

DWEA Model Zoning Ordinance, Final

Permitted Use Regulation for Small Wind Turbines

Section 1 Purpose

It is the purpose of this regulation to promote the safe, effective and efficient use of Small Wind Energy Systems that are installed to reduce the on-site consumption of utility-supplied electricity.

Section 2 Findings

The [city, town or county] recognizes the common good of small distributed wind systems and finds that wind energy is an abundant, renewable, and nonpolluting energy resource. Its conversion to electricity will reduce our dependence on nonrenewable energy resources, encourage stewardship and conservation of our non-renewable energy resources for future generations and decrease the air and water pollution that results from the use of conventional energy sources. Small distributed wind energy systems enhance the reliability and power quality of the electrical grid, reduce peak power demands, and help diversify the State's energy supply portfolio. Small distributed wind systems also make the electricity supply market more competitive by promoting customer choice, as well as fostering economic stability through job creation which encourages the growth of local, small businesses.

The State of _____ has enacted a number of laws and programs to encourage the use of small-scale renewable energy systems including rebates, net metering, property tax exemptions, feed-in-tariffs, and solar easements [as appropriate]. However, many existing zoning ordinances contain restrictions that discourage the installation of small wind turbines and substantially increase the time and costs required to obtain necessary zoning and/or construction permits.

Therefore, we find it necessary to standardize and streamline the proper issuance of zoning and building permits for Small Wind Energy Systems so that this clean, renewable energy resource can be utilized in a cost-effective, responsible and timely manner.

Section 3 Definitions

- 3.1 Small Wind Energy System: A wind energy conversion system consisting of a wind turbine, Tower and associated control or conversion electronics, which has a Rated Power Output of 100 kW or less.
- 3.2 Total System Height: The height above grade of the fixed portion of the Tower, plus the wind turbine and extending to the uppermost reach of the rotor.
- 3.3 Rated Power Output: The power output of a wind turbine at a constant Hub Height wind speed of 11m/s (25 mph).
- 3.4 Tower: A guyed or freestanding structure, anchors and foundation that is specifically engineered to support a small wind turbine.

- 3.5 Hub Height: Height of the center of the wind turbine rotor above the terrain surface. For a vertical axis wind turbine, the Hub Height is the height of the equator plane.
- 3.6 Obstruction: Anything that interferes with the laminar (straight, smooth) flow of wind, causing a level of turbulence that could interfere with the proper function and/or productivity of a small wind turbine.
- 3.7 Swept Area: projected area perpendicular to the wind direction that a rotor will describe during one complete rotation.

Section 4 Permitted Use

Small Wind Energy Systems shall be a permitted use in all zoning classifications where structures of any sort are allowed; subject to certain requirements as set forth below:

- 4.1 System Height: Wind turbine systems shall be allowed to be tall enough to facilitate proper function. Specifically, they shall adhere to the industry standard that the entire wind turbine should be at least 30' above both (a) any Obstruction within a 500' radius, and (b) the surrounding tree height.
 - 4.1.1 Minimum System Height: In no case shall the Hub Height be less than 60'. In cases where the manufacturer's minimum Hub Height recommendation is higher than 60', that recommendation shall be used as the minimum allowable Hub Height.
 - 4.1.2 Maximum System Height: There is no limitation on system height, except as imposed by FAA regulations and the required setbacks.
 - 4.1.3 Building Mounted Systems: Wind turbines mounted on buildings are still required to follow the industry standard that the entire wind turbine should be 30' above all Obstructions within a 500' radius of the turbine, including the structure to which it is mounted, and the surrounding tree height.
- 4.2 Setback: Local building and zoning ordinances for structures shall be followed with the express provision that that no part of the wind system structure, including guy wire anchors or any other appurtenance may extend closer than ten (10) feet to any property boundary line. No setback requirement shall exceed the Total System Height as measured to the center of the base of the Tower.
 - 4.2.1 Neighboring inhabited dwelling: The Small Wind Energy System shall be located at least the Total System Height from any existing, neighboring, inhabited dwelling.
 - 4.2.2 Neighboring property line: The Small Wind Energy System shall follow all setbacks, unless written permission is obtained from the existing owner of the affected adjoining property at the time of application.
 - 4.2.3 Overhead power lines and other setbacks: Wind turbines shall follow existing ordinances for structures in regard to setback from overhead utility lines, roads, easements public buildings and other utilities, provided the setback requirement shall not exceed the Total System Height.

- 4.2.4 Multiple wind turbines: Applications for multiple small wind turbines on a single property shall follow manufacturer or installer recommendations regarding minimum separation between turbines.
- 4.3 Access: To prevent unauthorized climbing, climbing pegs shall be removed from the lower ten (10) feet of the Tower, or ladder access shall be restricted. Fences shall not be required as they deny critical access to the Tower base.
- 4.4 Signage: A “Danger, High Voltage” sign shall be installed where it is clearly visible by persons standing near the tower base.
- 4.5 Sound: During normal operation, Small Wind Energy Systems shall not exceed (a) the sound levels allowed in existing zoning ordinances for the township or municipality; or if no clause exists, (b) five (5) dBA over ambient sound as measured at the closest neighboring inhabited dwelling that exists or is permitted for construction at the time of permit application for the wind energy system. This sound level may be exceeded during short-term events, such as utility outages and storms. Complainant shall bear the burden of proof until and unless the wind turbine system has been proven to be out of compliance with the ordinance.
- 4.6 Certified Wind Turbines: Small wind turbines with Swept Areas up to 200m² shall be certified to the most current version of AWEA 9.1 by the Small Wind Certification Council or a Nationally Recognized Testing Laboratory. Applications for provisionally certified or non-certified turbines with Swept Areas over 200m² must include a description of the safety features and sound emissions of the turbine and must show compliance with IEC61400-12-1 and IEC61400-11 and may be considered on a case by case basis.
- 4.7 Compliance with Building Codes: Permit applications for Small Wind Energy Systems shall comply with all applicable state and local building codes.
- 4.7.1 Tower and foundation drawings provided by the manufacturer or the project developer shall be submitted with the application. Independent engineering review or wet-stamped drawings shall not be required.
- 4.7.2 Applications for roof-mounted (or other non-traditionally mounted) turbines must include a wet stamped structural engineering analysis for the turbine mounting system and for the suitability of the building to which the turbine is to be mounted.
- 4.8 Compliance with FAA Regulations: Small Wind Energy Systems must comply with applicable FAA regulations, including any necessary approvals for installations close to airports.
- 4.9 Compliance with National Electrical Code (NEC): The installation of a Small Wind Energy System shall comply with section 694 (or the most-current applicable section, if updated) of the NEC. Applications must be accompanied by a single-line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the NEC. Wet-stamped drawings shall not be required.

- 4.10 Utility Notification: No grid-tied Small Wind Energy System shall be installed until evidence has been submitted that the applicant's utility company has been informed of the customer's intent to install an interconnected customer-owned generator.
- 4.11 Antennas: Wind turbine Towers installed under this ordinance may also be used to host antennas, so long as the structure is shown to meet the state and local structural code requirements.
- 4.12 Fee: The building permit fee for a small wind system shall follow the existing fee structure for permits required of other structures in the appropriate district. In the absence of such fee structure, the permit fee for a small wind turbine shall not exceed \$20 per kW of Rated Power Output. Additional charges for inspections shall apply at the standard rate used for other structures.
- 4.13 Decommissioning: A small wind system that has reached the end of its useful life shall be removed within 6 months of such determination. A small wind system is considered to have reached the end of its useful life when it has been inoperable for 12 consecutive months. Time extensions are allowed when good faith efforts to repair the turbine can be demonstrated. Foundations need not be removed.