CHAPTER 167

WIND ENERGY CONVERSION SYSTEMS (WESC)

167.01 PURPOSE. The purpose of this chapter is to allow and encourage the safe, effective use of wind energy systems; identify locations in areas of the City which would be least adversely impacted by the visual, aesthetic, and safety implications of their siting; and enhance the ability of the providers of wind energy services to provide such services to the community quickly, efficiently and effectively.

167.02 DEFINITIONS.

1. Blade: An element of a wind turbine which acts as a part of an airfoil assembly, thereby extracting through rotation, kinetic energy directly from the wind.

2. Height, Total System: The height above grade of the wind energy system, including the tower generating unit, and the highest vertical extension of any blades or rotors. Height shall be measured from the adjacent grade of the tower to the tip of the turbine (blade) at its highest point.

3. Qualified Professional: An individual certified by the manufacturer of a wind energy conversion system as qualified to install and/or maintain that manufacturer's wind energy conversion system.

4. Rotor Diameter: The diameter of the circle described by the moving rotor blades.

5. Shadow Flicker: Alternating changes in light intensity caused by the moving blade of a wind power rotor casting shadows on the ground and stationary objects such as the window of a dwelling.

6. Tower: Vertical structure that supports the electrical generator, rotor blades, or meteorological equipment.

7. Wind Turbine: A wind turbine is any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy.

8. Wind Energy Conversion System (WECS): A system or device that converts wind power to another form of energy, such as electricity or heat. Such system and device can consist of wind chargers, wind turbines, and windmills.

167.03 APPLICATION FOR PLACEMENT PROCEDURES. Prior to issuance of a building permit, the following must be on file with the City Building and Zoning Department:

1. General placement diagram;

2. Manufacturer's specifications;

3. Certification by a registered qualified engineer that the foundation, tower, and mechanical system comply with appropriate building code;

4. Proof of personal injury and property insurance, insuring the applicant and the City against all claims or causes of action made against either or both applicant and the City for damages to persons or property arising out of the construction, operation, and maintenance of WECS.

167.04 GENERAL REQUIREMENTS FOR WIND ENERGY CONVERSION SYSTEMS (WECS).

1. Height and placement of a wind energy conversion system shall limited to ninety (90) feet and also be in accordance and compliance with the guidelines set forth by the Federal Aviation Administration (FAA) regulations and Chapter 166 of the City of Iowa Falls Code of Ordinances.

2. The minimum setback from the nearest property line to the base of the WECS shall be no less than the height of the proposed WECS from the ground level to its uppermost element.

3. Wind energy conversion systems shall be erected or maintained to the rear of the main building, except in those instances where the subject property is a cul-de-sac or corner lot where the side yard is larger than the rear yard in which case a permit may be requested for a side yard WECS location.

4. Wind energy conversion systems shall be located on a lot only as an accessory use/structure to an existing principal use/structure.

5. WECS shall not be located in any required setback area.

6. The minimum distance between the ground and any protruding blades utilized on a WECS shall be fifteen (15) feet, as measured at the lowest point on the arc of the blades. The minimum distance shall be increased as necessary to provide for vehicle clearance in locations where over-sized vehicles might travel.

7. Climbing access to the WECS tower shall be limited by means of a fence six (6) feet in height around the tower base with a locking portal or by limiting tower climbing apparatus to no less than twelve (12) feet from the ground.

8. Cables and/or wires used to secure the WECS shall be appropriately marked to prevent accidental bodily harm.

9. Warning signs shall be posted where clearly visible to warn of electrical and other hazards associated with the WECS. Signs shall meet the following guidelines:

A. A limit of one sign no larger than 4 square feet;

B. Shall be posted at or near the base of the tower;

C. Shall include notice of no trespass, a warning of high voltage, and phone number of property owner/operator to call in case of emergency;

D. Shall be visible from any external fencing and/or landscaping;

E. Brand names or advertising associated with any installation shall not be visible from any public right-of-way.

10. The WECS operation shall not cause interference to the radio and television reception on adjoining property.

11. Noise will not be produced during the operation of the WECS. Definitions and allowances for noise shall be referenced in Chapter 48 of the City of Iowa Falls Code of Ordinances.

12. All WECS shall be designed with an automatic overspeed control to render the system inoperable when winds are blowing in excess of the speeds for which the machine was designed.

13. All WECS shall have a manually operable method to render the system inoperable in the event of structural or mechanical failure of any part of the system including the automatic overspeed control.

14. If connected to a utility system, the WECS shall meet the "tie-in" requirements set forth by the Iowa Public Utilities Commission.

15. The wind energy conversion system, including any guy wires, anchors, supporting structures, and accessory equipment shall be located and designed so as to minimize the visual impact on surrounding properties and from public streets.

16. All wind energy conversion systems shall be maintained in good operational condition and in accordance with all requirements of this section.

17. All wind energy conversion system shall be subject to re-inspection at an interval of not longer than every 24 months. Said inspection shall be conducted by a qualified professional who is regularly involved in the maintenance, inspection, and/or erection of towers. At a minimum, this inspection shall be conducted in accordance with the tower inspection checklist provided in the Electronics Industries Association (EIA) Standard 222, "Structural Standards for Steel Antenna Towers and Antenna Support Structures." A copy of the inspection record shall be provided to the City of Iowa Falls. An inspection that results in a failure rating of the wind energy conversion system will result in the revocation of the permit.

18. Upon the termination or revocation of the permit, the wind energy conversion system shall be repaired to operational standards or is to be removed. The period of time allowed for repair or removal shall be 180 days from the date of termination and/or revocation of the permit.

19. Removal of a wind energy conversion system includes the entire structure including foundations, transmission equipment and fencing from the property. If an abandoned, terminated or revoked wind energy conversion system is not removed in the specified amount of time, the City may remove it and recover its cost from the wind energy conversion system owner

20. No additions, changes, or modification shall be made to a wind energy conversion system, unless the addition, change, or modification is in conformity with the Building Code.

21. Should new technology present itself after adoption of the ordinance codified by this chapter that is proven to be more effective, efficient, and/or economical, the applicant may petition the City to allow variance from the guidelines set forth in this chapter.

22. The applicant shall present documentation of the possession of any required license by any Federal, State, or local agency.

23. The applicant shall provide the City with a shadow flicker model. A shadow flicker model demonstrates that shadow flicker shall not fall on, or in, any existing

residential structure. Shadow flicker expected to fall on a roadway or a portion of a residentially zoned parcel may be acceptable if the flicker does not exceed thirty (30) hours per year; and the flicker will fall more than one hundred feet (100') from an existing residence; or the traffic volumes are less than five hundred (500) vehicles on the roadway. The shadow flicker model shall:

A. Map and describe within a one thousand foot (1000') radius of the proposed dispersed wind energy system the topography, existing residences and location of their windows, locations of other structures, wind speeds and directions, existing vegetation and roadways. The model shall represent the most probable scenarios of wind consistency, sunshine constancy, and wind directions and speed;

B. Calculate the locations of shadow flicker caused by the proposed project and the expected durations of the flicker at these locations, calculate total number of hours per year of flicker at all locations;

C. Identify problem areas where shadow flicker will interfere with existing or future residences and roadways and describe proposed mitigation measures, including, but not limited to, a change in siting of the wind energy conversion system, a change in the operation of the wind energy conversion system, or grading or landscaping mitigation measures.

24. The owner of such a structure shall assume complete liability in case of personal or property damage.

25. Failure to abide by and faithfully comply with this section or with any and all conditions that may be attached to the granting of any building permit shall constitute grounds for the revocation of the permit by the City.

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[The next page is 1101]