

**Sec. 36-833. Geothermal, solar, and wind energy conversion systems.**

- (a) *Geothermal system.*
  - (1) Permitted accessory use in all zoning districts on the condition it meets the requirements of this section and other provisions of the Code.
  - (2) Coils and piping may not cross lot lines without recorded easement from the effected property.
  - (3) Upon determination by the city that encroachment of coils and piping into drainage and utility easements does not interfere with the city's use of the easement, coils and piping may cross into drainage and utility easements with the city's written permission subject to conditions determined by the city.
  - (4) Systems that are proposed under wetland types 1 and 2 shall require approval from the city engineering department in addition to any other permits required for by any other governmental entity. System shall not be allowed under wetland types 3 through 7, or in any Minnesota Department of Natural Resources protected waters.
  - (5) Systems shall meet Minnesota Department of Health Standards (Minnesota Rules chapter 47-25, part 18.31 and part 70.50 (2009) and any amendments thereto).
- (b) *Photovoltaic system and solar thermal system.*
  - (1) *Nonresidential zoning districts.*
    - a. Permitted accessory use if on a building or in rear yard. Must be screened from adjacent lots pursuant to subsection 36-817(b).
    - b. Conditional use if in front or side yard.
  - (2) *Residential zoning districts.*
    - a. Permitted accessory use if on a building (both principal and accessory buildings) or in a rear yard. Must be screened from adjacent lots pursuant to subsection 36-817(b). Panels on buildings shall not hang over edge of roof.
    - b. Not permitted in front or side yards.
    - c. For lots subject the shoreland district:
      - i. Not allowed within the 75-foot shoreland setback if not on a building;

- ii. Panels on boat lifts under two square feet in size shall be a permitted use;
  - iii. Panels on boat lifts greater than two square feet in size shall be a conditional use and, in addition to the reviews and approvals required, shall be subject to the review and recommendation of the city Lake Quality Commission.
- (3) Requirements for all zoning districts.
  - a. Solar thermal piping shall match roof or solar collector color.
- (c) *Wind energy conversion systems.*
- (1) *Residential zoning districts.*
  - a. Conditional use permit required for any wind energy conversion systems, which conditions shall include, but are not limited to the following:
    - i. For lots under two acres in size wind energy conversion systems must be attached to a building.
    - ii. For lots over two acres and under 20 acres in size wind energy conversion systems must be attached to a building or to a monopole in the rear yard that is under 100 feet in height.
    - iii. For lots 20 acres and over, wind energy conversion systems must be attached to a building or to a monopole that may be over 100 feet in height.
    - iv. Lot line setbacks shall be equal to maximum turbine blade height. If over 100 feet in height the setback shall be as follows: for each foot over 100, add an additional 0.5 feet to the setback from residentially zoned lot line (example, a 150-foot tall tower would need to be setback 175 feet from the lot line). In addition to the above, any towers on a lot subject to the shoreland district shall not be allowed within the 75-foot shoreland setback.
- (2) *Nonresidential zoning districts.*
  - a. Permitted accessory use if under 100 feet in height.
  - b. Conditional use if over 100 feet in height and/or more than one pole mounted on a lot.

- c. Lot line setbacks shall be equal to maximum turbine blade height. If over 100 feet in height the setback shall be as follows: for each foot over 100, add an additional 0.5 feet to the setback from residentially zoned lot line (example, a 150-foot tall tower would need to be setback 175 feet from the lot line). In addition to the above, any towers on a lot subject to the shoreland district shall not be allowed within the 75-foot shoreland setback.
- d. No limit on the number of roof mounted turbines.

(3) *For all zoning districts.*

- a. Free standing towers shall be of monopole design.
- b. All wind energy conversion systems shall be equipped with an automatic overspeed control device as part of the design.
- c. Restriction on sound level at lot line (55 dba) or shall comply with the state pollution control agency's noise pollution control section (NPC 1 and NPC 2), as amended, whichever is most restrictive.
- d. Minimum blade clearance to ground of 30 feet for pole mounted horizontal turbines.
- e. Setbacks along public land may be waived or reduced at the discretion of public body in ownership of said land, subject to the review and approval of the city council.
- f. All applicable provisions of chapter 8 of this Code, including, but not limited to, the applicable provisions of the state building codes therein adopted, shall be complied with, in addition to those requirements set out in this article and chapter 36.
- g. Prior to the issuance of a permit, the applicant shall provide, among other things, to the city documentation or other evidence from the dealer or manufacturer that the wind energy conversion system has been successfully operated in atmospheric conditions and is warranted against any systems failures under reasonably expected severe weather operating conditions as established by the director of fire and building inspection services. The applicant shall also provide, among other things, to the city documentation that the tower structure for the system has received a professional engineer's certification.
- h. Wind energy conversion system tower foundations shall be designed to resist two times the wind uplift calculated pursuant to the Uniform Building Code as adopted by the city and shall have a professional

engineer's certification.

- i. No wind energy conversion system tower shall be constructed within 20 feet laterally of an overhead electrical power line (excluding secondary electrical service lines or service drops). The setback from underground electric distribution lines shall be at least five feet.
- j. No wind energy conversion system or support tower of any kind shall be erected anywhere within the city without first making an application for and obtaining from the city a permit therefor which shall not be granted unless all requirements of this article are met and the proposed use will not be harmful to the public health, welfare and safety.
- k. Wind energy conversion systems and towers shall be adequately grounded, as determined by the city engineer, for protection against a direct strike by lightning and shall comply, as to electrical wiring and connections, with all applicable federal regulations, state statutes, regulations, and standards, as well as city codes.
- l. For all wind energy conversion system towers, effective measures shall be taken to prevent public interference and to place the tower in a substantially nonclimbable condition. Effective measures include removal of climbing rungs or ladders from the bottom eight feet of the tower. The intention shall be to prevent climbing of the tower by unauthorized persons.
- m. Except for illumination devices required by FAA regulations and residential lighting in compliance with city codes, no wind energy conversion system or tower shall have affixed or attached to it in any way any sign (does not include equipment labels), banner, or placard of any kind, except for one sign, not to exceed two square feet, which displays suitable warning of danger to unauthorized persons, the system's manufacturer, and emergency shut-down procedures.
- n. All wind energy conversion systems shall comply with all applicable Federal Communications Commission regulations, as amended
- o. All wind energy conversion systems shall comply with all applicable Federal Aviation Administration regulations, as amended.
- p. The interface of a wind energy conversion system with the consumer's electric service shall be pursuant to all applicable federal and state regulations. The city encourages the owner to notify his local electric utility company in advance and requests that both parties regulate their activities in a cooperative manner.

q. Any wind system or tower which is not used for 12 successive months, commencing after January 27, 1982, shall be deemed abandoned and shall be removed as abandoned lot pursuant to the procedures set forth in chapter 14, article II, division 3, or in the Uniform Building Code as adopted by the city in chapter 8, article II.

(d) *General conditions.*

(1) All conditional use permits required by this section shall be subject to and shall comply with the requirements of code chapter 36, article II, division 4 and all other applicable local, state and federal rules and regulations.

(2) System shall be constructed and maintained pursuant to all applicable local, state and federal regulations.

(3) No system shall be erected anywhere within the city without first making an application for and obtaining from the city a permit therefor which shall not be granted unless all requirements of this article are met and the proposed use will not be harmful to the public health, welfare and safety.

(4) Unless specifically stated otherwise in this section, all systems shall be subject to applicable front, rear and side yard setbacks.

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