



CITY OF RAPID CITY

RAPID CITY, SOUTH DAKOTA 57701-2724

PLANNING DEPARTMENT

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MEMORANDUM

TO: Rapid City Planning Commission

FROM: Bill Lass, Senior Planner

DATE: May 29, 2001

RE: Revised Draft of Wind Energy Conversion System Ordinance

Attached please find a revised draft of the Ordinance language intended to allow wind energy conversion systems as a Use on Review. The Planning Commission reviewed this proposal for the first time on May 10, 2001 but continued action on the request due to concerns with the potential height of the systems. The issue was continued again by the Planning Commission on May 24, 2001 as the Commission directed Staff to make several revisions to the draft.

The enclosed draft includes the following seven revisions recommended by the Planning Commission on May 24, 2001:

- 1) Zoning Districts: As indicated in attached "Ordinance Amendment #3" the zoning districts in which wind energy conversion systems would be allowed as a Use on Review have been reduced to Light Industrial, Heavy Industrial, and Mining and Earth Extraction.
- 2) Viewsheds: Language has been added to the section "L" of the review criteria regarding impacts upon viewsheds, historic property, major community entryways, parks, schools, churches, playgrounds, or similar public and recreational uses.
- 3) System Height: Section "F" regarding maximum system height has been changed from 150 feet to 90 feet as measured from the ground to the rotor hub.
- 4) Potential Removal: A new subsection "O.2" has been added indicating that the City reserves the right to stipulate through the Use on Review that the wind energy conversion system shall



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be removed if the property on which it is located is rezoned to a more restrictive zoning classification.

- 5) Abandonment: The previously proposed section regarding abandonment has been revised (see O.1) to set forth criteria under which the City will determine if a wind energy conversion system is truly abandoned.
- 6) Color: Section "L" has been revised to add color to the list of review criteria.
- 7) Maintenance Information: Section "M" has been revised to add a maintenance schedule and power output of the proposed system to the list of submittal requirements.

Please review the attached information. If you have any questions please feel free to contact me.

Thank you.

WIND ENERGY CONVERSION SYSTEMS – DRAFT ORDINANCES

*Note: **Bold lettering** indicates proposed new text.*

SECTION 17.50.215 – WIND ENERGY CONVERSION SYSTEMS

- A. Wind Energy Conversion Systems shall be allowed as accessory structures as a Use on Review in certain zoning districts. In addition to the standards set forth in Chapter 17.54.030 regarding all Uses on Review, all Wind Energy Conversion Systems shall also meet all requirements of Section 17.50.215 herein.**
- B. Commercial Sale of Power Prohibited:** Any wind energy conversion system shall be used only for the purpose of generating power for the property on which the wind energy conversion system is located, or for the purpose of transmitting power to the electrical grid of an electric utility company through an approved interconnection.
- C. Utility Interconnections:** Any wind energy conversion system shall be constructed and operated, and any interconnection between a wind energy conversion system and a electric utility company shall be allowed only in accordance with all local, state and federal regulations including the Public Utilities Commission and any Federal Aviation Administration requirements. Additionally, electrical interconnections shall be allowed only in accordance with the applicable standards of the electric utility company.
- D. Required Setbacks:** A minimum setback of one and one-half times the height of the wind energy conversion system and any property line, structure intended for human occupation, overhead utility line, or other tower support base shall be maintained.
- E. Tower Height:** In no event shall the height of a wind energy conversion system exceed ninety feet as measured from the ground to the rotor hub. Further, there shall be no less than thirty feet between the lowest arc of the rotors of a wind energy conversion system and the ground, any portion of a structure, or tree.
- F. Rotor Size/Operation:** The maximum size of the rotors of a wind energy conversion system shall be reviewed upon application for a Use on Review. In determining the appropriate size for the rotors, the City shall consider such factors as noise, proximity to surrounding residences, safety and aesthetic issues. All systems shall be equipped with appropriate braking devices or similar protective devices to slow down or stop the rotors if the wind exceeds the capacity of the system.
- G. Noise:** No wind energy conversion system shall produce more than sixty decibels of sound measured at the closest point on the closest property line from the base of the system. Information from the manufacturer of the wind energy conversion system shall be submitted at the time of submittal of the Use on Review ensuring that this requirement can be met once the system is operational.

- H. **Electromagnetic Interference:** No wind energy conversion system shall produce electromagnetic interference so as to disrupt transmissions such as those from radio, television, or microwave towers. At the time of application of the Use on Review the petitioner must submit information from the manufacturer indicating that once operational the wind energy conversion system will not adversely affect such transmissions. If necessary, generators and alternators shall be filtered, shielded, or both so as to prevent the emission of radio and television signals.
- I. **Tower Access:** Appropriate safety measures must be undertaken to discourage unauthorized climbing of a wind energy conversion system tower. Appropriate measures shall include either:
- a. The construction of a six-foot tall chain link fence with locking gate around the tower;
 - b. The tower shall be constructed so that the lowest climbing access shall be at least twelve feet above the ground; or,
 - c. A locked anti-climb device shall be installed on the tower.
- J. **Warning Information:** Information related to the maximum power output, nominal voltage and maximum current, and emergency shut-down procedures for the wind energy conversion system shall be posted near the base of the tower in a visible location.
- K. **Lighting:** Unless required by a more restrictive regulation, no lighting shall be installed on a wind energy conversion system.
- L. **Tower Design:** In reviewing the Use on Review for a wind energy conversion system, the City shall consider the design and color of the tower to ensure that no significant adverse impacts are occurring to neighboring property owners including but not limited to infringement into natural and urban viewsheds, historic property, major community entryways, parks, schools, churches, playgrounds, or similar public and recreational uses.
- M. **Manufacturer Warranty/Maintenance Information:** Upon application for a Use on Review for a wind energy conversion system, the petitioner shall submit a manufacturer's statement documenting that the system has been successfully and safely operated in atmospheric conditions that are similar to conditions in Rapid City. Further, the petitioner shall provide a copy of the manufacturer's warranty indicating that the system is warranted against any system failures reasonably expected during severe weather conditions. Further, the petitioner shall submit system specifications including maximum power output and a maintenance schedule for the system.
- N. **Construction Standards:** Any wind energy conversion system shall be constructed in accordance with all applicable Life, Safety, Building and Fire Codes including but not limited to the following.
- a. An applicant for a building permit for a wind energy conversion system shall submit plans and specifications stamped by a registered engineer.

- b. **Lightning Protection:** Any wind energy conversion system shall have appropriate lightning protection to sufficiently protect all connected and adjacent equipment and structures from damage. The lightning protection system shall effectively discharge lightning energy from the structure to the ground through the application of shielding, lightning arresters, and deep earth grounding.

O. Abandonment/Removal:

- 1. Any wind energy conversion system which has not been used for a period of six months or more shall be declared abandoned. Upon abandonment of the system, the City shall revoke the Use on Review and the system shall be removed at the expense of the property owner. The City shall determine that a wind energy conversion system has not been “used” if the following criteria apply:
 - a. The wind energy conversion system has not been operating for a substantial period of time and the owner of the system is unable to provide documentation demonstrating that the system has produced a minimum of twenty-five percent of the power output as stated in the system specifications over the past six months;
 - b. The wind energy conversion system has fallen into obvious disrepair and/or has been condemned by the City of Rapid City;
 - c. The wind energy conversion system has become violative of some other local, state or federal law and the owner of the system has not taken appropriate actions to remedy the problem.
- 2. If deemed appropriate, the City may stipulate through the Use on Review that the wind energy conversion system shall be removed at the owner’s expense upon the rezoning of the subject property to a zoning district classification in which wind energy conversion systems are not allowed as either a permitted use or use on review.

Ordinance Amendment #2 -

Section 17.04.752 Wind Energy Conversion System

A wind energy conversion system (WECS) is an aggregation of parts including the base, tower, generator, rotor, blades, supports, guy wires, and accessory equipment such as utility interconnections, battery banks, etc. in such a configuration as necessary to convert the power of wind into mechanical or electrical energy. WECS are also known as wind chargers, windmills, or wind turbines.

Ordinance Amendment #3 – Revise the following zoning districts to add “**Wind Energy Conversion Systems according to the requirements of 17.50.215**” as a Use on Review in the Light Industrial, Heavy Industrial, and Mining and Earth Extraction Zoning Districts.