

Item# 23B

**City of Carson City
Agenda Report**

Date Submitted: June 9, 2009

Agenda Date Requested: June 18, 2009

Time Requested: 45 minutes

To: Mayor and Board of Supervisors

From: Public Works - Planning Division

Subject Title: Action to introduce, on first reading, Bill No._____, an ordinance amending the Carson City Municipal Code Title 18 Zoning, Chapter 18.03, Definitions, Section 18.03.010, Words and Terms Defined, to modify the definition of "Wind Energy/Conversion Facility" to "Wind Energy Conversion System, Private Use" and to add a definition for "Wind Machine"; and amending the Carson City Municipal Code Title 18 Zoning, Chapter 18.05, General Provisions, by adding Section 18.05.080, Private Use Wind Energy Conversion Systems to set forth specific standards and criteria for these systems, and other matters properly related thereto. (ZCA-08-127)

Summary: The proposed ordinance would create standards for the placement and use of small wind turbines for personal use in all areas of Carson City, including residential and commercial areas. Small wind turbines are only for personal use to offset the cost of electricity to a home or business. There are currently no specific standards for such devices in the Carson City Municipal Code.

Type of Action Requested:

- Resolution
- Ordinance-First Reading
- Formal Action/Motion
- Other (Specify)

Does This Action Require A Business Impact Statement: Yes No

Planning Commission Action: Recommended approval on January 28, 2009 by a vote of 5 ayes, 1 nay and 1 absent. Recommended approval on May 27, 2009 by a vote of 5 ayes, 0 nays and 2 absent.

Prior Board Action:: Introduced Bill No. 103 on March 5, 2009, with a vote of 3 ayes and 2 nays. Referred back to Planning Commission for further review on April, 2, 2009.

Recommended Board Action: I move to introduce, on first reading, Bill No._____, an ordinance amending the Carson City Municipal Code Title 18 Zoning, Chapter 18.03, Definitions, Section 18.03.010, Words and Terms Defined, to modify the definition of "Wind Energy/Conversion Facility" to "Wind Energy Conversion System, Private Use" and to add a definition for "Wind Machine"; and amending the Carson City Municipal Code Title 18 Zoning, Chapter 18.05, General Provisions, by adding Section 18.05.080, Private Use Wind Energy Conversion Systems to set forth specific standards and criteria for these systems, and other matters properly related thereto, based on the findings contained in the staff report.

Explanation for Recommended Board Action: The Board of Supervisors, pursuant to Carson City Municipal Code, is required to take final action on all code amendments. See the attached staff report for more explanation.

Applicable Statute, Code, Policy, Rule or Regulation: 18.02.075 Zoning Code Amendments

Fiscal Impact: N/A

Explanation of Impact: N/A

Funding Source: N/A

Alternatives: 1) Refer back to staff and Planning Commission for further review
2) Deny

Supporting Material:
1) Ordinance
2) Staff Memo
3) Case Record
4) Planning Commission Staff Report

Prepared By: Janice Brod, Management Assistant V

Reviewed By: *Jenny Hunt for*
(Planning Division Director)
[Signature]
(Public Works Director)
[Signature]
(City Manager)
M. Deane Buketta
(District Attorney's Office)

Date: 6-9-09
Date: 6-9-09
Date: 6/8/09
Date: 6-9-09

Board Action Taken:

Motion: _____
1) _____ Aye/Nay
2) _____

(Vote Recorded By)

BILL NO. ____

ORDINANCE NO. 2009-_____

AN ORDINANCE AMENDING CARSON CITY MUNICIPAL CODE TITLE 18, ZONING, CHAPTER 18.03, DEFINITIONS, SECTION 18.03.010, WORDS AND TERMS DEFINED, TO MODIFY THE DEFINITION OF "WIND ENERGY/CONVERSION FACILITY" TO "WIND ENERGY CONVERSION SYSTEM, PRIVATE USE" AND TO ADD A DEFINITION FOR "WIND MACHINE"; AND AMENDING THE CARSON CITY MUNICIPAL CODE TITLE 18 ZONING, CHAPTER 18.05, GENERAL PROVISIONS, BY ADDING SECTION 18.05.080, PRIVATE USE WIND ENERGY CONVERSION SYSTEMS, TO SET FORTH SPECIFIC STANDARDS AND CRITERIA FOR THESE SYSTEMS; AND OTHER MATTERS PROPERLY RELATED THERETO.

Fiscal effect: None

THE BOARD OF SUPERVISORS OF CARSON CITY DO ORDAIN:

SECTION I:

That the Carson City Municipal Code Chapter 18.03 (Definitions), Section 18.03.010 (Words and Terms Defined) is hereby amended, in part, as follows:

Wind Energy[~~/~~]Conversion System, Private Use [Facility ~~means a machine or facility that converts the kinetic energy in the wind into a useable form]~~ means a system consisting 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 use system for the purposes of the regulations. These systems are considered accessory uses in all zoning districts.

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.

SECTION II:

That the Carson City Municipal Code, Chapter 18.05 (General Provisions) is hereby amended as follows:

Chapter 18.05 GENERAL PROVISIONS

Sections:

- 18.05.005 Applicability.
- 18.05.010 Parking.
- 18.05.015 Trash, refuse and recycled material storage.
- 18.05.020 Landscaping.
- 18.05.025 Temporary construction containers.

- 18.05.030 Trailers, mobilehomes, recreational vehicles, commercial coaches and storage containers.
- 18.05.035 Watchman's quarters.
- 18.05.040 Heliports.
- 18.05.045 Home occupation.
- 18.05.050 Accessory farm structures.
- 18.05.055 Accessory structures.
- 18.05.060 Accessory use.
- 18.05.065 Uses required to be within a structure.
- 18.05.075 Manufactured home installation within a single-family zoning district.
- 18.05.080 Private Use Wind Energy Conversion Systems

SECTION III:

That Carson City Municipal Code Section 18.05.080 (Private Use Wind Energy Conversion Systems) is hereby added, as follows:

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.
 - 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.
- 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 less than one acre 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 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.
 - l. 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).

SECTION IV:

No other provisions of Title 18 of the Carson City Municipal Code are affected by this ordinance.

PROPOSED on _____, 2009.

PROPOSED BY Supervisor _____

PASSED _____, 2009.

VOTE:

AYES:

NAYS:

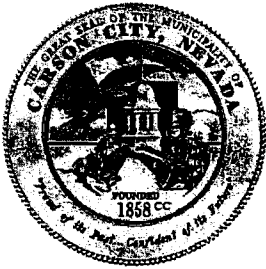
ABSENT:

ROBERT L. CROWELL, Mayor

ATTEST:

ALAN GLOVER, Clerk-Recorder

This ordinance shall be in force and effect from and after the _____ day of the month of _____ of the year 2009.



Carson City Planning Division

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Carson City, Nevada 89706

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MEMORANDUM

Board of Supervisors Meeting of June 18, 2009

TO: Mayor and Supervisors

FROM: Lee Plemel, Planning Director *LP*

DATE: June 5, 2009

SUBJECT: Small Wind Turbine Ordinance

The proposed small wind turbine ordinance was originally reviewed by the Planning Commission in January 2009 and by the Board of Supervisors in March and April 2009. The Board of Supervisors directed the matter back to the Planning Commission for further consideration based upon specific concerns raised by the public and Supervisors.

The purpose of this memo is to summarize the discussion and action by the Planning Commission in addressing these specific concerns. Further discussion can be found in the staff report to the Planning Commission dated May 27, 2009. Attached to this memo is a version of the ordinance showing how this proposed ordinance differs from the original ordinance.

There were several specific aspects of the original ordinance that were the focus of public comments and discussion. These included requirements relating to:

- Minimum lot size
- Number of turbines per parcel
- Setbacks
- Maximum height
- Required permits
- Color requirements
- Noise
- Site wind analysis

The Planning Commission took public comments and then discussed and voted on each of these aspects of the proposed ordinance individually. The Commissioners came to unanimous consensus (5-0, 2 absent) in making their recommendations on each issue. Following is a summary of the discussion and recommendations on each of these issues.

Vertical-Axis Wind Turbines versus Horizontal-Axis Wind Turbines Discussion

A key aspect of the Planning Commission's specific recommendations was consideration of the testimony and discussion on the differences between vertical-axis and horizontal-axis (or "axial") wind turbines. Following is a summary of the key elements of these types of turbines that were discussed:

Horizontal-axis turbines	Vertical-axis turbines
Typical “propeller” blade turbine where the propeller shaft is parallel to the ground and the turbine points into the wind.	The turbine shaft is vertical; blades come in various configurations and shapes and rotate around the vertical axis.
Noise is typically created from wind passing through the blades.	Typically described as “silent operation,” much quieter than typical horizontal-axis turbines; e.g. SolCool SeaHawk turbine (1/2-kW) specs say it operates at 4.5 dB at 5 ft. (no further detail provided regarding that measurement).
Generally need to be mounted higher above surrounding structures and trees to operate in “clean,” non-turbulent wind.	Can operate in turbulent winds; can be mounted to existing buildings and are typically lower than horizontal-axis turbines when mounted on the ground.
Generally have a higher output potential when placed in a proper location.	Generally can operate at lower wind speeds.

RECOMMENDATIONS:

Minimum Lot Size

Recommendation: A minimum lot size of one acre for "horizontal-axis" wind turbines (typical propeller-type turbines); no minimum lot size for vertical-axis turbines (which are generally much quieter). There was previously no minimum lot size for any type of turbine.

The discussion regarding minimum lot size for small wind turbines also considered the implications of noise impacts, visual impacts and setbacks. While the Commission felt that establishing a minimum lot size for horizontal-axis turbines was prudent to minimize these impacts, the testimony and evidence showed that there could be opportunities for application of vertical-axis wind turbines on smaller lots while still minimizing impacts relating to noise (they are quieter) and aesthetics (with setbacks). It was noted that many of these vertical-axis turbines are about the size of “a chimney” and can be unobtrusive even on smaller lots.

Number per Parcel

Recommendation: A maximum of one turbine (vertical-axis) per parcel for parcels less than one acre; one turbine per acre for lots greater than one acre. (There was previously no limit on the number per parcel.)

The Planning Commission recommendation regarding the number of turbines per parcel is intended to limit potential cumulative noise and visual impacts from such devices. As mentioned previously, the consideration to allow one vertical-axis turbine on lots less than one acre provides for the opportunity to implement the technology while still minimizing impacts.

Maximum Height

Recommendation: 60 feet maximum. (The previous maximum height was 90 feet.)

The Planning Commission made this recommendation based upon numerous concerned raised regarding the visual impacts of turbines at up to 90 feet.

Noise Level

Recommendation: A maximum of 25 dB(A) from a wind turbine at property lines on less than one acre; a maximum of 50 dB(A) at property lines of all other parcels; these standards apply to non-residential properties as well as residential properties. (The previous maximums were 50 dB for residential properties and 60 dB for non-residential properties.)

This recommendation is based upon the discussion and testimony related to the difference between horizontal-axis and vertical-axis turbines and potential impacts of such devices within smaller-lot neighborhoods. The Commission felt there could be appropriate application of vertical-axis turbines on smaller lots without negatively impacting surrounding properties. Testimony from those within the wind energy industry indicates that vertical-axis turbines are much quieter than horizontal-axis turbines. In recognition of this, the Planning Commission recommends a maximum noise level of 25 dB(A) at the property line for parcels less than one acre—an insignificant noise level that is typically below the ambient noise level for a residential neighborhood.

Furthermore, the Commission recommended a maximum noise level of 50 dB(A) at property lines for parcels greater than one acre, and modified the previously proposed standards to apply these standards to non-residential properties as well as residential properties. In making this recommendation, the Commission noted that available technology and the consideration of location of such devices on a property can accommodate wind energy systems while minimizing impacts to surrounding properties.

Permit Requirements

Recommendation: No Special Use Permit required (building permit required) except for wind energy systems that do not meet any of the proposed standards. (Same as previously proposed.)

The Planning Commission felt it was important to establish standards to allow wind energy systems by-right to promote the technology while minimizing impacts to surrounding properties. In modifying some of the standards as discussed above, the Commission believed it would be important to allow for exceptions with approval of a Special Use Permit, where appropriate, while providing more public involvement in the review of such cases.

Setbacks

Recommendation: Minimum setback of 1.1 feet for every 1 foot of wind energy system structure height. (Same as previously proposed.)

While there was discussion about requiring increased setbacks for smaller parcels, it was determined that the proposed 1.1 to 1 setback requirement is adequate given the other requirements for noise, number of machines per parcel and maximum height.

Wind Machine Color

Recommendation: Machine must be non-reflective “tan, sand, grey, black or similar colors;” Galvanized steel towers need not be painted. (Same as previously proposed.)

Discussion and testimony was considered ranging from requiring all components of a wind machine to be painted a neutral, non-reflective color to not requiring any color regulations and allowing bright white wind turbines, as they often come from the manufacturer. The Planning Commission considered examples of turbines that are manufactured in various neutral colors

(or can be painted, though not preferable) and did not find it necessary to paint galvanized steel support structures.

Site Wind Analysis

Recommendation: Not required prior to installation. (Same as previously proposed.)

It was suggested throughout the process that a prospective small wind turbine user would want to have a site wind analysis done prior to installation to determine its effectiveness at any given location. However, the Commission recommends that it not be mandatory based upon the following:

- Determining an appropriate level of efficiency or output for such a regulation would be arbitrary; it should be up to the property owner to determine if it is appropriate for their own use.
- A comprehensive wind analysis would need to be conducted over the course of a year or longer to accurately calculate the estimated production at any give site; short term studies on wind at a given location are not consistent enough. (Note: Government wind potential maps are produced on a macro scale and are intended primarily to show large-scale wind production capabilities. Most small wind turbines are designed to be used is lower wind speed conditions.)
- Small wind turbines are installed in consultation with industry professionals who recommend the best type and location for any given site (or that the site is not viable).

Conclusion

The above topics were specific points of discussion in modifying the original ordinance that was previously reviewed by the Planning Commission and Board of Supervisors. Other aspects of the proposed ordinance were non-controversial and are not discussed in detail here or within the Planning Commission staff report.

If you have any questions regarding the Planning Commission recommendations or the proposed ordinance in general, please contact Lee Plemel, Planning Director, at 887-2180 ext. 30075 or lplemel@ci.carson-city.nv.us.

[Note: This version of the ordinance is intended to show the proposed changes from the prior version that was reviewed by the Board of Supervisors. Additions to the prior ordinance are shown in double underlined text. Lines in the right-hand margin indicate where such changes have been made.]

BILL NO. ____

ORDINANCE NO. 2009-_____

AN ORDINANCE AMENDING CARSON CITY MUNICIPAL CODE TITLE 18, ZONING, CHAPTER 18.03, DEFINITIONS, SECTION 18.03.010, WORDS AND TERMS DEFINED, TO MODIFY THE DEFINITION OF "WIND ENERGY/CONVERSION FACILITY" TO "WIND ENERGY CONVERSION SYSTEM, PRIVATE USE" AND TO ADD A DEFINITION FOR "WIND MACHINE"; AND AMENDING THE CARSON CITY MUNICIPAL CODE TITLE 18 ZONING, CHAPTER 18.05, GENERAL PROVISIONS, BY ADDING SECTION 18.05.080, PRIVATE USE WIND ENERGY CONVERSION SYSTEMS TO SET FORTH SPECIFIC STANDARDS AND CRITERIA FOR THESE SYSTEMS; AND OTHER MATTERS PROPERLY RELATED THERETO.

Fiscal effect: None

THE BOARD OF SUPERVISORS OF CARSON CITY DO ORDAIN:

SECTION I:

That Chapter 18.03 (Definitions), Section 18.03.010 (Words and Terms Defined) of the Carson City Municipal Code is hereby amended, in part, to modify the definition of "Wind Energy/Conversion Facility" and to add a definition for "Wind Machine", as follows:

Wind Energy~~[A Conversion System, Private Use Facility means a machine or facility that converts the kinetic energy in the wind into a useable form]~~ means a system consisting 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 use system for the purposes of the regulations. These systems are considered accessory uses in all zoning districts.

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.

SECTION II:

That the Carson City Municipal Code Chapter 18.05, General Provisions, Section 18.05.080, Private Use Wind Energy Conversion Systems, is hereby added, as follows:

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 20-10 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.
- 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 90 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.
- 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 less than one acre or a maximum of 50 decibels (dBA) at any other property line abutting a residential zoning district or 60 dB 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 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 painted using 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.

l. 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).

SECTION III:

No other provisions of Title 18 of the Carson City Municipal Code are affected by this ordinance.

PROPOSED on _____, 2009.

PROPOSED BY Supervisor _____

PASSED _____, 2009.

VOTE:

AYES: _____

NAYS:

ABSENT:

ROBERT L. CROWELL, Mayor

ATTEST:

ALAN GLOVER, Clerk-Recorder

This ordinance shall be in force and effect from and after the _____ day of the month of _____ of the year 2009.

CARSON CITY PLANNING COMMISSION

CASE RECORD

MEETING DATE: May 27, 2009

AGENDA ITEM NO.: H-4

APPLICANT(s) NAME: N/A
PROPERTY OWNER(s): N/A

FILE NO. ZCA-08-127

ASSESSOR PARCEL NO(s): N/A
ADDRESS: N/A

APPLICANT'S REQUEST: Action to consider an ordinance amending the Carson City Municipal Code Title 18, Zoning, Chapter 18.05 General Provisions, adding Section 18.05.080, Small Wind Turbines, to provide standards for the placement and use of small wind turbine generators.

COMMISSIONERS PRESENT: [X] KIMBROUGH [X] MULLET [] BISBEE
[] PEERY [X] REYNOLDS [X] VANCE [X] WENDELL

STAFF REPORT PRESENTED BY: Lee Plemel [X] REPORT ATTACHED
STAFF RECOMMENDATION: [X] APPROVAL
APPLICANT REPRESENTED BY: Lee Plemel

X PERSONS SPOKE IN FAVOR OF THE PROPOSAL X PERSONS SPOKE IN OPPOSITION OF THE PROPOSAL

DISCUSSION, NOTES, COMMENTS FOR THE RECORD:

Public comment:

Bruce Kittess: Carson City resident - Opposed to this ordinance. POP's - propeller on poles. WECS's have no place in residential neighborhoods. Wind turbines belong in commercially operated wind farms.

George Hauser: Home builder, installs renewable energy systems- Wind power is the oldest form of power. Horizontal wind turbines are noisier. Vertical axis turbines are much quieter. Wind power is inexpensive and "makes sense". These are nice products. Personal power generator is a "safety issue". Wind is cheaper than solar.

Dave Campbell: Visual impact "merits respect". Why 50 dB(A)? Noise is too loud. There are quiet devices out there. Pure tone penalty is needed. A vendor should provide a site wind analysis to the buyer.

Richard Schneider: What will it do to property values? Be "conservative" to start; limit it to properties 3 acres and larger. Aesthetics vs. property values.

Tim Howard: In favor of these turbines. Shouldn't have lot size limit. No SUP to make it cost effective to install. Facilities are painted at the factory and shouldn't have to be painted. Painting makes the turbine less efficient. Property values will go up not down. Wind energy is more effective than solar. Ext. shut off is in competition with Nevada Energy requirements.

Dave Hampton:

Tim Con.....?: In favor of this. Would be nice if more people were off the grid. Lot size restrictions. Smaller WECS's are the size of a chimney. I could not do it on my 1/4 acre property [if one acre minimum is imposed].

Fred Daniels: Professional Mechanical Engineer for 50 years – In favor. White color: specify “non-corrosive material”. For on-site use only? Or are grid connected systems okay? How do you measure height? What does 20 Hertz mean? What constitutes a “wind analysis”? Help those who want to install them understand what is required better. What is meant by “industry standard”?

Gary Carson: Opposition to size/height. They need to be compatible with neighborhoods.

Gary Kilty: Resident – In favor. Want to put up a WECS on my property. You don't want to have to paint over a factory finish. Color should be baked into the enamel of the product.

Leslie Maderos: Solar Store owner – State armory has wind turbine; noise not objectionable. You should go and see it.

Commissioner comments:

Reynolds: The future of turbines may be multiple small ones mounted on a house. Suggest 1:1.2 setback on parcels smaller than one acre. Not concerned with colors. Maybe noise should be 30-35 dB(A); no site wind analysis required.

Kimbrough: No SUP if standards are met.

MOTIONS:

Minimum lot size: One acre; except vertical axis WECS's

5 ayes, 0 nays

Number per parcel: One per parcel for parcels less than one acre; one per acre for parcels greater than one acre

5 ayes, 0 nays

Setback: 1.1 to 1 for residential

5 ayes, 0 nays

Maximum Height: 60 feet

5 ayes, 0 nays

SUP required: Only when standards are exceeded

5 ayes, 0 nays

Color: As originally proposed; delete verbiage for “painting” wind machines.

5 ayes, 0 nays

Noise: 25 dB(A) on less than one acre; 50 dB(A) for one acre or more (all parcels, all land use)

5 ayes, 0 nays

Site wind analysis: None

5 ayes, 0 nays

Certification (2[m]) (as written in the draft ordinance)

5 ayes, 0 nays

MOTION WAS MADE TO RECOMMEND APPROVAL WITH THE FINDINGS AND CONDITIONS OF THE STAFF REPORT AS MODIFIED

MOVED: Reynolds SECOND: Wendell PASSED: 5/AYE 0/NO /ABSTAIN 2/ABSENT

SCHEDULED FOR THE BOARD OF SUPERVISORS

DATE: June 18, 2009

STAFF REPORT FOR THE PLANNING COMMISSION MEETING OF MAY 27, 2009

FILE NO: ZCA-08-127

AGENDA ITEM: H-4

STAFF AUTHOR: Lee Plemel, AICP, Planning Director

RECOMMENDED MOTION: "I move to recommend to the Board of Supervisors approval of ZCA-08-127, a Zoning Code Amendment to modify the Carson City Municipal Code Title 18, Chapter 18.03, Definitions, to amend the definition of "Wind Energy Conversion Facility," to add a definition for "Wind Machine"; and Chapter 18.05, General Provisions, to add section 18.05.080, Private Use Wind Energy Conversion Systems, to establish specific standards and criteria for such systems, as recommended by staff *[and include any recommended modifications based upon discussion or other specific actions during the meeting].*"

BACKGROUND

This item has been the subject of several public meetings and much discussion with a number of residents and Planning Division staff. Following is a history of prior public meetings on this issue.

- On October 29, 2008, Planning Division staff brought forth a discussion item to the Planning Commission to get direction on drafting an ordinance for wind turbines. The Planning Commission directed staff to draft a wind turbine ordinance.
- On January 28, 2009, the Planning Commission forwarded a recommendation of approval (by a vote of 5-1, 1 absent) of an ordinance to the Board of Supervisors to establish certain standards for wind turbines or "wind energy conversion systems."
- On March 5, 2009, the Board of Supervisors introduced the ordinance (3-2), on first reading, as recommended by the Planning Commission.
- On April 2, 2009, the Board of Supervisors did not adopt the ordinance on second reading and directed staff to 1) work with various stakeholders to see if any points of compromise or agreement can be reached between proponents and opponents of the proposed ordinance and 2) take the ordinance back to the Planning Commission within 60 days of the Board of Supervisors' meeting for further consideration and recommendation.

PURPOSE

The general purpose of this Zoning Code Amendment is to develop an ordinance related to residential and private use wind turbine systems or "wind energy conversion systems" (WECS's) which, through the use of review and performance criteria, will ensure that these systems are appropriately designed, sited and installed. There is increased interest in these systems partly because WindGenerations/NV Energy offers rebates that somewhat offset the installation cost of wind systems for grid-connected customers. This rebate system is available to help the State of Nevada achieve 20 percent renewable power by 2015, as required by legislation.

Presently, city staff considers standards for WECS's to be the same as other accessory structures. Certain height and setback restrictions must be met. However, no other standards are set forth that address noise levels, aesthetics or other specific standards for these types of

structures. The intent of this ordinance is to allow WECS's outright as accessory uses in all zoning districts in Carson City if the performance standards are met. Variations to the regulations and standards may be permitted by Special Use Permit.

The purpose of this staff report and Planning Commission item is to discuss potential modifications to the draft ordinance to address concerns expressed at prior Planning Commission and Board of Supervisors meetings as well as those of proponents of private wind generators. All aspects of the proposed ordinance are not discussed in this staff report as they have been discussed at previous meetings. Only those items where concerns have been raised and alternatives proposed are included here, though the Planning Commission may consider any aspect of the ordinance in discussion and taking action on this item.

DISCUSSION

The primary concern regarding the proposed ordinance is the impact of small wind turbines on residential neighborhoods, specifically concerns related to noise impacts and visual impacts. Therefore, possible regulations related to these impacts are the primary focus of this discussion.

Below are specific areas of the ordinance where alternatives have been discussed and may be considered by the Planning Commission. The Planning Commission may wish to take action on each of these standards individually. Based upon the action of the Commission, Planning Division staff will incorporate the recommendations into an ordinance to be forwarded to the Board of Supervisors.

1. Minimum Lot Size.

- (a) Original proposal: No minimum lot size (subject to setback/height requirements).
- (b) Alternative 1: One acre minimum.
- (c) Alternative 2: Three acres (or other) minimum.

A concern expressed throughout the process has been the impact on adjacent neighbors. While the original proposal used setbacks to minimize impacts, it should be recognized that having any wind turbines on smaller lots would typically result in the units being located closer to adjacent residences than on larger lots. There is no consensus on this issue.

Staff recommends establishing a minimum parcel/lot size of **one acre** for the installation of a WECS, in conjunction with other staff recommendations for limiting the total number of WECS's per parcel.

2. Number of WECS's per Parcel.

- (a) Original proposal: No limit.
- (b) Alternative 1: One WECS per acre of land.
- (c) Alternative 2: One WECS per parcel (regardless of size).

Another concern expressed was of the potential of creating "wind farms" on residential lots, which would have greater impacts on surrounding properties than single units. However, larger lots could have adequate area to place additional WECS's without impacting neighboring properties. There is no consensus on this issue.

Staff recommends limiting the number WECS's per parcel to **one WECS per acre**.

3. Setbacks from Property Lines (Residential).

- (a) Original proposal: 1.1 feet setback for every 1 foot WECS height.
- (b) Alternative 1: 2 feet setback for every 1 foot WECS height.

A “stricter” setback requirement would reduce both visual and noise impacts to surrounding properties on any given lot by increasing the distance of the WECS from the adjacent property and/or reducing the height. It was suggested by certain residents that a larger setback should be required, such as 2:1. However, an increased setback requirement could make it more impractical for the placement of WECS’s on certain parcels. There is no consensus on this issue.

Staff recommends **retaining a setback of 1.1:1** in conjunction with limiting the minimum lot size to one acre and limiting the number of WECS’s to one per acre.

4. Maximum Height (subject to setback requirements).

- (a) Original proposal: 90 feet maximum.
- (b) Alternative 1: 75 feet maximum.
- (c) Alternative 2: 60 feet maximum.

Regardless of parcel size on which a WECS is placed, taller WECS’s can have visual impacts over a broader area than lower ones. However, industry recommendations say that the bottom of a turbine rotor should be a minimum of 30 feet above any obstruction (e.g. a house or tree) within 500 feet of the turbine. With houses in one acre single family neighborhoods permitted at up to 32 feet, it was originally recommended that the maximum height be 90 feet, which accounts for instances where larger lots could accommodate such a height while still meeting required setbacks. There is no consensus on this issue.

Staff recommends establishing a **maximum permitted WECS height of 60 feet**. (Note: By definition, “height” includes all components of the WECS including the rotor blades.) This greatly reduces the potential visual impact and is more compatible with existing building heights throughout the city. In a situation where additional height is required for a WECS, a Special Use Permit would be required giving surrounding property owners the opportunity to voice concerns and giving the Planning Commission the ability to address those concerns.

5. Required Permits.

- (a) Original proposal: No Special Use Permit except for where proposed WECS does not meet standards.
- (b) Alternative 1: Special Use Permit for all WECS’s.

The District Attorney’s opinion is that requiring a Special Use Permit for all WECS’s does not violate State law. It was also suggested that requiring a Special Use Permit for all WECS’s gives surrounding property owners the opportunity to express concerns with individual projects.

The original ordinance was drafted under the concept that specific standards would be created to address potential impacts of WECS’s, and WECS’s meeting those standards would only need to obtain a building permit. Staff still supports this concept. There is no consensus on this issue.

Staff recommends **not requiring a Special Use Permit for all WECS’s** unless the WECS does not meet all of the standards. If a Special Use Permit is required for all WECS’s and a WECS meets all the required standards, it would put the Planning Commission in a difficult position where surrounding property owners were expressing opposition even though the WECS meets

the standards. The standards are intended to address the impacts, and staff believes the focus should be on adopting the appropriate standards.

6. Color and Painting Requirements.

- (a) Original proposal: Machine must be non-reflective “tan, sand, grey, black or similar colors;” Galvanized steel towers need not be painted.
- (b) Alternative 1: Allow white turbines (as often manufactured).
- (c) Alternative 2: Require painting of all tower structures.

The color of structures can have an impact on its visibility from surrounding properties and at a distance, especially against the background of the mountains surrounding Carson City. Therefore, it was originally recommended that the turbines, which are often manufactured using white materials, would be required to be a more neutral or earth-tone color. Concern was expressed from a proponent of WECS’s that painting the turbines is unnecessary and a hardship because they are typically white. Also, citizen concern was expressed that not only should the turbines be painted, but the towers should be painted, as well, to minimize visual impacts.

Staff recommends **retaining the requirements as originally proposed** to paint turbines, as necessary (or buy them in an acceptable manufactured color), and allow galvanized steel towers, with the clarification that this is only for lattice support structures. Except up very close, staff does not believe there is a noticeable difference in appearance between an unpainted lattice tower structure and a painted one. Monopole-type towers or other structures would be required to be an appropriate color per the ordinance.

OTHER PROPOSED MODIFICATIONS

The following modifications are included in the revised ordinance draft and are considered by staff to be generally non-controversial and/or areas where some consensus has been reached. Based on further discussion at the meeting, the Planning Commission may consider alternatives to these or other aspects of the proposed ordinance.

7. Definition of WECS for residential use:

- Proposed modification: Reduce from 20 kW to 10 kW.

Staff research indicates that a 10 kW WECS would be more than adequate for a single family residence. Some concern was expressed previously about the defined size of a “small” WECS for residential use.

8. Rotor Safety (Section 18.05.080(1)(f))

- Proposed modification: Add requirement for an exterior, manual shut off switch with installation.

This is a general industry standard requirement and allows for easy shut off of the WECS in the event of failure or for any other compliance-related issue.

9. Noise (Section 18.05.080(1)[g])

- Proposed modification: Noise limit includes all on-site WECS combined.
- Proposed modification: Change from dB to “dB(A).”
- Proposed modification: Add requirement to “shut down” non-compliant WECS’s immediately.
- Proposed modification: Add language prohibiting “impulsive” sound below 20 Hertz.

Where two or more WECS’s may be placed on a parcel, two noise sources placed in close proximity could increase noise impacts to surrounding properties. Language has been added to the draft ordinance to clarify that noise limits at the property line will consider the sound level of any combination of WECS’s, not just each one individually.

The dB(A) scale is often used as a standard in noise ordinances and is oriented more towards the range of sound that the human ear can hear. The dB(A) scale is used by Washoe County in their WECS ordinance. Washoe County also has the requirement for sound below 20 Hertz, which was expressed as a concern particularly where a harmonic may occur from the use of multiple WECS’s.

10. Site Wind Analysis (Section 18.05.080(1)[l])

- Proposed modification: Require a site wind analysis to be conducted prior to the installation of any WECS.

The WECS industry recognizes that it is a good idea for prospective WECS users to know how well the machine will operate and generate electricity at any given location. While the proposed language does not create a minimum standard for energy production (nor does it attempt to), it ensures that a property owners decision to pursue the installation of a WECS is at least an informed one.

11. Wind Machine Certification (Section 18.05.080(1)[m])

- Proposed modification: Require that all WECS’s installed have been constructed in accordance with industry standards and are “certified safe.”

In order to qualify for various rebate programs, WECS’s must meet certain standards in their construction to ensure proper operation, function and safety. Including this requirement eliminates the concern that “home-made” wind turbines will be erected.

MASTER PLAN CONFORMANCE

The Carson City Master Plan encourages the use of alternative energy, specifically in:

Chapter 3: A Balanced Land Use Pattern

Guiding Principle I: A Compact and Efficient Pattern of Growth

Goal I.I: Promote the Efficient Use of Available Land and Resources

Policy I.I f: Energy Conservation

which states that Carson City will “*encourage the incorporation of site planning and other design techniques that promote solar and wind efficiency in the construction of new homes and non-residential development...Encourage the use of new and emerging technologies that lead to increased energy conservation for both residential and non-residential use.*”

NEVADA STATE LAW CONFORMANCE

The Nevada Revised Statutes (NRS) encourage the use of alternative energy by restricting local governments from prohibiting such uses. The applicable NRS section as modified in 2009 by SB 114 is as follows:

NRS 278.0208 Restrictions on use of system for obtaining solar or wind energy prohibited.

1. *A governing body shall not adopt an ordinance, regulation or plan or take any other action that prohibits or unreasonably restricts or has the effect of prohibiting or unreasonably restricting the owner of real property from using a system for obtaining solar or wind energy on his property.*
2. *Any covenant, restriction or condition contained in a deed, contract or other legal instrument which affects the transfer, sale or any other interest in real property and which prohibits or unreasonably restricts or has the effect of prohibiting or unreasonably restricting the owner of the property from using a system for obtaining solar or wind energy on his property is void and unenforceable.*
3. *For the purposes of this section, the following shall be deemed to be unreasonable restrictions:*
 - (a) *The placing of a restriction or requirement on the use of a system for obtaining wind energy which significantly decreases the efficiency or performance of the system and which does not allow for the use of an alternative system at a substantially comparable cost and with substantially comparable efficiency and performance.*
 - (b) *The placing of a restriction or requirement on the use of a system for obtaining solar energy which significantly decreases the efficiency or performance of the system by more than 10 percent of the amount that was originally specified for the system, as determined by the Director of the Office of Energy, and which does not allow for the use of an alternative system at a substantially comparable cost and with substantially comparable efficiency and performance.*

(Added to NRS by 1995, 1105; A 2005, 1820)

*** Reviser's Note.**

Ch. 425, Stats. 2005, which amended this section, contains the following provision not included in NRS:

"The Legislature hereby declares that wind energy is a clean, renewable energy source, the use of which must be promoted. Regional planning is needed for communities to choose good turbine locations where wind is available. The provisions of this act allow the governing bodies of cities and counties to promote the use of this renewable resource while promoting the general welfare by regulating the location, height and noise level of wind turbines, as well as the parcel size on which turbines may be placed. The provisions of this act require cities and counties to balance the effects that wind turbines have on the environment through the existing master plan and zoning process."

CONCLUSION

There has been quite a bit of public discussion regarding the aspects of the ordinance noted in this staff report. The Planning Commission may consider past information, evidence and public testimony in making a recommendation on the proposed ordinance. The Commission may recommend modifications to the proposed ordinance.

For more information on the proposed ordinance, please contact Lee Plemel in the Planning Division at 887-2180 ext. 3075, or lplemel@ci.carson-city.nv.us.

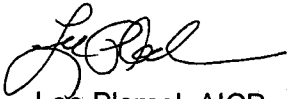
Resources:

Link to *In the Public Interest, How and Why to Permit for Small Wind Systems, A Guide for State and Local Governments*, previously provided to the Planning Commission:

< <http://www.awea.org/smallwind/pdf/InThePublicInterest.pdf> >

< <http://www.awea.org/smallwind/> >

Respectfully Submitted,
Carson City Planning Division



Lee Plemel, AICP
Planning Director

[Note: In order to show modifications from the previous ordinance that was recommended by the Planning Commission and reviewed by the Board of Supervisors, additions to the prior ordinance are shown in **bold, double underlined text** and deletions are shown in strike-through text (~~strike-through text~~) with no brackets []. Lines in the right margin indicate where changes have been made.]

BILL NO. ____

ORDINANCE NO. 2009-_____

AN ORDINANCE AMENDING CARSON CITY MUNICIPAL CODE TITLE 18, ZONING, CHAPTER 18.03, DEFINITIONS, SECTION 18.03.010, WORDS AND TERMS DEFINED, TO MODIFY THE DEFINITION OF "WIND ENERGY/CONVERSION FACILITY" TO "WIND ENERGY CONVERSION SYSTEM, PRIVATE USE" AND TO ADD A DEFINITION FOR "WIND MACHINE"; AND AMENDING THE CARSON CITY MUNICIPAL CODE TITLE 18 ZONING, CHAPTER 18.05, GENERAL PROVISIONS, BY ADDING SECTION 18.05.080, PRIVATE USE WIND ENERGY CONVERSION SYSTEMS TO SET FORTH SPECIFIC STANDARDS AND CRITERIA FOR THESE SYSTEMS; AND OTHER MATTERS PROPERLY RELATED THERETO.

Fiscal effect: None

THE BOARD OF SUPERVISORS OF CARSON CITY DO ORDAIN:

SECTION I:

That Chapter 18.03 (Definitions), Section 18.03.010 (Words and Terms Defined) of the Carson City Municipal Code is hereby amended, in part, to modify the definition of "Wind Energy/Conversion Facility" and to add a definition for "Wind Machine", as follows:

Wind Energy/Conversion System, Private Use ~~[Facility means a machine or facility that converts the kinetic energy in the wind into a useable form]~~ means a system consisting 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 kilowatts (kW) or less for non-residential use shall be considered a private use system for the purposes of the regulations. These systems are considered accessory uses in all zoning districts.

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.

SECTION II:

That the Carson City Municipal Code Chapter 18.05, General Provisions, Section 18.05.080, Private Use Wind Energy Conversion Systems, is hereby added, as follows:

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 20_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 additional 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.** No part of a wind energy conversion system shall be located within or over drainage, utility or other established easements.

b) **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.
- c) **Height.** The maximum total extended height of Wind Energy Conversion Systems is 90 feet, provided all required setbacks and other standards of this section are met.
 - 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.
- d) **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.
- e) **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.
- f) **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.
- g) **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 50 decibels (dBA) at any property line abutting a residential zoning district or 60 dB(A) 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 **or creating excessive noise from non-functioning or improperly functioning parts** shall

immediately cease operation upon notification by Carson City and may not resume operation until the noise levels have been reduced 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 Hz adversely affects the habitability or use of any off-site dwelling unit, hospital, school, library or nursing home.

h) Aesthetics and Maintenance.

i) Appearance. Wind machines, unless subject to any applicable standards of the FAA, shall be painted using a non-reflective, non-obtrusive color such as tan, sand, gray, black or similar colors. Galvanized steel or metal is acceptable for the lattice support structures. The 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.

i) Signs/Labels.

i) Advertising Label. 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.

j) **Compliance with FAA Regulations.** All wind machines shall comply with applicable FAA regulations, including any necessary approvals for installations.

k) **Ice Throw.** The potential ice throw or ice shedding from the proposed wind machine shall not cross the property lines of the site.

l) Site Wind Analysis. A site wind analysis shall be conducted prior to the installation of any wind machine with recommendations from an accredited wind machine installer on the height and location of the wind machine as well as the expected output of the machine. The analysis shall be submitted with a building permit application.

m) Wind Machine Certification. 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 42 ~~six~~ 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).

SECTION III:

No other provisions of Title 18 of the Carson City Municipal Code are affected by this ordinance.

PROPOSED on _____, 2009.

PROPOSED BY Supervisor _____

PASSED _____, 2009.

VOTE:

AYES:

NAYS:

ABSENT:

ROBERT L. CROWELL, Mayor

ATTEST:

ALAN GLOVER, Clerk-Recorder

This ordinance shall be in force and effect from and after the _____ day of the month of _____ of the year 2009.



CARSON CITY, NEVADA
CONSOLIDATED MUNICIPALITY AND STATE CAPITAL

MEMORANDUM



TO: Lee Plemel, Planning Director
Jennifer Pruitt, Senior Planner (Hardcopy and Email)
Heidi Eskew-Herrmann, Assistant Planner

FROM: Roger Moellendorf, Parks & Recreation Director *[Signature]*

DATE: May 12, 2009

SUBJECT: Parks & Recreation Department's Comments for the Wednesday, May 27, 2009, Planning Commission Meeting Agenda

ZCA-08-127	Our department would like the Planning Commission to support a language change to the Carson City Municipal Code, Title 18, Zoning Chapter, proposed Section 18.05.080, to allow all publicly zoned parcels the ability "by right" to use small wind turbine generators. This ability to install small wind turbines at sport complexes, park sites, and public buildings could assist in offsetting the annual and on-going cost of electricity to the City and our department's various user groups. Another application of cost savings would be with new construction in rural or natural areas of the City. This type of wind power generation could eliminate the cost to bring power lines into remote areas where minimal power needs are required for a project.
SUP-09-034	No comments.
MPA-09-035 ZMA-09-036 SUP-09-037	The Unified Pathways Master Plan (UPMP) identifies an off-street/paved/shared path directly north of the project site on airport property. As our department understands the site design, the applicant is proposing a taxi way connection from the high school to the airport. This connection needs to accommodate the City's future path. Our department is willing to discuss the related path design issues during the applicant's effort to develop project construction documents and the City's permit process. In addition, the UPMP identifies Goni Road and College Parkway as existing on-street bike lanes. Our department believes the high school should accommodate both pedestrian and bicycle access to the project site, including an evaluation of regional connectivity issues. As a result, our department would recommend to the Planning Commission that the applicant be required to work with the City's Engineering Department to construct concrete sidewalks along Goni Road and Old Hot Springs Road, provide pedestrian crosswalks at the Goni Road and Old Hot Springs Road intersections, and provide bicycle lanes on Old Hot Springs Road.
SUP-09-039	No comments.

late info
H-4

From: David Campbell <CampbellMediations@charter.net>
To: "Lee Plemel" <LPlemel@ci.carson-city.nv.us>
Date: 5/21/2009 10:42 PM
Subject: Re: Wind Turbine Ordinance

Lee:

Thanks for sending the draft.

I note that 50dB(A) is the proposed acceptable noise level whereas 50 dB had been. 50 dB(A) is louder than 50 dB because all the energy it measures is in the audible range. 50 dB, OTOH, may have a lot or most of its energy outside the audible range. 50 dB(A) is, then, an even more outrageous noise level than 50 dB. Again, would a loud conversation at your fence line, a short distance from your bedroom window, be acceptable?

Tracy Twist, in her 1/5/2009 submission to the Planning Commission, notes that her devices operate at 8 dB. She opined that 55 dB is "really loud" and pointed out that some horizontal axis "... designs incorporate measures to minimize noise, something that should be expected for... urban/suburban areas."

Ms. Twist sells the darn things, doesn't she? She is hardly someone to raise objections to their installation! Her devices work at 8 dB. Why would Carson City accept 50 dB, let alone and even louder 50 dB(A)? Please consider using a lower, much lower, standard for noise level.

On May 21, 2009, at 4:25 PM, Lee Plemel wrote:

- > To all interested parties:
- >
- > The Wind Turbine ordinance will be considered by the Planning
- > Commission at their meeting on Wednesday, May 27, in the Community
- > Center, Sierra Room. Attached is the staff report and latest draft
- > of the ordinance that will be discussed at the meeting. Note that
- > the meeting starts at 5:00 p.m., but this item is fourth on the
- > agenda and I would not anticipate it coming up before 6:00 p.m. You
- > can also monitor the meeting live on local Charter Cable channel 226.
- >
- > Please note that I am now the contact for all correspondence
- > relating to this ordinance. Heidi, who was previously the lead
- > planner on this issue, has been relocated to a position in the City
- > Manager's office. Due to this reduction in Planning Division staff
- > and other staff commitments, I have not had as much time as I would
- > have liked to meet with folks individually prior to this meeting.
- > However, I am available the morning of Wednesday, May 27, if anyone
- > would like to discuss any issues with me prior to the meeting.
- > Otherwise, we will be able to address any issues at the Planning
- > Commission meeting.
- >
- > Please forward any comments regarding the attached information to my
- > attention prior to 12:00 p.m., May 27, and they will be forwarded to
- > the Planning Commission. You may also contact me with any questions.
- >

> Sincerely,
>
> Lee Plemel, AICP, Planning Director
> Carson City Planning Division
> 2621 Northgate Lane, Suite 62
> Carson City, NV 89706
> (775) 887-2180 x30075
> Fax: 887-2278
> Planning Division website: <http://www.carson-city.nv.us/Index.aspx?page=174>
>
>
> <ZCA-08-127.packet.5.27.09.pdf><5-27-09 Agenda.pdf>

late info

H-4

From: <howardsfamilynv@juno.com>
To: <LPlemel@ci.carson-city.nv.us>
CC: <bonnieparnell@sbcglobal.net>, <dlazovich@gov.nv.gov>, <info@solargenera...>
Date: 5/25/2009 4:37 PM
Subject: Re: Wind Turbine Ordinance 22 May 09

Attn: Lee Plemel; (still call me on Tuesday when you get back)
 22 May 09 Wind Generators

You and your staff should be congratulated on the work you have done in order to bring the state capital into the 20th century. You have micro managed into areas that fall into the manufactures area or the personal resident of which you need not tread upon.

However, the following points need to be considered in further regulating wind generators of which these areas are further out of bounds.

1. Painting of a tower creates more problems for once you paint it, it will not bind to the metal like factory embedded paint and galvanized metal that should not be painted. Then you will have to paint it about every six months from then on and you have a safety issue of more people in risk of their lives climbing up and down the pole to paint it when it should not have been painted in the first place. This causes extreme stress on the tower being climbed up and down an excessive amount of times causing the paintee to increasing his chances of being palmed to the ground due to gravity. My malcontented obnoxious neighbor should volunteer to be the painter if he wants it painted so often against the manufactures recommendations. My dad's ranch had a wind mill for water for over 50 years and it never needed an ounce of paint ever and it stayed the same color forever. You could still read the manufactured markings on the tail even after it had been used for target practice. Also, no city in the US has to paint their street poles or lights with the rust proof metal that they make them out of now a days.

2. Site analysis is also another mute point of a delaying tactic to hinder and block wind turbines. There has been plenty of time given for stalling tactics. I had wanted to have my wind generator producing electricity the first of last summer. I have over 25 plus years and my cowboy buddy of 77 years knows that the wind will always be blowing in Nevada at one time or another.

Also, it should be up to the resident if he wants to pay for a site analysis or even to have one at all. This should be a waiveable issue at the discretion of the home owner for they will be gaining or not the free green energy that is available at their site. Since you want to

regulate for site analysis
will you be picking up the tab and cost? Also, will your son in law be doing the test? Another fox guarding the chicken coop. All they have to do is look up their area on NV Energy's wind site map on their web site and get their information as I know all regulators know how to do, if they also choose to do so.

3. Also, the 1.1 ratio is more that adequate for your set back conditions. Any more and you will drive out the small parcel owner from even having the ability to improve their homestead by denying them thru regulations restricting them from having a productive wind turbine. This then would again open up the door for future law suits and thereby your city lawyer and you loosing your place of residence. So save up now and place your assets into your spouses name just like all the other ponzy skeemers. Madeoff is finding out he can't make off with the loot.

4. Yes your city lawyer, Neil Rombardo, will be loosing the class action law suit for he is misinterpreting the case law and he is having you break state and federal laws by your tactics of which the Attorney General agrees with me. I have been very patient with the delaying tactics up till now.

Hopefully you will see the light for green energy for I know the chicken killer is blind.

Respectfully submitted;
Timothy P. Howard,883-6144,AA,BS,MS,Army MI(Retired)

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late info

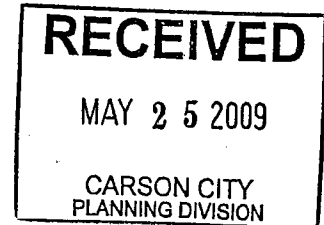
H-4



The Solar Store

Solar Hot Water - Radiant Heating - Wind Power
Solar Electricity - Renewable Energy Devices

Web site: Rainbowsolar.com Email: solarsuitcase@sbcglobal.net Telephone: 775 841 9225



Mr Lee Plemel, AICP
Planning Director
2621 Northgate Lane, Suite 62
Carson City, Nevada 89701

Sent by email to lplemel@ci.carson-city.nv.us

Dear Mr. Plemel,

We just reviewed the proposed ordinance for the agenda on Wednesdays' meeting. We commend you on recommending, for the most part, the road that most people interested in wind turbines would take and believe this is a very workable ordinance.

As mentioned in prior meetings, your recommendations of

- a) Minimum lot size (one acre), one WECS per acre of land
- b) The setback of 1.1 foot for each 1 foot of height
- c) No special use permit be needed

--For the WECS-- meeting these guidelines seem very reasonable.

d) As far as the height maximum, that is affected by the surrounding landscape or structures, listing the height specifically may be an issue. Perhaps the middle ground of 75 feet maximum may be appropriate for a one acre parcel. Ham Radio towers are NOT limited by height by the FCC so why should wind turbines, particularly if on a larger parcel. A client of ours in Washoe County needs a large turbine, has 100 foot trees all over his 5 acre parcel. He will have to put up a tower 120 feet in order to get sufficient wind for his machine. Some manufacturers recommend a clearance of 500 feet needed from the base of the wind turbine outward in a radius of 250 feet for maximum efficiency of the machine...

e) As far as color and painting requirements—as long as these requirements don't unreasonably restrict the homeowner in terms of cost, certainly a wind turbine is no more objectionable than a telephone pole that is ugly brown and black with numerous appendages hanging from it? Will all telephone poles in Carson City now be painted tan? Are they all anchored in cement as are wind turbines?

f) In a residential area, certainly 10KW would be sufficient; but we would make the designation of residential versus commercial or a school/public building might need a 20KW system, so definitely keep the definition to include "residential".

g) In section 10, a suggestion was made to require a wind analysis to be conducted—by whom would it be conducted? Must they have certain credentials? Is the city going to have someone take over this function in addition to all its other already overburdened employees' jobs?

Is the commission going to require for EVERY large home owner purchase an analysis or should "caveat emptor" apply? Again, is the city going to absorb additional costs for this? Doesn't this again put the burden back on the homeowner and unreasonable restrict him by incurring more expense?

As mentioned before, keeping the ordinance less specific is probably the "safer" route to take. We appreciate the city's careful consideration of all its citizens' opinions and look forward to getting this ordinance in place so the various homeowners affected can move forward with their plans this season.

Sincerely,

Leslie, Dennis & James Medeiros

Leslie, Dennis and James Medeiros
Rainbow Conservation Corporation
Dab the Solar Store