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State:	Maryland
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Municipality:	Worcester County
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Title:	Worcester County, M.D., Code § ZS 1-344
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Abstract

In its alternative energy facilities regulation, Worcester County defines solar energy systems, in part, based on energy capacity. It defines large solar energy systems as those with a rated capacity of two hundred kilowatts or greater. Medium solar energy systems are ground-mounted systems with a rated capacity greater than five kilowatts but less than two hundred kilowatts or roof-mounted systems of any capacity in excess of five kilowatts. Finally, small solar energy systems have a rated capacity of five kilowatts or less.

Resource

(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:

MECHANICAL EQUIPMENT

Any device or equipment associated with or a part of a solar energy system, such as but not limited to electrical control units, transformers, inverters, switching equipment, electrical cabinets, pumps, regulators and the like that transfer, transmit, switch or regulate the energy produced by the system and transfer the energy to the on-site building or dwelling where the energy is consumed. Mechanical equipment shall not include wires, cables or pipes.

[Added 3-15-2011 by Bill No. 11-2]

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.

SOLAR ENERGY HEATING EQUIPMENT

Any system or device located on or adjacent to a building and designed to harness solar radiation to heat water for use in a building's domestic water system, swimming pool, hot tub or other similar fixture or to heat air, water or any other liquid or gas which is then used to condition a space occupied by humans or animals.

[Added 3-15-2011 by Bill No. 11-2]

SOLAR ENERGY POWER SYSTEM

Any device or facility that converts solar energy into electrical energy either directly, as in the case of photovoltaic cells, or indirectly by first capturing and/or concentrating solar radiation for the purpose of converting any liquid to a gas used to fuel or propel an electrical generator.

[Added 3-15-2011 by Bill No. 11-2]

SOLAR ENERGY SYSTEM, LARGE

A ground-mounted solar energy system with a rated capacity of two hundred kilowatts up to and including two and one-half megawatts, the principal purpose of which is to provide electrical power for sale to the general power grid or to be sold to other power consumers through a power purchase agreement as part of a net metering project which may include both physical or virtual aggregation, or be consumed on-site.

[Added 3-15-2011 by Bill No. 11-2; amended 11-18-2014 by Bill No. 14-6]

SOLAR ENERGY SYSTEM, MEDIUM

A ground-mounted solar energy system with a rated capacity greater than five kilowatts but less than two hundred kilowatts or a roof mounted solar energy system of any capacity in excess of five kilowatts and serving, or designed to serve, any agricultural, residential, commercial, institutional or industrial use on a single lot or parcel or group of adjacent lots or parcels.

[Added 3-15-2011 by Bill No. 11-2]

SOLAR ENERGY SYSTEM, SMALL

A solar energy system with a rated capacity of five kilowatts or less and serving, or designed to serve, any agricultural, residential, commercial, institutional or industrial use on a single parcel or lot. Individual photovoltaic cells or small groups of such cells attached to and used to either directly power, or charge a battery which does so, an individual device such as a light fixture, fence charger, radio or water pump shall not be considered as a small energy power generation facility as defined herein and may be used in any zoning district without regard to lot or setback requirements.

[Added 3-15-2011 by Bill No. 11-2]

SOLAR ENERGY SYSTEM, UTILITY SCALE

A ground-mounted solar energy system with a rated capacity in excess of two and one-half megawatts, the principal purpose of which is to provide electrical power for sale to the general power grid.

[Added 11-18-2014 by Bill No. 14-6]

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.

(d)

Solar energy power system or heating equipment. Solar energy systems and solar energy heating equipment shall be permitted in any zoning district subject to the following conditions and limitations:

[Amended 3-15-2011 by Bill No. 11-2]

(1)

Small and medium solar energy systems and solar energy heating equipment shall be permitted in all zoning districts subject to the following requirements:

A.

Small solar energy systems or any solar energy heating equipment may be a part of or attached to a principal or accessory structure located on a site and shall be subject to the same setback and height limitations of said structure except as may be modified by § ZS 1-305(k)(1)D hereof. Where not a part of or attached to a principal or accessory structure, small solar energy systems and solar energy heating equipment shall be considered an accessory use on any lot or parcel of land and shall be subject to the setback and height limitations as contained in the particular zoning district for other customary accessory structures which are directly incidental to the permitted principal uses and structures on the site.

B.

Medium solar energy systems may be attached to or a part of a principal or accessory structure located on a site or may be located as freestanding independent arrays, systems

or structures. In all cases they shall be subject to the setback and height limitations for the principal structure.

C.

All mechanical equipment associated with and necessary for the operation of the solar energy system shall not be located in the minimum front yard setback and shall be subject to the setback requirements for customary accessory structures in the zoning district.

D.

All mechanical equipment shall be screened from any adjacent property which is in the R-1, R-2, R-3, R-4 or V-1 Districts or used for residential purposes. The screen shall consist of shrubbery, trees or other ornamental or natural vegetation sufficient to provide an immediate visual barrier to the equipment. In lieu of a vegetative screen a decorative fence may be used.

E.

All solar panels shall be situated in such a manner as to prevent concentrated solar radiation or glare from being directed onto adjacent properties, roads, or public gathering places.

F.

All power transmission lines for freestanding ground-mounted solar energy systems or pipes from solar energy heating equipment connecting freestanding systems to a building shall be located underground.

G.

Signage or text on solar energy systems may be used to identify the manufacturer, equipment information, warning or ownership but shall not be used to display any commercial advertising message or anchor any streamers, balloons, flags, banners, ribbons, tinsel or other materials to attract attention.

H.

Any ground-mounted system which has not produced any electricity for a period of twelve months or more or found to be unsafe by the Building Official shall be considered abandoned and, as such, shall be repaired or decommissioned and removed by the property owner. The decommissioning shall include the removal of the solar energy system and all equipment, electrical components, support structures, cabling, or any other part of

the system that is at ground level or above. The property owner shall be responsible for completing the decommissioning within ninety days of abandonment.

I.

All references herein to the rated capacity of solar systems or equipment are as stated in the manufacturer's maximum power rating for the solar panel system as direct current (DC) wattage under Standard Test Conditions (STC) of 1,000 W/m^2 of solar irradiance and 25°C PV module temperature.

[Added 11-18-2014 by Bill No. 14-6]

(2)

Large solar energy systems may be located in the A-1, A-2, I-1 and I-2 Districts with a minimum lot area of twenty acres. Such systems may also be located in the E-1, V-1, C-1, C-2 and C-3 Districts with a minimum lot area of thirty acres which in no case may be reduced by action of the Board of Zoning Appeals notwithstanding the provisions of § ZS 1-116(c)(4). All large solar energy systems shall be set back a minimum of one hundred feet from all property lines for sites in the E-1, V-1, C-1, C-2 and C-3 Districts and a minimum of fifty feet from all property lines for sites in the A-1, A-2, I-1 and I-2 Districts. All large solar energy systems shall provide a vegetated buffer at least six feet in width if solar panels are located within five hundred feet of any property zoned or used for residential purposes, said buffer to be located within the required yard setback adjoining such residential use or zoning district. Furthermore, all large solar energy systems shall be reviewed and processed as a major site plan in accordance with the provisions of § ZS 1-325 hereof.

[Amended 7-19-2011 by Bill No. 11-3; 11-18-2014 by Bill No. 14-6]

(3)

Utility scale solar energy systems may be located in the A-1, A-2, E-1, V-1, C-1, C-2, C-3, I-1 and I-2 Districts with a minimum lot area of fifty acres which in no case may be reduced by action of the Board of Zoning Appeals notwithstanding the provisions of § ZS 1-116(c)(4). Furthermore, all approvals of utility scale solar energy systems shall be in accordance with a two-step approval process. The first step must be completed in its entirety, including the obtaining of all necessary approvals, prior to proceeding to the second step.

[Added 11-18-2014 by Bill No. 14-6]

A.

Step I concept plan approval. In this step the applicant shall submit adequate plans and documents to sufficiently address the required elements of review by the Technical Review Committee, Planning Commission and County Commissioners. This submission shall constitute the application for a utility scale solar energy system.

1.

The concept plan shall include at a minimum the following:

(i)

A sketch plan at a readable scale with contours shown at two-foot intervals, all existing and man-made features, existing zoning, a vicinity map, flood zone designation, and the boundary of the Chesapeake or Atlantic Coastal Bays Critical Area and designation if applicable.

(ii)

A preliminary designation of sensitive areas, including but not limited to a preliminary delineation of any tidal or nontidal wetlands, and a forest stand delineation showing any existing significant trees.

(iii)

A preliminary delineation of the area proposed to be disturbed by the construction of the solar energy system and a schematic plan generally identifying the existing and proposed drainage patterns for the site and potential stormwater management treatment measures.

(iv)

A written narrative outlining the need and benefits of the proposed facility, the anticipated life of the facility, and proposed measures and financial sureties for decommissioning the facility at the end of its useful life.

(v)

An operations and maintenance plan which includes measures to limit unauthorized access to the facility and minimize environmental impacts from cleaning and maintaining the facility, general operational parameters, and emergency operations and shutdown procedures.

(vi)

A description of the type, size, amount, height and area occupied by the various components of the solar energy system and conceptual elevation drawings of any proposed buildings.

(vii)

Where potable water and wastewater treatment is required, a preliminary feasibility analysis of wastewater disposal capabilities and potable water production.

(viii)

Such other information as the Technical Review Committee, Planning Commission or County Commissioners may reasonably require to fully evaluate the proposal.

2.

The Technical Review Committee shall meet with the applicants to review the concept plan and written information. The Technical Review Committee may request additional information from the applicant, including studies or reports, and may require changes or make suggestions to the applicant with regard to the application and its conformance with other sections of the Zoning and Subdivision Control Article and other pertinent laws and programs. Subsequent to the meeting, the Technical Review Committee shall prepare a report to the Planning Commission of its findings and recommendations, a copy of which shall also be supplied to the applicant. The Technical Review Committee shall review the applicant's submission and present its report to the Planning Commission within ninety days of the applicant's submission of a complete application, unless extended by the Planning Commission.

3.

The Planning Commission shall then meet with the applicant to review the submission and the report of the Technical Review Committee. The Planning Commission shall produce findings with regard to the application's consistency with the Comprehensive Plan, the terms of the Zoning and Subdivision Control Article, and any other laws or programs that may apply to the application. The Planning Commission shall also make a recommendation to the County Commissioners as to approval or disapproval of the application which may address the items contained in the Technical Review Committee Report and other such areas as it may deem appropriate. The Planning Commission shall submit its report and recommendation within ninety days of its receipt of the Technical Review Committee Report, unless extended by the County Commissioners.

4.

The County Commissioners shall consider the application and recommendation of the Planning Commission and hold a public hearing within ninety days of receipt of the Planning Commission's report and recommendation, unless extended by a majority vote of the County Commissioners. The hearing shall have the same procedural formalities as a map amendment as described in § ZS 1-113 hereof. Notice of the public hearing shall be as required in § ZS 1-114 hereof. The County Commissioners shall review the application and the Technical Review Committee and Planning Commission reports and recommendations and shall, following the public hearing, approve or disapprove the application. The County Commissioners may require independent reports by consultants at the expense of the applicant prior to making a determination with regard to the application. Failure of the County Commissioners to reach a formal decision on the application within six months of the public hearing shall constitute a denial of the application. In granting an approval the County Commissioners may impose any conditions they see fit in order to protect the health, safety and welfare of the adjoining property owners or public at large. Any conditions so established shall run with the land and shall be fully enforceable upon any subsequent owners, tenants or occupants of the property. Any approval by the County Commissioners must be unconditionally accepted by the applicant and property owner in writing within ninety days of approval by the County Commissioners. Failure to accept the approval and conditions shall be considered a rejection and abandonment of the approval by the applicant and therefore the approval shall be null and void and of no effect whatsoever.

B.

Step II master site plan approval. Upon completion of Step I the project shall be reviewed and processed as a major site plan in accordance with the provisions of § ZS 1-325 hereof.