

Bainbridge Township Berrien County, Michigan



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SMALL WIND ENERGY CONVERSION SYSTEM PERMIT Article XXV

Include the following:

1. Application.
2. Standard drawings of wind turbine structure, including tower base and footings.
3. Engineer analysis of tower showing compliance with the uniform building code and certified by a licensed engineer.
4. Provide evidence that a small wind energy conversion system will not cause sounds in excess of 60dB, as measured at any property line.
5. Provide evidence that the proposed small wind energy conversion system bears the approval certificate from a recognized American Wind Energy Association.
6. Site Plan including:
 - a. Tower height (combined tower and blade in vertical position).
 - b. Setback from adjoining property lines and right-of-ways.
 - c. Guy wires.
7. Evidence that utility company has been informed of intent to install interconnected customer-owned generator (off grid system exempt from this requirement).
8. If more than one turbine and tower is required, provide evidence that the total of all turbines will not exceed 100 kW.
9. Building Permit Application.

**APPLICATION FOR SMALL WIND ENERGY
CONVERSION SYSTEM PERMIT**

Applicant Name: _____

(Address) (City) (State) (Zip)

Home Phone #: _____ Work/Mobile Phone #: _____

Tax Code Number: 11-01- _____ - _____ - _____ - _____ Zone District: _____

Describe WECS requested including evidence that there is substantial need for proposed system:

Describe any construction that would be necessary:

Signed: _____ Date: _____

ARTICLE XXV

Wind Energy Conversion System

Section 25.01 – Intent

- A. It is the purpose of this Article to promote the safe, effective, and efficient use of Large and Small Wind Energy Systems installed to reduce the on-site consumption of electricity supplied by utility companies. To provide for the issuance of a Special Land Use Permit for all Large Wind Energy Systems.
- B. To allow Large Wind Energy Systems in C - Commercial, CA – Commercial Agricultural, I - Industrial and AG – Agriculture subject to Special Land Use Permit as set forth in this Article and Article X (10).

Section 25.02 – Definitions

- A. Wind Energy Conversion System: “Wind Energy Conversion System” (WECS) shall mean all, or any combination of the following:
 - 1. A wind mill, mill or machine operated by wind acting on oblique vanes or sails that radiate from a horizontal shaft;
 - 2. A surface area, either variable or fixed, for utilizing the wind for electrical or mechanical power;
 - 3. A shaft, gearing, belt, or coupling utilized to convey the rotation of the surface areas into a form suitable for driving a generator, alternator, or other mechanical or electricity producing device;
 - 4. The generator, alternator, or other device to convert the mechanical energy of the surface area into electrical energy;
 - 5. The tower, pylon, or other structure upon which any, all, or some combination of the above are mounted; and
 - 6. A wind monitoring station.
- B. Large Wind Energy Conversion System; A wind energy conversion system as defined herein, consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of more than one hundred (100) Kilowatts (kW).
- C. Small Wind Energy Conversion System, Small: A wind energy conversion system as defined herein, consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than one hundred (100) Kilowatts (kW) and which is intended to primarily reduce on-site consumption of utility power.

Section 25.03 - Small Wind Energy Conversion System

- A. A Small Wind Energy Conversion System may be regarded as a permitted accessory use in any district, if it meets the standards and requirements of this Section, 27.03. A system that cannot meet the requirements of this Section shall be regulated as a Large WECS.
- B. **Application Procedure:** An application for a Zoning and Building Permit may be filed with the Zoning Administrator and to include the following:

1. The applicant shall provide evidence that a small windmill will not cause sounds in excess of sixty (60) dB, as measured at any property line.
 2. Small WECS shall bear an approval certificate from a certification program recognized by the American Wind Energy Association.
 3. Building permit applications for small WECS shall be accompanied by standard drawings of the wind turbine structure, including the tower, base, and footings.
 4. An engineering analysis of the tower showing compliance with the Uniform Building Code and certified by a licensed professional engineer shall also be submitted.
- C. **Review and Approval:** The Zoning Administrator may approve such Special Land Uses and exceptions for such Small WECS subject to the following limitations:
1. **Tower Height.** For parcels of less than two (2) acres in area, the tower height (not including the blades) shall be limited to forty (40) feet. For parcels with land area greater than two (2) acres and located in the AG, 5.09 or CA, 5.07 or I, 5.08 districts, the tower height (not including the blades) shall be limited to sixty (60) feet.
 2. **Setback.** The tower shall be setback from all adjoining property lines and rights of-way (public or private) the combined height of the tower and the turbine blade in its vertical position. (“Fall zone”) No part of the Small WECS, including guy wire anchors, may extend into any adjacent yard or property. (Note: property owner may arrange an “easement” with an adjacent property owner to acquire their needed “fall zone” footage.)
 3. **Utility Notification.** No Small WECS shall be installed until evidence has been given that the utility company has been informed of the customer’s intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.
 4. **Additional Turbines.** A Small WECS system may include more than one turbine and tower if all other requirements are met and the total of all turbines on the site does not exceed one hundred (100) kilowatts (kW).
- D. **Removal Required.** If any Small WECS remains non-functional or inoperative for a continuous period of one (1) year, the permit holder shall remove said system at his/her/their expense. Removal of the system shall mean the entire structure, including foundations, transmission equipment, and fencing, from the property. If removal of towers and appurtenant facilities is required and the permit holder, or successors, fails to remove the towers and appurtenant facilities from the property within thirty (30) days from the date of notification by the Zoning Administrator, Bainbridge Township may proceed to remove the towers and appurtenant facilities; in which case, the salvage becomes property of the Township; and costs of removing the facilities will remain the burden of the permit holder.

Section 25.04 – Application Procedures Large Wind Energy Conversion System

- A. **Applicant:** Any person owning or having an interest in the subject property may file an application for one or more Special Land Use Wind Energy Conversion System Permits, provided for in this Article in the zoning district in which the land is situated.
- B. **Application:** Applications for Special Land Use Wind Energy Conversion System Permits shall be submitted through the Zoning Administrator, to the Planning Commission. Each application shall be accompanied by the payment of a fee in accordance with the schedule of fees adopted by

the Township Board to cover the costs of processing the application. No part of any fee shall be refundable.

- C. **Required Information:** The following standards shall apply to all Large Wind Energy Conversions Systems (WECS) as defined herein except wind monitoring stations. Applications shall be submitted through the Zoning Administrator, who shall then submit to the Planning Commission within after review for completeness pursuant to Article X (10) and the following:
1. **Impact Analysis Required.** The applicant shall submit an evaluation of the likely impacts of the proposed facility in the following areas:
 - a. Noise and vibration at any property line;
 - b. Potential impacts on wildlife, including native and migrating birds, “shadow flicker” and glare impacts on adjacent properties; and
 - c. Aesthetic impacts on the WECS on adjoining properties.
 2. **Required Site Plan.** In addition to the site plan required for a Special Land Use permit, pursuant to Article X (10), the applicant shall also submit an appropriately scaled site plan illustrating the following:
 - a. Property lines, dimension, acreage, and contours with appropriate intervals for site evaluation.
 - b. Location and elevation of the proposed Large WECS.
 - c. Location and dimensions of all existing structures and uses on the lot within 300 feet of the systems.
 - d. Height of any structures or trees over thirty-five (35) feet within a five hundred (500) foot radius on-site or off-site of the proposed Large WECS.
 - e. Surrounding land use and all structures irrespective of height, within five hundred (500) feet of the Large WECS location.
 3. **Additional Required Information.** The applicant shall also submit the following information:
 - a. Standard drawings of the structural components of the Large WECS, including structures, tower, base, and footings. A registered engineer shall certify drawings and any necessary calculations that the system complies with all applicable local, state, and federal building, structural and electrical codes.
 - b. Evidence from a qualified individual that the site is feasible for a Large WECS.
 - c. Certification from a registered engineer or qualified person that the rotor and over speed control have been designed for the proposed use on the proposed site.
 - d. Evidence that there is a substantial need for the proposed use.
 - e. Registered engineer’s certification of the design and safety of the proposed tower to withstand winds of eighty-five (85) miles per hour.
 - f. Registered engineer’s certification that if the wind turbine were to fall, no building or structure – existing or potential – would be damaged.

- g. The name, address and phone number of the person to contact for engineering, maintenance and other notice purposes shall be filed with the Township Clerk. This information shall be continuously updated by the applicant during all times the facility is on the premises.

Section 25.05 – Processing

- A. Copy of Application to Planning Commission: The Zoning Administrator shall forward a copy of the application for the Special Land Use Wind Energy Conversion System Permit to the Planning Commission within thirty (30) days of receiving the request.
- B. Hearing: After a preliminary review of the site plan and an application for a Special Land Use Wind Energy Conversion System Permit the Planning Commission shall hold a hearing on the site plan and special land use request in accordance with Article X (10).

Section 25.06 – Review Process and Approval

- A. All procedures for review will comply with those procedures and regulations set forth in this Article and Article X (10).
- B. The planning Commission may approve such Special Land Uses and exceptions for such Large WECS subject to the following limitations:
 - 1. Setbacks. Large WECS shall maintain a minimum setback of two (2) times the total height of the tower and blade height from any property line.
 - 2. Large WECS shall maintain a minimum setback of at least five (5) times the tower height and blade from the right-of-way line of any public road or highway.
 - 3. In all cases the Large WECS shall maintain a minimum distance of at least 1.25 times the tower and blade height from any habitable structure.
 - 4. Dimensions. A Large WECS shall be located on a parcel at least two and one-half (2-1/2) acres in size.
 - 5. A large WECS shall not exceed a total tower and blade height of one hundred fifty (150) feet unless the parcel on which the large WECS is to be located is ten (10) acres or larger, in which case the maximum total tower and blade height may be two hundred (200) feet.
 - 6. In all cases the minimum height of the lowest position of the Large WECS blade shall be at least thirty (30) feet above the ground.
 - 7. An approved Large WECS shall be exempted from height restrictions of the zoning district.
 - 8. General Site and Design Standards. Large WECS shall be designed and placed in such a manner to minimize, to the greatest extent feasible, adverse visual and noise impacts on neighboring areas.
 - 9. Colors and surface treatment of the Large WECS and supporting structures shall, to the greatest extent feasible, minimize disruption of the natural characteristics of the site.

10. Large WECS shall be equipped with air traffic warning lights or other marking lights only if so required by the Federal Aviation Administration and in which event, such lighting shall be positioned to avoid undue visual impact on neighboring properties.
11. Safety Measures. Each large WECS shall be equipped with both manual and automatic controls to limit the rotational speed of the rotor blade so it does not exceed the design limits of the rotor.
12. The Planning Commission shall determine the height, color, and type of fencing for the Large WECS installation.
13. Appropriate warning signs shall be posted. The Planning Commission shall determine the type and placement of the signs.
14. Each Large WECS shall be properly grounded to safely sustain natural lightning strikes in conformance with the National Electrical Code.
15. Any Large WECS facility shall be equipped with anti-climbing devices. Tower climbing apparatus shall not be located within twelve (12) feet of the ground. A locked, protective fence at least six (6) feet high shall enclose a tower capable of being climbed.
16. The Large WECS operator shall maintain a current insurance policy which will cover installation and operation of the large WECS. The amount of said policy shall be established as a condition of approval. The applicant shall provide documentation or other evidence from the dealer or manufacturer that the large WECS can be successfully operated in the climatic conditions found in Bainbridge Township.
17. The Large WECS shall be warranted against any systems failures reasonably expected in severe weather operation conditions as a condition of approval.
18. Large WECS shall include no sign or advertising of any kind, except for one sign, not to exceed two (2) square feet posted at the base of the tower, and said sign shall contain the following information:
 - a. "Warning: high voltage"
 - b. Manufacturer's name
 - c. Operator's name
 - d. Emergency phone number
 - e. Emergency shutdown procedures
19. Radio and Television Interference. A Large WECS shall be designed and constructed so as not to cause radio and television interference.

Section 25.07 – Notification of Intent to Revoke Permit

- A. **Removal Required.** If any Large WECS remains non-functional or inoperative for a continuous period of one (1) year, the permit holder shall remove said system at his/her/their expense. Removal of the system shall mean the entire structure, including foundations, transmission equipment, and fencing, from the property. If removal of towers and appurtenant facilities is required and the permit holder, or successors, fails to remove the towers and appurtenant facilities from the property within thirty (30) days from the date of notification by the Zoning Administrator, Bainbridge Township may proceed to remove the towers and appurtenant facilities; in which case, the salvage becomes property of the Township; and costs of removing the facilities will remain the burden of the permit holder. To assure removal of an obsolete,

inoperable or abandoned facility, the Township may require of the applicant a financial guarantee.

- B. **Primary Use.** A wind monitoring station may be approved by the Planning Commission either as a principal or accessory use; however, all other components of a large WECS shall be considered a principal use on a parcel of land.

Section 25.08 – Appeals

- A. Any person, firm corporation or department, board or bureau of the Township aggrieved by the decision of the Planning Commission for the issuance of a Special Land Use Permit for the purpose of establishing a Wind Energy Conversion System, may seek review by the Board of Appeals in the manner prescribed in Article XIII (13).

Section 25.09 – Effect of Approval of Planning Commission

- A. The approval of the application by the Planning Commission shall allow the Zoning Administrator to issue a Zoning Compliance Permit in conformity with the application as approved in this Article and Article X (10).