

STAFF REPORT FOR THE PLANNING COMMISSION MEETING OF JUNE 30, 2010

FILE NO: ZCA-08-127

AGENDA ITEM: H-5

STAFF AUTHOR: Lee Plemel, AICP, Planning Director

REQUEST: Discussion only regarding the implementation of the small wind energy conversion system (wind turbine) ordinance, adopted by Carson City approximately one year ago.

DISCUSSION:

The small wind energy ordinance was adopted by the Board of Supervisors in July 2009. The Board requested a one-year review of how the ordinance has been implemented. This item is for discussion only to update the Planning Commission with no action to be taken. Staff will provide an update to the Board of Supervisors in July.

Two small wind energy systems have been installed on residential lots since the adoption of the new ordinance. Both are horizontal-axis wind turbines on one-acre-zoned lots. Both met the new requirements of the Carson City Municipal Code (CCMC) Section 18.05.080, Private Use Wind Energy Conversion Systems, and were approved as a by-right use through the building permit process.

One of the wind turbines is located on the north side of West Washington Street, between Longview Way and Spencer Street. This wind turbine was installed in December 2009 and is approximately 48 feet in height.

The second wind turbine is located on the southeast corner of Valley View Drive and Northview Drive. This wind turbine was installed in May 2010 and is approximately 52 feet in height.

Planning staff received two phone call inquiries from adjacent property owners when the West Washington Street wind turbine was installed and one phone call when the Valley View wind turbine was installed. Each caller expressed concerns regarding the visibility of the structures and noise. Staff explained the current code requirements, including noise standards, to each caller. To date, no formal complaints regarding noise have been received by staff for either location.

Staff will provide photos of the two new wind turbines during the presentation to the Planning Commission. Please contact Lee Plemel in the Planning Division at 887-2180 if you have any questions regarding this item.

Respectfully Submitted,
Carson City Planning Division

Lee Plemel, AICP
Planning Director

Attachments:

- A) CCMC 18.05.080 Private Use Wind Energy Conversion Systems
- B) Photos of existing wind turbines

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18.05.080 Private Use Wind Energy Conversion Systems. In order to balance the need for clean, renewable energy resources with the protection of the health, safety and welfare of the community, the purpose of this section is to regulate private use wind energy conversion systems (WECS) for the production of electricity for use on the subject site and for net metering through the power company.

1. **Applicability and Definition.**
 - a. **Private Use Wind Energy Conversion Systems (WECS).** A private use wind energy conversion system consists of a wind turbine, tower, and associated control or conversion electronics for the purpose of providing electrical power to a lawful principle use. A system having a rated capacity of 10 kilowatts (kW) or less for residential use or 100 kW or less for non-residential uses shall be considered a private system for the purposes of these regulations. Not more than one machine shall be allowed per parcel of land when the size of the parcel is less than one acre in size. WECS are considered accessory uses as stated in CCMC 18.03.010 (Words and Terms Defined), Accessory Building or Accessory Structure and Accessory Use, and are allowed in all zoning districts.
 - b. **Wind Machine.** The individual component of a Wind Energy Conversion System that converts kinetic energy from the wind into electrical energy, independent of the electrical conductors, electrical storage system, electrical metering, or electrical inverters. This term shall include the towers or supporting structures.
 - c. **Building Code(s).** All codes, ordinances, policies and procedures, and standards adopted and enforced by the Carson City Building Division.
 - d. **Fire Code(s).** All codes, ordinances, policies and procedures, and standards adopted and enforced by the Carson City Fire Department.
 - e. **FAA.** The use of this acronym shall denote the Federal Aviation Administration, or any other applicable authority that regulates air safety within the Carson City jurisdiction.
 - f. Private use wind energy conversion systems shall be allowed as accessory uses in all Public zoning districts without the requirement of Special Use Permit approval provided the system meets all other requirements of this section.
 - g. All proposed Private Use Wind Energy Conversion Systems located within the Carson City Historic District must receive review and approval from the Historic Resources Commission, in addition to any other required approvals, prior to submission of a building permit.
2. **Standards.** All Wind Energy Conversion Systems are subject to and must comply with the following provisions of this section:
 - a. **Location.** A minimum parcel size of one acre is required for the placement of any horizontal axial wind turbine. Vertical axial wind turbines are permitted on any parcel. No part of a wind energy conversion system shall be located within or over drainage, utility or other established easements.

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- b. Number per parcel. A maximum of one wind machine per parcel is permitted on parcels less than one acre in size; a maximum of one wind machine per acre is permitted on parcels greater than one acre in size.
- c. Setbacks. Minimum setbacks for private use wind machines shall be:
 - i) A minimum of 1.1 times the total extended height from the project property lines adjacent to a residential, Conservation Reserve or Agricultural zoning district.
 - ii) Guy wire anchors may not extend closer than 10 feet from any property line.
 - iii) A 10 foot minimum setback from any part of the machine, rotors or guy wires to the property line of any other non-residential zoning district.
 - iv) Wind machines shall not be located within the front yard setback nor within the street-side setback of any parcel of land in residential zoning districts.
- d. Height. The maximum total extended height of Wind Energy Conversion Systems is 60 feet.
 - i) Tower Height shall mean the height above adjacent grade of the fixed portion of the tower, excluding the wind turbine itself.
 - ii) Total Extended Height shall mean the height above adjacent grade to a blade tip at its highest point of travel and including any other portion of the Wind Energy Conversion System.
- e. Lighting. Wind system towers shall not be artificially lighted unless required, in writing, by the Federal Aviation Administration (FAA) or other applicable authority that regulates air safety. Where the FAA requires lighting, the lighting shall be the lowest intensity allowable under FAA regulations; the fixtures shall be shielded and directed to the greatest extent possible to minimize glare and visibility from the ground; and no strobe lighting shall be permitted, unless expressly required by the FAA.
- f. Access. All wind machine towers must comply with the following provisions:
 - i) The tower shall be designed and installed so that there shall be no exterior step bolts or a ladder on the tower readily accessible to the public for a minimum height of 12 feet above the ground. For lattice or guyed towers, sheets of metal or wood or other barrier shall be fastened to the bottom tower section such that it cannot readily be climbed; and
 - ii) All ground-mounted electrical and control equipment shall be labeled or secured to prevent unauthorized access.
- g. Rotor Safety. Each wind machine shall be equipped with both manual and automatic controls to limit the rotational speed of the blade within the design limits of the rotor. An external, manual shut-off switch shall be included with the installation. The minimum distance between the ground and any protruding blades utilized on a private wind machine shall be 10 feet as measured at the lowest point of the arc of the blades.

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- h. Noise. All wind machines shall comply with the noise requirements in this section. These levels, however, may be exceeded during short-term events such as utility outages and severe wind storms. A manufacturer's sound report shall be required with a building permit application.
 - i) No wind machine or combination of wind machines on a single parcel shall create noise that exceeds a maximum of 25 decibels (dBA) at any property line where the property on which the wind machine is located or the abutting property is one acre or less or a maximum of 50 decibels (dBA) at any other property line. Measurement of sound levels shall not be adjusted for, or averaged with, non-operating periods. Any wind machine(s) exceeding these levels shall immediately cease operation upon notification by Carson City and may not resume operation until the noise levels have been reduced in compliance with the required standards and verified by an independent third party inspector, approved by Carson City, at the property owner's expense. Upon review and acceptance of the third party noise level report, Carson City will allow operation of the affected wind machine(s). Wind Energy Conversion System(s) unable to comply with these noise level restrictions shall be shut down immediately and removed upon notification by Carson City, after a period established by Carson City.
 - ii) Sound below 20 Hertz. No wind machine or combination of wind machines shall be operated so that impulsive sound below 20 Hertz adversely affects the habitability or use of any off-site dwelling unit, hospital, school, library or nursing home.
- i. Aesthetics and Maintenance.
 - i) Appearance. Wind machines, unless subject to any applicable standards of the FAA, shall be a non-reflective, non-obtrusive color such as tan, sand, gray, black or similar colors. Galvanized steel or metal is acceptable for the support structures. Any painting or coating shall be kept in good repair for the life of the wind machine. In addition, any changes to the approved color shall result in notification by Carson City that the affected wind machine(s) shall cease operation until a color correction has been made. If the affected wind machine(s) are not repainted, using an approved color, within the period established by Carson City, the owner shall remove the affected Wind Energy Conversion System(s).
 - ii) Electrical Wires. All electrical wires leading from the tower to electrical control facilities shall be located underground.
 - iii) Maintenance. Wind machines shall be maintained in good repair, as recommended by the manufacturer's scheduled maintenance or industry standards, and shall be free from rust.
- j. Signs/Labels. The only advertising sign allowed on the wind machine shall be a manufacturer's label, not exceeding one square foot in size, located on the generator housing.
- k. Compliance with FAA Regulations. All wind machines shall comply with applicable FAA regulations, including any necessary approvals for installations.

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- I. Ice Throw. The potential ice throw or ice shedding from the proposed wind machine shall not cross the property lines of the site.
- m. Certified Safe. Evidence shall be submitted with a building permit application that the wind machine has been constructed in accordance with accepted industry standards and certified safe.
3. Repair and Removal of Wind Machines. Any wind machine found to be unsafe by an official of the Carson City Building Division shall immediately cease operation upon notification by Carson City and shall be repaired by the owner to meet federal, state, and local safety standards or be removed within six months. Wind machines that are not operated for a continuous period of 12 months shall be removed by the owner of the wind machine.
 - a. When a wind machine is removed from a site, all associated and ancillary equipment, batteries, devices, structures or support(s) for that system shall also be removed. For the purposes of this section, non-operation shall be deemed to include, but shall not be limited to, the blades of the wind machine remaining stationary so that wind resources are not being converted into electric or mechanical energy, or the wind machine is no longer connected to the public utility electricity distribution system.
4. Mounting of Wind Machines. Attachment of the wind machine, including any support or structural components, to any building or structure shall be in strict compliance with regulations of the Carson City Building Division.
5. Compliance with Regulations.
 - a. All systems shall comply with applicable fire and building codes.
 - b. All standards are absolute. Once wind machines are permitted, the owners have the option of compliance with the standards or discontinuation of operations. If the operation of the wind machine(s) does not comply with the provisions of this article, the operator shall promptly take all measures necessary to comply with these regulations, including, but not limited to, discontinued operation of one or more wind machines.
 - c. Variations to the regulations and standards of this section may only be permitted by special use permit, approval of which shall be pursuant to Title 18, Section 18.02 (Special Use Permits).

ATTACHMENT B



Valley View Drive



West Washington Street