

Section 7.24 Private and Commercial Wind Energy Conversion Facilities (WECFs)

A. Approval Procedures: Commercial WECFs are classified as special land uses and subject to the review and approval requirements of Article 15 (Special Land Uses). Private WECFs are classified as a special land use and shall be subject to the review and approval procedures of Article 15 except as follows:

1. A private WECF that is serving a residence and is no greater than sixty (60) feet in height is not classified as a special land use, and is subject to Zoning Administrator approval. Such private WECFs shall comply with the standards and regulations of Section 21.10, Accessory Buildings, Structures, and Uses, except where this Section 7.25 provides otherwise.
2. A private WECF that is serving a commercially, industrially, publicly, or other non-residentially used property, that is no greater than fifty (50) feet in height, is not classified as a special land use and is subject to Planning Commission approval according to Article 14 (Site Plan Review). Such private WECFs shall comply with the standards and regulations of Section 21.10, Accessory Buildings, Structures, and Uses, except where this Section 7.25 provides otherwise.

B. Application Requirements: An application for a commercial or private WECF shall be accompanied by a site plan according to Article 14 including the identification of the proposed location of wind turbines, underground and overhead wiring including wiring depths, substations and accessory structures; the location and height of all proposed buildings, structures, electrical lines, towers, guy wires, guy wire anchors, security fencing, and other above-ground structures associated with the WECF, and engineering data concerning construction of the turbine towers and bases. In addition to the submittal requirements of Article 14, the following supplemental information shall be provided for commercial WECFs. Where the application is for a wind energy conversion testing facility only, the designated approving body may waive any of the submittal requirements where it determines such information is not necessary in evaluating the application solely for testing purposes based on the character of the site, surrounding conditions, and the nature of the test tower.

1. Locations and height of all adjacent buildings, structures, and above-ground utilities located within 300 feet of the exterior boundaries of the parcel where the proposed commercial WECF and/or test tower will be located. Specific distances to other on-site buildings, structures, and utilities shall also be provided. The location of all existing and proposed overhead and underground electrical transmission or distribution lines shall be shown, whether to be utilized or not with the commercial WECF or test tower, located on the parcel involved, as well as within 1,000 feet of the boundaries of such parcel.
2. A lighting plan describing all lighting that will be utilized, including any lighting that may be required by the Federal Aviation Authority. Such plan shall include but shall not be limited to the planned number and location of lights, light color and whether any lights will be flashing.
3. Location of access drives and their dimensions and construction profiles.
4. Planned security measures to prevent unauthorized trespass and access.
5. Narrative description of facility operations including anticipated regular and unscheduled maintenance, and the manner in which the site will be returned to its original condition upon termination of its use as a commercial WECF.
6. Proof that the proposed WECF site has a minimum wind rating of 3 according to the U.S. Department of Energy, National Renewable Energy Laboratory.
- 7.6. A description of the routes to be used by construction and delivery vehicles and of any road improvements that will be necessary in the county to accommodate construction vehicles, equipment or other deliveries.
- 8.7. The applicant shall conduct an analysis of the alternating changes in light intensity caused by the moving blades of a WECF casting shadows on the ground and stationary objects, commonly referred to as "shadow flicker". The analysis shall identify the locations of shadow flicker that may be caused by the WECF and the expected durations of the flicker at these locations where located on adjacent properties, from sunrise to sunset over the course of the year. The analysis shall identify areas where shadow flicker may affect such properties including persons in structures or on roads, measures that shall be taken to eliminate or mitigate flicker in such circumstances, and the source and basis for such flicker projections.
- 9.8. Where the Township Board determines that a proposed WECF site is part of an area characterized by a comparatively high concentration of birds, bat hibernacula, sites that are frequented by federally and/or state listed endangered species of birds and bats, significant bird migration pathways, and/or areas that have landscape features known to attract large numbers of raptors, the applicant shall fund an environmental study assessing the potential impact on such wildlife. At a minimum, the analysis shall include a thorough review of existing information regarding species and potential habitats in the vicinity, the potential effects on species listed under the federal Endangered Species Act and Michigan's Endangered Species Protection Law, and the extent to which the WECF conforms to the "Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines" as prepared by the U.S. Fish and Wildlife Service.

40.9. The applicant shall submit modeling and analysis that will confirm that the WECF will not exceed the maximum permitted sound pressure levels specified in subsection (C)(4). Modeling and analysis shall conform to International Electrotechnical Commission 61400 and International Organization for Standardization 9613.

41.10. A copy of the manufacturer's installation instructions and blueprints shall be provided to the Township. Included as part of or as an attachment to the installation instructions shall be standard drawings of the structural components of the WECF and support structures, including base and footings provided along with engineering data and calculations to demonstrate compliance with the structural design provisions of the Building Code as adopted by the Township. Drawings and engineering calculations shall be certified by a registered engineer licensed in the State of Michigan.

C. Site Development Requirements

1. Minimum Lot Area: The minimum lot area for a commercial WECF, or a wind energy conversion test facility, shall be as necessary to meet required setbacks and any other standards of this Ordinance. The minimum lot area for a private WECF or test tower shall be as necessary to comply with Table 3-4 of this Ordinance, the required setbacks of this Section, and any other standards of this Ordinance.
2. Height: ~~The permitted maximum total height of a commercial wind turbine, measured from the normal ground elevation below to the highest point of the wind turbine including to a blade tip in its highest position (vertical, horizontal, and/or diagonal) if such tip is the highest point, shall be 400 feet.~~ The permitted maximum total height of a test tower shall be 300 feet, measured from the normal ground elevation below to the tip of the highest point of the wind turbine. The permitted maximum total height of a private wind turbine or test tower shall be ninety (90) feet, as measured above.
 - a. All heights shall comply with the requirements of the Federal Aviation Authority and county, state and federal regulations including the Michigan Tall Structures Act.
 - b. In the case of a commercial WECF, as a condition of approval, the Township may require a lesser height for a wind turbine if reasonably necessary to comply with the general special land use approval standards of Section 15.6.
3. Setbacks and Separation Distances: WECFs shall comply with the following:
 - a. No part of a WECF or test tower (including guy wire anchors associated with a test tower) shall be located within or above any required front, side or rear yard setback according to Table 3-4, Article 3.
 - b. All wind turbines shall be set back a minimum distance from all non-participating property lines, and above-ground public electrical and communication lines, a distance equal to the height of the wind turbine, as measured from the normal ground elevation at the wind turbine base to the highest point of the wind turbine including to a blade tip in its nearest position (vertical, horizontal, and/or diagonal) if such tip is the nearest point. In the case of a private WECF where such height exceeds sixty (60) feet, the designated approving body may require a greater setback to minimize negative impacts on existing residences in the immediate area.
 - c. "Participating property" means real property, the owner of which has entered into a written contract with the developer whereby the property owner is compensated for accommodating wind system equipment.
 - d. "Non-participating property" means real property, the owner of which has not entered into a written contract with the developer whereby the property owner is compensated for accommodating wind system equipment.
- b-e. No wind turbine shall be located closer to another wind turbine than the minimum separation distance recommended by the manufacturer or the wind energy industry as may be published from time to time.
4. Rotor/Blade Clearance: No rotor/blade shall approach closer than twenty (20) feet to the ground surface below and, in the case of a commercial WECF, seventy-five (75) feet to any structure or tree. The above-referenced 20 foot separation distance shall not apply where the rotor/blade is mounted on another structure that prohibits pedestrian or vehicular movement on the ground below, or uses technology that generally includes a casing around moving parts.
5. Noise Emissions: No WECF shall produce noise levels that exceed fifty-five (55) decibels on the dB(A) scale, measured ~~along the property lines of the parcel on which the WECF is located from any occupied structure.~~ This sound pressure level shall not be exceeded for more than three (3) minutes in any hour of the day. If the ambient sound pressure level exceeds 55 dB(A), the standard shall be the ambient dB(A) plus 5 dB(A). Within sixty (60) days of the operation of a commercial WECF, the applicant shall submit sound pressure level measurements recorded by a third party, qualified professional, according to the procedures in the most current version of American National Standardization Institute S12.18. All sound pressure levels shall be measured with a sound meter that meets or exceeds the most current version of American National Standardization Institute S1.4 specifications for a Type II sound meter.
6. Appearance:

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- a. Wind turbines shall not employ guy wires and shall be mounted on monopole towers, except that private WECFs may use wind turbines supported by a lattice structure. Monopole or lattice towers are not necessary where the turbine is mounted to a roof or other existing structure. All wind turbines shall either maintain a galvanized steel finish or be of a medium grey shade, subject to any applicable standards of the Federal Aviation Authority. The approving body may approve an alternate color if an alternate color would otherwise improve compatibility with surrounding conditions. Any additional buildings or structures shall, to the extent reasonably practical, use materials, colors, textures, screening and landscaping to enhance the compatibility of the facility with surrounding conditions.
- b. WECFs shall not be artificially lighted, except to the extent required by the Federal Aviation Authority or other applicable authority, or otherwise necessary for the reasonable safety and security thereof. Strobe lights, as may be required by the Federal Aviation Authority, shall be shielded from the ground.
- c. Wind turbines shall not be used for displaying any advertising except that each wind turbine shall have one (1) or more signs of no greater than four (4) square feet each that shall provide operational information including, but not necessarily limited to, a warning of high voltage and a specification of the manufacturer's name, company/utility operator, and emergency number(s).
7. **Electromagnetic Interference:** No WECF shall be installed in any location where its proximity to existing fixed broadcast, retransmission, or reception antennae for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception unless the applicant provides a replacement signal to the affected party that will restore reception to at least the level present before operation of the WECF. No WECF shall be installed in any location within the line of sight of an existing microwave communications link where operation of the WECF is likely to produce electromagnetic interference in the link's operation unless the interference is insignificant.
8. **Vibrations and Wind Currents:** Under no circumstances shall a WECF or test tower produce vibrations or wind currents humanly perceptible beyond the property boundaries of the parcel on which the WECF or test tower is located.
9. **Safety Measures:** This subsection shall not apply to private WECFs.
 - a. All access doors to turbine towers and electrical equipment shall be lockable, and no climbing device shall be made part of a wind turbine except within the interior of the tower from such lockable door or where not located within twelve (12) feet of the ground when placed on the exterior of the tower.
 - b. A tower capable of being climbed shall be enclosed by a locked, protective fence at least ten (10) feet high with barbed wire fence.
 - c. All electrical equipment shall include applicable warning signs.
 - d. All electrical wiring shall comply with all applicable safety and stray voltage standards.
 - e. All electrical distribution lines from the WECF to the off-site electrical network shall be located and maintained underground on the property where the WECF will be located.
10. **Test Tower is Temporary:** A test tower shall be temporary and removed within twenty-four months of erection.
11. **Shadow Flicker:** A WECF shall be sited in such a manner that shadow flicker to any occupied buildings occurs no more than 30 hours per year to minimize shadow flicker from the blades on any road or on any building on an adjacent property existing at the time the application is considered.
12. **Abandonment:** Any WECF or test tower which is not used for 180 consecutive days or longer shall be deemed to be abandoned and shall be promptly dismantled and removed from the property. All above and below ground materials must be removed. The ground must be restored to its original condition within 90 days of abandonment.
13. **Local Codes, State and Federal Requirements:** All WECFs and test towers shall comply with the electrical and building codes of the Township and all other regulations and requirements of county, state and federal agencies including those of the Federal Aviation Authority, the Michigan Public Service Commission, National Electric Safety Code, and any other agency of the state or federal government with the authority to regulate wind turbine generators or other tall structures in effect at the time the permit is approved.

D. Performance Bond: In the case of a commercial WECF, the Township Board shall require a performance bond according to Section 2.6 to ensure full compliance with this Section and any conditions of approval. When determining the amount of such required performance bond, the Township may also require an annual escalator or increase based on the Federal Consumer Price Index (or the equivalent or its successor). At a minimum, the financial security shall be in an amount determined by the Township to be sufficient to have the WECF or test tower fully removed (and all components properly disposed of and the land returned to its original state) should such structure or structures become abandoned, dangerous or obsolete, or not in compliance with this Ordinance or the special use approval, and guarantee the repair of damage to public roads and other areas

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caused by construction of the WECF. Such financial security shall be kept in full force and effect during the entire time while a WECF or Testing Facility exists or is in place. Such financial security shall be irrevocable and non-cancelable (except by the written consent of both the Township and the then-owner of the WECF or Testing Facility) for at least 30 years from the date of the special use approval. Failure to keep such financial security in full force and effect at all times while a WECF or Testing Facility exists or is in place shall constitute a material and significant violation of a special use approval and this Ordinance, and will subject the applicant to all available remedies to the Township, including possible enforcement action and revocation of the special use approval.

End of Article 7