

CHAPTER 14
WIND AND SOLAR ENERGY

Section 1400.00 Wind and Solar Energy

Section 1400.01 Purpose

Small solar and wind energy systems shall be permitted in all zoning districts, in accordance with the requirements of this Chapter.

Section 1400.02 Definitions

Small Energy System

Is a renewable energy system to provide for energy needs, designed to serve single subject development or property. The purpose of a small energy system is to be an accessory use of the property. A small energy system should not have the ability to generate more than 100kW per day of the subject property or units of a development.

Small Solar Energy System

Any solar collector or other solar energy device, or any structural design feature whose primary purpose is to provide for the collection, storage and distribution of solar energy for space heating or cooling, for water heating or for electricity that may be mounted on a building or on the ground and is not the primary use of the property.

Small Wind Energy System

A wind energy system consisting of a wind turbine, a tower, and associated controls or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended to primarily reduce on-site consumption of utility power. The purpose of a small energy system is to be an accessory use of the property.

Solar Energy

Means radiant energy (direct, diffuse, and reflected) received from the sun.

Solar Energy Dual Purpose

Means solar energy is collected to create energy from structures that are generally permitted, examples could be fences or walls. This would include exterior lighting for patios and walkways. Dual purpose structures should look primary like a fence, wall or light fixture and not the opposite for the purpose of generating electricity while blending into the landscape. The appearance of the structure should be commonly recognizable with the production of electricity interwove¹¹ or embedded into the structure not to dominate the appearance.

Wind Energy Turbine

Mechanical equipment which is used to convert kinetic energy of the wind through the rotation of the mechanical equipment to facilitate the generation of electricity.

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Section 1400.03 Allowable Number of Towers, Wind Turbines, and Solar Panels

A. Towers

No more than one wind energy tower may be located on any single site, in accordance with this Section, unless otherwise stipulated in this Resolution.

B. Wind Turbines

Any number of wind energy system turbines may be in operation on a single site, in accordance with this Section.

C. Solar Panels

Any number of solar panels may be in operation on a single site, in accordance with this Section.

Section 1400.04 Height

The total height of small solar and or wind energy systems is measured as the vertical distance from the ground level to the tip of a wind generator blade when the tip is at its highest point, and shall not exceed the following maximum height requirements:

A. Wind Towers

1. Properties less than 1/2 acre in size - maximum 45 feet.
2. Properties between 1/2 acre and one 1 acre in size - maximum 80 feet.
- i) 3. Properties greater than 1 acre to 2-1/2 acres -maximum 100 feet
4. Properties greater than 2-1/2 acres to 5 acres - maximum 120 feet.
5. Properties greater than 5 acres in size – maximum 170 feet
6. Properties within 10,000 feet of an Airport must comply with FAA height standards and regulations.

B. Solar panels shall comply with the maximum permitted height of the zoning district.

C. Attachment to existing buildings and towers

1. Wind turbine(s) may be affixed to the building or the roof, providing that:
 - a. The total height of the wind turbine is less than 20 feet above the highest point of the building.
 - c. The base of the wind turbine cannot be seen from the road right-of-way.
 - d. Solar panels shall comply with the maximum permitted height of the zoning district.
2. A wind turbine may be attached to an existing tower, providing that:
 - a. The tower is designed to accommodate the wind turbine.
 - b. The tower is in compliance with all requirements of this Chapter.

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Section 1400.05 **Location**

A. A solar and or wind system shall only be located in the rear yard portion of any lot.

Exception is when solar and or wind system is attached to a building the base can not be viewed from any roadway. Another exception would be for dual purpose solar collectors. See solar energy dual purpose definition.

B. Tower Set backs

1. Shall be located at least 110 percent of its height from any public road right-of way.
2. Shall be located at least 110 percent of its height from any overhead utility lines, except those lines directly serving the subject property.
3. Shall be located at least 110 percent of its height from all property boundaries, except as stipulated in item 4 below.
4. May be located as close as 20 feet to the property boundaries of the installation site, providing that:
 - a. The tower is a tilt-down and or crank-up monopole design, which must pull down or retract towards the installation site and away from all adjoining properties.
 - b. The tower does not utilize guy wires.
 - c. The total height cannot exceed 80 feet.
5. Guy Wire Anchors Set backs
 - a. If guy wires are utilized as part of the tower design, then the guy wire anchors shall be placed at least 50 feet from the any abutting property boundaries.
 - b. The minimum distance a wind turbine may be from the property boundaries, if it is located on a building, must equal a distance that is equal to the total height of the wind turbine from the ground.

Section 1400.06 **Fencing and Protective Measures**

- A. If the base of the tower is designed so it is not climbable for a distance of 8 feet, as measured from the ground, then the fencing of the base is not required.
- B. All access doors to wind turbines and electrical equipment shall be locked to prevent entry by non-authorized persons.

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Section 1400.07 Electrical Interference

The small wind energy system shall not cause any radio, television, microwave, or navigation interference. If a signal disturbance problem is identified, the applicant shall correct the problem within 90 days of being notified of the problem.

Section 1400.08 Noise

The wind energy system shall not exceed the sound level (decibels) specified in schedule 1400.08.1 when measured at the property line.

**Schedule 1400.08.1
Maximum Permitted Sound Levels (Decibels) For Small Wind Energy System**

Octave band, cycles/second	Sound level cannot exceed the following
0-75	72
75-150	67
150-300	59
300-600	52
600-1200	46
1200-2400	40
2400-4800	34
Over 4800	32

Section 1400.09 Lighting

Except as required by law, a tower shall not be illuminated and lighting fixtures or signs shall not be attached to the tower. If lighting is required by the FAA regulations, white strobe lights shall not be permitted at night unless FAA permits no other alternatives. No lighting shall be constructed, placed or maintained in a manner that will constitute a nuisance to any surrounding property and shall in no way impair safe movement of traffic on any street or highway.

Section 1400.10 Warnings

- A. A clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.
- B. Visible, reflective, colored objects, such as flags, reflectors, or tape shall be placed on the anchor points of guy wires and along the guy wires up to a height of ten feet from the ground.

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Section 1400.11 Maintenance

- A. The design and location of the wind energy system shall ensure that all maintenance can be conducted from the installation site.
- B. A small wind energy system that is not functional shall be repaired by the owner or removed.
- C. When a system reaches the end of its useful life and can no longer function, the owner of the system shall remove the system within 120 days of the day on which the system last functioned. The owner is solely responsible for removal of the system and all costs, financial or otherwise, of system removal.

Section 1400.12 Advertising

No advertising is permitted anywhere on the facility, with the exception of signage being utilized for product identification and warnings.

Section 1400.13 Safety Features

- A. The small wind energy system turbine shall be required to have an automatic over speed control to render the system inoperable when the winds are in excess of the speed the system is designed to accommodate.
- B. The small wind energy system shall be required to have a manually operable method to render the system inoperable in the event of a structural or mechanical failure of any part of the system.

Section 1400.14 Blade Clearances

- A. The clearance or the distance between the blades of a wind turbine and the blades of another wind turbine shall be no less than 10 feet.
- B. The clearance or the distance between the blades of a wind turbine and the ground shall be no less than 15 feet.