

**Amended
WIND ENERGY SYSTEMS ORDINANCE
BLUMFIELD TOWNSHIP**

Ord. No. 2009-1, effective July 17, 2009
amended on June 1st, 2013, effective August 24, 2013

15.010 WIND ENERGY SYSTEM (WES)

Purpose: The purpose of this section is to establish standards and procedures by which the installation and operation of a WES shall be regulated within the Township, in order to promote the safe, effective and efficient use of wind energy.

SECTION 1001 DEFINITIONS

- A. Wind Energy System (WES) shall mean any combination of the following:
- (1) A mill or machine operated by wind acting on oblique vanes or sails that radiate from a horizontal shaft;
 - (2) A surface area such as a blade, rotor, or similar device, either variable or fixed, for utilizing the wind for electrical or mechanical power;
 - (3) A shaft, gearing, belt, or coupling utilized to convert the rotation of the surface area into a form suitable for driving a generator, alternator, or other 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;
 - (6) A windmill traditionally used to pump water shall not be considered a Wind Energy System.
- B. On Site Use Wind Energy System. A WES, the purpose of which is to provide energy to only the property where the structure is located, or to adjacent properties under the same ownership or control as the property where the structure is located, or by the mutual consent of adjacent property owners.
- C. Single WES for Commercial Purposes. A single WES placed upon a parcel or parcels with the intent to sell or provide electricity to a site or location other than the premises upon which the WES is located. The WES may or

may not be owned by the owner of the property upon which the WES is placed.

- D. Wind Farm. Clusters of two or more WES placed upon a lot or parcel with the intent to sell or provide electricity to a site or location other than the premises upon which the WES are located. The WES may or may not be owned by the owner of the property upon which the WES is placed.
- E. Utility Grid Wind Energy Systems. A WES designed and constructed to provide electricity to the electrical utility grid.
- F. Structure Mounted WES. A WES mounted or attached to an existing structure or building.
- G. Interconnected WES. A WES which is electrically connected to the local electrical power utility system and can provide power to the local electrical power utility system.
- H. WES Setback. The distance from the base of the tower or structure upon which the WES is mounted to the nearest lot line. In the case of multiple parcels utilized for multiple or single WES, the setbacks shall be taken from the outside boundary of the parcels utilized for the WES project. For a WES which is supported by guy wires, the guy wires shall be considered to be part of the WES and shall not be located within the WES setback.
- I. Nacelle. In a wind turbine, the nacelle refers to the structure which houses all of the generating components, gearbox, drive train, and other components.
- J. Shadow Flicker. Alternating changes in light intensity caused by the moving blade of a WES casting shadows on the ground and stationary objects such as dwellings.
- K. Applicant. The person, firm, corporation, company, limited liability corporation, or other entity which applies for Township approval under this section, as well as the applicant's successor(s), assign(s), and/or transferee(s) to any approved WES. An applicant must have the legal authority to represent and bind the landowner or lessee who will construct, own and operate the WES. The obligations regarding a zoning approval for any approved WES shall be with the owner of the WES and jointly and severally with the owner and operator or lessee of the WES if different than the owner.
- L. Hub Height. Hub height shall mean the distance from ground level to the center of the turbine hub or horizontal rotor shaft.

- M. WES Height. The distance from the ground at normal grade and the highest point of the WES which is the tip of a rotor blade when the blade is in full vertical position.
- N. Habitable Structure. Shall mean any structure usable for living or business purposes which includes, but is not limited to working, sleeping, eating, cooking, recreation, office, office storage, or any combination thereof. An area used only for storage incidental to a residential use, is not included in this definition.
- O. Participating Parcel. Property within the Township that participates in a lease or easement agreement, or other contractual agreement, with an entity submitting a Conditional Use Permit application for the purposes of developing of a WES.
- P. Rotor Diameter. The rotor consists of a hub and wind turbine blades. The rotor diameter shall constitute the diameter of the rotation of the blades as measured from the tips of the blades, which are attached to the hub.

SECTION 1002 WIND ENERGY SYSTEMS ALLOWED AS A PERMITTED USE

Any On Site Use Wind Energy System including structure mounted WES shall be a permitted use in all zoning districts (A-1, A-2, R-1, B-1, B-2, M), subject to the following:

- A. The hub height of the WES shall not exceed 65 feet.
- B. A WES shall be set back from all lot lines a distance which is at least 1.2 times the WES height, as measured from the lot line to the base of the tower and no portion of the WES, including the guy wire anchors, shall be located within or above the required front, side or rear yard setback.
- C. A structure mounted WES shall have a distance from the nearest property line which is at least equal to the WES height. Blade arcs created by a WES mounted on an existing structure shall have a minimum clearance of eight feet.
- D. A permit shall be required to be obtained from Blumfield Township to construct and operate an On Site Use WES. A permit shall be issued after an inspection of the WES by Blumfield Township or an authorized agent of the Township, and where the inspection finds that the WES complies with all applicable state construction and electrical codes, local building permit requirements and fees, and all manufacturers' installation instructions.

The WES shall not operate or remain on the property unless a permit has been issued. A copy of the manufacturer's installation instructions and blueprints shall be provided to the Township.

- E. An On Site Use WES may provide electrical power to more than one dwelling unit, provided the dwelling units are located on property or properties that are adjacent to the property or properties on which the WES is located.
- F. The Township shall have the right upon approving any WES to inspect the premises on which the WES is located at all reasonable times (at least once per year). The Township may hire a consultant to assist with any such inspections at the applicant's cost.

SECTION 1003 WIND ENERGY SYSTEMS WHICH REQUIRE A SPECIAL USE PERMIT

A WES, including a structure mounted WES, whose hub height exceeds 65 feet, Wind Farms, Single WES for Commercial Purposes, and Utility Grid Wind Energy Systems may be allowed as a Special Use only within the A-1 and A-2 Zoning Districts subject to the following regulations and requirements of this section and also the general special land use review procedures and standards of Section 1002 of this Zoning Ordinance.

- A. Site Plan Requirements. A WES for which a Special Use Permit is required, shall include the following items with or on the site plan:
 - (1) All requirements for a site plan contained in Section 1002 herein.
 - (2) A location map of the proposed WES sufficient to show the character of the area surrounding the proposed WES.
 - (3) Location and height of all existing and proposed buildings, structures, electrical lines, towers, guy wires, guy wire anchors, security fencing, and any other above-ground structures proposed or existing on the parcel or parcels on which the WES is proposed to be located (hereafter referred to in this section as the "Proposed Parcel").
 - (4) Specific distances from the WES to all buildings, structures, and above ground utilities on the Proposed Parcel.
 - (5) Location of all existing and proposed overhead and underground electrical transmission or distribution lines, located on the Proposed Parcel, as well as within 300 feet of the boundaries of the parcel(s).

- (6) Locations and height of all buildings and structures within 300 feet of the boundaries of the Proposed Parcel..
- (7) Contour elevations of all WES buildings and structures within 300 feet of the exterior boundaries of the Proposed Parcel.
- (8) Land uses within 300 feet of the Proposed Parcel.
- (9) Access drives to the WES including dimensions and composition, with a narrative describing proposed maintenance of the drives.
- (10) All lighting proposed for the site, including diagrams of proposed lighting fixtures, d if requested by the Planning Commission.
- (11) Security measures proposed to prevent unauthorized trespass and access to the proposed WES.
- (12) Standard drawings of the structural components of the WES, including structures, towers, bases, footings (including soil testing). A registered engineer shall certify drawings and any necessary calculations that show that the system complies with all applicable local, state and federal building, structural and electrical codes, together with manufacturer's specifications.
- (13) Additional information as required by Section 1003 Special Land Uses of this Ordinance, or as may be required by the Planning Commission.

B. Height. The total height of a WES shall be the Hub height plus the distance to the tip of the turbine blade at its highest point. Generally, the hub height shall be limited to 275 feet from existing grade unless modification to this height is approved pursuant to this subsection. Modification of the 275 foot requirement would be subject to review and approval by the planning commission that height modification is in the best interest of the township and the applicant. The planning commission shall hold a public hearing prior to consideration of a modified height standard.”

The applicant shall also demonstrate compliance with the Michigan Tall Structure Act, Public Act 259 of 1959 as amended and the Federal Aviation Administration guidelines as part of the approval process.

- C. Setbacks. The following setbacks and separation requirements shall apply to all Wind Energy Systems for which a special use permit is required.

With exception to public roads and drain rights-of-way (see below), wind turbines shall be subject to the following property line setbacks:

- (1) R-1 Zoning district: A WES shall not be located within three thousand (3,000) feet of a parcel which is located in an R-1 zoning district defined in the township master plan as areas designated for future residential growth.
- (2) Participating Parcel: A WES shall not be located within one thousand four hundred (1,400) feet of a habitable structure. A setback for a wind turbine from the property lines of adjacent participating property is not required. Wind turbines and access roads shall be located so as to minimize the disruption to agricultural activity and, therefore, the location of WES and access routes is encouraged along internal property lines.
- 3) Non-Participating Parcel: The setback for a wind turbine from non-participating property lines shall be the greatest distance of the following requirements.
 - a) No less than two thousand (2,000) feet from a non-participating property habitable structure.
 - b) No less than two thousand two hundred (2,200) feet from a non-participating parcel public road right-of-way as measured from the center of the road.
 - c) No less than 1.2 times the WES height from interior property lines without direct public road right-of-way.
- (4) Public Roads and Drains: Each wind turbine shall be set back from the nearest public road and drain right-of-ways a distance no less than 1.2 times the WES height, determined at the nearest boundary of the underlying right-of-way for such public road or drain.
- (5) Communication and Electrical Lines: A wind turbine shall be set back from the nearest above-ground public electric power line or telephone line a distance no less than 1.1 times the WES Height, determined from the existing power line or telephone line.
- (6) Tower Separation: Turbine Tower separation shall be based on 1) industry standards, 2) manufacturer recommendations, and 3) the characteristics of the particular site location. At a minimum, there shall be a separation between towers of not less than three (3) times the turbine (rotor) diameter; and, the WES shall be designed to minimize disruption to farmland activity. Documents shall be submitted by the

developer/manufacturer confirming specifications for turbine/tower separation.

(7) Following the completion of construction, the applicant shall certify that all construction is completed pursuant to the Wind Energy Site Special Use Permit and, in addition, that appropriate security will be in place to restrict unauthorized access to Wind Energy System.

- D. Rotor or Blade Clearance. Blade arcs created by a WES shall have a minimum of 30 feet of clearance over and from any structure, adjoining property, or tree.
- E. Lighting. A WES shall provide lighting as may be required by the FAA.
- F. Maintenance Program Required. The applicant shall provide a written description of the maintenance program to be used to maintain the WES, including a maintenance schedule of types of maintenance tasks to be performed.
- G. Decommissioning Plan Required. The applicant shall provide a decommissioning plan. The plan shall include the following:
 - (1) The anticipated life of the project.
 - (2) The estimated decommissioning cost.
 - (3) Net of salvage value in current dollars.
 - (4) Bond – the applicant shall post a bond or equivalent financial instrument acceptable to the Township for the costs of decommissioning. The bond shall be in favor of the Township of Blumfield and may be provided jointly as a single instrument for clusters of two or more wind energy systems located within the Township. The Bond or other acceptable instrument shall contain a replenishment obligation.

The applicant shall submit a plan describing the intended disposition of the Wind Energy System project at the end of its useful life and shall describe any agreement with the land owner(s) regarding equipment removal upon termination of the lease with the land owner. Within 6 months of any Wind Energy System tower or turbine not operating, the applicant/owner must submit a plan to Blumfield Township concerning the status of the Wind Energy System and steps that shall be taken to either decommission the non-operating tower or turbine, or to achieve renewed operation. Any tower or turbine left unused or inoperable for over 12 months shall be deemed to be abandoned by the applicant. The land on which the

abandoned tower or turbine is located shall be returned to its original state which existed prior to construction of the Wind Energy System. Concrete foundations shall be removed to at least four (4) feet below ground level with appropriate drainage and filled with soil which is similar to that which is found in the area contiguous with the removed foundation.

H. Siting Standards and Visual Impact.

- (1) A WES shall be designed and placed in such a manner to minimize adverse visual and noise impacts on neighboring areas.
- (2) A WES project with more than one WES structure or tower shall utilize similar design, size, color, operation, and appearance throughout the project.

I. Inspection. The Township shall have the right upon approving a WES to inspect the premises on which the WES is located at all reasonable times (at least once per year). The Township may hire a consultant to assist with any such inspections at the applicant's cost.

J. Insurance. The WES operator shall maintain a current insurance policy which will cover installation and operation of the WES. The policy limits shall be a minimum of the insurance coverage requirements which are established from time to time by resolution of the Township Board.

K. Performance Guarantee. If a Special Use is approved pursuant to this section, the Planning Commission shall require security in the form of a cash deposit, surety bond, or irrevocable letter of credit in a form, amount, time duration and with a financial institution deemed acceptable to the Township, which will be furnished by the applicant to the Township in order to ensure full compliance with this section and any conditions of approval. This guarantee shall be in addition to the decommissioning bond provided in Section 1003(G)(4).

- L. Application Fee. An applicant for a WES shall remit an application fee to the Township in the amount of the fee schedule adopted by resolution of the Blumfield Township Board of Trustees. This schedule shall be based upon the estimated cost to the township of the project review. In addition, the Applicant shall reimburse the Township for its costs which are incurred in connection with review of the application, including, but not limited to, legal, engineering and other professional fees, cost of publication, public hearings and planning commission meeting expenses, including per diem expenses.

SECTION 1004 STANDARDS FOR ALL WIND ENERGY SYSTEMS

All WES shall comply with the following;

A. Sound Pressure Level.

- (1) Audible noise or the sound pressure level from the operation of the WES shall not exceed fifty (50) dBA daytime / 45dBA nighttime (10pm-6am), or the ambient sound pressure level plus five (5) dBA, whichever is greater, for more than ten percent (10%) of any hour, measured at any residence, or other occupied structure, existing on the date of the approval of the WES. The applicant shall be able to provide sound pressure level measurements from a reasonable number of sampled locations at the perimeter and in the interior of the WES.

- (2) The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA, which is exceeded for more than five (5) minutes per hour. Ambient noise levels shall be measured at a building's exterior of potentially affected existing residences and churches. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind-generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operations, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.

Any noise complaint shall be addressed by the applicant and be mitigated.

- B. Shadow Flicker. The applicant shall conduct an analysis of potential shadow flicker created by each proposed wind turbine at all habitable structures with direct line-of-sight to a wind turbine. Such analysis shall be documented in a shadow flicker modeling report to be submitted as part of the Conditional Use Permit Application to the Planning Commission. The analysis shall identify the locations of shadow flicker created by each proposed wind turbine and the expected durations of the flicker at these locations from sunrise to sunset over the course of a year. Site plans shall depict a contour around each proposed wind turbine that represents the predicted maximum twenty four (24) hours per year shadow flicker generated by the modeling software used in the report.

The analysis shall identify all areas where shadow flicker may affect the occupants of the habitable structures and describe measures that shall be taken to eliminate or mitigate the problems. A shadow flicker mitigation plan shall also be submitted with the shadow flicker modeling report. Any shadow flicker complaint shall be addressed by the applicant and be mitigated.

C. Construction Codes and Interconnection Standards.

- (1) All applicable state construction and electrical codes and local building permit requirements;
- (2) Federal Aviation Administration requirements;
- (3) The Michigan Airport Zoning Act, Public Act 23 of 1950, as amended;
- (4) The Michigan Tall Structures Act, Public Act 259 of 1959, as amended;
- (5) Private landing strips in or adjacent to Blumfield Township;
- (6) The Michigan Public Service Commission and Federal Energy Regulatory Commission if the WES is an interconnected system.

D. Safety.

- (1) Each WES shall be equipped with both a manual and automatic braking device capable of stopping the WES operation in high winds so that the rotational speed of the rotor blade does not exceed the design limits of the rotor.
- (2) To prevent unauthorized access, each WES must comply with at least one of the following provisions, and more than one if required by the Planning Commission:
 - (a) Tower climbing apparatus shall not be located within 12 feet of the ground.
 - (b) A locked anti-climb device shall be installed and maintained.
 - (c) A tower capable of being climbed shall be enclosed by a locked, protective fence at least ten feet high with barbed wire fence.
- (3) All WES shall have lightning protection.
- (4) If a tower is supported by guy wires, the wires shall be clearly visible to height of at least 10 feet above the guy wire anchors.
- (5) The minimum height of the lowest position of the rotor or blade shall be at least 30 feet above the ground.

E. Signs.

- (1) Each WES shall have one sign not to exceed two square feet posted at the base of the tower, or, if the structure is fenced, on the fence. The sign shall include the following information:
 - (a) The words "Warning: High Voltage".
 - (b) Emergency phone numbers.
- (2) A WES shall not include any advertising of any kind, except the nacelle may have lettering that exhibits the manufacturer's and/or owner's identification.

- F. Signal Interference. No WES shall be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antennas for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception. No WES shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation.
- G. Maintenance. WES must be kept and maintained in good repair and condition at all times (in compliance with Blumfield Township Blight Ordinance) and shall not pose a potential safety hazard.
- H. All distribution lines from the WES to the electrical grid connection shall be located and maintained underground, both on the property where the WES will be located and off-site. The Planning Commission may waive the requirement that distribution lines for the WES which are located off-site (i.e., are not located on or above the property where the WES will be located) be located and maintained underground if the Planning Commission determines that to install, place, or maintain such distribution lines underground would be impractical or unreasonably expensive.
- I. A WES, except for structure mounted WES, may be located on a lawful parcel or parcels which do not have frontage on a public or private road.
- J. Indemnification. The owner of a WES shall defend, indemnify and hold harmless the Township and their officials from and against all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever including attorney fees arising out of the acts or omissions of the operator concerning the operations of the large wind energy facility without limitation, whether said liability is premised on contract or tort.
- K. Safety.
- (1) All collection system wiring shall comply with all applicable safety and stray voltage standards.
 - (2) Wind Turbine towers shall not be climbable on the exterior.
 - (3) All access doors to wind turbine towers and electrical equipment shall be lockable.
 - (4) Appropriate warning signs shall be placed on wind turbine towers, electrical equipment, and Wind Energy Facility entrances.

- L. Complaint Resolution. The applicant shall develop a process to resolve complaints from nearby residents concerning the construction or operation of the project. The process may use an independent mediator or arbitrator and shall include a time limit for acting on a complaint. The process shall not preclude the local government from acting on a complaint. During construction the applicant shall maintain and make available to nearby residents a telephone number where a project representative can be reached during normal business hours. A report of all complaints and resolutions to complaints shall be filed with the township on an annual basis.

- M. Road Repair. A description of the routes to be used by construction and delivery vehicles and of any road improvements that will be necessary in the Township to accommodate construction vehicles, equipment or other deliveries shall be submitted to the township and financed by the applicant. An agreement or bond, to be negotiated with the Saginaw County Road Commission which guarantees the repair of damage to public roads and other areas caused by construction of the WES is required.

SECTION 1005: VALIDITY

Should any section, clause or provision of this ordinance be declared by the courts to be invalid, the same shall not affect the validity of the ordinance as a whole or any part thereof, other than the part so declared to be invalid.

SECTION 1006: EFFECTIVE DATE

This ordinance shall take effect 30 days after upon publication in the _____, a newspaper of general circulation within the Township of Blumfield.

SECTION 1007: CONFLICT

All other ordinances and parts of other ordinances inconsistent or conflicting with any part of this Ordinance are hereby repealed to the extent of such inconsistency or conflict.

Made and passed by the Blumfield Township Board of Trustees this _____ day of _____, 2013.

WESLEY A. REINBOLD, Supervisor

LISA ROETHLISBERGER, Clerk

ADOPTED:

YEAS:

NAYS:

STATE OF MICHIGAN)
COUNTY OF SAGINAW)

I, the undersigned, Township Clerk for the Township of Blumfield, Saginaw County, Michigan, do hereby certify that Ordinance No. - _____, adopted by the Township Board of Trustees of said Township on the _____ day of _____, 2013, was recorded in full in the Minutes of Meeting of said Township Board of Trustees on said date, and was signed by the Supervisor and Clerk of Blumfield Township.

Dated: _____, 2013

LISA ROETHLISBERGER, Clerk

Public Hearing Date: _____

Approval by Planning Commission: _____

Approval by County Planning: _____

Date of Publication:

Newspaper: