WATERLOO TOWNSHIP

WIND POWER ORDINANCE

Ordinance 09-12-15-1
Adopted December 15, 2009
Effective: 30 days

A. Definitions

1. Ambient: Ambient is defined as the sound pressure level exceeded 90% of the time or $L_{90.}$
2. ANSI: American National Standards Institute.
3. dB(A): The sound pressure level in decibels. Refers to the "a" weighted scale defined by ANSI. A method for weighting the frequency spectrum to mimic the human ear.
4. Decibel: The unit of measure used to express the magnitude of sound pressure and sound intensity.
5. IEC: International Electrotechnical Commission. The IEC is the leading global organization that prepares and publishes international standards for all electrical, electronic and related technologies.
6. ISO: International Organization for Standardization. ISO is a network of the national standards institutes of 156 countries.
7. On Site Use Wind Energy Systems: An On Site Use wind energy system is intended to primarily serve the needs of the consumer.
8. Rotor: 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.
9. SCADA Tower: 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.
10. Shadow Flicker: 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 a window at a dwelling.
11. Sound Pressure: 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.
12. Sound Pressure Level: The sound pressure mapped to a logarithmic scale and reported in decibels (dB).
13. Utility Grid Wind Energy Systems: A Utility Grid wind energy system is designed and built to provide electricity to the electric utility grid.
14. Wind Energy System: A wind energy conversion system which converts wind energy into electricity through the 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.
15. Wind Site Assessment: 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.

B. On Site Use Wind Energy Systems: An On Site Use wind energy system is intended to primarily serve the needs of the consumer. An On Site Use wind energy system with a tower higher than 100 feet shall be considered a Special Land Use. On Site Use wind energy systems with no towers or towers 100 feet or less shall be a Permitted Use in all zoning classifications where structures of any sort are allowed subject to the following requirements. Anemometer towers more than 100 feet in height used to conduct a wind site assessment

for possible installation of an On Site Use wind energy system shall also be a Special Land Use.

Prior to the installation of an On Site Use wind energy system with a tower higher than 100 feet, an application for a Special Land Use permit shall be filed with the local government that will include:

1) Applicant identification: Applicant name, address, and contact information.

2) a site plan: The site plan shall include maps showing the physical features and land uses of the project area, both before and after construction of the proposed project. The site plan shall include 1) the project area boundaries, 2) the location, height, and dimensions of all existing and proposed structures and fencing, 3) the location, grades, and dimensions of all temporary and permanent on-site and access roads from the nearest county or state maintained road, 4) existing topography, 5) water bodies, waterways, wetlands, and drainage channels, and 6) all new infrastructure above ground related to the project.

3) Documentation that sound pressure level, construction code, tower, interconnection (if applicable), and safety requirements have been met

Prior to the installation of an anemometer tower more than 100 feet in height, an application for a Special Land Use permit shall be filed with the local government that will include:

1) applicant identification: Applicant name, address, and contact information.

2) a site plan: The site plan shall include maps showing the physical features and land uses of the project area, both before and after construction of the proposed project. The site plan shall include 1) the project area boundaries, 2) the location, height, and dimensions of all existing and proposed structures and fencing, 3) the location, grades, and dimensions of all temporary and permanent on-site and access roads from the nearest county or state maintained road, 4) existing topography, 5) water bodies, waterways, wetlands, and drainage channels, and 6) all new infrastructure above ground related to the project.

3) a copy of that portion of the applicant's lease with the land owner granting authority to install the Met tower and requiring the applicant to remove all equipment and restore the site after completion of the wind site assessment

C. Standards:

1. Property Set-back: The distance between an On Site Use wind energy system and the owner's property lines shall be at least 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 shall be at least 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.

2. 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 dB(A).

3. 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.

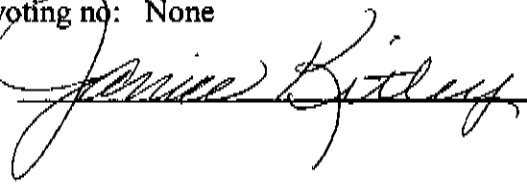
4. Safety: An On Site Use wind energy system shall have automatic braking, governing, or a feathering system to prevent uncontrolled rotation or over speeding. All wind towers shall have lightning protection. If a tower is supported by guy wires, the wires shall be clearly visible to a height of at least 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.

5. 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 comprehensive plan.

6. Decommissioning: The applicant shall submit a decommissioning plan. The plan shall include: 1) the anticipated life of the project, 2) the estimated decommissioning costs net of salvage value in current dollars, 3) the method of ensuring that funds will be available for decommissioning and restoration, and 4) the anticipated manner in which the project will be decommissioned and the site restored.

D. Commercial Wind Energy Systems: Commercial Wind Energy Systems are not permitted.

Waterloo Township does adopt this ordinance as the Township Wind power Ordinance.
Adopted this 15th day of December 2009 by Waterloo Township Board
Those voting yes: Kitley, Lance, Sadler, Walz, Richardson
Those voting no: None

Signed:  , Clerk