CHAPTER 26

WIND ENERGY SYSTEMS

SECTION 26.01 INTENT AND 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 and to:

(a) Promote the safe, effective and efficient use of WES in order to reduce the consumption of fossil fuels in producing electricity.

(b) Preserve and protect health, safety welfare and quality of life by minimizing the potential adverse impacts of WES.

(c) Establish standards and procedures by which the siting, design, engineering, installation, operation and maintenance of a WES shall be governed.

SECTION 26.02 DEFINITIONS. The following terms and their definitions pertain to the regulation of wind energy systems.

(a) Anemometer. A wind speed indicator constructed for the purpose of analyzing the potential for utilizing a wind energy turbine at a given site. This includes the tower, base plate, anchors, cables and hardware, wind direction vanes, booms to hold equipment, data logger, instrument wiring, and any telemetry devices, that are used to monitor or transmit wind speed and characterize the wind resource at a given location.

(b) 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 Wind Energy System (WES). An applicant must have the legal authority to represent and bind the landowner(s) or lessee(s) who will construct, own and operate the WES. The obligations regarding a zoning approval for any approved WES shall be jointly and severally with the land owner(s), the owner(s) of the WES and the operator or lessee of the WES if different than the owner.

(c) Building Mounted Wind Energy System (WES). A WES mounted or attached to an existing structure or building.

(d) Cooperative Wind Energy System Site. A WES site created with the mutual consent of two or more adjacent property owners, comprised of an easement encompassing all or portions of two or more adjacent lots or parcels. A cooperate WES site meeting the standards of this section may support an on site WES or a WES for commercial purposes.

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

(f). On Site Use Wind Energy System. A Wind Energy System (WES) with a main purpose of providing energy to the property where the WES 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.

(g) 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.

(h) Single Wind Energy System for Commercial Purposes. A single WES placed upon a lot or parcel with the main purpose of generating electricity for sale or otherwise, 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.

(i) Tower Mounted Wind Energy System. A WES mounted or attached to a tower, pole or similar structure which is not a building.

(j) Utility Grid Wind Energy Systems. A WES interconnected with the electricity distribution system.

(k) Wind Energy System (WES) shall mean any combination of the following: (Note: For purposes of this section a windmill traditionally used to pump water shall not be considered a Wind Energy System.)

(l) 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; and any temporary anemometer constructed for the purpose of analyzing the potential for utilizing a wind energy turbine at a given site prior to the installation of a wind energy turbine.

(5) The tower, pylon, or other structure upon which any, all, or some combination of the above are mounted;

(l) 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.

(m) 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.

(n) Wind Farm. Clusters of two or more WES placed upon a parcel or parcels with a purpose of generating 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.

SECTION 26.03 WIND ENERGY SYSTEMS ALLOWED AS A PERMITTED USE

Any On Site Use Wind Energy System which is 65 feet or less in total height shall be a permitted use in all zoning districts subject to the following standards and those of Section 26.05 of this Chapter:

(a) Maximum WES height. The height of the WES with the blade in vertical position shall not exceed 65 feet.

(b) Tower mounted WES setbacks. A tower mounted WES shall be set back from all lot lines, or (in the case of a cooperative WES site) all cooperative WES site easement lines a distance which is at least equal to the height of the WES as measured from the lot line or easement line to the base of the tower. 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) Building mounted WES setbacks. A building mounted WES shall have a distance from the nearest property line which is at least equal to the height of the WES as measured from the point of attachment to the building to the top of the WES with the blade in the vertical position. The blade arcs created by a WES mounted on an existing structure shall have a minimum clearance of eight feet and be designed so the blade or other moving parts do not present a safety hazard.

(d) Shared WES Usage. An On Site Use WES may provide electrical power to more than one dwelling unit or user, provided the dwelling units or users are located on property or properties that are adjacent to the property or properties on which the WES is located.

(e) Construction permit required. A permit must be obtained from the Township to construct or install and any WES, 65 feet or less in total height. The WES shall not be constructed nor remain on the property unless such permit has been issued**.** A copy of the manufacturer's installation instructions and blueprints shall be provided to the Township as part of the permit application.

(f) Operating permit required. Prior to commencement of operations the applicant shall submit to the Township an application to commence WES operations. Included in the operating permit application shall be as built land survey documentation showing the exact location of all WES towers and appurtenances, the depths and locations of all underground electric lines and all applicable easements and property lines**.** A permit to operate a WES shall be issued after an inspection of the WES by the Township Zoning Administrator when the inspection finds that the WES complies with the requirements of this Section**,** all applicable state construction and electrical codes, local building permit requirements and all manufacturers' installation instructions.

(7) Decommissioning and Removal Required. The applicant shall certify and provide the Township with written assurance that the WES shall not be abandoned in place and shall be removed within one (1) year of decommissioning.

SECTION 26.04 WIND ENERGY SYSTEMS WHICH REQUIRE A SPECIAL LAND USE PERMIT. A WES including any structure mounted WES and any temporary wind turbine test tower which is greater than 65 feet in height may be allowed as a special land use in any zoning district provided that the lot, parcel or "cooperative WES site" contains at least 1 acre of total land area and a shape capable of encompassing within its boundaries a circle with a minimum diameter of 135 feet. Any WES eligible for special use consideration shall be further subject to the following regulations, the requirements of Section 26.05 and the procedures and general standards for special land uses contained in Chapter 17 of this Zoning Ordinance:

(a) Site Plan Requirements. Applications for a WES special land use permit shall be accompanied by a detailed site plan map that is drawn to scale and dimensioned, displaying the following information unless such information is in whole or in part deemed unnecessary by the reviewing authority based on the conditions peculiar to the specific property involved:

(1) A legal survey showing the location and dimensions of the area owned, purchased, leased and/or dedicated by easement which is to contain the WES.

(2) Existing property features to include the following: land use, zoning district, contours, setback lines, right-of-ways, public and utility easements, public roads, access roads (including width), sidewalks, non-motorized pathways, large trees, and all buildings. The site plan must also include the adjoining properties as well as the location and use of all structures and utilities within three hundred (300) feet of the property.

(3) Location and height of all proposed WES structures, buildings, ancillary equipment, underground utilities and their depth, towers, security fencing, access roads (including width, composition and maintenance plans), electrical sub-stations, and other above-ground structures and utilities associated with the proposed WES.

(4) Additional details and information as required by the Special Use requirements of the Zoning Ordinance or as requested by the Planning Commission.

(b) Height. The height of a WES for which a Special Use is required shall be determined by compliance with the requirements of this Section .

(1) Setbacks.

a. The setback for the base of a WES tower from any adjacent residentially zoned or used lot or parcel shall be at least equal to the height of the WES. Any other part of a WES, including guy wire anchors, shall not be located within the minimum front, side, or rear yard area for principal buildings as required for the zoning district in which the WES is located.

b. The setback of the WES from any existing or proposed street right-of-way or other publicly traveled road or pedestrian way shall be no less than seventy five (75) percent of the height of the WES.

c. The setback for a WES from any adjacent lot or parcel zoned or used for business or industrial purposes shall be the greater distance of either fifteen (15) feet or the required front, side or rear yard setback for principal buildings as required for the zoning district in which the WES is located. In addition, there shall be signed analysis and certification by a state licensed professional engineer describing the manner in which the WES structure will fall or fail. The certified analysis will be utilized, along with other applicable zoning regulations, in determining the appropriate setback to be required for the WES.

(4) Rotor or Blade Clearance. Blade arcs created by a tower mounted 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 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 as is practicable.

(9) 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.

(10) Performance Guarantee. If a Special Use is approved pursuant to this section, The Township 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.

(11) Operating permit required. Prior to commencement of operations the applicant shall submit to the Township an application to commence WES operations. Included in the operating permit application shall be as built land survey documentation showing the exact location of all WES towers and appurtenances, the depths and locations of all underground electric lines and all applicable easements and property lines. A permit to operate a WES shall be issued after an inspection of the WES by the Township or an authorized agent of the Township, and where the inspection finds full compliance with this section and any conditions of special use approval, all applicable state construction and electrical codes, local building permit requirements and all manufacturers' installation instructions.

SECTION 26.05 STANDARDS FOR ALL WIND ENERGY SYSTEMS. All WES shall comply with the following:

(a) Sound Pressure Level.

(1) On Site Wind Energy systems shall not exceed 45 dB (A) at the property line closest to the WES. This sound pressure level may be exceeded during short-term

events such as severe wind storms. If the ambient sound pressure level exceeds 45 dB (A), the standard shall be ambient dB (A) plus 5 dB (A).

(2) Utility Grid Systems and Wind Farms shall be subject to the requirements of 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.

(b) 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, Pubic Act 23 of 1950, as amended.

(4) The Michigan Tall Structures Act, Public Act 259 of 1959, as amended.

(5) The Michigan Public Service Commission and Federal Energy Regulatory Commission if the WES is an interconnected system.

(c) Safety.

(1) Each WES shall be equipped with both a manual and automatic braking device capable of stopping the WES operation in high winds or must otherwise be designed 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 Township:

a. 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

(d) 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 and/or owner’s identification.

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

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

(g) Electrical Distribution Lines. All distribution lines from the WES shall be located underground, both on the property where the WES will be located and off-site. The Township may waive this requirement for Utility Grid Wind Energy Systems if the Planning Commission determines that installation or maintenance of distribution lines underground would be impractical or unreasonably expensive.

(h) A WES, except for building mounted WES, may be located on a lawful parcel or parcels, which do not have frontage on a public or private road.