

Worcester County Small Wind Code: §ZS-1-344

(a) Purpose and intent. The purpose and intent of this section is to provide for the effective management, control and review of a variety of alternative energy facilities in a manner which facilitates their development while protecting the health, safety and welfare of the citizens of the County.

(b) Definitions. For the purposes of this section, the following words and phrases shall have the meanings respectively ascribed to them by this subsection:

METEOROLOGICAL TOWER - Any tower and its supporting structure which holds or supports equipment and telemetry devices that are used to monitor or transmit wind speed and wind flow characteristics over a period of time for either instantaneous information or to characterize long-term trends in wind resources at a given location.

OVERSPEED CONTROL - A device or system designed and maintained to prohibit the uncontrolled rotation of the wind energy conversion system's rotors or blades beyond their operational limitations.

PASSIVE STALL REGULATION SYSTEM - A form of overspeed protection whereby the angle of attack of the blade airfoil is increased by the flexing of the blade from excessive wind speeds until the lift force on the blade stops acting and the blade's rotation is slowed or stopped or a system employing blades angled such that winds above a given speed create turbulence on the upwind side of the blade to limit or stop the blades' rotation.

ROTOR DIAMETER - The cross-sectional dimension of the circle swept by the rotating blades.

TOTAL HEIGHT - The vertical distance from the ground level to the tip of a wind generator blade at its highest point of rotation.

TOWER - The vertical component of a wind energy conversion system that elevates the wind turbine generator and attached blades above the ground.

WIND ENERGY CONVERSION SYSTEM - An electrical generating facility consisting of a wind turbine, generator and other accessory structures and buildings, electrical infrastructure and other appurtenant structures and facilities. For the purposes of this section, wind energy conversion systems shall be categorized as follows:

(1) **SMALL WIND ENERGY CONVERSION SYSTEM** — A wind energy conversion system consisting of a single wind turbine, generators, a tower and associated controls which has a total rated capacity of twenty kilowatts or less and designed to supplement other electricity sources to buildings or facilities wherein the power generated is used primarily for on-site consumption.

(2) **MEDIUM WIND ENERGY CONVERSION SYSTEM** — A wind energy conversion system consisting of one or more wind turbines, generators, towers and associated controls which have a total rated capacity of more than twenty kilowatts but not greater than one hundred kilowatts and designed to supplement other electricity sources to buildings or facilities wherein the power generated is used primarily for on-site consumption.

(3) **LARGE WIND ENERGY CONVERSION SYSTEM** — A wind energy conversion system consisting of one or more wind turbines, generators, towers and associated controls which have a total rated capacity of more than one hundred kilowatts and designed to provide electrical energy to the power grid as well as provide energy to the facilities wherein the system is located.

WIND TURBINE- Any machine that converts the wind's kinetic energy into rotary mechanical energy.

(c) Wind energy conversion systems. Where wind energy conversion systems are allowed in accordance with the provisions of this section, the following regulations shall apply:

(1) Wind energy conversion systems shall only be allowed where specifically permitted and in strict conformance with the requirements as set forth herein. Notwithstanding the provisions of §§ ZS 1-116 and 1-117 hereof, there shall be no variances or adjustments permitted to the setback or lot requirements established herein for wind energy conversion systems.

(2) Minimum lot requirements shall be as follows:

A. Small wind energy conversion systems: Lot area, no minimum established but instead shall be a function of the minimum setbacks; minimum setbacks in the A, E, C, I and CM Districts, one and one-half times the total height of the system to all property lines, overhead power lines, and public rights-of-way, and in the V, R and RP Districts, two and one-half times the total height of the system to all property lines, overhead power lines, and public rights-of-way.

B. Medium wind energy conversion systems: Lot area, five acres; minimum setbacks in the A and I Districts, one and one-half times the total height of the system to all property lines, overhead power lines, and public rights-of-way, and in the E, C and CM Districts, two and one-half times the total height of the system to all property lines, overhead power lines, and public rights-of-way.

C. Large wind energy conversion systems: not permitted in any district.

(3) Anchor points for any guy wires supporting a wind energy conversion system shall be set back a minimum of twenty-five feet from all property lines.

(4) There shall be no more than one wind energy conversion system on any lot in any V, R or RP District and no more than two wind energy conversion systems on any lot in the A, E, C, I or CM Districts.

A. The Board of Zoning Appeals as a special exception may authorize greater than two wind energy conversion systems on any lot in an A District where the Board affirmatively finds that the additional wind energy conversion systems will not have a detrimental effect on the peaceful enjoyment of the surrounding properties.

(5) All wind energy conversion systems must be approved under an emerging technology program such as the California Energy Commission, International Electrotechnical Commission or any other wind energy certification program recognized by the American Wind Energy Association or the United States Department of Energy. Home built, experimental and prototype wind energy conversion systems shall be allowed, provided their safety is certified by a professional engineer licensed in the State of Maryland.

(6) All building permit applications for wind energy conversion systems shall be accompanied by standard drawings of the wind turbine structure, including the tower, base, footings, and any accessory structures. An engineering analysis, prepared by a licensed professional engineer, of the tower and its supporting systems demonstrating compliance with the most current edition of the International Building Code shall also be provided.

(7) All wind energy conversion systems shall be supplied with a redundant braking system to prevent overspeed rotation. The braking system shall include both aerodynamic overspeed controls, including variable pitch, tip brakes, and other similar systems, and a mechanical or

electromechanical braking system. All mechanical brakes shall be operated in fail-safe mode. Passive stall regulation shall not be considered an approved braking system for overspeed protection.

(8) All electrical wires associated with a wind energy conversion system, other than those necessary to connect the wind generator to the tower wiring, the tower wiring to the disconnect or the junction box, or any required grounding wires, shall be located underground.

(9) Wind energy conversion systems shall not be artificially lighted. If the proposed system is in such a location or of such a height that the Federal Aviation Administration would require lighting, the system shall not be permitted.

(10) No part of any wind energy conversion system, including any guy wires supporting the system or the area swept by the rotors, shall be located upon, within or extend over a drainage, utility, access or other similar established easement. Systems or components thereof may be located within agricultural land preservation easements, provided all pertinent regulatory agencies agree to such location and use.

(11) Audible noise due to a wind energy conversion system's operations shall not exceed the background noise levels as measured at the property line of the site on which the system is located by more than five decibels as measured on the decibel scale using sound weighting filter A [commonly known as the "dB(A) scale"].

(12) The minimum distance between the ground and any part of the rotor blade for a small wind energy conversion system shall be twelve feet while for a medium wind energy conversion system it shall be thirty feet. Any tower climbing apparatus shall be at least twelve feet from the ground.

(13) Wind turbines shall be painted a nonreflective, nonobtrusive color.

(14) Where a wind energy conversion system has not generated any electricity for a period of twelve months or more, it shall be considered abandoned and, as such, shall be decommissioned and removed by the property owner. The decommissioning shall include removal of any wind turbine, its supporting tower or structure, buildings, cabling, electrical components, or any other part of the system that is at or aboveground level. The property owner shall be responsible for fully completing the decommissioning within ninety days of abandonment.

(15) Meteorological towers shall be subject to the same regulations and standards as a wind energy conversion system in the given zoning district.