

**FULTON TOWNSHIP**  
**ZONING ORDINANCE AMENDMENT**

ORDINANCE NO. \_\_\_\_

*An Ordinance to amend the Fulton Township Zoning Ordinance, as amended, to establish new standards for Wind Energy Conversion Systems; to amend existing standards for Wind Energy Conversion Systems; and to add a complaint resolution procedure; in order to maintain the public health, safety and welfare of the residents and visitors to Fulton Township.*

FULTON TOWNSHIP, GRATIOT COUNTY, MICHIGAN, ORDAINS:

**SECTION 1. AMENDMENT TO ZONING ORDINANCE ARTICLE VII, SECTION 731:**  
Zoning Ordinance Article VII, Section 731, is amended to read as follows:

**SECTION 731                      WIND ENERGY CONVERSION SYSTEMS/UTILITY SCALE  
WIND FARM**

**A. Definitions.**

1. Wind Energy Conversion System (“WECS”) shall mean any device (such as a wind generator, windmill, or wind turbine) that uses the wind for its electrical or electrical generating powers.
2. Commercial WECS shall mean any WECS turbine and accessory structure or use that is placed to sell or provide electricity to a location other than the premises upon which the structure is located. The commercial WECS is a principal use of property. Accessory structures and uses associated with a commercial WECS include sub-stations, collection lines, transmission lines, drive etc.
3. 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. Such shall be permitted by administrative site plan approval.
4. Manual and Automatic Controls shall mean devices, controls, or software that give protection to power grids and limit rotation of WECS blades so as not to exceed the designed limits of the conversion system.
5. 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.

6. Utility Scale Wind Energy Conversion System/Wind Farm shall mean an electricity generating operation consisting of one or more Commercial WECS under common ownership, control and/or operation, and includes substations, testing facilities, transmission lines and other buildings accessory to such operation, whose main purpose is to supply electricity to the energy grid and off-site customers or consumers.
  7. Facility Abandonment shall mean a WECS that no longer converts wind into energy for a one (1) year period of time.
  8. 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 with the consent of the record owner of said parcel.
  9. 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.
  10. Decibel Shall mean the unit of measure used to express magnitude of sound pressure and sound intensity.
  11. dB(A) shall mean the sound pressure level in decibels in the “A” weighted scale defined by the American National Standards Institute (ANSI). A method for weighting the frequency spectrum to mimic the human ear.
  12. dB(C) shall mean the sound pressure level in decibels of frequencies below 1k hz. Refers to the “C” weighted scale defined by ANSI S1.32 (1997).
  13. L<sub>Amax</sub> shall mean the maximum sound level at an instant in time.
  14. WECS Height shall mean the measurement from the base of a WECS to the greatest extent of any part or moving parts of the WECS.
  15. Shadow Flicker shall mean the alternating changes in light intensity caused by the moving blade of a WECS casting shadows on the ground and/or structures.
- B. The following standards shall apply to all Commercial WECS and Utility-Scale Wind Energy Conversion Systems/Wind Farms unless otherwise specifically noted, provided that such standards shall not apply to on-site wind energy system:
1. Design Safety Certification. The safety of the design of all Testing Facilities and commercial WECS turbines shall be certified by a Michigan licensed professional engineer. The standard for certification shall be included with the application for special use.

2. Controls and Brakes. All 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. A Michigan licensed 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 Michigan licensed professional engineer's statement of certification.
3. 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 commercial WECS, including Testing Facilities, shall comply with local building permit requirements.
4. Property Line Setbacks. All commercial WECS must be setback from a nonparticipating property lines a distance equal to or greater than 1,640 feet or three hundred fifty percent (350%) of the WECS height, which is greater, from the base of the structure to the nearest non-participating property line. All commercial WECS must be setback from a participating property line a distance equal to or greater than the required minimum setback for a principal structure in that district. This measurement shall also be from the base of the structure to the participating property line.
5. Structure Setbacks. All commercial WECS must be setback one hundred fifty (150) percent from a principal structure on a participating parcel that is used for residential, commercial or assembly purposes. Such measurement shall be from the base of each structure at their closest point to the principal structure.
6. Public Right-of-Way. All commercial WECS must be setback a distance equal to or greater than one hundred fifty (150) percent of the height of the WECS from a public road right-of-way as measured from the base of the structure to the nearest right-of-way.
7. WECS Height. Commercial WECS shall not exceed five hundred (500) feet in WECS height. Compliance with FAA regulations, the Michigan Airport Zoning Act and the Michigan Tall Structures Act shall be verified by the applicant.
8. Installation Certification. A Michigan licensed professional engineer shall certify that the construction and installation of the Testing Facility or commercial WECS meets or exceeds the manufacturer's construction and installation standards. To ensure such compliance, an applicant seeking to construct a commercial WECS shall provide Fulton Township with a full and complete copy of any and all safety manuals applicable to the commercial WECS the applicant is seeking to construct.

9. Climb Prevention. All Testing Facilities and commercial WECS must be unclimbable by design or protected by anti-climbing devices such as fences with locking portals at least six feet high or anti-climbing devices.
10. Interference. It shall be the responsibility of the applicant to submit acceptable documentation as part of the special land use application to ensure the WECS will not in any way cause interference with microwave transmissions, residential television reception or radio reception of non-participating parcel owners.
11. Fire Risk. All commercial WECS must adhere to all applicable electrical codes and standards, and remove fuel sources, such as vegetation, from the immediate vicinity of electrical equipment and connections.
12. Waste. All solid wastes, whether generated from supplies, equipment parts, packaging, operation or maintenance of 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.
13. Noise Levels. All noise generated by a WECS shall be measured in accordance with ANSI S12.9, Part 3 and ANSI S12.100 by an acoustician acceptable to the Township.
  - a. dB(A) Noise Limit. The noise generated from a commercial WECS measured at the closest non-participating property line shall not exceed forty-five (45) dB(A) LAmax between the hours of 6:00 AM to 10:00 PM. The noise generated from a commercial WECS measured at the closest non-participating property line shall not exceed forty (40) dB(A) LAmax between the hours of 10:00 PM to 6:00 AM.
  - b. dB(C) Noise Limit. The noise generated from a commercial WECS measured at the closest non-participating property line shall not exceed 50 dB(C) LAmax.
  - c. In the event noise levels resulting from the WECS exceeds the criteria listed above, a waiver to said levels may be approved by the Fulton Township Board of Commissioners, so long as:
    - i. Written consent from the affected property owner(s) has been obtained stating that the owner(s) is aware of the WECS facility and the noise limitations imposed by this ordinance, and that consent is granted to allow noise levels in excess of the maximum limits otherwise allowed; and

- ii. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent noise impact easement must be recorded in the Gratiot County Register of Deeds office that describes the benefited and burdened properties and that advises that all subsequent owners of the burdened property that noise levels in excess of those otherwise permitted by the ordinance may exist on or at the burdened property.

14. Shadow Flicker. Commercial WECS shall be designed, constructed and operated such that shadow flicker shall not fall upon a non-participating parcel. To ensure that no shadow flicker falls upon a non-participating parcel, equipment and software such as “Shadow Impact Module SIM by NorthTec GMBH,” Vestas’ Shadow Detection System, or its equivalent, shall be installed and maintained by the WECS owner/operator, with all necessary cabling and receptors.

- a. In the event shadow flicker resulting from the WECS exceeds the criteria listed above, a waiver to said levels may be approved by the Fulton Township Board of Commissioners, so long as:

- i. Written consent from the affected property owner(s) has been obtained stating that the owner(s) is aware of the WECS facility and the shadow flicker limitations imposed by this ordinance, and that consent is granted to allow shadow flicker at a mutually agreeable level; and
- ii. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent shadow flicker impact easement must be recorded in the Gratiot County Register of Deeds office that describes the benefited and burdened properties and that advises that all subsequent owners of the burdened property that shadow flicker in excess of that permitted by the ordinance may exist on or at the burdened property.

15. Liability Insurance. The owner or operator of the commercial WECS shall maintain a current insurance policy with a bond rating acceptable to the Township to cover installation and operation. The amount of the policy shall be established as a condition of special land use approval.

16. No WECS shall have advertising or signage of any kind unless required by standards referenced in this Section for purposes of safety or operation.

17. No WECS 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. To reduce light pollution, all WECS or Testing Facilities

shall include an on-demand radar activated lighting system, such as Harrier Aircraft Detection Lighting Systems or Laufer Wind's Aircraft Detection Lighting System.

18. All facilities must be maintained in an operational state. Any WECS 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 shall be removed from the site at the cost of the WECS owner / operator. In the event the WECS owner/ operator is insolvent, the cost of removal shall be borne by the owner of the parcel where the WECS is located.
19. Color and Appearance. Structures and blades shall be painted a neutral, nonreflective color that is acceptable to the Township or otherwise required by law.
20. Annual Inspection. Every commercial WECS project must be inspected annually by a Michigan licensed professional engineer acceptable to the Township to certify that it is in good working condition and not a hazard to the public.
21. Utility Company Interconnection (Interconnected WECS). All distribution lines from the WECS to the electrical grid connection shall be located and maintained underground (both on the property where the WECS will be located and off-site). The Township Board may waive the requirement that distribution lines for the WECS which are located off-site (i.e., are not located on or above the property where the WECS will be located) be located and maintained underground if the Township Board determines that to install, place, or maintain such distribution lines underground would be impractical or unreasonably expensive.
22. Migratory Birds. The Township may require an avian study conducted by a qualified professional acceptable to the Township to determine any potential impacts the commercial WECS may present to migratory birds. The study as part of the special land use approval application must provide assurances that the commercial WECS does not negatively impact the path of migratory birds.
23. Noise Impact Report. The Township may require noise impact report of the proposed WECS or Testing Facility with the application. It shall describe in detail all noise studies and must demonstrate compliance with all ANSI/ISO standards for outdoor measurements and predictions consistent with the limitations placed in the ordinance. It shall be produced and certified by a qualified acoustical consultant with Full Member status with the Institute of Noise Control Engineering (INCE) and include:

- a. A description and map of the project's sound producing features, including the range of decibel levels expected (to be measured in dB(A) and dB(C)), and the basis for the expectation.
- b. A description and map of the existing land uses and structures including any residences, hospitals, libraries, schools, places of worship, and parks within one (1) mile of the proposed WECS or Testing Facility. Said description shall include the location of the structure/land use, distances from the source of the sound or WECS or Testing Facility and background (as defined in S12.18 for "residual" noise) decibel readings (including appropriate documentation per ANSI standards for reporting, including the date and time, when measurements are taken) for each identified land use and structure described and mapped.
- c. A description of the project's proposed sound control features shall be described in detail, including specific measures to minimize noise impacts to structures and land uses identified in the preceding item. Information about potential post construction mitigation options, such as operation in Noise Reduction Operating (NRO) modes shall be described. If there are no post construction mitigation methods available a statement to that effect shall be included along with reasons supporting that statement.
- d. The report shall address the potential for any and all adverse impacts from wind turbine sound emissions on the community and its residents located within one (1) mile from the boundary of the WECS or Testing Facility.

C. 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 six (6) 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, a Michigan licensed 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 Township that:

1. The financial resources for decommissioning shall be in the form of a cash deposit, certified check, irrevocable bank letter of credit, or surety bond acceptable to the Township, in an amount equal to one hundred fifty percent (150%) of the estimated removal and restoration cost.

2. The Township Planning Commission may annually review the costs of decommissioning and restoration. If the Planning Commission finds that the amount on deposit is not adequate, the Township shall require the WECS owner / operator to provide additional assurances through a cash deposit, certified check, irrevocable bank letter of credit, or surety bond acceptable to the Township to increase the amount of financial resources for decommissioning.
  3. The Township shall have the right to access the financial resources 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.
  4. The Township is granted the right to seek injunctive relief to effect or complete decommissioning, as well as the Township'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. Such costs shall include reasonable attorney fees. Financial provisions shall not be so onerous as to make wind power projects unfeasible.
- D. Complaint Resolution Procedure. Should an aggrieved Fulton Township resident allege that a WECS is not in compliance with the requirements of this Ordinance, the procedure shall be as follows:
1. Complaints must be submitted to the Township Clerk in writing from the affected resident, including their name, address, contact information and if the affected resident does not own the property allegedly being subjected to violations of the Ordinance, the name, address and contact information for the owner of that parcel.
  2. Upon receiving a complaint from an affected resident, the Township Clerk shall present the complaint to the Township Board for review at its next regular meeting or a special meeting called for that purpose. If the Township Board deems a complaint sufficient to warrant an investigation, the Township Clerk shall advise the owner(s) and/or operator of the WECS of the complaint. Within ten (10) days of the date of notice, the owner(s) and/or operator of the WECS shall deposit funds in an amount determined by the Township Board sufficient to pay for an independent investigation of the complaint, including but not limited to, an investigation related to decibel level noise testing and/or shadow flicker analysis. All such independent investigations and analyses shall be conducted by qualified professionals acceptable to the Township to determine compliance with the requirements of this Ordinance.



3. If the WECS is found to be in violation of this Ordinance, the owner(s) and/or operator shall reimburse the Township for the investigation or analysis and shall take immediate action to bring the WECS into compliance. In the event the owner(s) and/or operator fails or refuses to bring the WECS into compliance within ten (10) days thereafter, the Township may seek any relief at law or equity to abate the nuisance and may also issue a municipal civil infraction citation as provided by Chapter 87 of the Revised Judicature Act of 1961, being MCL 600.8701 et seq., as amended. Each violation for which the owner(s) and/or operators are deemed responsible shall be fined \$500.00. Each day of non-compliance shall be a separate offense.

**SECTION 2. AMENDMENT TO ZONING ORDINANCE ARTICLE III, SECTION 306:** Zoning Ordinance Article III, Section 306.D., is amended to add a new Subsection 7, and shall read as follows:

- D. On-site consumer-based, non-utility wind tower/generator/turbines (“Wind Energy System”) are permitted as an accessory use and structure in the Township subject to the following provisions and issuance of all appropriate zoning, building, and trade permits. Utility tower/generator/turbines used for commercial purposes are subject to special land use requirements herein.
1. A Wind Energy System shall not exceed a height of more than one hundred and fifty (150) feet for a Wind Energy System serving a single-family or agricultural property as measured from ground level at the base of the structure to the maximum height of any portion of the structure, including the full extension of a vertical blade.
  2. A Wind Energy System shall be setback no less than one (1) times the height of the maximum height of any portion of the structure from any property line.
  3. The minimum vertical blade tip clearance from grade shall be twenty (20) feet for a wind energy system employing a horizontal axis rotor. 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.
  4. A Wind Energy System shall employ automatic braking, governing, or a feathering system to prevent uncontrolled rotation or over speeding. All wind towers shall have lightning protection.
  5. The Wind Energy System shall be maintained in suitable working order and condition to limit noise and prevent flying debris that would affect the personal use and enjoyment of adjacent property. The system shall not cause noise in excess of fifty-five (55) decibels beyond an adjoining property line.
  6. A Wind Energy System shall comply with all applicable state construction codes and comply with Federal Aviation Administration requirements, the Michigan Airport Zoning Act (Public Act 23 of 1950, MCL 259.431 et seq.) and the

Michigan Tall Structures Act (Public Act 259 of 1959, MCL 259.481 et seq.) where applicable. An interconnected Wind Energy System shall comply with Michigan Public Service Commission and Federal Energy Regulatory Commission standards. Wholly on-site consumer-based systems are exempt from this requirement.

- 7. Agricultural Wind Energy Conversion Systems that are accessory to permitted farm and agricultural operations shall be governed by the provisions and requirements of this section so long as all electricity generated by the system is used by the owner of the parcel where the system is located.

**SECTION 3. SEVERABILITY:** The provisions of this Ordinance are hereby declared to be severable and if any provision, section or part of this Ordinance is declared invalid or unconstitutional by a court of competent jurisdiction, such decision shall only affect the particular provisions, section or part involved in such decision and shall not affect or invalidate the remainder of such Ordinance, which shall continue in full force and effect.

**SECTION 4. EFFECTIVE DATE:** This Ordinance shall become effective seven (7) days after its publication following final adoption or as required by law.

**SECTION 5. REPEAL:** All Ordinances or parts of Ordinances in conflict herewith are hereby repealed.

Following its introduction and publication prior to final adoption, the above Ordinance was offered for final adoption by \_\_\_\_\_ and was supported by \_\_\_\_\_ at a regular meeting of the Fulton Township Board, held at the Fulton Township Hall on the \_\_ day of \_\_\_\_\_, 2018, at \_\_\_\_\_ p.m., the vote being:

YEAS: \_\_\_\_\_

NAYS: \_\_\_\_\_

ABSENT/ABSTAIN: \_\_\_\_\_

ORDINANCE DECLARED ADOPTED.

\_\_\_\_\_  
Denise Rossman, Fulton Township Supervisor

### **CERTIFICATION**

I hereby certify that:

1. The above is a true copy of an Ordinance adopted by the Fulton Township Board at a duly scheduled and noticed meeting of that Township Board held on \_\_\_\_\_, 2018, pursuant to the required statutory procedures.
2. A summary of the above Ordinance was duly published in the \_\_\_\_\_ newspaper, a newspaper that circulates within Fulton Township, on \_\_\_\_\_, 2018.
3. Within 1 week after such publication, I recorded the above Ordinance in a book of ordinances kept by me for that purpose, including the date of passage of the ordinance, the names of the members of the township board voting, and how each member voted.
4. I filed an attested copy of the above Ordinance with the Gratiot County Clerk on \_\_\_\_\_, 2018.

ATTESTED:

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Lorene Miller, Fulton Township Clerk