

---

**WIND ENERGY SYSTEM ORDINANCE**  
***DRAFT # 4***  
**For Planning Commission Public Hearing**  
**October 13, 2008**

---

**LOWELL CHARTER TOWNSHIP**  
**COUNTY OF KENT, MICHIGAN**

At a regular meeting of the Township Board of the Charter Township of Lowell, Kent County, Michigan, held in the Lowell Township Hall, 2910 Alden Nash Avenue, within the Township, on the \_\_\_ day of \_\_\_\_\_, 2008 at 7:00 p.m.

PRESENT: Members: \_\_\_\_\_

ABSENT: Members: \_\_\_\_\_

The following ordinance was offered by Member \_\_\_\_\_ and supported by Member \_\_\_\_\_.

**ORDINANCE NO. 08-\_\_-Z**

**AN ORDINANCE TO AMEND THE ZONING ORDINANCE  
OF THE CHARTER TOWNSHIP OF LOWELL AS FOLLOWS:**

**THE TOWNSHIP OF LOWELL ORDAINS:**

**SECTION 1.** The Zoning Ordinance of the Charter Township of Lowell is hereby amended to ADD Section 4.9, Wind Energy Systems (WES) to read as follows:

**4.9 WIND ENERGY SYSTEM (WES)**

- (a) **Purpose:** The purpose of this section is to establish standards and procedures by which the installation and operation of a Wind Energy System (WES) shall be regulated within the Township, in order to promote the safe, effective, and efficient use of wind energy.
- (b) **Definitions:**
  - (1) Wind Energy System (WES) – shall mean any combination of the following:
    - a. A mill or machine operated by wind acting on oblique vanes or sails that radiate from a horizontal shaft;

- b. A surface area such as a blade, rotor, or similar device, either variable or fixed, for utilizing the wind for electrical or mechanical power;
  - c. 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;
  - d. The generator, alternator, or other device to convert the mechanical energy of the surface area into electrical energy;
  - e. The tower, pylon, or other structure upon which any, all, or some combination of the above are mounted.
  - f. A windmill traditionally used to pump water shall not be considered a Wind Energy System.
- (2) 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.
  - (3) Single WES for Commercial Purposes – A single 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 is located. The WES may or may not be owned by the owner of the property upon which the WES is placed.
  - (4) 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.
  - (5) Utility Grid Wind Energy Systems – A WES designed and constructed to provide electricity to the electric utility grid.
  - (6) ~~MET (meteorological) Tower/ WES Testing Facility – The structure and equipment used to determine the potential for the placement of a WES, containing instrumentation such as anemometers designed to provide wind data.~~
  - (6) Structure Mounted WES – A WES mounted or attached to an existing structure or building.
  - (7) 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.
  - (8) 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.
  - (9) 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.

- (10) Nacelle - In a wind turbine, the nacelle refers to the structure which houses all of the generating components, gearbox, drive train, and other components.
- (11) 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.
- (12) 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.

(c) **Wind Energy Systems Allowed as a Permitted Use:**

Any On Site Use Wind Energy System including structure mounted WES which are 65 feet or less in total height shall be a permitted use in all zoning districts, subject to the following:

- (1) The height of the WES with the blade in vertical position shall not exceed 65 feet.
- (2) A WES shall be set back from all lot lines a distance equal to **1.5 times the** height of the WES 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 or side, ~~or rear~~ yard setbacks.
- (3) A structure mounted WES shall have a distance from the nearest property line equal to the height of the WES as measured from the point of attachment to the structure or building to the top of the WES with the blade in the vertical position and blade arcs created by a WES mounted on an existing structure shall have a minimum clearance of eight feet or be designed so the blade or other moving parts do not present a safety hazard.
- (4) A permit shall be required to be obtained from Lowell Township to construct and operate an On Site Use WES 65 feet or less in total height. A permit shall be issued after an inspection of the WES by Lowell 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 all manufacturers' installation instructions.

The WES shall not operate nor 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.

- (5) 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.

(d) **Wind Energy Systems Which Require a Special Use Permit**

Any WES including a structure mounted WES which is greater than 65 feet in height, may be allowed as a Special Use only within the AG-1, AG-2, R1, C, LI, OS-PUD, CPUD, and IPUD Districts, subject to the following regulations and requirements of this Section and also the general special land use review procedures and standards of Section 4.7 of this Zoning Ordinance:

- (1) Site Plan Requirements – For those WES for which a Special Use is required the following items shall be included with or on the site plan:
- a. All requirements for a site plan contained in Section 4.8 herein including the area and dimensions of the area to be purchased or leased for the WES.
  - b. Location, height and type 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 for the parcel or parcels containing the WES.
  - c. Specific distances from the WES structures to all other buildings, structures, and above ground utilities on the parcel or parcels upon which the WES is proposed to be located.
  - d. Location of all existing and proposed overhead and underground electrical transmission or distribution lines located on the parcel(s) upon which the WES is proposed to be located, as well as within 300 feet of the boundaries of the parcel(s).
  - e. Rotor or blade clearance over and from any structure, adjoining property or tree on the parcel or parcels proposed for the WES and adjacent parcels.
  - h. Land uses within 300 feet of the parcel.
  - i. Access drives to the WES including dimensions and composition, with a narrative describing proposed maintenance of the drives.
  - j. All lighting proposed for the site, including diagrams of lighting fixtures proposed if requested by the Planning Commission.
  - k. Security measures proposed to prevent unauthorized trespass and access.
  - l. Standard drawings of the structural components of the WES including structures, towers, bases, and footings. 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.
  - m. Additional information as required by Section 4.7 Special Land Uses of this Ordinance, or as may be required by the Planning Commission.

n. **The Planning Commission may waive or modify the above requirements at the request of the applicant if it is determined that those items would not be needed to properly review the project**

- (2) Height. – The height of a WES for which a Special Use is required shall be determined by compliance with the requirements of this Section 4.9
- (3) Setbacks. - A WES shall be set back from all lot lines a distance equal to **1.5 times the** height of the WES 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 or side, ~~or rear~~ yard setbacks. A reasonable set back shall be maintained from overhead electrical transmission lines.
- (4) 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.
- (5) Lighting - A WES shall provide lighting as may be required by the FAA.
- (6) 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.
- (7) Decommissioning Plan Required.- The applicant shall provide a written description of the anticipated life of the system and facility; the estimated cost of decommissioning; the method of ensuring that funds will be available for decommissioning and restoration of the site; and removal and restoration procedures and schedules that will be employed if the WES become obsolete or abandoned.
- (8) Siting Standards and Visual Impact.
  - a. A WES shall be designed and placed in such a manner to minimize adverse visual and noise impacts on neighboring areas.
  - b. A WES project with more than one WES structure or tower shall utilize similar design, size, color, operation, and appearance throughout the project.
- (9) Inspection – The Township shall have the right upon approving any WES to inspect the premises on which the WES is located at all reasonable times with permission of the property owner. The Township may hire a consultant to assist with any such inspections at the applicant’s cost.
- (10) Insurance – The WES operator shall maintain a current insurance policy which will cover installation and operation of the WES. The amount of the policy shall be a condition of approval.
- (11) Performance Guarantee – If a Special Use is approved pursuant to this section, The Planning Commission may require a 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.

(f) **Standards for All WES:** All WES shall comply with the following:

(1) Sound Pressure Level.

- a. Wind energy systems shall not exceed 55 dB (A) as measured at the property line closest to the WES. This sound pressure level may be exceeded during short-term events such as high or severe winds. If the ambient sound pressure level exceeds 55 dB (A), the standard shall be ambient dB(A) plus 5 dB(A).
- b. Utility Grid Systems and Wind Farms shall be subject to the requirements of Section 4.9 (f)(1).a above but the sound pressure level shall be measured at the property line closest to the WES at the outside boundary of all property used for the Utility Grid System. In addition, the applicant shall provide modeling and analysis that will demonstrate that the Utility Grid System or Wind Farm will not exceed the maximum permitted sound pressure.

(2) Shadow Flicker – The Planning Commission may request that the applicant perform an analysis of potential shadow flicker. The analysis shall identify locations of shadow flicker that may occur, and shall describe measures such as screening that shall be taken to eliminate or minimize the shadow flicker.

(3) Construction Codes, Interconnection Standards, Federal, State and Township Codes

- a. All applicable state construction and electrical codes and local building permit requirements;
- b. Federal Aviation Administration requirements.
- c. The Michigan Airport Zoning Act, Public Act 23 of 1950, as amended;
- d. The Michigan Tall Structures Act, Public Act 259 of 1959, as amended;
- e. Any State or Federal regulations regarding private landing strips in or adjacent to Lowell Township
- f. The Michigan Public Service Commission and Federal Energy Regulatory Commission if the WES is an interconnected system.

(4) Safety.

- a. 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.

- b. 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:
  - i. Tower climbing apparatus shall not be located within 12 feet of the ground.
  - ii. A locked anti-climb device shall be installed and maintained.
  - iii. A tower capable of being climbed shall be enclosed by a locked, protective fence at least ten feet high with barbed wire fence.
- c. All WES shall have lightning protection.
- d. 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
- e. The minimum height of the lowest position of the rotor or blade shall be at least 30 feet above the ground.

(5) Signs.

- a. 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:
  - i. The words “Warning: high voltage
  - ii. Emergency phone numbers.
- b. 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.

(6) Electromagnetic Interference – WES shall be designed, constructed and operated so as not to cause radio and television interference.

(7) Maintenance -WES must be kept and maintained in good repair and condition at all times and shall not pose a potential safety hazard.

(8) 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.

- (9). 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.

**SECTION 2** The Zoning Ordinance of the Charter Township of Lowell is hereby amended to ADD to Section 4.1.1, Table of Use Regulations, Uses Permitted by Right Column 1, for all Zoning Districts a new item for each of these zoning districts to read as follows:

Wind Energy Systems 65 ft. or less in height per Section 4.9.

**SECTION 3** The Zoning Ordinance of the Charter Township of Lowell is hereby amended to ADD to Section 4.1.1, Table of Use Regulations, Special Use Permit by Planning Commission, Column 3, in the AG-1, AG-2, R-1, GC, and LI Zoning Districts a new item for each of these zoning districts to read as follows:

Wind Energy Systems which are greater than 65 ft. in height per Section 4.9.

**SECTION 3 REPEAL.**

All Ordinances or parts of Ordinances in conflict with the provisions of this Ordinance are hereby repealed.

**SECTION 4 SEVERABILITY.**

The various parts, sections, and clauses of this Ordinance are hereby declared to be severable. If any part, sentence, paragraph, section or clause is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this Ordinance will not be affected thereby.

**SECTION 5.** This Ordinance shall become effective seven days after its publication or seven days after the publication of a summary of its provisions in a local newspaper of general circulation.

AYES: Members:

\_\_\_\_\_

NAYS: Members:

\_\_\_\_\_

ORDINANCE DECLARED ADOPTED.

\_\_\_\_\_  
Linda Regan, Township Clerk

STATE OF MICHIGAN )

COUNTY OF KENT                    ) ss.  
  )

I hereby certify that the foregoing is a true and complete copy of an ordinance adopted by the Township Board of the Charter Township of Lowell at a regular meeting held on the \_\_\_\_\_, and I further certify that public notice of such meeting was given as provided by law.

\_\_\_\_\_  
Linda Regan, Township Clerk