



Document 2010 1177

Book 2010 Page 1177 Type 06 024 Pages 6

Date 5/27/2010 Time 11:23 AM

Rec Amt \$34.00

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LISA SMITH, COUNTY RECORDER
MADISON COUNTY IOWA

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When Recorded, Return to: City Clerk, City of West Des Moines, PO Box 65320, West Des Moines, IA 50265-0320

ORDINANCE NO. 1866

AN ORDINANCE AMENDING THE CITY CODE OF THE CITY OF WEST DES MOINES, IOWA 2009 BY AMENDING TITLE 9, ZONING, CHAPTER 14, ACCESSORY STRUCTURES, SECTION 13, WIND ENERGY CONVERSION SYSTEMS

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF WEST DES MOINES, IOWA:

Section 1. Amendment. Title 9, *Zoning*, Chapter 14, *Accessory Structures*, Section 13, *Wind Energy Conversion Systems* is hereby amended by deleting the strikethrough language and inserting the language in bold below.

9-14-13: SMALL WIND ENERGY CONVERSION SYSTEMS

A. INTENT

The intent of this ordinance is to balance the need for clean, renewable energy resources and the necessity to protect the public health, safety and welfare of the community. The City finds these regulations are necessary to ensure that Small Wind Energy Conversion Systems are appropriately designed, sited and installed.

B. DEFINITIONS

HEIGHT, TOTAL SYSTEM: The height above grade of the system, including the generating unit and the highest vertical extension of any blades or rotors.

HEIGHT, TOWER: The height above grade of the fixed portion of the tower, excluding the generation unit and attached blades or rotors.

OFF GRID: An electrical system that is not connected to a utility distribution grid.

~~**QUALIFIED PROFESSIONAL:** An individual certified by the manufacturer of a WECS as qualified to install that manufacturer's WECS.~~

CITY OF WEST DES MOINES, IOWA
CERTIFIED COPY
May 25 2010
Jan E. Stewart
Deputy CITY CLERK

~~SMALL WIND ENERGY CONVERSION SYSTEM (SWECS): A wind energy conversion system which has a rated capacity of up to one hundred (100) kilowatts and which is incidental and subordinate to a permitted use on the same parcel. A system is considered a SWECS only if it supplies electrical power solely for on site use, except that when a parcel on which the system is installed also receives electrical power supplied by a utility company, excess electrical power generated and not presently needed for on site use may be used by the utility company in accordance with section 199, chapter 15.11(5) of the Iowa administrative code.~~

SHADOW FLICKER: Changing light intensity caused by sunlight through the moving blades of a wind energy conversion system.

SMALL WIND ENERGY CONVERSION SYSTEM (SWECS): A wind energy conversion system which has a nameplate rated capacity of up to fifteen (15) kilowatts for residential uses and districts and which is incidental and subordinate to a principal use on the same parcel. A system is considered a SWECS only if it supplies electrical power solely for use by the owner on the site, except that when a parcel on which the system is installed also receives electrical power supplied by a utility company, excess electrical power generated and not presently needed by the owner for on site use may be used by the utility company in accordance with section 199, chapter 15.11(5) of the Iowa administrative code, as amended from time to time.

SMALL WIND ENERGY CONVERSION SYSTEM, BUILDING MOUNTED: A SWECS which is securely fastened to any portion of a principal building in order to achieve desired elevation, whether attached directly to the principal building or attached to a tower structure which is in turn fastened to the principal building.

SMALL WIND ENERGY CONVERSION SYSTEM, FREE STANDING: A SWECS which is elevated by means of a monopole tower only and is not located on another supporting structure except that the tower shall have an appropriately constructed concrete base. Guyed, lattice, or other non-monopole style towers shall not meet this definition.

SMALL WIND ENERGY CONVERSION SYSTEM, HORIZONTAL AXIS: A small wind energy conversion system that has blades which rotate through a horizontal plane.

SMALL WIND ENERGY CONVERSION SYSTEM, VERTICAL AXIS: A small wind energy conversion system that has blades which rotate through a vertical plane.

TOWER: The vertical component of a wind energy conversion system that elevates the wind turbine generator and attached blades above the ground.

WIND ENERGY CONVERSION SYSTEM (WECS): An aggregation of parts including the base, tower, generator, rotor, blades, supports, guy wires and accessory equipment such as utility interconnect and battery banks, etc., in such configuration as necessary to convert the power of wind into mechanical or electrical energy, e.g., wind charger, windmill or wind turbine.

WIND TURBINE GENERATOR: The component of a wind energy conversion system that transforms mechanical energy from the wind into electrical energy.

C. GENERAL REGULATIONS:

1. Conditional Use: A Small Wind Energy Conversion System (SWECS) shall be allowed only as a conditional accessory use to a permitted principal use or approved permitted conditional principal use.
2. Permit Required:

- a. It shall be unlawful to construct, erect, install, alter or locate any SWECS within the City of West Des Moines, unless a permitted conditional use permit has been obtained from the Board of Adjustment. The permitted conditional use permit may be revoked by resolution of the Board of Adjustment any time the approved system does not comply with the rules set forth in this chapter and the conditions imposed by the Board of Adjustment. The owner/operator of the SWECS must also obtain any other permits required by other federal, state and local agencies/departments prior to erecting the system.
3. **Tower: Only monopole towers shall be permitted for freestanding SWECS. Lattice, guyed or towers of any other type shall not be considered to be in compliance with this Section.**
4. ~~Installation: Installation must be done by a qualified professional and according to manufacturer's recommendations.~~ **Installation: Installation must be done according to manufacturer's recommendations. All wiring and electrical work must be completed according to the applicable building and electric codes. All electrical components must meet code recognized test standards.**
5. **Number Of Systems Per Zoning Lot: No more than one SWECS may be placed on any Residential Estate or Single Family Residential zoned lot. Building mounted SWECS shall be prohibited on any parcel or lot containing a one (1) or two (2) family use.**
6. **Engineer Certification: Applications for any SWECS shall be accompanied by standard drawings of the wind turbine structure, including the tower, base, and footings. An engineering analysis of the tower showing compliance with the applicable regulations and certified by an Iowa licensed professional engineer shall also be submitted.**
7. **Location:**
 - a. No part of a SWECS shall be located within or over drainage, utility or other established easements, or on or over property lines.
 - b. A SWECS shall be located entirely in the rear yard.
 - c. A SWECS shall not be located in any required setback.
 - d. A SWECS shall be located in compliance with the guidelines of applicable Federal Aviation Administration (FAA) regulations as amended from time to time.
 - e. No SWECS shall be constructed within 20 feet laterally of an overhead electrical power line (excluding secondary electrical service lines or service drops). The setback from underground electric distribution lines shall be at least five feet.
 - f. No part of a SWECS, including guy wires, may be located closer than 10 feet to any property line.
8. **Color: The SWECS shall be a neutral color such as white or light gray. Other colors may be allowed at the discretion of the Board of Adjustment. The surface shall be non-reflective.**
9. **Shadow Flicker: No SWECS shall be installed and operated so to cause a shadow flicker to fall on or in any existing residential structure.**
10. **Lighting: No lights shall be installed on the tower, unless required to meet FAA regulations.**
11. **Signage: No signage or advertising of any kind shall be permitted on the tower or any associated structures.**

12. Climbing Apparatus: All climbing apparatus shall be located at least ~~twelve feet (12')~~ **ten feet (10')** above the ground, and the tower must be designed to prevent climbing within the first ~~twelve feet (12')~~ **ten feet (10')**.
13. Maintenance: Facilities shall be well maintained in an operational condition that poses no potential safety hazard.
14. Displacement Of Parking Prohibited: The location of the SWECS shall not result in the net loss of required parking as specified in Chapter 15 of this title.
15. Utility Notification: No SWECS shall be installed until evidence has been given that the utility company has been informed of the customer's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.
16. Interconnection: The SWECS, if interconnected to a utility system, shall meet the requirements for interconnection and operation as set forth by the utility and the Iowa utilities board.
17. Restriction On Use Of Electricity Generated: A SWECS shall be used exclusively to supply electrical power for on site consumption, except that excess electrical power generated by the SWECS and not presently needed for on site use may be used by the utility company in accordance with Section 199, Chapter 15.11(5) of the Iowa Administrative Code.
18. Noise: Except during short term events including utility outages and severe wind events, a SWECS shall be designed, installed and operated so that the noise generated does not exceed the maximum noise levels established in Title 4, Chapter 7 of this code.
19. **Safety Controls: Each SWECS shall be equipped with both an automatic and manual braking, governing, or feathering system to prevent uncontrolled rotation, over-speeding, and excessive pressure on the tower structure, rotor blades, or turbine components. Said automatic braking system shall also be capable of stopping turbine rotation in the event of a power outage so as to prevent back feeding of the grid.**
20. **Shut Off: A clearly marked and easily accessible shut off for the wind turbine will be required as determined by the Fire Marshal.**
21. Electromagnetic Interference: All SWECS shall be designed and constructed so as not to cause radio and television interference. If it is determined that the SWECS is causing electromagnetic interference, the operator shall take the necessary corrective action to eliminate this interference including relocation or removal of the facilities, subject to the approval of the appropriate City authority. A permit granting a SWECS may be revoked if electromagnetic interference from the SWECS becomes evident.
22. Wind Access Easements: The enactment of this chapter does not constitute the granting of an easement by the city. The owner/operator shall acquire covenants, easements, or similar documentation to assure sufficient wind to operate the SWECS unless adequate accessibility to the wind is provided by the site.
23. Insurance: The owner/operator of a SWECS must demonstrate liability insurance of not less than \$1,000,000 coverage.
24. Compliance with National Electric Code: Applications for SWECS shall be accompanied by a line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code.

25. **Removal:** If the SWECS remains nonfunctional or inoperative for a continuous period of one year, the system shall be deemed to be abandoned. The owner/operator shall remove the abandoned system at their expense. Removal of the system includes the entire structure, transmission equipment and fencing from the property excluding foundations. Non-function or lack of operation may be proven by reports from the interconnected utility. For off-grid systems the City shall have the right to enter the property at its sole discretion to determine if the off-grid system is generating power. Such generation may be proven by use of an amp meter. The owner/operator and successors shall make available to the Director of Development Services or their designee all reports to and from the purchaser of energy from the SWECS if requested. If removal of towers and appurtenant facilities is required, the Director of Development Services or designee shall notify the owner/operator.
26. ~~Right Of Entrance: By the acceptance of a conditional use permit or building permit to authorize construction of a SWECS, the owner/operator grants permission to the City of West Des Moines to enter the property to remove the SWECS pursuant to the terms of approval and to assure compliance with the other conditions set forth in the permit. Removal shall be at the expense of the owner/operator.~~ **Right Of Entrance:** As a condition of approval of a Permitted Conditional Use permit an applicant seeking to install SWECS shall be required to sign a petition and waiver agreement which shall be recorded and run with the land granting permission to the City of West Des Moines to enter the property to remove the SWECS pursuant to the terms of approval and to assure compliance with the other conditions set forth in the permit. Removal shall be at the expense of the owner/operator and the cost may be assessed against the property.

D. BULK REGULATIONS

1. **Setbacks:** The minimum distance between any SWECS and any property line shall be a distance that is equivalent to ~~one hundred ten~~ **one hundred fifty percent (150%)** of the total system height. **The setback shall be measured from the property line to the point of the SWECS closest to the property line.**
2. **Minimum Lot Size:** The minimum lot size for a SWECS shall be one (1) acre.
3. ~~**Maximum Tower Height:** Tower height shall be measured from the ground to the top of the tower, excluding the wind turbine generator and blades. In no case shall the maximum tower height of a SWECS exceed 100 feet (100').~~ **Maximum Height:** Height shall be measured from the ground to the top of the tower, including the wind turbine generator and blades. Manmade earth berms, terraces, and retaining walls that elevate the wind turbine shall be considered a part of the turbine.
 - a. **For lots of more than one (1) and fewer than three (3) acres, the maximum height shall be 65 feet.**
 - b. **For lots of three (3) to seven (7) acres, the maximum height shall be 80 feet.**
 - c. **For lots of more than seven (7) acres the maximum height shall be 100 feet.**
4. **Maximum Blade Diameter:** The maximum diameter of the blades for a SWECS shall be 20 feet.
5. ~~**Clearance Of Blade:** No portion of a SWECS blade shall extend within twenty feet (20') of the ground. No blades may extend over parking areas, driveways or sidewalks. No blade may extend within 20 feet of the nearest tree or structure.~~ **Clearance Of Blade:** No portion of a horizontal axis SWECS blade shall extend within 30 feet of the ground. No portion of a vertical axis SWECS shall extend within 10 feet of the ground. No

blades may extend over parking areas, driveways or sidewalks. No blade may extend within 20 feet of the nearest tree, structure or above ground utility facilities.

E. APPLICATION REQUIRED

1. Application for SWECS shall be made on forms provided by the City of West Des Moines. No action may be taken regarding requests for SWECS until completed applications have been filed and fees paid.

Section 2. Repealer. All ordinances or parts of ordinances in conflict with the provision of this ordinance are hereby repealed.

Section 3. Savings Clause. If any section, provision, sentences, clause, phrase or part of this Ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any provision, section, subsection, sentences, clause, phrase or part hereof not adjudged invalid or unconstitutional.

Section 4. Violations and Penalties. Any person who violates the provisions of this Ordinance upon conviction shall be punished as set forth in Section 1-4-1 of the City Code of the City of West Des Moines, Iowa.


Section 5. Other Remedies. In addition to the provisions set out in the Violations and Penalties Section herein, the City may proceed in law or equity against any person, firm or corporation for violation of any section or subsection of this Ordinance.

Section 6. Effective Date. This Ordinance shall be in full force and effect from and after its passage, approval and publication as provided by law.



Steven K. Gaer
Mayor

ATTEST:



Jody E. Smith, CMFA, MMC
City Clerk