

**CHARTER TOWNSHIP OF UNION**  
**Isabella County, Michigan**  
**Ordinance Number 2009-01**

An Ordinance amending the Charter Township of Union Zoning Ordinance, being Ordinance number 1991-5, as amended, by the amendment of Sections 3 (Definitions), Section 8 (General Provisions), Section 12 (Site Plan Review), Section 13 (Agricultural Zone), Section 14 (Rural Residential), Sections 26 and 27 (Industrial Zones), and Section 30 (Special Uses).

*The Charter Township of Union, Isabella County, Michigan, Hereby Ordains:*

**SECTION I - ADDITIONS**

Definitions

Add the following definitions to Section 3

3.77.1 Wind Energy Definitions

- A. **ANEMOMETER TOWER** means a freestanding tower containing instrumentation such as anemometers that is designed to provide present moment wind data for use by the supervisory control and data acquisition (SCADA) system which is an accessory land use to a UTILITY GRID WIND ENERGY SYSTEM.
- B. **AMBIENT** means the sound pressure level exceeded 90% of the time or L 90. ANSI means the American National Standards Institute.
- C. **dB(A)** means the sound pressure level in decibels. It refers to the “a” weighted scale defined by ANSI. A method for weighting the frequency spectrum to mimic the human ear.
- D. **DECIBEL** means the unit of measure used to express the magnitude of sound pressure and sound intensity.
- E. **IEC** means the International Electrotechnical Commission.
- F. **ISO** means the International Organization for Standardization.
- G. **LEASE UNIT BOUNDARY** means boundary around property leased for purposes of a Wind Energy System, including adjacent parcels to the parcel on which the Wind Energy System tower or equipment is located. For purposes of setback, the Lease Unit Boundary shall not cross road right-of-ways.
- H. **ON SITE WIND ENERGY SYSTEM** means a land use for generating electric power from wind and is an accessory use that is intended to primarily serve the needs of the consumer at that site. On site wind systems may use grid tie or reverse metering to off set utility costs without being considered a Utility Grid System.
- I. **ROTOR** means an element of a wind energy system that acts as a multi-bladed airfoil assembly, thereby extracting through rotation, kinetic energy

directly from the wind.

- J. **SETBACK BOUNDRY AGREEMENT** means an easement or lease agreement between adjacent parcels for the purpose of establishing a setback area around an On Site Wind Energy System. For purposes of this provision, adjacent parcels shall not cross a road Right of Way. The agreement shall be filed with the Isabella County Registrar of deeds in a form acceptable for filing.
- K. **SHADOW FLICKER** means alternating changes in light intensity caused by the moving blade of a wind energy system casting shadows on the ground and stationary objects, such as but not limited to a window at a dwelling.
- L. **SOUND PRESSURE** means an average rate at which sound energy is transmitted through a unit area in a specified direction. The pressure of the sound measured at a receiver.
- M. **SOUND PRESSURE LEVEL** means the sound pressure mapped to a logarithmic scale and reported in decibels (dB).
- N. **UTILITY GRID WIND ENERGY SYSTEM** means a land use for generating power by use of wind at multiple tower locations in a community and includes accessory uses such as but not limited to a SCADA TOWER, electric substation. A UTILITY GRID WIND ENERGY SYSTEM is designed and built to provide electricity to the electric utility grid.
- O. **WIND ENERGY SYSTEM** means a land use for generating power by use of wind; utilizing use of a wind turbine generator and includes the turbine, blades, and tower as well as related electrical equipment. This does not include wiring to connect the wind energy system to the grid. See also ON-SITE WIND ENERGY SYSTEM and UTILITY GRID WIND ENERGY SYSTEM.
- P. **WIND SITE ASSESSMENT** means an assessment to determine the wind speeds at a specific site and the feasibility of using that site for construction of a wind energy system.

## General Provisions

Add to section 8.2

- E. On-site Use Wind Energy Systems and Anemometer Tower:  
An On-site Use Wind Energy System is an accessory use by right in all zoning districts which shall meet the following standards:
  - 1. Designed to primarily serve the needs of a home, farm, or small business.
  - 2. Shall have a tower height of 65 feet or less.
  - 3. Property Set-back: The distance between an On-site Use wind energy system and the owner's property lines, or Setback

Boundary Agreement, shall be equal to the height of the wind energy system tower including the top of the blade in its vertical position. The distance between an anemometer tower and the owner's property lines, or Setback Boundary Agreement, shall be equal to the height of the tower. No part of the wind energy system structure, including guy wire anchors, may extend closer than ten feet to the owner's property lines, or the distance of the required setback in the respective zoning district, whichever results in the greater setback. Setback Boundary agreements shall not be required to approve an on site use which meets the required setback for a tower of less than the maximum height.

4. Sound Pressure Level: On-site Use wind energy systems shall not exceed 55 dB(A) at the property line closest to the wind energy system. This sound pressure level may be exceeded during short- term events such as utility outages and/or severe wind storms. If the ambient sound pressure level exceeds 55 dB(A), the standard shall be ambient dB(A) plus 5 d B (A).
  5. Construction Codes, Towers, & Interconnection Standards: On-site Use wind energy systems including towers shall comply with all applicable state construction and electrical codes and local building permit requirements. On-site Use wind energy systems including towers shall comply with Federal Aviation Administration requirements, the Michigan Airport Zoning Act (Public Act 23 of 1950, MCL 259.431 et seq.), the Michigan Tall Structures Act (Public Act 259 of 1959, MCL 259.481 et seq.), and local jurisdiction airport overlay zone regulations. An interconnected On-site Use wind energy system shall comply with Michigan Public Service Commission and Federal Energy Regulatory Commission standards. Off-grid systems are exempt from this requirement.
  6. Safety: An On-site Use wind energy system shall have automatic braking, governing, or a feathering system to prevent uncontrolled rotation or over speeding. All wind towers shall have lightning protection. If a tower is supported by guy wires, the wires shall be clearly visible to a height of at least six feet above the guy wire anchors. The minimum vertical blade tip clearance from grade shall be 20 feet for a wind energy system employing a horizontal axis rotor.
- F. Accessory Special Use: On site wind energy system over 65 feet and any On Site Wind Energy System utilizing a Setback Boundary Agreement. See Section 30.4.AC

Add Section 12.1.H: Additional Site Plan Review standards for Utility Grid Wind Energy System, On-site Use Wind Energy System over 65 feet high, and Anemometer Towers over 65 feet high. See Section 30.4.AC

Add the following provisions at Sections 13.2.F.17, 14.2.E.4, 26.2.S, 27.2.O.3:

“Special Use; Utility Grid Wind Energy Systems. See Section 30.4.AC”

### Special Use Standards

Add item AC to Section 30.4, Special Use Permit standards

#### **AC. Utility Grid Wind Energy System, On-site Use Wind Energy System over 65 feet high, and Anemometer Towers over 65 feet high.**

An Utility Grid Wind Energy System, On-site Use Wind Energy System over 65 feet high, and Anemometer Towers over 65 feet high shall meet the following standards in addition to the general special use standards (section 8.1.G of this ordinance):

##### A. Property Set-Back:

1. Anemometer Tower setback shall be the greater distance of the following:
  - a. The setback from property lines of the respective zoning district;
  - b. The setback from the road right-of-way; and
  - c. A distance equal to the height of the tower from property lines, from the lease unit boundary, or the Setback Agreement Boundary area, whichever is less.
2. Utility Grid and On-site Use Wind Energy System setback shall be the greater distance of the following:
  - a. The setback from property lines of the respective zoning district;
  - b. The setback from the road right-of-way; or
  - c. A distance equal to the height of the tower including the top of the blade in its vertical position from property lines, from the lease unit boundary, or the Setback Agreement Boundary area, whichever is less.
3. Any Operations and Maintenance Office building, sub-station, or ancillary equipment shall comply with any property set-back requirement of the respective zoning district. Overhead transmission

lines and power poles shall comply with the set-back and placement requirements applicable to public utilities.

- B. Sound Pressure Level: The sound pressure level shall not exceed 55 dB(A) measured at the property lines or the lease unit boundary, whichever is farther from the source of the noise. This sound pressure level shall not be exceeded for more than three minutes in any hour of the day. If the ambient sound pressure level exceeds 55 dB(A), the standard shall be ambient dB(A) plus 5 dB(A).
- C. Safety: Shall be designed to prevent unauthorized access to electrical and mechanical components and shall have access doors that are kept securely locked at all times when service personnel are not present. All spent lubricants and cooling fluids shall be properly and safely removed in a timely manner from the site of the wind energy system. A sign shall be posted near the tower or Operations and Maintenance Office building that will contain emergency contact information. Signage placed at the road access shall be used to warn visitors about the potential danger of falling ice. The minimum vertical blade tip clearance from grade shall be 20 feet for a wind energy system employing a horizontal axis rotor.
- D. Post-Construction Permits, Construction Codes, Towers, and Interconnection Standards: Shall comply with all applicable state construction and electrical codes and local building permit requirements.
- E. Pre-Application Permits:
  - 1. Utility Infrastructure: Shall comply with Federal Aviation Administration (FAA) requirements, the Michigan Airport Zoning Act (Public Act 23 of 1950 as amended, M.C.L. 259.431 *et seq.*), the Michigan Tall Structures Act (Public Act 259 of 1959 as amended, M.C.L. 259.481 *et seq.*), and local jurisdiction airport overlay zone regulations. The minimum FAA lighting standards shall not be exceeded. All tower lighting required by the FAA shall be shielded to the extent possible to reduce glare and visibility from the ground. The tower shaft shall not be illuminated unless required by the FAA. Utility Grid wind energy systems shall comply with applicable utility, Michigan Public Service Commission, and Federal Energy Regulatory Commission interconnection standards.
  - 2. Environmental:
    - a. The site plan and other documents and drawings shall show mitigation measures to minimize potential impacts on the natural environment including, but not limited to wetlands and other fragile ecosystems, historical and cultural sites, and antiquities, as identified in the Environmental Analysis.
    - b. Comply with applicable parts of the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, M.C.L. 324.101 *et seq.*) (including but not limited to:
      - i. Part 31 Water Resources Protection (M.C.L. 324.3101 *et seq.*),

- ii. Part 91 Soil Erosion and Sedimentation Control (M.C.L. 324.9101 *et seq.*) ,
- iii. Part 301 Inland Lakes and Streams (M.C.L. 324.30101 *et seq.*),
- iv. Part 303 Wetlands (M.C.L. 324.3030 1 *et seq.*),
- v. Part 323 Shoreland Protection and Management (M.C.L. 324.32301 *et seq.*),
- vi. Part 325 Great Lakes Submerged Lands (M.C.L. 324.3250 1 *et seq.*), and
- vii. Part 353 Sand Dunes Protection and Management (M.C.L. 324.35301 *et seq.*) as shown by having obtained each respective permit with requirements and limitations of those permits reflected on the site plan.

F. Performance Security: To ensure repairs to roadways and other public infrastructure, applicants shall obtain all necessary permits and bonds from the Isabella County Road Commission prior to moving equipment or materials or installing driveways.

G. Utilities: Power lines should be placed underground, when feasible, to prevent avian collisions and electrocutions. All above ground lines, transformers, or conductors should comply with the Avian Power Line Interaction Committee (APLIC), <http://www.aplic.org/> published standards to prevent avian mortality.

H. The following standards apply only to Utility Grid Wind Energy Systems:

1. Visual Impact: Utility Grid wind energy system projects shall use tubular towers and all Utility Grid wind energy systems in a project shall be finished in a single, non- reflective matte finished color. A project shall be constructed using wind energy systems of similar design, size, operation, and appearance throughout the project. No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades. Nacelles may have lettering that exhibits the manufacturer's and/or owner's identification. The applicant shall avoid state or federal scenic areas and significant visual resources listed in the local unit of government's Plan.

2. Avian and Wildlife Impact: Site plan and other documents and drawings shall show mitigation measures to minimize potential impacts on avian and wildlife, as identified in the Avian and Wildlife Impact analysis.

3. Shadow Flicker: Site plan and other documents and drawings shall show mitigation measures to minimize potential impacts from shadow flicker, as identified in the Shadow Flicker Impact Analysis.

4. Decommissioning: A planning commission approved decommissioning plan indicating

- a. the anticipated life of the project,

- b. the estimated decommissioning costs net of salvage value in current dollars, c) the method of ensuring that funds will be available for decommissioning and restoration, and
- c. the anticipated manner in which the project will be decommissioned and the site restored.

5. Complaint Resolution: A planning commission approved process to resolve complaints from nearby residents concerning the construction or operation of the project

6. Electromagnetic Interference: No Utility Grid wind energy system 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 wind energy system. No Utility Grid wind energy system shall be installed in any location within the line of sight of an existing microwave communications link where operation of the wind energy system is likely to produce electromagnetic interference in the link's operation unless the interference is insignificant.

7. Additional requirements for Site Plan Review of Utility Grid Wind Energy System, Anemometer Towers over 65 feet, and On-site Use Wind Energy System over 65 feet. In addition to the requirements for a site plan found in section 12 of this Ordinance, site plans and supporting document for Anemometer Towers over 65 feet, Utility Grid Wind Energy Systems, and On-site Use Wind Energy Systems which are over 65 feet high shall include the following additional information:

- H. Documentation that sound pressure level, construction code, tower, interconnection (if applicable), and safety requirements have been reviewed and the submitted site plan is prepared to show compliance with these issues.
- I. Proof of the applicant's public liability insurance for the project.
- J. A copy of that portion of all the applicant's lease(s) with the land owner(s) granting authority to install the Anemometer Tower and/or Utility Grid Wind Energy System; legal description of the property(ies), Lease Unit(s); and the site plan shows the boundaries of the leases as well as the boundaries of the Lease Unit Boundary.
- K. The phases, or parts of construction, with a construction schedule.
- L. The project area boundaries.
- M. The location, height, and dimensions of all existing and proposed structures and fencing.
- N. The location, grades, and dimensions of all temporary and permanent on-site and access roads from the nearest county or state maintained road.
- O. All new infrastructure above ground related to the project.

- P. A copy of Manufacturers' Material Safety Data Sheet(s) which shall include the type and quantity of all materials used in the operation of all equipment including, but not limited to, all lubricants and coolants.
- Q. For Utility Grid Wind Energy Systems only:
1. A copy of a noise modeling and analysis report and the site plan shall show locations of equipment identified as a source of noise which is placed, based on the analysis, so that the wind energy system will not exceed the maximum permitted sound pressure levels. The noise modeling and analysis shall conform to IEC 61400 and ISO 9613. After installation of the Utility Grid wind energy system, sound pressure level measurements shall be done by a third party, qualified professional according to the procedures in the most current version of ANSI S12.18. All sound pressure levels shall be measured with a sound meter that meets or exceeds the most current version of ANSI S1.4 specifications for a Type II sound meter. Documentation of the sound pressure level measurements shall be provided to the local government within 60 days of the commercial operation of the project.
  2. A visual impact simulation showing the completed site as proposed on the submitted site plan. The visual impact simulation shall be from four viewable angles.
  3. A copy of an Environment Analysis by a third party qualified professional to identify and assess any potential impacts on the natural environment including, but not limited to wetlands and other fragile ecosystems, historical and cultural sites, and antiquities. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis, and shall show those measures on the site plan. The applicant shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts.
  4. A copy of an Avian and Wildlife Impact Analysis by a third party qualified professional to identify and assess any potential impacts on wildlife and endangered species. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis, and shall show those measures on the site plan. The applicant shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts. (Sites requiring special scrutiny include wildlife refuges, other areas where birds are highly concentrated, bat hibernacula, wooded ridge tops that attract wildlife, sites that are frequented by federally and/or state listed endangered species of birds and bats, significant bird migration pathways, and areas that have landscape features known to attract large numbers of raptor. At a minimum, the analysis shall include a thorough review of existing information regarding species and potential habitats in the vicinity of the project area.. Where appropriate, surveys for bats, raptors, and general avian use should be conducted. The analysis shall include the potential effects on species listed under the federal Endangered Species Act and



Michigan's Endangered Species Protection Law. The analysis shall indicate whether a post construction wildlife mortality study will be conducted and, if not, the reasons why such a study does not need to be conducted.)

5. A copy of a shadow flicker analysis at occupied structures to 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 sun-set over the course of a year. The site plan shall identify problem areas where shadow flicker may affect the occupants of the structures and show measures that shall be taken to eliminate or mitigate the problems.
6. A second site plan, which includes all the information found in section 12 of this Ordinance, and shows the restoration plan for the site after completion of the project which includes the following supporting documentation:
  - a. The anticipated life of the project.
  - b. The estimated decommissioning costs net of salvage value in current dollars.
  - c. The method of ensuring that funds will be available for decommissioning and restoration.
  - d. The anticipated manner in which the project will be decommissioned and the site restored.

A description of the complaint resolution process developed by the applicant 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.

## **SECTION II - TITLE**

This Ordinance shall be known and cited as the Charter Township of Union Ordinance Number 2009-01, Wind Energy Ordinance.

## **SECTION III - SEVERABILITY**

The provisions, sections, sentences and phrases of this Ordinance are declared to be severable and if any such portion is declared unconstitutional or invalid for any reason by a court of competent jurisdiction, such finding shall in no way affect or invalidate the remainder of this Ordinance.

## **SECTION IV - EFFECTIVE DATE**

This Ordinance will take effect immediately after publication.

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John F. Barker, Supervisor

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Peter Gallinat, Clerk

**CERTIFICATION OF ADOPTION OF TOWNSHIP ORDINANCE**

I, Peter Gallinat, the duly elected Clerk of the Charter Township of Union, Isabella County, Michigan, hereby certify that the foregoing Ordinance 2009-01 was adopted at a regular meeting of the Charter Township of Union Board of Trustees held on March 25, 2009, at which meeting the following named members were present and voted in person:

Voting in favor of adoption:

Voting against adoption:

Certification Date: \_\_\_\_\_  
Peter Gallinat, Clerk

I, Peter Gallinat, the duly elected Clerk of the Charter Township of Union, Isabella County, Michigan, hereby certify that the foregoing Ordinance 2009-01 was published in a newspaper of general circulation within the Township on the \_\_\_\_\_ day of \_\_\_\_\_ 2009, and that the Ordinance and the publishers affidavit hereto attached are filed in the Charter Township of Union Ordinance Book on the date of this Certificate, such date being within one week after the first of such publication.

Certification Date: \_\_\_\_\_  
Peter Gallinat