

49

Date June 28, 2010

WHEREAS, on June 14, 2010, by Roll Call No. 10-908, it was duly resolved by the City Council that the proposal to amend the Zoning Ordinance, to allow consideration of Wind Energy Conversion Systems (WECS) as a conditional use by the Board of Adjustment as more fully described in Exhibit "A" attached hereto, be set down for hearing on June 28, 2010, at 5:00 p.m., in the Council Chambers at City Hall; and

WHEREAS, due notice of the hearing was published in the Des Moines Register as provided by law on June 28, 2010; and

WHEREAS, in accordance with the notice, those interested in the proposed amendments, both for and against, have been given opportunity to be heard with respect thereto and have presented their views to the City Council; NOW, THEREFORE,

BE IT RESOLVED, by the City Council of the City of Des Moines, Iowa:

That upon consideration of the facts, statements of interested persons and arguments of counsel, the objections to said proposed amendments to the Zoning Ordinance be and the same are hereby overruled, and the hearing closed.

MOVED by _____ to adopt and approve, subject to final passage of the enacting ordinance.

(Council Communication No. 10. 389)

FORM APPROVED:

Roger K Brown

Roger K. Brown

Assistant City Attorney

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COUNCIL ACTION	YEAS	NAYS	PASS	ABSENT
COWNIE				
COLEMAN				
GRIESS				
HENSLEY				
MAHAFFEY				
MEYER				
MOORE				
TOTAL				
MOTION CARRIED	APPROVED			

CERTIFICATE

I, DIANE RAUH, City Clerk of said City hereby certify that at a meeting of the City Council of said City of Des Moines, held on the above date, among other proceedings the above was adopted.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year first above written.

Mayor

City Clerk

June 11, 2010

Date _____
Agenda Item 30 49
Roll Call # _____

Honorable Mayor and City Council
City of Des Moines, Iowa

Members:

Communication from the City Plan and Zoning Commission advising that at their meeting held May 20, 2010, the following action was taken:

COMMISSION RECOMMENDATION:

After public hearing, the members voted 13-0 as follows:



CITY PLAN AND ZONING COMMISSION
ARMORY BUILDING
602 ROBERT D. RAY DRIVE
DES MOINES, IOWA 50309-1881
(515) 283-4182

ALL-AMERICA CITY
1949, 1976, 1981
2003

Commission Action:	Yes	Nays	Pass	Absent
Leisha Barcus	X			
JoAnne Corigliano	X			
Shirley Daniels	X			
Jacqueline Easley	X			
Dann Flaherty	X			
Joel Huston	X			
Ted Irvine				X
Jeffrey Johannsen	X			
Greg Jones	X			
Jim Martin	X			
Brian Millard	X			
William Page	X			
Mike Simonson	X			
Kent Sovern	X			

APPROVAL to amend the Zoning Ordinance Text Chapter 134 of the City Code to make revisions allowing consideration of Wind Energy Conversion Systems (WECS) as a Conditional Use by the Zoning Board of Adjustment.
(10-2010-5.02)

STAFF RECOMMENDATION TO THE P&Z COMMISSION

Staff recommends approval of the proposed amendments to the Zoning Ordinance regarding Small Wind Energy Conversion Systems.

STAFF REPORT

I. GENERAL INFORMATION

The Metro Advisory Council was formed in 2001. The MAC is comprised of two Supervisors from the following counties and the Mayor and a Council member from each from the following cities: Dallas County, Polk County,

Warren County, Altoona, Ankeny, Bondurant, Carlisle, Clive, DeSoto, Des Moines, Grimes, Indianola, Johnston, Mitchellville, Norwalk, Pleasant Hill, Polk City, Waukee, West Des Moines and Windsor Heights.

On August 11 and September 8, 2009 the MAC formed a Wind Energy Systems Technical Committee to receive input and information from MAC entities and to consider and make a recommendation regarding an ordinance that would provide some consistency and fairness in wind energy conversion system rules and regulations metro-wide.

Representatives of the City of Des Moines Community Development Department and Legal Department were asked to join staff from other metro jurisdictions on the Technical Committee.

The Technical Committee researched and presented a final draft of a Small Wind Energy Conversion Systems Model Ordinance to the MAC on January 12, 2010. The MAC forwarded the draft ordinance to each jurisdiction for consideration.

The Regulation and Ordinance subcommittee of the P&Z reviewed the MAC Model Ordinance on February 24, 2010.

A presentation regarding the Small Wind Energy Conversion Systems Model Ordinance was made at the Des Moines City Council Workshop on April 12, 2010. The Council directed staff to prepare the ordinance for review and recommendation by the Plan and Zoning Commission and consideration by the Council at its earliest convenience.

Per Exhibit "A" (see attached), Small Wind Energy Conversion Systems have a nameplate rated capacity of up to fifteen (15) kilowatts for residential uses and districts and up to one hundred (100) kilowatts for commercial and industrial districts where the system is incidental or subordinate to a principal use on the same site.

Small Wind Energy Conversion Systems would be subject to issuance of a Conditional Use Permit by the Zoning Board of Adjustment. The Board of Adjustment would review all applications for compliance with Section 134-1280 (new).

Under Section 134-1280[C], the Zoning Board of Adjustment shall consider color, maintenance, safety, noise, shadow flicker, electromagnetic interference, existing easements, accessory use and feasibility when considering all proposed systems.

In addition, Section 134-1280[D] provides general regulations for the following:

- Maximum number of systems per lot
- Requirement of monopole installation for freestanding systems
- Prohibition of lighting unless required by FAA regulations
- Prohibition of signage
- Requirement for climbing prevention features
- Prohibition on the reduction of required parking
- Requirement for utility notification
- Compliance with interconnection and operation requirements set by the Iowa Utilities Board
- Provision of safety controls (i.e. automatic and manual braking, governing or feathering system)

- Provision of a shut off
- Requirement of engineering certification by an Iowa licensed professional engineer; and
- Requirement for installation according to manufacturer's specifications and compliance with applicable building and electric codes.

Finally, Section 134-1280[E] provides bulk regulations for Small Wind Energy Conversion Systems including minimum setback, maximum height, minimum lot size, clearance of blade, location, responsibility of the owner/operator to obtain any covenants, easements or similar documentation to assure or protect access to sufficient wind, and requirements for removal of inoperative SWECS.

II. ADDITIONAL INFORMATION

The proposed Small Wind Energy Conversion Systems Ordinance for the City of Des Moines Ordinance includes the following revisions to the model ordinance that was recommended by the MAC:

- Sections 134-1280 [C][3] and [10] prohibit the use of a SWECS for advertising purposes. This modification was made in response to an example cited by another metro jurisdiction where a row of red, white and blue windmills were proposed to attract attention for advertising purposes.
- Sections 134-1280[C][5] and [E][1][b] were modified to address the problem created by the requirement for some building mounted SWECS to overhang the exterior walls of the building. In the downtown area that will place the system within the airspace over the right-of-way. Staff believes the Des Moines City Council will want to accommodate such systems, provided the building has an awning or other means to protect the pedestrians on the sidewalks below from any falling ice.
- Section 134-1280[C][7] was modified to limit the prohibition against Shadow Flicker. At sunrise and sunset, any tall structure will cast an extremely long shadow. There are very few sites in any urban area where the shadow of a tall structure will never fall upon a residential building. The prohibition has been converted to a guideline by making it a "should" for consideration by the Board of Adjustment. The scope has also been narrowed to only consider Shadow Flicker cast on the windows on existing dwellings.
- Section 134-1280[C][6] was modified to reference the City's Noise Control Ordinance; and
- A requirement the owner/operator to provide liability insurance was eliminated. The City does not require insurance for any other structures or uses under the zoning ordinance, including uses far more dangerous than a SWECS. (racetracks, rodeos, etc.) The City does not have the resources to monitor and administer such a requirement.
- A provision authorizing the City to remove abandoned wind turbines was replaced with standard language regarding abatement of nuisances.

Existing Section 134-64[4][a] of the City Code authorizes the Board of Adjustment to permit Exceptions to any setback, area, length, width, height, yard, size or projection limitation provided that the relief that does not exceed 50% of a particular limitation. Staff will advise that a conservative approach be taken with any request for exceptions to such provisions in the Small Wind Energy Conversion Systems Ordinance.

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Should the City of Des Moines wish to consider a "wind farm" application within the City limits, staff recommends that such application be subject to the provisions of the PUD Planned Unit Development District contained in Chapter 134, Division 13 of the City Code.

SUMMARY OF DISCUSSION

Mike Ludwig gave a brief summary and pointed out should the City of Des Moines wish to consider a "wind farm" application within the City limits; that such application should be subject to the provisions of the PUD Planned Unit Development District contained in Chapter 134, Division 13 of the City Code.

Brian Millard stated that he is happy with everything he saw and read. The biggest thing is going to be enforcement.

Mike Ludwig passed around the list of wind turbine manufacturers that were sent meeting notification for tonight's meeting.

CHAIRPERSON OPENED THE PUBLIC HEARING

There was no one to speak in opposition of the application

CHAIRPERSON CLOSED THE PUBLIC HEARING

COMMISSION ACTION

Mike Simonson moved staff recommendation to approve the proposed amendments to the Zoning Ordinance regarding Small Wind Energy Conversion Systems.

Motion passed 13-0.

Respectfully submitted,



Michael Ludwig, AICP
Planning Administrator

MGL:clw

cc: File

Exhibit "A"

Proposed amendments to the Zoning Ordinance regarding the use of Small Wind Energy Conversion Systems.

Sec. 134-64. Powers and duties.

(amend)

The board of adjustment shall have the power and duty to:

.....

(6) Hear and decide applications for conditional uses in accordance with the district regulations in article III of this chapter and for small wind energy conversion systems in accordance with section 134-1280.

.....

Sec. 134-1280. Small wind energy conversion systems.

(new)

- A. *Intent.* The intent of this section 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 council finds these regulations are necessary to ensure that small wind energy conversion systems are appropriately designed, sited and installed.
- B. *Definitions.* The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them below, except where the context clearly indicates a different meaning:

Off grid: An electrical system that is not connected to utility distribution and transmission facilities or to any building or structure that is connected.

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 up to one hundred (100) kilowatts for commercial, and industrial districts and which is incidental and subordinate to a principal use on the same parcel. A system is considered a SWECS only if its primary purpose is to supply 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, 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, building mounted: A SWECS which is 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, 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 foundation, 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. *Conditional Approval.* No small wind energy conversion systems shall be constructed or placed within the city without the approval of the board of adjustment as a conditional use after public hearing. Any conditional use approval granted by the board of adjustment for a SWECS shall be subject to reconsideration by the board if at any time the zoning enforcement officer determines that the operation of the system has become detrimental to the neighborhood. In its determination, the board of adjustment shall consider all the following:

1. *Qualification.* The facility shall qualify as a SWECS.
2. *Zoning and regulations.* The SWECS shall conform with the regulations and requirements imposed by this section. The owner/operator of the SWECS must also obtain any other permits required by other federal, state and local agencies/departments prior to constructing the system.
3. *Color.* A freestanding SWECS should be a neutral color such as white, sky blue or light gray. A building mounted SWECS shall match the color of the building on which it is mounted. Other colors may be allowed at the discretion of the Board if shown to be compatible with the buildings and features at the site. The surface shall be non-reflective.
4. *Maintenance.* The SWECS shall be well maintained in accordance with manufacturer's specifications and shall remain in an operational condition that poses no potential safety hazard nor is in violation of any provisions contained within this section or elsewhere within the city code.
5. *Safety.* The SWECS shall not present any danger from falling ice to the general

- public or to anyone on adjoining properties and rights-of-way.
6. *Noise.* The SWECS shall be designed, installed and operated so that the noise generated does not cause a noise disturbance as defined in the Noise Control Ordinance of the City of Des Moines, article IV of chapter 42 of this code, upon any nearby property devoted primarily to residential use.
 7. *Shadow flicker.* No SWECS should be installed and operated so as to cause the shadows of the moving blades to fall on the windows of any existing residential structure without the owner's written consent.
 8. *Electromagnetic interference.* The SWECS shall be designed and constructed so as not to cause radio and television interference. If it is determined that a SWECS is causing electromagnetic interference, the owner/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.
 9. *Existing easements.* No part of a SWECS should be located within or over drainage, utility or other established easements so as to materially interfere with the purpose and use of that easement.
 10. *Accessory Use.* The purpose of a SWECS must be to generate electricity for on-site consumption. The placement of a SWECS at site that does not receive sufficient winds to regularly operate the system shall create a rebuttable presumption that the primary purpose of the SWECS is for advertising or other prohibited purposes, and not for the generation of electricity for on-site consumption.
 11. *Feasibility study.* It is highly recommended that a feasibility study be made of any site prior to installing a wind turbine. The feasibility study should include measuring actual wind speeds at the proposed turbine site for at least 3 months.

D. *General regulations.* A SWECS shall conform to the following general regulations:

1. *Zoning and other regulations.* A SWECS may be allowed in all zoning districts subject to the provisions contained in this section and elsewhere within the city code.
2. *Number of systems per lot.*
 - (a) *Residential.* No more than one (1) freestanding SWECS may be placed on any lot devoted to single or two-family use. A building mounted SWECS is prohibited on a lot devoted to single or two-family use.
 - (b) *Other:* No more than one freestanding SWECS may be placed any lot, that is taller than the tallest existing principal building located on said lot. Additional freestanding SWECSs which conform to setback requirements contained herein and which are no taller than the tallest existing principal building located on said lot may be allowed. Additional building mounted SWECSs may be allowed for uses other than single and two-family use, within the parameters established below. However, in no case shall the generating capacity of all SWECSs on any lot exceed the anticipated needs for on-site consumption.
3. *Tower.* Only monopole towers shall be permitted for freestanding SWECSs. Lattice, guyed or towers of any other type are not permitted.
4. *Lighting:* No lights shall be installed on a SWECS, unless required to meet FAA regulations.

5. *Signage.* No signage or advertising of any kind shall be permitted on a SWECS or any associated structures.
6. *Climbing apparatus.* The tower must be designed to prevent climbing within the first ten feet (10').
7. *No displacement of parking.* The location of a SWECS shall not result in the net loss of required parking as specified elsewhere in this chapter.
8. *Utility notification.* The community development department shall notify the electric utility of receipt of an application to install an interconnected SWECS. An off-grid SWECS shall be exempt from this notification requirement.
9. *Utility regulation.* The SWECS, if not off-grid, shall meet the requirements for interconnection and operation as set by the utility and the Iowa utilities board. No permit of any kind shall be issued until the city has been provided with a copy of an executed interconnection agreement. Off-grid systems shall be exempt from this requirement.
10. *Safety controls.* Each SWECS shall be equipped with both an automatic and manual braking, governing, or feathering system to prevent uncontrolled rotation, overspeeding, and excessive pressure on the tower structure, rotor blades, or wind 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.
11. *Shut off.* A clearly marked and easily accessible shut off for the wind turbine will be required as determined by the building official.
12. *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 all components of the SWECS showing compliance with the applicable regulations and certified by an Iowa licensed professional engineer shall also be submitted.
13. *Installation.* Installation of any SWECS 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.

E. *Bulk regulations.*

1. *Setbacks.*
 - a) The minimum distance between any freestanding SWECS and any property line shall be a distance that is equivalent to one hundred fifty percent (150%) of the height above grade of the system, including the generating unit and the highest vertical extension of any blades or rotors. The setback shall be measured from the property line to the point of the SWECS closest to the property line.
 - b) The required setback for any building mounted SWECS shall be equal to the required setback of the principal building to which the SWECS is to be attached at such time that the application to install a building mounted SWECS is received by the city. A SWECS may extend over the public right-of-way only if the affected airspace is vacated by the city and the city has granted an easement or lease for such use of the airspace.

2. *Maximum height.* Height shall be measured from the ground to the top of the tower, including the wind turbine generator and blades.
 - 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.
 - d) A building mounted SWECS may be a maximum of 10 feet higher than the point of attachment to the building on which it is attached.

3. *Minimum lot size.*
 - a) The minimum lot size for a freestanding SWECS shall be one (1) acre.
 - b) The minimum lot size for a building mounted SWECS shall be one (1) acre for a building mounted SWECS to be mounted on a building of less than five (5) stories in height.
 - c) There shall be no minimum lot size for a building mounted SWECS to be mounted on a building of five (5) or more stories in height.

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

5. *Location.*
 - a) A freestanding SWECS shall be located entirely outside the required front yard.
 - b) A SWECS shall be located in compliance with the guidelines of applicable Federal Aviation Administration (FAA) regulations as amended from time to time.
 - c) No SWECS shall be constructed so that any part thereof can extend 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 (5) feet.
 - d) A building mounted SWECS is prohibited unless the owner has obtained a written analysis from an Iowa licensed structural engineer determining that installation of the SWECS will not cause damage to the structure and that the SWECS will be securely fastened so as to not pose a safety hazard caused by it detaching from the structure.

- F. *Wind access easements.* The enactment of this section does not constitute the granting of an easement by the city. The SWECS owner/operator shall have the sole responsibility to acquire any covenants, easements, or similar documentation to assure and/or protect access to sufficient wind as may or may not be necessary to operate the SWECS.

- G. *Removal of inoperative SWECS.* If a SWECS remains nonfunctional or inoperative for a continuous period of six (6) months, the system shall be deemed to be abandoned and shall constitute a public nuisance. The property owner 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 upon reasonable notice to determine if the off-grid system is generating power. Such generation may be proven by use of an amp meter. The property owner or tenant in possession of the property shall make available to the community development director or the director's designee all reports to and from the electric utility regarding the SWECS. If removal of towers and appurtenant facilities is ordered by the community development director or the director's designee under authority of this subsection, such order shall be provided in writing to the property owner and any tenant in possession of the property. Removal shall be completed within six (6) months after such notice is given, or in the event of an appeal of such order, within six months after such order has been upheld on appeal.

Material Deletions from MAC Small Wind Energy Conversion Systems Model Ordinance:

- Deleted insurance requirements. No other use is required to maintain insurance under the Zoning Ordinance.
- Deleted the provision purporting to give the City a right to enter upon the property and remove an inoperable SWECS at the owner's expense. Such a provision creates an expectation that the City will remove unused and unsightly SWECS. The amended text declares an unused SWECS to be a nuisance, with the intent of allowing the City use its existing procedures to abate such a nuisance.