interconnections with private structures will conform to national and local electrical codes. All WECS, including Testing Facilities, shall comply with local building permit requirements.
 - D. Compliance with County Ordinances. All Testing Facilities, private and commercial WECS turbines shall be in compliance with all Ordinance requirements and other applicable ordinances, rules and regulations.
 - E. Property Line Setbacks. All Testing Facilities, private and commercial WECS turbines must be setback from a non-participating property lines a distance equal to or greater than one hundred fifty percent (150%) of the height of the WECS from the base of the structure to the nearest non-participating property line. All Testing Facilities, private and commercial WECS turbines must be setback from the base of the structure to a participating property line a distance equal to or greater than the required minimum setback for a principal structure in that district.
 - F. Structure Setbacks. All commercial WECS turbines must be setback a distance equal to or greater than two hundred (200) percent of the height of the WECS turbine from the base of the structure to the exterior wall of a principal structure on a non-participating parcel that is currently used for residential, commercial or assembly purposes. All commercial WECS turbines must be setback one hundred (100) percent of the height

from the base of the structure to the exterior wall of a principal structure on a participating parcel that is used for residential, commercial or assembly purposes.

- G. Public Right-of-Way. All commercial WECS turbines must be setback a distance equal to or greater than one hundred (100) percent of the height of the WECS from the base of the structure to a public road right-of-way.
- H. Height. Private WECS projects shall conform to the maximum height standards of the zoning district and shall not exceed one hundred (100) feet. Commercial WECS and Test Facilities shall not exceed six hundred (600) feet in height. Compliance with FAA regulations, the Michigan Airport Zoning Act and the Michigan Tall Structures Act shall be verified by the applicant.
- I. Installation Certification. The Professional Engineer shall certify that the construction and installation of the Testing Facility, private or commercial WECS project meets or exceeds the manufacturer's construction and installation standards.
- J. Climb Prevention. All Testing Facilities, private and commercial WECS must be unclimbable by design or protected by anti-climbing devices such as:
 - 1. Fences with locking portals at least six feet high;
 - 2. Anti-climbing devices; or
 - 3. Anchor points for guy wires supporting tower shall be enclosed by a six-foot high fence or shall be located within the confines of a yard that is completely fenced.
- K. Interference. It shall be the responsibility of the applicant to submit acceptable documentation as part of the special use permit application to determine if the improvement would in any way cause interference with microwave transmissions, residential television reception or radio reception. The applicant shall also provide documentation that the location of the Testing Facility, private or commercial WECS will not interfere with the operation of existing WECS.
- L. Fire Risk. All Testing Facilities, private and commercial WECS must adhere to all applicable electrical codes and standards, remove fuel sources, such as vegetation, from the immediate vicinity of electrical equipment and connections.
- M. Waste. All solid wastes, whether generated from supplies, equipment parts, packaging, operation or maintenance of the Testing Facility, private or commercial WECS shall be removed from the site immediately and disposed of in an appropriate manner. All hazardous waste generated by the operation and maintenance of the improvement shall be removed from the site immediately and disposed of in a manner consistent with all local, state, and federal rules and regulations.
- N. Noise Levels. The noise generated from a WECS measured at a non-participating property line shall not exceed fifty-five (55) dB(A). The noise generated from a WECS measured at the exterior of a principal structure located on a non-participating property shall not exceed forty-five (45) dB(A).
- O. Liability Insurance. The owner or operator of the Testing Facility, private or commercial WECS shall maintain a current insurance policy with a bond rating acceptable to the County to cover installation and operation. The amount of the policy shall be established

as a condition of special use permit approval. For a private WECS accessory to a principal residence, proof of homeowner's insurance with specific coverage for the WECS shall satisfy this requirement.

- P. No WECS or Testing Facility shall have advertising or signage of any kind unless required by standards referenced in this Section for purposes of safety or operation.
 - Q. No WECS or Testing Facility shall have lighting of any kind unless required by standards referenced in this Section or the Federal Aviation Administration ("FAA") for purposes of safety or operation.
 - R. All facilities must be maintained in an operational state. Any WECS or Testing Facility that is found to be abandoned, inoperable or in a state of disrepair that would be a potential threat to public health, safety and welfare or that which can be considered under the definition for facility abandonment shall be removed from the site.
5. Additional Standards for Commercial WECS Projects- The following additional standards shall apply to all commercial WECS in Shiawassee County:
- A. Color and Appearance. Structures and blades shall be painted a neutral color that is acceptable to Shiawassee County or otherwise required by law. The main structure of any WECS shall be of a monopole (tubular) design.
 - B. Compliance with FAA. It shall be the responsibility of the person in charge of the commercial WECS to complete the proper FAA applications and obtain the proper permits for the WECS project. It shall also be the responsibility of the person in charge of the commercial WECS to obtain a determination of "no significant impact" to air navigation from the FAA.
 - C. Warnings. A visible warning sign stating "High Voltage" may be required to be placed at the base of all commercial WECS. The sign must have at a minimum six-inch letters with 3/4-inch stroke. Such signs shall be located at the commercial WECS and at all points of site ingress and egress.
 - D. Annual Inspection. Every commercial WECS project must be inspected annually by an Authorized Factory Representative or Professional Engineer to certify that it is in good working condition and not a hazard to the public. Such records shall be submitted to Shiawassee County and considered a part of the continuing special use permit.
 - E. Compliance with Additional Regulations. It shall be the responsibility of the person in charge of the commercial WECS to contact the FAA regarding additional permits necessary or any other applicable Federal or State regulations for the installation, prior to granting of a special use permit by the Planning Commission. Documentation that applicable permits have been obtained and requirements of these agencies have been met must be supplied to the County Building Department prior to the issuance of construction permits.
 - F. Migratory Birds. The County may require an avian study conducted by a qualified professional to determine any potential impacts the commercial WECS may present to migratory birds. The study as part of the special use permit application must provide assurances that the commercial WECS does not negatively impact the path of migratory birds.

- G. Decommissioning Plan and Escrow. The commercial WECS project must contain a Decommissioning Plan to ensure it is properly decommissioned upon the end of the project life, inoperability of individual WECS turbine or facility abandonment. Decommissioning shall include removal of all structures (including transmission equipment and fencing) and debris to a depth of four (4) feet, restoration of the soil, and restoration of vegetation within one (1) year of the end of project life, inoperability of individual WECS turbine or facility abandonment. Extensions may be granted upon request to the Planning Commission prior to that expiration of the one (1) year requirement for decommissioning. The decommissioning plan shall state how the facility will be decommissioned, the Professional Engineer's estimated cost of decommissioning, the financial resources to be used to accomplish decommissioning, and the escrow agent with which the resources shall be deposited. The decommissioning plan shall also include an agreement between the applicant and the County that:
1. The financial resources for decommissioning shall be in the form of a surety bond or letter of credit shall be deposited in an escrow account with an escrow agent acceptable to Shiawassee County.
 2. The County shall have access to the escrow account funds for the expressed purpose of completing decommissioning if decommissioning is not completed by the applicant within one (1) year of the end of project life, inoperability of individual WECS turbine or facility abandonment. Escrow funds may be used for administrative fees and costs associated with decommissioning.
 3. The County is granted the right of entry onto the site, pursuant to reasonable notice, to effect or complete decommissioning.
 4. The County is granted the right to seek injunctive relief to effect or complete decommissioning, as well as the County's right to seek reimbursement from applicant or applicant successor for decommissioning costs in excess of the amount deposited in escrow and to file a lien against any real estate owned by applicant or applicant's successor, or in which they have an interest, for the amount of the excess, and to take all steps allowed by law to enforce said lien.
- H. An approved special use permit for a commercial WECS shall expire if construction of the WECS facility has not commenced within 36-months from the date of issuance.
- I. Amendment Site Location Following Special Use Permit and Final Site Plan Approval. The Zoning Administrator may approve changes in location of commercial WECS and Wind Test Facilities as minor site plan modifications so long as such site location is not altered more than one hundred (100) feet and the improvement remains on the same parcel.