

**CITY OF WEST DES MOINES
PLAN AND ZONING COMMISSION COMMUNICATION**

Meeting Date: March 28, 2016

Item: Ordinance Amendment - Amend Title 4 (Health and Safety Regulations) and Title 9 (Zoning) to establish regulations pertaining to solar energy systems - City Initiated – AO-002916-2015 (**Continued from March 14, 2016**)

Requested Action: Approval of an amendment to the City Code

Case Advisor: Linda Schemmel, AIA 

Applicant's Request: Staff requests an amendment to City Code, Title 4, Nuisances and Title 9, Zoning, to establish regulations pertaining to solar energy systems.

Previous Plan and Zoning Commission Action:

Vote: 5-0 approval, Commissioner Brown and Southworth absent

Date: February 29, 2016

Motion: Defer item to the March 14, 2016, Plan & Zoning Commission meeting

Vote: 5-0 approval, Commissioner Brown and Andersen absent

Date: March 14, 2016

Motion: Defer item to the March 28, 2016, Plan & Zoning Commission meeting

During the February 29, 2016 public hearing for this item, several people provided comment on the proposed regulations for solar energy, all stating in some form that the proposed ordinance is too restrictive. With the volume of public comment received at the meeting and the intricacy of the proposed amendment, members of the Plan & Zoning Commission indicated that they would need additional time to fully consider the ordinance and the public comment. The Commission deferred action on the proposed ordinance to the Commission's March 14, 2016, meeting. To assist in the consideration of the ordinance, staff offered to provide the Commission a summary of the concerns expressed at the meeting (See Attachment D for summary provided to the Commission on March 7, 2016).

At the March 14, 2016 meeting, The Commission did accept additional comment from the public on this item even though the public hearing had been closed at the previous meeting. In general the public was supportive of the proposed modifications noted in Attachment D. Staff was then able to step through the proposed modifications with the Commission and discussed their level of support for each modification. The Commission then requested Staff incorporate the modifications as discussed and then bring forward a revised ordinance for consideration at the March 28, 2016 Commission meeting.

City Council Subcommittee: This item was presented to the Development & Planning City Council Subcommittee on the following meeting dates: November 5 and November 19, 2015, January 11, 2016, and February 22, 2016. The discussion in the two November 2015 meetings were responding to specific applications for solar energy systems (currently not allowed as City code does not address these systems). The result of these discussions was direction to Staff to initiate an ordinance amendment to establish regulations for these systems. Discussions at the meeting on January 11, 2016, included review of the draft ordinance which resulted in the Subcommittee recommending that the ordinance be part of a Council Workshop for further discussion and review. The Council workshop was held on February 8th. The follow up on the February 8, 2016 Council workshop was discussed at the February 22, 2016, subcommittee meeting.

Staff Review and Comment: There are no outstanding issues. Staff drafted the ordinance based on the approach and regulations already established for small wind energy conversion systems, with modifications as needed to respond to the specifics of solar energy systems, as well as incorporating research on how other jurisdictions regulate these systems and the input provided at the Development and Planning Subcommittee meetings and the City Council workshop. Modifications to respond to the direction of the Commission during their consideration of this item have been incorporated into the ordinance.

The proposed ordinance is intended to regulate photovoltaic and thermal solar energy systems that generate energy for use by just the property owner and covers both ground and building mounted systems. It does not address utility-scale systems. Systems will be regulated on height, size and location and will be required to meet all fire, electrical and building codes, and utility regulations. Potential nuisances such as glare, visual impact, lighting, signage as well as abandoned systems are addressed in the ordinance.

Staff would summarize the following key points of interest:

- ***Building mounted systems:*** **Staff recommendation:** Allowed in all zoning districts. **Rational:** To balance the desire for clean, renewable energy resources and the necessity to protect the general welfare of the community at large.

Requests for solar energy systems would be reviewed and approved via a building permit for single family residential and open space zoning districts and a site plan permit for all other districts. Mitigating visual impact as well as regulating the size and location of these system would be addressed by the following standards (*modified per discussions at the March 14, 2016 Commission meeting*):

- Size limited to roof surface area minus required access pathways and setbacks from the roof edge (one foot setback for every one foot in height measured from the roof surface).
 - Height limited to 18 inches above the roof surface for sloped roofs and 7 foot from the roof surface for flat roofs.
 - System can be installed only on the roof of the primary or an accessory structure (including trellises, carports, sheds and detached garages).
 - Systems that are visible from street or neighboring properties:
 - Panel arrangement shall take in account the proportion of the roof surface and place the panels in a consistent manner.
 - The color of the structure and equipment for flat roof installations shall be selected to be a similar color to the surrounding building materials to help mitigate their appearance.
- ***Ground mounted systems:*** **Staff recommendation:** Allowed in all zoning districts. **Rational:** To balance the desire for clean, renewable energy resources and the necessity to protect the general welfare of the community at large. Although roof mounted systems may be more adept at mitigating the visual impact of a system, implementation of roof mounted systems may not be an option because of roof orientation, shading, condition of the existing roofing, or insufficient structural capacity of the existing building.

Requests for solar energy systems would be reviewed and approved via a building permit for single family residential and open space zoning districts and a site plan permit for all other districts. Mitigating visual impact as well as regulating the size and location of these systems would be addressed by the following standards (*modified per discussions at the March 14, 2016 Commission meeting*):

- Size limited to the allowable area for accessory structures in single family residential or open space zoning districts, (10% of lot size with a maximum of 1000 square feet in RS, R-1, SF-VJ, and SF-CR districts) or a maximum of 15 kW capacity (approximately 1200 square feet of collector area) – whichever is more restrictive. This is maximum allowable for all accessory structures, including solar arrays, sheds, detached garages, etc. within a parcel.
- Size limited to the equivalent of 50% of primary structure footprint in the remaining districts.
- Height limited to a maximum of 10 feet above grade.
- Setback from the property line equal to the height of the system or the accessory structure setback – whichever is greater.

- Systems that are visible from the public street or adjacent properties (from grade level) will require screening of undesirable features of the system. These features can be screened with a screen wall or panels or landscaping. Images of the back side of solar energy systems to illustrate features that would be considered undesirable (as discussed on March 14th) are included as Attachment E.
- **Summary of February 29, 2016 Public Hearing:** On March 7, 2016, Staff forwarded to the Commission a summary of the concerns expressed at the meeting and where appropriate, included the reasoning behind the regulation noted and possible modifications to the regulation to assist in their consideration of the regulations. The summary is included as Attachment D.
- **Revised Ordinance:** To assist in the Commission’s review of the ordinance, a summary of the revisions made to the document to incorporate the direction of the Commission at the March 14, 2016 meeting are included as a separate document (see Attachment G).

Comprehensive Plan Consistency: The project has been reviewed for consistency with the Comprehensive Plan. Based upon that review, a finding has been made that the proposed project is consistent with the Comprehensive Plan in that the project is consistent with all of the goals and policies of the Comprehensive Plan and the land use map of the Comprehensive Plan.

Noticing Information: On November 27, 2015, notice of the December 7, 2015, Plan and Zoning Commission and December 14, 2015, City Council public hearings for this project was published in the *Des Moines Register*. Staff notes that the public hearings for this item were continued to the February 29, 2016, March 14, 2016, and March 28, 2016 Plan and Zoning Commission and continued to the March 7, 2016 and April 18, 2016, City Council meetings.

Staff Recommendation and Conditions of Approval: Staff recommends the Plan & Zoning Commission approve a resolution recommending to the City Council approval of the ordinance amendment.

ATTACHMENTS:

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|--------------|---|--|
| Attachment A | - | Plan and Zoning Commission Resolution |
| Exhibit A | - | Proposed Ordinance |
| Attachment B | - | Visual Design Guidelines from February 29, 2016 staff report |
| Attachment C | - | Comments from Residents from February 29, 2016 and March 14, 2016 meeting |
| Attachment D | - | Summary of the February 29, 2016 meeting comments and possible modifications |
| Attachment E | - | Images of the back side of systems – discussed at the March 14, 2016 meeting |
| Attachment F | - | Additional comments received after the March 14, 2016 meeting |
| Attachment G | - | Ordinance revision summary |

RESOLUTION NO. PZC

A RESOLUTION OF THE PLAN AND ZONING COMMISSION OF THE CITY OF WEST DES MOINES, RECOMMENDING TO THE CITY COUNCIL THAT IT APPROVE AN ORDINANCE TO AMEND THE CITY CODE OF THE CITY OF WEST DES MOINES, IOWA 2014 BY AMENDING TITLE 4: HEALTH AND SAFETY REQUIREMENTS, CHAPTER 4: NUISANCES, SECTION 2: NUISANCES DECLARED AND TITLE 9: ZONING, CHAPTER 10: PERFORMANCE STANDARDS, SECTION 4: SPECIFIC USE REGULATIONS, AND CHAPTER 14: ACCESSORY STRUCTURES, SECTION 11: FENCES AND WALLS AND SECTION 14: VARIANCES TO ESTABLISH REGULATIONS PERTAINING TO SOLAR ENERGY SYSTEMS

WHEREAS, pursuant to the provisions of Title 9, Chapter 1 et seq, of the West Des Moines Municipal Code, staff has requested an amendment to Title 4 (*Health and Safety Regulations*), Chapter 4, (*Nuisances*), Section 2 (*Nuisances Declared*) and Title 9 (*Zoning*), Chapter 10 (*Performance Standards*), Section 4 (*Performance Standards*) and, Chapter 14 (*Accessory Structures*), Section 11 (*Fences and Walls*), and Section 14 (*Variances*) to establish regulations pertaining to solar energy systems.

WHEREAS, studies and investigations were made, and staff reports and recommendations were submitted which is made a part of this record and herein incorporated by reference;

WHEREAS, on February 29, 2016, March 14, 2016 and March 28, 2016, this Commission held a duly-noticed public hearing to consider the application for an amendment to City Code;

NOW, THEREFORE, THE PLAN AND ZONING COMMISSION OF THE CITY OF WEST DES MOINES DOES RESOLVE AS FOLLOWS:

SECTION 1. The findings, for approval, in the staff report, dated March 28, 2016, or as amended orally at the Plan and Zoning Commission hearing of March 28, 2016, are adopted.

SECTION 2. The AMENDMENT TO ORDINANCE (AO-002916-2015) is recommended to the City Council for approval, as attached or as amended in Exhibit A.

PASSED AND ADOPTED on March 28, 2016.

Craig Erickson, Chair
Plan and Zoning Commission

ATTEST:

Recording Secretary

I HEREBY CERTIFY that the foregoing resolution was duly adopted by the Plan and Zoning Commission of the City of West Des Moines, Iowa, at a regular meeting held on March 28, 2016 by the following vote:

AYES:
NAYS:
ABSTENTIONS:
ABSENT:

ATTEST:

Recording Secretary

Prepared by: L. Schemmel, Development Services Development, PO Box 65320, West Des Moines, IA 50265, 515-222-3620
When Recorded, Return to: City Clerk, City of West Des Moines, PO Box 65320, West Des Moines, IA 50265-0320

ORDINANCE NO.

AN ORDINANCE AMENDING THE CITY CODE OF THE CITY OF WEST DES MOINES, IOWA 2014 BY AMENDING TITLE 4, NUISANCES, CHAPTER 2, NUISANCES DECLARED AND TITLE 9, ZONING, CHAPTER 10: PERFORMANCE STANDARDS, SECTION 4, SPECIFIC USE REGULATIONS, AND CHAPTER 14, ACCESSORY STRUCTURES, SECTION 11, FENCES AND WALLS AND SECTION 14, VARIANCES

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

Section 1. Amendment. Title 4, *Health and Safety Regulations*, Chapter 4, *Nuisances*, Section 2, *Nuisances Declared* is hereby modified by inserting the language indicated in italicized and bolded text below.

4-4-2: NUISANCES DECLARED

Whatever is injurious to the senses, or an obstruction to the free use of property, so as essentially to interfere with the comfortable enjoyment of life or property, is a nuisance. Nuisances shall include, but not be limited to, those activities and items hereafter set forth in this section:

- A. Weeds: Weeds or vegetation allowed to grow to a height greater than ten inches (10") on the average, or any accumulation of dead weeds, grass, brush, or trees on any occupied or unoccupied lot or land. Exceptions include:
1. Trees And Shrubs: The use of trees and shrubs for landscaping purposes;
 2. Erosion Control: Areas planted to offset and control any soil loss problems, both occurring or predicted, including areas along waterways and edges of lakes, ponds, and stormwater retention/detention facilities;
 3. Wooded Areas: All areas that are predominately wooded and over one acre in size;
 4. Educational Programs: Any areas designated for educational studies;
 5. Gardens: Areas dedicated to growing fruits or vegetables for personal consumption or to growing flowers, native plants, ornamental grasses, ground covers, shrubs, and similar plants which are cultivated and/or mulched to remain free of weeds, grassy weeds, or volunteer plants. Vegetation in gardens shall not be allowed to grow onto adjacent property. Fruit and vegetable gardens are prohibited within the public right of way. Landscaping with flowers, plants, and grasses may be allowed within the public right of way, but shall be limited to the immediate area surrounding a mailbox, shall not exceed eight (8) square feet in size, and shall

not interfere with the vision triangle as provided in this code. There shall be no compensation by the city to the property owner for any damage to or removal of such items placed within the public right of way.

6. **Streetscapes:** Plantings within the public right of way that are part of a planned city streetscape or a landscape plan submitted and approved as part of a development permit;
7. **Parks And Open Space:** Any and all public parks and open space lands whether under the jurisdiction of federal, state, county, or local agencies, including private conservation/preservation organizations; and
8. **Native Planting Areas:** Areas of native plant species on any parcel, with the exception of individual single-family lots, that are part of a landscape plan submitted and approved as part of a development permit.

All vegetation, other than trees and shrubs, must be cut at least once annually to a height no greater than ten inches (10"). As an alternative to cutting, native planting areas (see exceptions at subsections A7 and A8 of this section) on both private and public property may be maintained by controlled burning with an approved permit from the city's fire department. Natural areas in public parks and greenways shall be exempt from annual maintenance requirements.

No exceptions will be granted that violate the Iowa noxious weeds and the Iowa weed law chapter 317, code of Iowa, 2009.

- B. **Rubbish, Trash:** Accumulation of rubbish, trash, refuse, junk, and other salvage materials, such as metals and lumber, that are allowed to accumulate to the prejudice of others or any material having lost its value for the original purpose for which it was created or manufactured.
- C. **Debris On Right Of Way:** Mud, dirt, gravel, snow, leaves, or other debris, substances, or objects deposited upon the public right of way, including, but not limited to, debris, substances, or objects that unnecessarily restrict the movement of vehicular or pedestrian traffic along the public streets and sidewalks.
- D. **Dilapidated Buildings:** Any building or other structure which is in such a dilapidated condition that it is unfit for human habitation, or kept in such an unsanitary condition that it is a menace to the health of people residing in the vicinity thereof, or any building or structure defined as a dangerous building in the uniform code for the abatement of dangerous buildings, 1988 edition, as adopted by the city.
- E. **Abandoned Buildings:** Abandoned buildings or other structures.
- F. **Inoperable/Obsolete Vehicles:** The storage, parking, leaving, or permitting the storage, parking, or leaving of an inoperable/obsolete vehicle upon private property within the city. This subsection shall not apply to any vehicle enclosed within a building on private property or to any vehicle held in connection with a junkyard, or auto and truck oriented use operated in the appropriate zone, pursuant to the zoning laws.
- G. **Vehicles Parked On Unpaved Surfaces:** Vehicles parked on private property with residential zoning on an unpaved surface or a surface that does not comply with subsections 9-15-4B and 9-15-6G of this code.
- H. **Fences:** Fences that are not in a structurally sound condition.
- I. **Vermin Harborage:** Conditions which are conducive to the harborage or breeding of vermin.

- J. Sanitary Sewer Facilities: Facilities for the storage or processing of sewage, such as privies, vaults, sewers, private drains, septic tanks, cesspools and drainfields, which have failed or do not function properly or which are overflowing, leaking or emanating odors. Septic tanks, cisterns, and cesspools which are abandoned or no longer in use unless they are emptied and filled with clean fill. Any vault, cesspool, or septic tank which does not comply with the Polk County or Dallas County department of health regulations.
- K. Overland Flowage Easements And Stormwater Flowage Easements: No alteration or modification shall be made nor any obstructions placed in the overland flowage easement or storm flowage easement which prevents, obstructs, or impedes the overland water flow or surface water flow from adjacent lands entering or draining into and through the easement without first obtaining the expressed written consent of the city.
- L. Other Nuisances: Any nuisance described as such by chapter 657 of the Iowa Code.
- M. Waste Disposal: The placing in a compost pile, yard, or garden, the burying or the burning of rubbish, trash, refuse, junk, used construction materials, or unprocessed animal waste, or any other inappropriate items which are generally offensive to the senses of the general public.
- N. Discharge Of Waters: Any discharge of waters which collect upon private real estate from subsurface or surface drainage to a point upon or adjacent to a public sidewalk, street, or property line as to permit the waters discharged to drain upon a public sidewalk, street, or onto adjoining real estate. The public works director or designee may require that any such discharge be connected to the public storm sewer system, if available, or be directed to a discharge point which eliminates or lessens the nuisance. (Ord. 1910, 2-22-2011)
- O. Dilapidated/Inoperable Mechanical Equipment: The storage, leaving, or permitting the storage, of dilapidated/inoperable mechanical equipment upon private property within the city including but not limited to: heating, ventilating and cooling equipment, pumps, generators and solar or wind generated energy systems.***

Section 2. Amendment. Title 9, *Zoning*, Chapter 10, *Performance Standards*, Section 4, *Specific Use Regulations* is hereby modified by inserting the language indicated in italicized and bolded text below.

9-10-4: SPECIFIC USE REGULATIONS

- A. The Following Standards Shall Apply To All Zoning Districts Unless Noted Otherwise In This Title:
 - 1. Fuel Supply Systems: All fuel supply systems shall be constructed and installed in accordance with all applicable requirements of this Title, the Uniform Building Code as adopted and amended by the City, the Uniform Fire Code as adopted and amended by the City, and any other applicable, local, County, State, or Federal regulations or requirements.
 - 2. Screening Of Mechanical Units: The following standards apply to the location and screening of mechanical equipment:
 - a. Screening Of Ground Mounted Mechanical Units: For all uses, except for single-family detached and bi-attached residential uses, all ground-mounted mechanical units, including but not limited to: air-conditioning condensers, heat pumps, ventilation units, computer cooling equipment, etc., and any related utility structures and equipment, that are visible from any adjacent public

thoroughfare shall be visibly screened from public view by the use of a screening wall built out of materials compatible and consistent with the architecture and materials of the principal building, landscape plantings of predominately evergreen materials to provide year-round screening, or a combination of the above. The type of screening to be used shall be identified as part of the site plan or permitted conditional use permit (Pc) submittal.

- b. Screening Of Roof Mounted Mechanical Units: All roof-mounted mechanical units shall be screened from adjacent public thoroughfares by the use of an opaque screening material compatible with the architecture of the building or architecturally designed screening, such as a parapet wall. The screening of the roof-mounted units shall be designed to blend with the building and roof materials. Additional screening may be required due to topographic differences in the adjoining properties.
- c. Location Of Meters In Single-Family And Bi-Attached Developments: Single-family and bi-attached residential developments shall be prohibited from locating the mechanical units and meters in the front yard of the property unless adequate screening is provided to visibly screen these elements from the public view. (Ord. 1190, 6-17-1996)

3. **Screening of Solar Energy Systems:**

a. Ground mounted solar energy systems should be sited to visually mitigate undesirable features that are visible at grade from surrounding properties and public thoroughfares. The City is aware of the operating needs of these types of structures and acknowledges that it may be impossible to orient a system to hide its undesirable features such as the structural elements, rear face of the collector panels, mechanical equipment and accessories. Should any of these features be visible, The following options are acceptable methods of screening the view of these undesirable features:

- 1. ***An enclosure or a freestanding screen wall or fence of an opaque design built out of materials consistent with the architecture and materials of the principal building. Landscape plantings may be implemented in combination with the screen enclosure, fence or wall to soften the appearance of the installation.***
- 2. ***Landscape plantings that are composed of evergreen materials to provide year-round screening may be implemented in lieu of screen enclosure, fence or wall. Plant material shall be of sufficient height and size at the time of installation to fully screen the undesirable features of the system.***

b. Building mounted systems do not require screening if they comply with the requirements as noted in Title 9 (Zoning), Chapter 14 (Accessory Structures), Section 14 (Solar Energy Systems) of the West Des Moines City Code. However the structural elements, equipment and accessories related to a system mounted on a flat roof that are visible from any adjacent public thoroughfare or adjacent property shall be selected to be a similar color to the roof surface or adjacent building materials to mitigate the visual impact of the system. Wall or ground mounted mechanical equipment related to any Solar Energy System as noted in subsection A2a of this Section will require screening.

Section 3. Amendment. Title 9, *Zoning*, Chapter 14, *Accessory Structures*, Section 11, *Fences and Walls* is hereby modified by inserting the language indicated in italicized and bolded text below.

9-14-11:

FENCES AND WALLS

C. Fence Regulations:

1. Residential Estate And Agriculture/Open Space Districts: Unless otherwise specified herein, eight foot (8') fences shall be allowed within residential estate (RE) and open space districts (OS). All eight foot (8') fences shall be constructed of decorative metal and maintain a consistency of fifty percent (50%) open space for the full length of said fence, and the use of any chainlink fence, of any type, shall be prohibited. This calculation shall be provided at the time of a building permit application.
2. Industrial Districts: Unless otherwise specified herein, fences and walls not exceeding eight feet (8') in height are allowed within the limits of side and rear yards. Fences may be allowed within the limits of the front yard if approved by the city council through the site plan or permitted conditional use permit process. The use of barbed wire may be allowed, provided the barbed wire is not less than six feet (6') above the ground. (Ord. 1354, 3-22-1999)
3. Warehouse Retail District: Fences and screen walls not exceeding twelve feet (12') in height are allowed within the limits of the side and rear yards. Fences may be allowed within the limits of the front yard if approved by the city council or board of adjustment through the site plan or permitted conditional use permit process. (Ord. 1629, 4-25-2005)
4. All Other Districts: Unless otherwise specified herein, fences and walls not exceeding six feet (6') in height are allowed within the limits of side and rear yards. A fence or wall, not exceeding four feet (4') in height is allowed up to the property line provided the visual clearance is maintained.
5. Decorative Features: In all districts, decorative features such as individual posts, trellises, brick or stone columns, and similar features constructed as part of a fence or wall shall be allowed to exceed the maximum fence height by no more than twelve inches (12"). Decorative features shall not be counted towards the open space percentage of the fence. Pedestrian entry features which only include arbors, arched entries, arcades or finials may exceed the maximum allowable fence height in any yard subject to design review and approval of the director of community development. (Ord. 1354, 3-22-1999; amd. Ord. 1629, 4-25-2005)
6. Single Faced Fences: Single faced fences shall have their unfinished side (side with exposed posts) facing towards the property on which the fence is erected. Provisions for landscaping to soften the visual appearance of the fence or wall and provide additional buffering may be required and will be reviewed on a case by case basis. In addition, the following shall apply:
 - a. Safety rails or fencing may be required to satisfy building code requirements.

7. ***Screening of Mechanical Units: Unless otherwise specified herein, fences or walls installed as a method of screening mechanical equipment may exceed height limitations of the specific zoning districts in order to effectively screen the mechanical equipment if they are located in direct proximity to the equipment. All screen fences or walls shall be opaque in design and be built out of materials consistent with the architecture and materials of the principal building. Any open area required for ventilation of the equipment shall be designed to prevent full view of the equipment. The design of the screen fence or wall and the height required for full screening shall be provided at the time of a building permit or site plan application.***

Section 4. **Amendment**, Title 9, *Zoning*, Chapter 14, *Accessory Structures*, Section 14, *Variances* is hereby modified by inserting the italicized and bolded language and deleting the highlighted strikethrough language included below.

9-14-14: **VARIANCES SOLAR ENERGY SYSTEMS**

~~Application for a variance of any of the above provisions shall be made to the board of adjustment in the manner provided in title 2 of this code.~~

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 Solar Energy Systems are appropriately designed, sited and installed.

B. DEFINITIONS

COLLECTOR PANEL: *An equipment assembly used for gathering, concentrating or absorbing solar energy as useful thermal energy or to generate electric energy.*

HEIGHT, TOTAL GROUND MOUNT SYSTEM: *The height above grade of the system from the highest point, including the supporting structure, related equipment and the collector panels. Adjustable angle systems will be measured from the highest point when the system is at its maximum vertical extension.*

HEIGHT, TOTAL BUILDING MOUNTED SYSTEM: *The height above the roof surface measured perpendicular to the roof specific to the installation on a sloped roof or the height above the roof surface specific to the installation on a flat roof.*

LARGE SOLAR ENERGY SYSTEM (LSES): *A solar energy system which has a nameplate rated capacity of over fifteen (15) kilowatts in electrical energy or fifty (50) KBTU of thermal energy for non-single family residential uses and districts and which is incidental and subordinate to a principal use on the same parcel. A system is considered a LSES only if it supplies electrical power or thermal energy 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.*

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

SMALL SOLAR ENERGY SYSTEM (SSES): *A solar energy system which has a nameplate rated capacity of up to fifteen (15) kilowatts in electrical energy or fifty (50) KBTU of thermal energy for residential uses and districts and which is incidental and subordinate to a principal use on the same parcel. A system is considered a SSES only if it supplies electrical power or thermal energy 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.*

SOLAR ACCESS: *A property owner's right to have sunlight shine on his land.*

SOLAR ENERGY: *Radiant energy received from the sun at wavelengths suitable for heat transfer, photosynthetic use or photovoltaic use.*

SOLAR ENERGY SYSTEM (SES): *An aggregation of parts including the base, supporting structure, photovoltaic or solar thermal panels, inverters and accessory equipment such as utility interconnect and battery banks, etc., in such configuration as necessary to convert radiant energy from the sun into mechanical or electrical energy.*

SOLAR ENERGY SYSTEM, BUILDING INTEGRATED : *A solar photovoltaic system that is constructed as an integral part of a principal or accessory building and where the collector component maintains a uniform profile or surface with the building's vertical walls, window openings, and roofing. Such a system is used in lieu of an architectural or structural component of the building. A building-integrated system may occur within vertical facades, replacing glazing or other facade material; into semitransparent skylight systems; into roofing systems, replacing traditional roofing materials; or other building or structure envelope systems. To be considered a building integrated solar energy system, the appearance of the collector components must be consistent with the surrounding materials.*

SOLAR ENERGY SYSTEM, BUILDING MOUNTED: *A SES which is securely fastened to any portion of a building roof, whether attached directly to the principal or accessory building*

SOLAR ENERGY SYSTEM, GROUND MOUNTED: *A SES which is not located on a building and is ground mounted.*

UTILITY SCALE SOLAR ENERGY SYSTEM: *A solar energy system which supplies electrical power or thermal energy solely for use by off-site consumers.*

C. GENERAL REGULATIONS:

1. Allowances for Solar Energy Systems (SES) shall be as follows:

- *A building integrated system*
- *A building mounted system attached to the roof of an accessory or primary structure.*
- *A ground mounted system as a detached accessory structure to a primary structure.*
- *Large Solar Energy Systems (LSES) are not allowed in Open Space zoning district and single family residential used or zoned property.*
- *Utility Scale Solar Energy Systems are not allowed*

2. **Permit Required:**
 - *It shall be unlawful to construct, erect, install, alter or locate any Solar Energy System (SES) within the City of West Des Moines, unless approved with:*
 1. *Building Permit in the following Zoning Districts: Open Space and single family residential zoned property.*
 2. *Site Plan, Major or Minor Modification to a Site Plan permit for all other zoning districts.*
 - *The owner/operator of the SES must also obtain any other permits required by other federal, state and local agencies/departments prior to erecting the system.*
3. **Installation:** *Installation must be done according to manufacturer's recommendations. All work must be completed according to the applicable building, fire and electric codes. All electrical components must meet code recognized test standards.*
4. **Number of Systems per Zoning Lot:** *No more than one SES may be placed on any zoned lot unless otherwise specifically approved by the City Council.*
5. **Engineer Certification:** *Applications for any SES shall be accompanied by standard drawings of the receiving structure if newly constructed, including the supporting frame and footings. For systems to be mounted on existing buildings, an engineering analysis showing sufficient structural capacity of the receiving structure to support the SES per the applicable code regulations, certified by an Iowa licensed professional engineer shall be submitted.*
6. **Color:** *The SES shall be a neutral color. All surfaces shall be non-reflective to minimize glare that could affect adjacent or nearby properties. Measures to minimize nuisance glare may be required including modifying the surface material, placement or orientation of the system, and if necessary, adding screening to block glare.*
7. **Lighting:** *No lighting other than required safety lights or indicators shall be installed on the SES.*
8. **Signage:** *No advertising or signage other than required safety signage and equipment labels shall be permitted on the SES.*
9. **Maintenance:** *Facilities shall be well maintained in an operational condition that poses no potential safety hazard. Should the SES fall into disrepair and be in such dilapidated condition that it poses a safety hazard or would be considered generally offensive to the senses of the general public, the SES may be deemed a public nuisance and may be abated in accordance with Title 4 (Health and Safety Regulations), Chapter 4 (Nuisances) of the West Des Moines City Code.*
10. **Displacement of Parking Prohibited:** *The location of the SES shall not result in the net loss of required parking as specified in Chapter 15 of this title.*
11. **Utility Notification:** *No SES that generates electricity shall be installed until evidence has been given that the utility company has been informed of and is in agreement with the customer's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.*
12. **Interconnection:** *The SES, 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.*
13. **Restriction on Use of Energy Generated:** *A SES shall be used exclusively to supply electrical power or thermal energy for on-site consumption, except that excess electrical power generated by the SES 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.*
14. **Shut Off:** *A clearly marked and easily accessible shut off for any SES that generates electricity will be required as determined by the Fire Marshal.*

- 15. Electromagnetic Interference:** *All SES shall be designed and constructed so as not to cause radio and television interference. If it is determined that the SES 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 SES may be revoked if electromagnetic interference from the SES becomes evident.*
- 16. Solar 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 solar exposure to operate the SES unless adequate accessibility to the sun is provided by the site.*
- 17. Compliance with National Electric Code:** *Applications for SES 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.*
- 18. Removal:** *If the SES 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, collector panels and related equipment from the property excluding foundations. Should the owner/operator fail to remove the system, the SES will be considered a public nuisance and will be abated in accordance with Title 4 (Health and Safety Regulations), Chapter 4 (Nuisances) of the West Des Moines City Code.*
- 19. Screening:** *SES that are visible from the public thoroughfare or adjacent properties will require screening in accordance to regulations for screening of mechanical units noted in Chapter 4 (Specific Use Regulations) and in Chapter 10 (Performance Standards) of this title. The need for and type of screening to be used shall be identified as part of the Building Permit, Major or Minor Modification to a Site Plan or Site Plan Permit submittal.*
- 20. Nonconforming Systems:** *A SES that has been installed on or before the effective date of this Section and is in active use and does not comply with any or all of the provisions of this section shall be considered a legal non-conforming structure and will be regulated by the provisions noted in Chapter 3 (General Zoning Provisions), Section 4 (Nonconforming Buildings, Structures, Uses, Uses of Land or Uses of Buildings or Structures) of this title.*
- 21. Nothing in this section shall be deemed to prevent the strengthening or restoring to a safe condition any SES or associated building or structure, or part thereof declared to be unsafe by the appropriate authority.**

D. BULK REGULATIONS

1. Location:

• Ground Mounted SES

- 1. No part of a SES shall be located within or over drainage, utility or other established easements, or on or over property lines.**
- 2. The SES shall be located in accordance to the regulations for detached accessory structures in Chapter 14 (Accessory Structure) of this title or not less than one (1) foot from the property line for every one (1) foot of the system height measured at its maximum height, whichever is most restrictive.**
- 3. A SSES cannot be located in front of the rear wall of the primary structure, even if it meets the front yard setback requirements. A LSES cannot be located in the front yard setback.**
- 4. A SES shall not be located in any required buffer.**
- 5. The setback from underground electric distribution lines shall be at least five feet.**
- 6. No SES shall be located which may obstruct vision between a height of thirty inches (30") and ten feet (10') on any corner lot within a vision triangle of twenty five feet (25') formed by intersecting street right of way lines**

• Building Mounted SES

- 1. The solar energy system shall be setback not less than one (1) foot from the exterior perimeter of the roof for every one (1) foot the system extends above the parapet wall or roof surface.**
- 2. Should the solar energy system be mounted on an existing structure that does not conform to current setback requirements, the solar energy system shall be installed to meet the current setback requirements applicable to the receiving structure.**
- 3. Shall be designed to minimize their visual presence to surrounding properties and public thoroughfares. Panel arrangement shall take in account the proportion of the roof surface and place the panels in a consistent manner without gaps unless necessary to accommodate vents, skylights or equipment.**
- 4. Access pathways for the SES shall be provided in accordance to all applicable building, fire and safety codes.**
- 5. Shall be located in such a manner that fall protection railings are not required or are not visible from the public thoroughfare.**

• Building Integrated SES

- 1. No setback required**
 - 2. Access pathways for the SES shall be provided in accordance to all applicable building, fire and safety codes.**
 - 3. Shall be located in such a manner that fall protection railings are not required or are not visible from the public thoroughfare.**
- No SES shall be constructed within 20 feet laterally of an overhead electrical power line (excluding secondary electrical service lines or service drops).**

2. **Height:**

- **Ground Mounted SES**
 1. *The maximum height of the SES shall not exceed ten (10) feet in height as measured from existing grade*
- **Building Mounted SES**
 1. *The collector panel surface and mounting system shall not extend higher than eighteen (18) inches above the roof surface of a sloped roof.*
 2. *The collector panel surface and mounting system shall not extend higher than seven (7) feet above the roof surface of a flat roof.*
- **Building Integrated SES**
 1. *The collector panel shall maintain a uniform profile or surface with the building's vertical walls, window openings, and roofing.*

3. **Size:**

- *Size of the SES is calculated by measuring the total surface area of the collector panels for the system.*
- **Ground Mounted SES:**
 1. *In single family residential used or zoned property the SES is restricted in size to no more than the allowed area for detached accessory structures on the specific property. The SES would be included in the collective total of all detached accessory structures.*
 2. *In all other zoning districts the SES is restricted in size to no more than 50% of the area of the primary structure(s) footprint*
- **Building Mounted SES:** *System size will be determined by the available roof area subject to the installation minus the required setbacks or access pathways.*
- **Building Integrated SES:** *System size will be determined by the available building surface area subject to the installation minus the required access pathways.*
- *In no case shall a SSES exceed the nameplate rated capacity of fifteen (15) kilowatts or fifty (50) KBTU.*

E. APPLICATION REQUIRED

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

Section 5. Amendment. Title 9, Zoning, Chapter 14, *Accessory Structures*, Section 15, *Variances* is hereby added by inserting the italicized and bolded language included below.

9-14-15: VARIANCES

Application for a variance of any of the above provisions shall be made to the board of adjustment in the manner provided in title 2 of this code.

Section 6. Repealer. All ordinances or parts of ordinances in conflict with the provision of this ordinance are hereby repealed.

Section 7. 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 8. 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 9. 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 10. 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:

Ryan T. Jacobson
City Clerk

Proposed Guidelines – Solar Energy Systems

General Guidelines

Building mounted systems can only be mounted on the roof surface of a structure.



Building Integrated Systems are allowed - Building Integrated means the collector component maintains a uniform profile or surface with the building's vertical walls, window openings or roofing and the appearance of the collector components is consistent with the surrounding materials.



Solar Energy Systems are limited to producing energy solely for use by the owner on site. Utility scale systems are not allowed.



Proposed Guidelines – Solar Energy Systems

Building Mounted – Slope Roof (Residential and Commercial)

Array size is limited to roof surface area minus setback from roof edge (setback equal to system height) and any code required access pathways. Height is limited to no more than one foot above roof surface.



Correct: Panels are setback from roof edge and have access aisles



Incorrect: Panels extend past the roof edge



Correct: Panels are within 1 foot of roof surface



Incorrect: Panels are mounted higher than 1 foot from roof surface

Proposed Guidelines – Solar Energy Systems

Building Mounted – Flat Roof (Primarily Commercial)

Size limited to roof surface area minus setback from roof edge (equal to system height) and any code required access pathways. Height is limited to no more than seven feet above roof surface. Panels are to be located in such a manner that fall protection railings are not required or are not visible.



Correct: Panels are set back from roof edge



Incorrect: Panels are too close to roof edge



Correct: System height less than 7' above roof



Incorrect: System height greater than 7' above roof



Correct: Panels are installed far from roof edge
no fall protection rail required



Incorrect: Panels are installed close to roof edge
requiring a fall protection railing

Proposed Guidelines – Solar Energy Systems

Visible Building Mounted System – Sloped Roof (Residential and Commercial)

When visible, panels shall be arranged to match the shape and proportion of the subject roof area and be installed in a consistent manner without gaps



Correct: Matches proportion and shape of the roof



Incorrect: Inconsistent arrangement, does not follow the shape of roof



Correct: Consistent arrangement and centered in the available roof area (does not need to match shape of roof)



Correct: Consistent arrangement, no gaps



Incorrect: Not consistent, gaps in arrangement

Proposed Guidelines – Solar Energy Systems

Visible Building Mounted System – Flat Roof (Primarily Commercial)

When visible, panels shall be arranged to match the shape and proportion of the subject roof area and be installed in a consistent manner without gaps. Framework and associated mechanical equipment shall be a similar color to the roof surface.



Correct: Consistent arrangement, no gaps matches roof proportions



Incorrect: Not consistent, gaps in arrangement



Correct: Frame and equipment match roof color



Incorrect: Frame and equipment do not match roof color

Proposed Guidelines – Solar Energy Systems

Visible Ground Mounted (Residential and Commercial)

When visible, the system framework and mechanical equipment shall be screened to mitigate the visual impact of the system. Screening methods include enclosing the framework with opaque panels or installing screen walls composed of materials compatible with the primary structure. If topography allows, system can be integrated into a hillside. Ground mounted systems are not allowed in the front yard.



Correct: Framework enclosed in materials compatible with primary structure



Incorrect: Framework is not fully enclosed



Correct: Framework hidden with screen wall



Incorrect: No screening of framework



Correct: array built into ground slope and surface colored to match surrounding landscape



Permissible? No screen but area around system landscaped to soften visual appearance

Proposed Guidelines – Solar Energy Systems

Building Mounted Systems - Accessory Structures

The following are examples of acceptable building mounted systems on accessory structures:



Attached structure – Covered porch



Detached structure – Garden shed



Detached structure -Trellis or pergola



Detached structure – Garage



Detached structure – Residential carport



Detached structure – Commercial carport

Schemmel, Linda

From: Jim Miller, HVJF Executive Director <director@valleyjunction.com>
Sent: Thursday, February 25, 2016 11:49 AM
To: Schemmel, Linda
Subject: Solar panels

Hello Linda,

I will be out of town on February 29, but wanted to send my thoughts before the P & Z meeting.

Thanks much,
Jim

As a resident of West Des Moines, it is with great interest that I follow and read the concerns about solar panels in the City of West Des Moines.

As I consider the concerns that have been expressed, the phrase 'solution in search of a problem' is what comes to my mind. With all due respect, I have neighbors, and many of us have neighbors in West Des Moines, with sheds, swing sets, patio tents, pergolas, backyard art, junk and many other items on their private property. I think the idea that someone's solar panels would be an eyesore is simply not considering the full picture and the very positive environmental benefits. As stated in the Des Moines Register article, the projected benefits from the proposed Whitney solar project:

"Over the next 25 years, Scott Whitney's 7-kilowatt system is expected to reduce greenhouse gas emissions by 154 metric tons of carbon dioxide. That's equivalent to: "

- 3,949 trees planted and grown for 10 years
- 358 barrels of oil consumed
- 165,414 pounds of coal burned
- 366,667 miles driven in a car

To state the obvious, they are significant benefits. Solar power, and solar panels, aren't new. The use continues to grow, and quite honestly, I think needs to be encouraged at the highest level. It is interesting to consider the encouragement / lack of and regulations / lack of for other communities. The sheds, swing sets, patio tents, pergolas, backyard art, junk and other items in the community are often in plain view, without specific and costly barriers required for their installation. Personally, I would gladly look at solar panels in a neighbor's backyard and might just be impressed that they are that forward-thinking in their environmental concerns. Go for it!

West Des Moines is regularly cited as a leading community; in many capacities we are. Green energy, power reduction and sustainable development options should be at the forefront of future planning, both for public and private projects. I do not believe that any elected official is trying to eliminate solar panels. I do however, think that regulation should be at a reasonable level, one that provides basic guidance for these projects, without discouraging residents and without substantially increasing project costs.

Thank you,
Jim Miller
423 34th Street
West Des Moines, IA 50265



February 29, 2016

Planning and Zoning Commission
City of West Des Moines
4200 Mills Civic Parkway, Suite D
P.O. Box 65320
West Des Moines, Iowa 50265-0320

Linda Schemmel
Planner, City of West Des Moines
4200 Mills Civic Parkway, Suite D
P.O. Box 65320
West Des Moines IA 50265-0320

Re: Proposed Ordinance Amending the City Code of West Des Moines to Establish Regulations Pertaining to Solar Energy Systems

Dear Ms. Schemmel and members of the City of West Des Moines Planning and Zoning Commission:

The Iowa Environmental Council (IEC) submits the following public comments concerning the City of West Des Moines' proposed Solar Energy Ordinance. IEC is an alliance of over sixty Iowa organizations representing public health, agriculture, conservation, and environmental interests as well as hundreds of individuals. We work to protect Iowa's environment via public policy improvements, with a focus on expanding renewable energy and energy efficiency in Iowa. Our membership includes residents of the City of West Des Moines.

SUMMARY

Increased support for clean energy resources including wind and solar, strengthens our state and local economies, protects the health and welfare of our communities, decreases Iowa's dependence on out-of-state fossil fuels, and increases our energy security.

Outspoken support from both the public and state leaders, state law, and recent changes in state and federal tax incentives provide a strong foundation for solar energy growth in Iowa. Without supportive local land use regulations and development guidelines, however, this growth may be inhibited.

To that end, IEC offers the following comments aimed at strengthening access to solar energy in the City of West Des Moines. IEC thanks City staff for their proactive approach in developing zoning regulations to address solar energy and strongly supports their recommendations for allowing a diversity of solar energy systems. We are concerned, however, that a number of provisions intended to address aesthetic concerns would, in practice, significantly limit the adoption of solar in West Des Moines. We identify these concerns in more detail below and offer suggestions to improve the ordinance.

IOWA HAS STRONG PUBLIC SUPPORT FOR INCREASING ACCESS TO SOLAR ENERGY

Limiting access to solar energy based on aesthetic concerns is inconsistent with public support in Iowa.



In his *2016 Condition of the State Address*, Governor Branstad noted that “solar power generation is a growing and attractive renewable resource that a number of Iowans are utilizing,” further stating that, “we must keep looking to the future, working to understand our needs and pushing for more renewable, reliable, and low-cost clean energy to meet our needs.”¹ Governor Branstad also highlighted that “companies who have invested and located in Iowa have cited our low cost of energy and growing use of renewables as major reasons for locating here.”²

Recent bipartisan polling of Iowa voters demonstrates broad public support for the use of solar energy: 91% of Iowa voters support increasing the use of solar energy (including 85% of Republicans, 96% of Democrats and 92% of Independents) and 93% say they have the right to put solar on their own home.³

This broad public support for solar translates across ages, genders, and income levels: 92% of voters ages 18-64 and 89% of voters over age 65 would like to see more use of solar in Iowa;⁴ 91% of both male and female voters in Iowa support an increased use of solar;⁵ and 94-95% of voters with incomes between \$25,000-\$100,000 and 88% of voters with incomes over \$100,000 support increased solar energy in Iowa.⁶

IOWA STATE LAW REQUIRES ZONING REGULATIONS SUPPORT ACCESS TO SOLAR ENERGY

Ensuring that West Des Moines’ local zoning regulations support access to solar energy is not only consistent with public opinion in Iowa, it is also expressly required under Iowa law: According to the Iowa Code Chapter 414.3, zoning regulations “shall be made in accordance with a comprehensive plan and designed to... promote reasonable access to solar energy.”⁷

Iowa law also requires that the basis for zoning regulations be “to promote health and the general welfare.”⁸ Promoting access to solar energy is consistent with this requirement.

Access to Solar Energy Promotes Public Health

Using solar energy to provide electricity uses no water, produces no carbon emissions and releases none of the other harmful air pollutants and waste products associated with fossil fuel-fired power plants.

While Iowa is leading the nation in its reliance on renewable wind energy (nearly 30% of our electricity is supplied by locally-produced, wind generation⁹), there is still enormous potential to expand our state’s clean energy portfolio: Iowa ranks among the top third of U.S. states in its technical potential for solar energy production,¹⁰ with enough solar PV potential to meet our state’s annual electric needs by more than 150 times over.¹¹ Ensuring local zoning regulations promote this growth will not only protect public health of Iowans, but will also help grow our state and local economies.

Access to Solar Energy Promotes the General Welfare

To meet Iowa’s electricity demand, Iowans spend approximately \$590 million per year to import coal into the state.¹² Encouraging locally-grown, solar energy in Iowa via supportive zoning regulations would help keep these valuable dollars in our state, provide Iowans with jobs, attract local business development, and increase home values.

Iowa’s solar industry already supports approximately 975 workers in the state¹³ and 47 Iowa companies are in the solar industry supply chain.¹⁴ The growth potential for the industry is significant: 30% of all



new electric generating capacity brought on-line in the U.S. during the first three quarters of 2015 came from solar energy.¹⁵ The number of solar jobs in the U.S. has doubled in the last five years.¹⁶

Solar energy systems also add to home values: Recent research sponsored by the Department of Energy found that U.S. “home buyers consistently have been willing to pay more for homes with host-owned solar photovoltaic (PV) energy systems —averaging about \$4 per watt of PV installed—across various states, housing and PV markets, and home types.¹⁷ This equates to a premium of about \$15,000 for a typical PV system.”¹⁸

REGULATIONS SHOULD BE REVISED TO SUPPORT REASONABLE ACCESS TO SOLAR ENERGY

Given the benefits of solar energy, strong public support for solar energy growth, and legal requirements to design zoning regulations to permit reasonable solar energy access, we strongly encourage the City of West Des Moines to make the following revisions to the proposed ordinance:

Both Building- and Ground-Mounted Solar Energy Systems Should be Permitted Accessory Structures

We support recommendations by the City of West Des Moines staff that both building- and ground-mounted solar energy systems (SEs) should be permitted in all residential and commercial zoning districts.

Variances in solar exposure, roof structures, etc. can make building-mounted installation of solar energy systems uneconomical for some residences and businesses. Possible modifications to the proposed ordinance that would prohibit ground-mounted solar installations would unreasonably limit access to solar for these residences and/or businesses.

Potential modifications that would require an applicant to demonstrate that building-mounted systems are “not viable” would also unreasonably limit access to solar energy and are ambiguous. Requiring such a subjective “viability” demonstration prior to permitting a ground-mounted solar installation would also unnecessarily add to the project’s soft costs, which can be more than 64% the cost of a solar installation already.¹⁹ In some cases, this increased financial burden may prohibit or deter an applicant from moving forward with the project.

Regulations Should be Revised to Permit for Pole-Mounted Systems

As currently proposed, the regulations do not address “pole-mounted” solar energy systems. The definition of “ground-mounted” systems should either be expanded to include pole-mounted systems, or this type of mounting system should be defined separately and permitted as an accessory structure in all commercial and residential zoning districts. Allowing pole-mounted solar energy systems provides needed flexibility on the most economic or best performing installation options for both residential and business installations.

Height Restrictions for Ground and Building Mounted Systems Should be Revised

Height restrictions on ground mounted solar energy systems unreasonably limit access to solar: Panel heights plus clearance requirements above grade may easily exceed the 7’ height restriction for ground-mounted systems. We propose ground-mounted systems be permitted at heights up to 15’, with the potential for heights exceeding that limit to be granted via application.



Under the draft regulations, building-mounted systems may not exceed one foot above the roof surface on a sloped roof. This requirement may preclude solar installations on certain roofs, depending on their degree of slope. We recommend increasing height restrictions to 18” on sloped roof surfaces,²⁰ with the potential for heights exceeding that limit to be granted via application.

Size Restrictions for Ground-Mounted Systems Should be Eliminated

Currently, ground-mounted SESs are restricted in single family residential zones to a size “no more than 50% of the allowed area for accessory structures on the specific property.” We recommend eliminating this restriction, as it would unnecessarily limit solar access for some residents who have existing, accessory structures. Setback limits, as well as over capacity restrictions on the size of SESs in residential areas already limit the potential size of ground-mounted systems under the draft regulation.

Location Restrictions for Ground-Mounted Systems Should be Revised for Commercial Zoning Districts

Currently, ground-mounted SESs are restricted to locations behind “the rear wall of the primary structure.” We recommend allowing ground-mounted SESs to the front or side of primary structures in commercial zoning districts, provided they meet required set-backs.

Screening Requirements for Solar Energy Systems Should be Eliminated

Additional screening requirements based on aesthetic concerns do not reflect broad public support for solar energy in Iowa and, as currently proposed, would increase financial burdens for applicants and limit reasonable access to solar.

According to the draft regulations, ground-mounted SESs require screening with a wall/panels “built out of material consistent with the architecture and materials of the principal building.” A strict reading of this language could require a screen or wall comprised of brick, should the principal building be comprised of such material. Less costly materials and landscaping may still unreasonably prohibit a solar installation. With tax incentives covering nearly half of the upfront costs, screening requirements could add a significant amount to a resident or business owners’ out-of-pocket expense.²¹ Even if some homeowners may be willing to see a delayed return on their initial solar investment, commercial business owners may have much less tolerance for extending the simple payback or worsening the return on investment and be deterred from investing in a solar energy system at all. This provision, if enacted, could disproportionately impact access to solar by businesses in West Des Moines.

Regulations Should be Revised to Allow for Community Solar Projects as a Principal Use

When a resident or business owner cannot integrate an on-site solar energy system, community solar projects are an important option to ensure solar energy access. These projects are already being successfully implemented in Iowa: The City of Cedar Falls recently donated 8 acres near a local park for a 1.5 MW community solar project, allowing more than 1,200 businesses and residents to purchase solar energy units.²² Several other communities in Iowa have constructed community solar projects and a number of communities in Iowa are currently developing or exploring these projects.

As currently proposed, the City of West Des Moines’ regulations do not permit community solar projects. The regulations should be revised to permit these projects as principal uses in appropriate zoning districts.



Conclusion

How Iowans meet their energy needs is significantly important to the health and economic vitality of our communities. Thank you for considering our suggestions to strengthen access to this important clean energy resource.

Sincerely,

A handwritten signature in cursive script that reads "Ralph Rosenberg".

Ralph Rosenberg
Executive Director
Iowa Environmental Council

¹ Governor Branstad 2016 Condition of the State Address to the Iowa General Assembly (January 12, 2016), available at <https://governor.iowa.gov/2016/01/gov-branstad-delivers-the-2016-condition-of-the-state-address-to-the-iowa-general-assembly>

² Id.

³ Dave Metz and Lori Weigel, *Voter Attitudes Toward Energy Issues in Iowa: Key Findings from A Statewide Voter Survey*. Public Opinion Strategies (August 2014), available at <http://iowaipol.org/wp-content/uploads/2014/09/2014-Midwestern-Energy-Issues-Survey-IOWA-RELEASE.pptx>

⁴ Id.

⁵ Id.

⁶ Id.

⁷ Iowa Code §414.3 (2016), available at <https://www.legis.iowa.gov/law/statutory>

⁸ Id.

⁹ American Wind Energy Association and Wind Energy Foundation, *A Wind Vision for New Growth in Iowa*, available at <http://windenergyfoundation.org/wp-content/uploads/Iowa-State-Report1.pdf>

¹⁰ Lopez et al., NREL, *U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis* (2012).

¹¹ Iowa Environmental Council, *Real Potential, Ready Today: Solar Energy in Iowa* (2012), available at: http://www.iacenvironment.org/webres/File/Program%20Publications/RealPotentialReadyToday_pub_web.pdf

¹² NRDC, *Economic Opportunities of Cutting Carbon Pollution and Climate Change in Iowa* (March 2014), available at: <http://www.nrdc.org/globalwarming/files/carbon-pollution-state-jobs-IA-2.pdf>

¹³ Solar Foundation, 2015 Solar Jobs Census, available at: <http://www.thesolarfoundation.org/solar-jobs-census/> *Of the 975 workers supported by the solar industry in Iowa, 349 spend more than 50% of their time on solar and 626 spend less than 50% of their time on solar.*

¹⁴ Environmental Law and Policy Center, *Iowa Wind Power & Solar Energy Supply Chain Businesses* (March 2015), available at <http://elpc.org/2015-clean-energy-supply-chain-reports/>

¹⁵ Solar Energy Industry Association, *Solar Market Insight 2015 Q3*, available at: <http://www.seia.org/research-resources/solar-market-insight-2015-q3>

¹⁶ Patrick Gillespie, *Solar Energy Jobs Double in Five Years*, CNN Money (January 12, 2006), available at: <http://money.cnn.com/2016/01/12/news/economy/solar-energy-job-growth-us-economy/>

¹⁷ *We note that installed costs in Iowa are now below \$4 per watt and were closer to an average of \$3 per watt for 2015.*

¹⁸ Allen Chen, *Berkeley Lab Illuminates Price Premiums for U.S. Solar Home Sales*, (January 13, 2015) available at <http://newscenter.lbl.gov/2015/01/13/berkeley-lab-illuminates-price-premiums-u-s-solar-home-sales/>. See full report, Ben Hoen, et al., Lawrence Berkeley National Laboratory, *Selling into the Sun: Price Premium Analysis of a Multi-State Dataset of Solar Homes*, (January 2015) available at <https://emp.lbl.gov/sites/all/files/selling-into-the-sun-jan12.pdf>

¹⁹ U.S. Department of Energy, <http://energy.gov/ceer/sunshot/soft-costs>

²⁰ See, City University of New York, *Solar Planning and Implementation Guide* on behalf of New York City (June 2013) pg. 8, https://www.cuny.edu/about/resources/sustainability/solar-america/reports/Solar_PZ_Implementation_Guide_FINAL.pdf

²¹ See, Kim Norvell, *Experts worry W.D.M. solar proposal too limiting*, Des Moines Register (February 24, 2016), available at <http://www.desmoinesregister.com/story/news/local/west-des-moines/2016/02/24/experts-worry-wdm-solar-proposal-too-limiting/80306718/>

²² Iowa Association of Municipal Utilities, *Cedar Falls Utilities Building 1.5MW Community Solar Project* (November 2, 2015), available at <http://members.iamu.org/blogpost/1270236/230875/Cedar-Falls-Utilities-Building-1-5-MW-Community-Solar-Project>

Schemmel, Linda

From: Twedt, Lynne
Sent: Monday, February 29, 2016 11:05 AM
To: Schemmel, Linda
Subject: FW: Solar Power hearing Monday Feb

From: Jonas Cutler [mailto:jonasmt@gmail.com]
Sent: Sunday, February 28, 2016 8:35 AM
To: Twedt, Lynne <Lynne.Twedt@wdm.iowa.gov>; Trimble, Russ <Russ.Trimble@wdm.iowa.gov>
Subject: Solar Power hearing Monday Feb

Dear Ms. Twedt:

City Councilman Trimble informed me that the best way to have my thoughts on potential solar power ordinances in West Des Moines, the topic of the upcoming City Council meeting, was to submit them in written form in this manner. I drafted my position below---

Esteemed West Des Moines City Council Persons-

I am unable to attend the meeting tonight due to family commitments but hope that my written comments can be read into the record to be considered by the Council.

I am opposed to restrictions being placed on solar panels on a person's own private property.

It has been claimed that when one person places solar panels on their private property it will adversely affect the value of adjoining property owners. I have never seen any facts that prove that to be remotely true.

Another position claimed is that some do not want to look out their window and see solar panels because they are not aesthetically pleasing. I've looked around West Des Moines and noticed many homes with pieces of art in their yards and prairie grass. Some of these pieces of art are large coming various colors including bright red and yellow. I am certain the home owner finds them enjoyable to look at but I know that other neighbors do not find the same pleasure. Right behind City Hall is a piece with a red spiral on the top, I'm sure that the opinions of that piece of art span the full spectrum.

In West Des Moines we have houses painted distinctly bright yellow and others purple. In back yards we have large sheds, swimming pools, playground equipment, near professional basketball courts, even an entire football field at one point on Fuller directly across from Valley Southwoods. I go on, some people have large koi ponds, huge organic gardens and still others have something closer to the hanging gardens of Babylon. None of these uses of private property cause much concern, beauty is in the eye of the beholder.

In West Des Moines some neighborhoods have a “neighborhood association” with restrictive covenants, others do not. A person looking at buying a house in West Des Moines has the option of selecting a house in a neighborhood with restrictive covenants where the buyer knows exactly what they are buying into. Those come with a purchase price and ongoing fees through association dues and the kind. Others of us decided for whatever reason to not buy into that kind of community. To have the city come along and assert an ordinance that amounts to an unpurchased restrictive covenant stopping all owners from freely exercising their will on their own private property is an abuse when there is no harm what so ever being done.

We’ve done well here in West Des Moines maintaining a small government within its proper scope, let’s keep it that way.

Jonas Cutler

4300 Maple Street

West Des Moines, Iowa 50265



March 11, 2016

Planning and Zoning Commission
City of West Des Moines
4200 Mills Civic Parkway, Suite D
P.O. Box 65320
West Des Moines, Iowa 50265-0320

Linda Schemmel
Planner, City of West Des Moines
4200 Mills Civic Parkway, Suite D
P.O. Box 65320
West Des Moines IA 50265-0320

Re: Proposed Ordinance Amending the City Code of West Des Moines to Establish Regulations Pertaining to Solar Energy Systems

Dear Ms. Schemmel and members of the City of West Des Moines Planning and Zoning Commission:

Thank you for your time and consideration of the Iowa Environmental Council's (IEC) recent public comments concerning the City of West Des Moines' proposed Solar Energy Ordinance. Certain modification options proposed by City staff (attached) would strengthen the ordinance and access to solar energy in West Des Moines. The Council supports the following modifications:

GROUND-MOUNTED SYSTEMS

Screening

The Council supports *Possible Modification B* (attached) with the following amendments, noted below:

*Ground mounted solar energy systems ~~shall~~ **should** be sited to minimize their visual presence to surrounding properties and public thoroughfares. The City is aware of the operating needs of these types of structures and acknowledges that it may be impossible to totally screen a system; however, ~~every~~ effort should be made by the applicant to visually mitigate the undesirable features of a system especially the structural components and associated mechanical equipment.*

The Council supports the use of permissive language (i.e., should) in the ordinance to suggest that SESs be sited/screened to minimize their visual presence, but does not support language that could impose a mandatory requirement (i.e., shall). A mandatory siting requirement that would require property owners to minimize visual presence of SESs would not provide the flexibility needed to balance site constraints and impacts on a SESs' operation.

As noted in our February 29th comments, mandatory screening requirements based on aesthetic concerns do not reflect broad public support for solar energy in Iowa, would increase financial burdens for applicants, and could limit access to solar. Mandatory screening requirements are also not in keeping with surrounding municipalities (e.g, the solar ordinance being developed by the City of Des Moines has no screening requirements¹).



Height

The Council supports *Possible Modification B* (see attached):

Height of system is limited to a maximum of 15 feet above grade to allow up to a triple row arrangement.

As noted in our previous comments, solar panel heights plus clearance requirements above grade may easily exceed the 7' height restriction for ground-mounted systems and preclude their installation. A 15 foot height limit would improve solar access and is in keeping with other Iowa municipalities (e.g., the City of Iowa City limits the height of solar energy systems to 15feet.²)

Size

The Council supports *Possible Modification B* (see attached).

Size limited to 100% of allowable area for accessory structures in single family residential or open space zoning districts, (10% of lot size with a maximum of 1000 square feet in RS, R-1, SF-VJ, and SF-CR districts) to a maximum of 15 kW capacity.

Setback limits and capacity restrictions on the size of SESs in residential areas already limit the potential size of ground-mounted systems under the draft ordinance. Modifying the ordinance to permit SESs to occupy 100% of the allowable area for accessory structures would eliminate unnecessarily restrictions on solar access.

Setback

The Council supports *Possible Modification A* (see attached):

Staff is in agreement that this provision will be problematic for commercially zoned property and recommend that it's retained only for single family residential and open space zoning districts.

Under the proposed ordinance, all ground-mounted SESs are restricted to locations behind "the rear wall of the primary structure." A modification that would allow ground-mounted SESs to the front or side of primary structures in commercial zoning districts would promote solar access.

BUILDING MOUNTED SYSTEMS (Sloped Roof)

Height

The Council supports *Possible Modification B* (see attached).

Height of a system mounted to a sloped roof is limited to a maximum of 18 inches above the roof surface to accommodate the occasional roof slope lower than 4/12, a different panel orientation or to allow higher clearance under the panel for snow melt.

Increasing height restrictions to 18" on sloped roof surfaces would increase access to building-mounted SESs and is in keeping with height restrictions imposed by other U.S. cities.³



Conclusion

Thank you again for considering our suggestions to strengthen access to solar energy in West Des Moines. It is our understanding that the City intends to address solar energy as a principal use (i.e., community solar gardens, utility-scale solar projects) in a subsequent action. We encourage the City to do so, as these projects 1) provide an important option for ensuring solar access where it cannot be integrated on-site and 2) help accelerate our transition to a cleaner, healthier energy portfolio.

Sincerely,

A handwritten signature in cursive script that reads "Ralph Rosenberg".

Ralph Rosenberg
Executive Director
Iowa Environmental Council

¹ See, Kim Norvell, *Experts Worry W.D.M Solar Proposal Too Limiting*, Des Moines Register (February 24, 2016), available at <http://www.desmoinesregister.com/story/news/local/west-des-moines/2016/02/24/experts-worry-wdm-solar-proposal-too-limiting/80306718/>

² Id.

³ See, City University of New York, *Solar Planning and Implementation Guide* on behalf of New York City (June 2013) pg. 8, https://www.cuny.edu/about/resources/sustainability/solar-america/reports/Solar_PZ_Implementation_Guide_FINAL.pdf

Solar Energy System Ordinance Possible Modifications to Respond to Public Comments

Ground Mounted Systems

Screening

Current regulations in proposed ordinance that received comments:

Requires screening for ground mounted systems that are visible at grade from any adjacent public thoroughfare or property. The methods noted for screening of the structural elements and equipment of these systems are an opaque fence or enclosure screening the visible portions of these elements. Comments received indicated the belief that the ground mounted systems are not visually undesirable and the unnecessary cost incurred for screening the system.

Possible modification A:

Landscape plantings that are composed of evergreen materials to provide year-round screening may be implemented in lieu of screen fence or enclosure to wholly screen views of the undesirable features of a system.

Possible modification B:

Ground mounted solar energy systems shall be sited to minimize their visual presence to surrounding properties and public thoroughfares. The City is aware of the operating needs of these types of structures and acknowledges that it may be impossible to totally screen a system; however, every effort should be made by the applicant to visually mitigate the undesirable features of a system especially the structural components and associated mechanical equipment.

Height

Current regulations in proposed ordinance that received comments:

Height of system is limited to a maximum of 7 feet above grade. Comments received indicated the need for additional height for ground mounted systems.

How the height limit was determined:

A 3' distance from grade to the bottom of the panels was assumed to allow clearance for snow cover in the winter. Then using the largest standard solar panel size with a vertical orientation and tilting it at the recommended angle for West Des Moines' latitude, an additional 4' in height is needed to accommodate a single row panel arrangement, or a total of 7' from grade to the highest point of the system.

The advantage of a maximum array height of 7' is that a privacy fence, landscaping or another building on the property could easily hide the system from view and the structure is less imposing. The disadvantage is a single row arrangement will result in a longer system length which may call more attention to the system and cause setback issues in comparison to a double row system arrangement.

Possible modification A:

Height of system is limited to a maximum of 11 feet above grade to allow up to a double row arrangement.

Possible modification B:

Height of system is limited to a maximum of 15 feet above grade to allow up to a triple row arrangement.

Solar Energy System Ordinance

Possible Modifications to Respond to Public Comments

Size

Current regulations in proposed ordinance that received comments:

Size limited to 50% of allowable area for accessory structures in single family residential or open space zoning districts, (5% of lot size with a maximum of 500 square feet in RS, R-1, SF-VJ, and SF-CR districts) or a maximum of 15 kW capacity – whichever is more restrictive. Size limited to the equivalent of 50% of primary structure footprint in the remaining districts. Comments received indicated the need for additional size for ground mounted systems to provide additional system capacity.

How the size limit was determined:

A solar energy system within the framework of this ordinance is intended to provide energy for only the property owner and is accessory or subordinate to the primary building. As with other accessory structures, the size limit for the structure is proportional to the lot size or the primary building to protect against a secondary structure overwhelming the primary structure or the context of the area.

In residential areas, 50% of the allowed accessory structure size should provide sufficient capacity to provide 50% to 100% of the electrical needs for a home depending on the size of the home, how efficient the home is and what heating source is used. Capacity figures for other zoning districts is difficult to determine as there are more variations in primary building size and energy needs.

Possible modification A:

Removing the maximum size of 500 square feet in in RS, R-1, SF-VJ, and SF-CR districts and allowing a ground mounted system to be up to 5% lot size to a maximum of 15kW capacity (1100 to 1200 square feet).

Possible modification B:

Size limited to 100% of allowable area for accessory structures in single family residential or open space zoning districts, (10% of lot size with a maximum of 1000 square feet in RS, R-1, SF-VJ, and SF-CR districts) to a maximum of 15 kW capacity.

Setback

Current regulations in proposed ordinance that received comments:

Setback from the property line is equal to the accessory structure setback for the zoning district or the height of the system – whichever is greater. Comments received indicated the need for reduced setback for ground mounted systems to provide additional system capacity.

How the setback was determined:

Setback requirements follow the typical requirements for accessory structures unless the height of the system exceeds the required setback distance for the zoning district. Accessory structures setbacks are less restrictive than for the primary structure, however they do set minimum distances to allow sufficient space to install or maintain a system and to provide additional distance from a neighboring property should a structure be larger in bulk or height.

Possible modification A:

No modifications recommended

Solar Energy System Ordinance Possible Modifications to Respond to Public Comments

Current regulations in proposed ordinance that received comments:

The system cannot be located in front of the rear wall of the primary structure, even if it meets the front yard setback requirements. Comments received indicated the need for eliminating this setback requirement for ground mounted systems in commercial properties as it significantly limits the ability to locate a system on a site.

How the setback was determined:

An accessory building is not allowed in the front yard of a property to protect against a secondary structure overwhelming the primary structure. A setback completely behind the primary structure for ground mounted systems was recommended to aid in screening the view of the system with the primary structure.

Possible modification A:

Staff is in agreement that this provision will be problematic for commercially zoned property and recommend that it's retained only for single family residential and open space zoning districts.

Building Mounted Systems (Sloped Roof)

Height

Current regulations in proposed ordinance that received comments:

Height of system is limited to a maximum of 1 foot above the roof surface. Comments received indicated the need for additional height for slope roof mounted systems.

How the height limit was determined:

One foot in height from the roof surface to the top edge of a solar panel will accommodate the difference in the panel slope and a 4/12 roof slope (generally the lowest slope used for roof systems in this climate) assuming a horizontal panel orientation tilted at the recommended angle for West Des Moines' latitude.

The advantage of limiting the height of the system from the roof surface is that the closer the panels are to the roof surface, the better they blend with the roof structure and mitigate the visual impact of the system.

Possible modification A:

Height of a system mounted to a sloped roof is limited to a maximum of 18 inches above the roof surface to accommodate the occasional roof slope lower than 4/12, a different panel orientation or to allow higher clearance under the panel for snow melt.

**Solar Energy System Ordinance
Possible Modifications to Respond to Public Comments**

Ground Mounted Systems

Screening

Current regulations in proposed ordinance that received comments:

Requires screening for ground mounted systems that are visible at grade from any adjacent public thoroughfare or property. The methods noted for screening of the structural elements and equipment of these systems are an opaque fence or enclosure screening the visible portions of these elements. Comments received indicated the belief that the ground mounted systems are not visually undesirable and the unnecessary cost incurred for screening the system.

Possible modification A:

Landscape plantings that are composed of evergreen materials to provide year-round screening may be implemented in lieu of screen fence or enclosure to wholly screen views of the undesirable features of a system.

Possible modification B:

Ground mounted solar energy systems shall be sited to minimize their visual presence to surrounding properties and public thoroughfares. The City is aware of the operating needs of these types of structures and acknowledges that it may be impossible to totally screen a system; however, every effort should be made by the applicant to visually mitigate the undesirable features of a system especially the structural components and associated mechanical equipment.

Height

Current regulations in proposed ordinance that received comments:

Height of system is limited to a maximum of 7 feet above grade. Comments received indicated the need for additional height for ground mounted systems.

How the height limit was determined:

A 3' distance from grade to the bottom of the panels was assumed to allow clearance for snow cover in the winter. Then using the largest standard solar panel size with a vertical orientation and tilting it at the recommended angle for West Des Moines' latitude, an additional 4' in height is needed to accommodate a single row panel arrangement, or a total of 7' from grade to the highest point of the system.

The advantage of a maximum array height of 7' is that a privacy fence, landscaping or another building on the property could easily hide the system from view and the structure is less imposing. The disadvantage is a single row arrangement will result in a longer system length which may call more attention to the system and cause setback issues in comparison to a double row system arrangement.

Possible modification A:

Height of system is limited to a maximum of 11 feet above grade to allow up to a double row arrangement.

Possible modification B:

Height of system is limited to a maximum of 15 feet above grade to allow up to a triple row arrangement.

Solar Energy System Ordinance

Possible Modifications to Respond to Public Comments

Size

Current regulations in proposed ordinance that received comments:

Size limited to 50% of allowable area for accessory structures in single family residential or open space zoning districts, (5% of lot size with a maximum of 500 square feet in RS, R-1, SF-VJ, and SF-CR districts) or a maximum of 15 kW capacity – whichever is more restrictive. Size limited to the equivalent of 50% of primary structure footprint in the remaining districts. Comments received indicated the need for additional size for ground mounted systems to provide additional system capacity.

How the size limit was determined:

A solar energy system within the framework of this ordinance is intended to provide energy for only the property owner and is accessory or subordinate to the primary building. As with other accessory structures, the size limit for the structure is proportional to the lot size or the primary building to protect against a secondary structure overwhelming the primary structure or the context of the area.

In residential areas, 50% of the allowed accessory structure size should provide sufficient capacity to provide 50% to 100% of the electrical needs for a home depending on the size of the home, how efficient the home is and what heating source is used. Capacity figures for other zoning districts is difficult to determine as there are more variations in primary building size and energy needs.

Possible modification A:

Removing the maximum size of 500 square feet in RS, R-1, SF-VJ, and SF-CR districts and allowing a ground mounted system to be up to 5% lot size to a maximum of 15kW capacity (1100 to 1200 square feet).

Possible modification B:

Size limited to 100% of allowable area for accessory structures in single family residential or open space zoning districts, (10% of lot size with a maximum of 1000 square feet in RS, R-1, SF-VJ, and SF-CR districts) to a maximum of 15 kW capacity.

Setback

Current regulations in proposed ordinance that received comments:

Setback from the property line is equal to the accessory structure setback for the zoning district or the height of the system – whichever is greater. Comments received indicated the need for reduced setback for ground mounted systems to provide additional system capacity.

How the setback was determined:

Setback requirements follow the typical requirements for accessory structures unless the height of the system exceeds the required setback distance for the zoning district. Accessory structures setbacks are less restrictive than for the primary structure, however they do set minimum distances to allow sufficient space to install or maintain a system and to provide additional distance from a neighboring property should a structure be larger in bulk or height.

Possible modification A:

No modifications recommended

Solar Energy System Ordinance

Possible Modifications to Respond to Public Comments

Current regulations in proposed ordinance that received comments:

The system cannot be located in front of the rear wall of the primary structure, even if it meets the front yard setback requirements. Comments received indicated the need for eliminating this setback requirement for ground mounted systems in commercial properties as it significantly limits the ability to locate a system on a site.

How the setback was determined:

An accessory building is not allowed in the front yard of a property to protect against a secondary structure overwhelming the primary structure. A setback completely behind the primary structure for ground mounted systems was recommended to aid in screening the view of the system with the primary structure.

Possible modification A:

Staff is in agreement that this provision will be problematic for commercially zoned property and recommend that it's retained only for single family residential and open space zoning districts.

Building Mounted Systems (Sloped Roof)

Height

Current regulations in proposed ordinance that received comments:

Height of system is limited to a maximum of 1 foot above the roof surface. Comments received indicated the need for additional height for slope roof mounted systems.

How the height limit was determined:

One foot in height from the roof surface to the top edge of a solar panel will accommodate the difference in the panel slope and a 4/12 roof slope (generally the lowest slope used for roof systems in this climate) assuming a horizontal panel orientation tilted at the recommended angle for West Des Moines' latitude.

The advantage of limiting the height of the system from the roof surface is that the closer the panels are to the roof surface, the better they blend with the roof structure and mitigate the visual impact of the system.

Possible modification A:

Height of a system mounted to a sloped roof is limited to a maximum of 18 inches above the roof surface to accommodate the occasional roof slope lower than 4/12, a different panel orientation or to allow higher clearance under the panel for snow melt.



Schemmel, Linda

From: Twedt, Lynne
Sent: Friday, March 18, 2016 8:05 AM
To: Schemmel, Linda
Subject: FW: Comments on Solar Energy Panels

From: Development Services
Sent: Thursday, March 17, 2016 4:48 PM
To: Riesenberg, Michelle <Michelle.Riesenberg@wdm.iowa.gov>; Twedt, Lynne <Lynne.Twedt@wdm.iowa.gov>
Subject: FW: Comments on Solar Energy Panels

From: Marvin Rickert
Sent: Thursday, March 17, 2016 4:48:15 PM (UTC-06:00) Central Time (US & Canada)
To: Development Services
Subject: Comments on Solar Energy Panels

Dear Craig and members of the Planning & Zoning Commission,

I read the Register's March 1st article, "W.D.M. Residents: Embrace solar energy and update code" and would like to share a comment.

We are 42 year residents of West Des Moines and have lived in the Ponderosa Valley Development for almost 20 years. I would consider a solar panel on the ground in my established neighborhood an eyesore.

Perhaps roof panels could be considered in new developments but ground panels are tacky!

Thanks,
Marie Rickert
5443 Ponderosa Drive, WDM

Solar Energy System Ordinance Summary of Revisions to the Ordinance

Screening of Solar Energy Systems

Previous:

The structural elements, equipment and accessories related to ground mounted solar energy systems that are visible at grade from any adjacent public thoroughfare or adjacent properties shall be visibly screened from public view with an enclosure of an opaque screen wall or panels built out of materials consistent with the architecture and materials of the principal building. Landscape plantings may be implemented in addition to a screen enclosure or wall to soften the appearance of the installation. Building mounted systems do not require screening if they comply with the requirements as noted in Title 9 (Zoning), Chapter 14 (Accessory Structures), Section 14 (Solar Energy Systems) of the West Des Moines City Code. However the structural elements, equipment and accessories related to a system mounted on a flat roof that are visible from any adjacent public thoroughfare or adjacent property shall be a similar color to the roof surface or adjacent building materials to mitigate the visual impact of the system. Wall or ground mounted mechanical equipment related to any Solar Energy System as noted in subsection A2a of this Section will require screening.

Revised:

Ground mounted solar energy systems should be sited to visually mitigate undesirable features that are visible at grade from surrounding properties and public thoroughfares. The City is aware of the operating needs of these types of structures and acknowledges that it may be impossible to orient a system to hide its undesirable features such as the structural elements, rear face of the collector panels, mechanical equipment and accessories. Should any of these features be visible, the following options are acceptable methods of screening the view of these undesirable features:

- 1. An enclosure or a freestanding screen wall or fence of an opaque design built out of materials consistent with the architecture and materials of the principal building. Landscape plantings may be implemented in combination with the screen enclosure, fence or wall to soften the appearance of the installation.*
- 2. Landscape plantings that are composed of evergreen materials to provide year-round screening may be implemented in lieu of screen enclosure, fence or wall. Plant material shall be of sufficient height and size at the time of installation to fully screen the undesirable features of the system.*

Building mounted systems do not require screening if they comply with the requirements as noted in Title 9 (Zoning), Chapter 14 (Accessory Structures), Section 14 (Solar Energy Systems) of the West Des Moines City Code. However the structural elements, equipment and accessories related to a system mounted on a flat roof that are visible from any adjacent public thoroughfare or adjacent property shall be selected to be a similar color to the roof surface or adjacent building materials to mitigate the visual impact of the system. Wall or ground mounted mechanical equipment related to any Solar Energy System as noted in subsection A2a of this Section will require screening.

Solar Energy System Ordinance

Summary of Revisions to the Ordinance

Front Yard Setback

Previous:

The SES cannot be located in front of the rear wall of the primary structure, even if it meets the front yard setback requirements.

Revised:

A SSES cannot be located in front of the rear wall of the primary structure, even if it meets the front yard setback requirements. A LSES cannot be located in the front yard setback.

Panel arrangement on a roof

Previous:

Panels that are visible shall be arranged to match the shape and proportion of the subject roof area and be installed in a consistent manner without gaps.

Revised:

Building mounted SES shall be designed to minimize their visual presence to surrounding properties and public thoroughfares. Panel arrangement shall take in account the proportion of the roof surface and place the panels in a consistent manner without gaps unless necessary to accommodate vents, skylights or equipment.

System Height

Previous:

Ground Mounted SES

The maximum height of the SES shall not exceed seven (7) feet in height as measured from existing grade

Building Mounted SES

The collector panel surface and mounting system shall not extend higher than one (1) foot above the roof surface of a sloped roof.

Revised:

Ground Mounted SES

The maximum height of the SES shall not exceed ten (10) feet in height as measured from existing grade.

Building Mounted SES

The collector panel surface and mounting system shall not extend higher than eighteen (18) inches above the roof surface of a sloped roof.

Solar Energy System Ordinance

Summary of Revisions to the Ordinance

System Size

Previous:

Ground Mounted SES

In single family residential used or zoned property the SES is restricted in size to no more than 50% of the allowed area for detached accessory structures on the specific property.

Revised:

Ground Mounted SES

In single family residential used or zoned property the SES is restricted in size to no more than the allowed area for detached accessory structures on the specific property. The SES would be included in the collective total of all detached accessory structures.

New language for non-conforming systems

Nonconforming Systems: A SES that has been installed on or before the effective date of this Section and is in active use and does not comply with any or all of the provisions of this section shall be considered a legal non-conforming structure and will be regulated by the provisions noted in Chapter 3 (General Zoning Provisions), Section 4 (Nonconforming Buildings, Structures, Uses, Uses of Land or Uses of Buildings or Structures) of this title.

Nothing in this section shall be deemed to prevent the strengthening or restoring to a safe condition any SES or associated building or structure, or part thereof declared to be unsafe by the appropriate authority.