

Sec. 5.11.14. - Alternative Energy.

- A. *Wind Energy Systems.* For the purposes of this Section, an "On Site Use Wind Energy System" is intended to primarily serve the needs of the consumer, but may be connected to the utility grid under certain circumstances. "Utility Grid Wind Energy Systems" are intended to serve the needs of the community and are connected to the utility grid. Applicable screening and buffering requirements shall apply. Wind energy systems are permitted as an accessory use in all districts, subject to the requirements of Table 5.11.14.A.

Table 5.11.14.A. Wind Energy Systems			
System Type	Planning/Zoning Review Requirement	Zone Districts	Setback and Tower Height
On Site Use Wind Energy System, tower < 60 ft. in height	<u>5.12.09</u> Counter Review	All	See Sections 5.11.14.A.1 and 5.11.14.A.2.
Anemometer Tower < 60 ft.	<u>5.12.09</u> Counter Review		
On Site Use Wind Energy System, tower 60 ft. or taller	<u>5.12.10.</u> Director Review		
Anemometer Tower 60 ft. or taller	<u>5.12.10.</u> Director Review		
Utility Grid Wind Energy System	<u>5.12.10.</u> Director Review		

1. *Property Setbacks.* No part of the wind system structure, including guy wire anchors, shall extend closer than ten (10) feet to the lot lines of the installation site. Where property is located on both sides of a public right-of-way, a wind energy system may be placed no closer than one rotor radius from the closest edge of the right-of-way.
2. *Tower Height.*
 - a. Tower height shall be defined as the total height from the highest blade tip to the grade, including roof-mounted systems. For roof-mounted systems, the height shall be measured at the connection point to the roof.
 - b.

The height of tower-mounted systems is limited by the size of the property upon which they are constructed. A circular fall zone with a radius of 1.20 times the total height of the system must be completely contained within the property. For roof-mounted systems, a circular fall zone with a radius of 1.50 times the system height must be completely contained within the property.

- c. For the purposes of cooperative wind energy sharing, two or more properties may combine to allow greater system height.
 - i. Such an arrangement shall be subject to Director Review procedures of Section 5.12.10., and may be subject to Special Land Use procedures, at the discretion of the Planning Director.
 - ii. Properties entering into a cooperative arrangement must file a copy of a permanent cross-access easement with the Planning Department as well as the Kent County Register of Deeds, describing the terms of the arrangement, and a survey of all properties showing the proposed location of the wind tower(s) and associated fall zones. The easement language must also be included with the title and property survey of all properties entered into the cooperative.
 - iii. Any sharing of energy produced by a wind energy system operated under the terms of a cooperative agreement as described in this section may be subject to state utility regulations.
3. *Historic Districts.* Wind energy systems in a designated Historic district or Historic Landmark shall be subject to the review and approval of the Historic Preservation Commission.
4. *SCADA or Met Towers.* Supervisory Control And Data Acquisition (SCADA) or meteorological (Met) towers shall also comply with the setback requirement. An Operations and Maintenance Office building, sub-station, or ancillary equipment shall comply with any applicable requirements of the Zone District.
5. *Construction Codes, Towers, and Interconnection Standards.* Utility systems including towers shall comply with all applicable state construction and electrical codes and local building permit requirements, 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.*), applicable utility, Michigan Public Service Commission, and Federal Energy Regulatory Commission interconnection standards. The minimum FAA lighting standards shall not be exceeded. All tower lighting required by the FAA shall be shielded to the extent possible to reduce glare and visibility from the ground.
6. *Safety.*
 - a. An On Site Use Wind Energy System shall have an automatic braking, governing, or 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 (6) feet above the guy wire ground anchors. The minimum vertical blade tip clearance from grade shall be twenty (20) feet for a wind energy system employing a horizontal axis rotor.
 - b. All Utility Grid Wind Energy Systems shall be designed to prevent unauthorized access to electrical and mechanical components and shall have access doors that are kept securely locked at all times when service personnel are not present. All spent lubricants and cooling fluids shall be properly and safely removed in a timely manner from the site of the wind energy system. A sign shall be posted near the tower or operations and maintenance office building that shall contain

emergency contact information. Signage placed at the street access shall be used to warn visitors about the potential danger of falling ice. The minimum vertical blade tip clearance from grade shall be twenty (20) feet for a wind energy system employing a horizontal axis rotor.

7. *Visual Impact.* A Utility Grid Wind Energy System project shall use tubular towers. All Utility Grid Wind Energy Systems in a project shall be finished in a single, non-reflective matte finish 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 Master Plan or in local, state or federal historic registers.
8. *Environmental Impact.* The applicant shall have a third party, qualified professional conduct an analysis to identify and assess any potential impacts on the natural environment including, but not limited to, wetlands and other fragile ecosystems, historical sites and birds and wildlife. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis. The applicant shall identify and evaluate the significance of any net effects or concerns that shall remain after mitigation efforts. The applicant shall comply with applicable parts of the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, MCL 324.101 *et seq.*).
9. *Noise.* Small wind energy systems shall not exceed 60 decibels (dBA), measured at the closest residential dwelling. This level may be exceeded during short-term events such as utility outages or storms.
10. *Electromagnetic Interference.*
 - a. No Utility Grid Wind Energy System shall be installed in any location where its proximity to existing fixed broadcast, retransmission, or reception antennas for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception unless the applicant provides a replacement signal to the affected party that shall restore reception to at least the level present before operation of the wind energy system.
 - b. No Utility Grid Wind Energy System shall be installed in any location within the line of sight of an existing microwave communications link where operation of the wind energy system is likely to produce electromagnetic interference in the link's operation, unless the interference is insignificant.
11. *Shadow Flicker.* The applicant shall conduct an analysis on potential shadow flicker at occupied structures. The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sunrise to sunset over the course of a year. The analysis shall identify problem areas where shadow flicker may affect the occupants of the structures and describe measures that shall be taken to eliminate or mitigate the effects.
12. *Engineered Drawings.* Signed and sealed engineered drawings shall be required for all proposed Wind Energy Systems.

B. *Solar Energy.*

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Accessory Use. Solar energy systems are permitted as an accessory use in all Zone Districts. In Residential Zone Districts, solar energy systems may be installed on the roof of a primary or accessory structure, subject to the requirements of this Chapter.

2. *Placement.* The placement of any solar collection system shall be affixed so as not to adversely affect the pleasure and enjoyment of nearby residential uses. Solar panels shall not be located on the front of a residential dwelling.
3. *Administrative Departure.* An Administrative Departure may be approved for solar panels on the front of a residential dwelling by the Planning Director. The following shall be considered in the Planning Director's evaluation:
 - a. Potential on-street glare from the solar energy system;
 - b. Direction in which the roof faces;
 - c. Alternative on-site locations; and
 - d. The extent to which the designated Neighborhood Classification would be compromised.
4. *Connection to the Power Grid.* Any and all of the energy generated by solar energy systems may be transferred directly into the utility grid. Any connections shall comply with all other applicable City ordinances and policies and all applicable State or Federal laws.

(Ord. No. 2009-48, § 36, 9-15-09; Ord. No. 2010-20, § 21, 5-11-10)