

120.460 Wind Energy Conversion Systems

A. Purpose:

The regulation of wind energy conversion systems, including the height, minimum lot area, and required setbacks for such systems, is intended to provide for an alternative source of power generation while protecting the health, safety, and welfare of Township residents.

B. Definitions:

1. Wind energy conversion system ("WECS") is a system which converts wind energy into electricity through the use of a wind turbine generator and includes the turbine, blades, and tower as well as related equipment.
2. Small turbine/on-site system ("Small Turbine WECS") is intended to primarily serve the needs of the customer, with a single tower that may or may not be connected to the utility grid.
3. Large turbine/utility grid system ("Large Turbine WECS") is designed to generate electricity from one or more towers (within an array) and is intended to serve institutions, residential communities, or larger cooperatives.

C. Use Approval:

Due to the concerns related to health, safety and welfare, WECS shall be regulated as special exception uses within the "A" Agricultural District, the "R-1", "R-2", "R-3", "R-4", "R-5", "R-6" residential zoning districts, and the "RD" Recreation District. WECS shall be regulated as a permitted use subject to condition within the "C-1", "C-2", and "C-3" commercial districts and the "I-1", "I-2" and "I-3" industrial districts, provided such land area is sufficient to support their development and operation. Roof-mounted WECS that do not exceed the height regulation within the underlying zoning district shall also be considered a permitted use, provided such location does not exceed the noise requirements at the adjoining property line.

The following requirements shall be met, and the Planning Commission may impose additional conditions for special exception use approval where appropriate:

1. In addition to the requirements for site plan review, the site plan of the property shall show the location of overhead electrical transmission or distribution lines, whether utilized or not, and the location of the WECS with its specific dimensions, including the entire area through which the rotor(s) may pass, the location of any guy wires or other support devices, and the location of all dwelling units within five hundred (500) feet of the WECS.
2. Each application shall be accompanied by a complete set (either the original or an accurately reproduced copy) of the manufacturer's instructions which shall, at a minimum, include the following:
 - a. A standard foundation and anchor design or specifications for normal soil conditions;
 - b. Detailed instructions for operation and maintenance of the WECS on site;
 - c. A copy of all warnings and/or documents provided by the manufacturer of the WECS;
 - d. Grounding and lightning procedures protection which follow the National Electrical Code, Articles 250 (Grounding) and 280 (Lightning Arresters); and
 - e. Proof of Insurance.

In addition, the Underwriters Label shall be attached to the base of the tower and any subsystem, such as the generator, and the following information shall be included:

- (1). The name, address, and telephone number of the owner of the tower/subsystem;
- (2) Manufacturer's name and address;
- (3) Model number;
- (4) Serial number;
- (5) Emergency and normal shutdown procedures;

- (6) The survival wind speed in miles per hour and meters per second for the tower and the maximum power output for the generator;
- (7) Name of installer;
- (8) Name of person responsible for maintenance; and
- (9) Emergency telephone numbers in force for the installer and the person responsible for maintenance.

3. Electromagnetic Interference:

The entire WECS (including turbines, alternators, generators, and interconnect systems) shall be filtered and/or shielded to prevent the emission of generated radio frequency energy which would cause any interference with radio and/or television broadcasting or reception, and shall comply with Federal Communication Rules, 47 CFR, parts 15 (including sub parts A and F) and 18 (including sub parts A, D and H).

4. Noise:

The maximum level of noise permitted to be generated by any WECS shall be fifty (50) decibels, as measured on the DBA scale, measured at the property line nearest the WECS. The Planning Commission may request that a baseline study of the decibel levels existing prior to the installation be included as required documentation for review.

D. Site development:

The following site development requirements shall be imposed on the approval of the special exception use:

1. Lot Area/Setbacks:

No Small Turbine WECS shall be erected on any lot or parcel less than one (1) acre in area. No Large Turbine WECS shall be erected on any parcel less than twenty (20) acres in area. The tower(s) shall be situated on the lot or parcel so that no portion of the tower or turbine is closer to above-ground utility lines and/or property lines than 150% of the height of the tower as defined in (b) below. For roof-mounted systems exceeding the height within the underlying zoning district, no lot area requirement is imposed, but the minimum setback from any property line shall be no less than 110% of the combined height of the roof location and system, including any blades.

2. Height:

The maximum allowable height for any Small Turbine WECS, based upon the combined tower and rotor blade length, shall be:

- a. 40 feet for parcels of one to less than five acres;
- b. 80 feet for parcels of five to less than ten acres; and
- c. Up to 120 feet for parcels of ten acres or more.

The maximum allowable height for any Large Turbine WECS, based upon the combined tower and rotor blade length, shall be three hundred (300) feet. The Planning Commission, in consideration of such request, may waive this height requirement where such proposed location does not negatively impact adjoining properties and where such adjoining property owner has indicated through formal letter that such waiver is acceptable.

Ground Clearance: For both horizontal and vertical axis turbines, the WECS rotor shall be located on the tower or support such that the minimum blade clearance above ground level is 20 feet.

3. Accessibility:

Towers shall be designed and constructed in such a manner that climbing devices are only accessible with a separate ladder to a height of 12 feet.

4. Connection to power grid:

In the case of a WECS to be interconnected with the power grid of the local electric utility, the applicant shall provide proof of written notice to the utility of the proposed interconnection and the utility's response thereto. The resident/owner shall comply with all requirements of the servicing utility if the WECS is interfaced with the utility grid. The utility shall install appropriate electric metering (for sellback or non-sellback), and the customer shall install a disconnecting device adjacent to the electric meter(s).

5. Vibration:

Under no circumstances shall a WECS produce vibrations humanly perceptible beyond lot boundaries.

6. Additional studies:

The applicant may offer and submit, or the Planning Commission may require that the applicant submit, studies related to noise, vibration, or similar issues that may be considered a nuisance. In addition, such studies may include avian and wildlife impact, visual impacts, shadow flicker (changes in light intensity caused by the moving blade) or similar issues based upon compatibility of the proposed use in the requested location.

E. Decommission Plan/Site Reclamation:

The applicant shall submit a plan that indicates the designed life of the system, the estimated cost and method to ensure proper installation and removal, and the manner in which the site will be reclaimed. The Township may impose a bond or request similar surety that such system will be removed or replaced after this useful design life.