

## CHAPTER 159

# SOLAR ENERGY SYSTEMS

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**159.01 PURPOSE.** The purpose of the regulations is to balance the need for clean, renewable energy resources with the need to protect the public health, safety, welfare and enjoyment of properties.

**159.02 DEFINITIONS.** For use in this chapter, the definitions as set forth in the Creston Code of Ordinances and the current International Solar Energy Provisions, both as may be amended from time to time shall be controlling:

1. “Kilowatt” (kW) is equal to 1,000 watts.
2. “Large solar energy system (LSES)” means a solar energy system that has a nameplate rated capacity of over fifteen kilowatts in electrical energy or fifty KBTU of thermal energy for I-2 Heavy Industrial and which is incidental and subordinate to a principal use on the same parcel. A system is considered an 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.
3. “Off grid” means an electrical system that is not connected to a utility distribution grid.
4. “Small solar energy system (SSES)” means a solar energy system that has a nameplate rated capacity of up to fifteen (15) kilowatts in electrical energy or fifty KBTU of thermal energy for residential, commercial and I-1 Light Industrial zones and that is incidental and subordinate to a principal use on the same parcel. A system is considered an 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.

5. “Solar energy” means radiant energy received from the sun at wavelengths suitable for heat transfer, photosynthetic use or photovoltaic use.
6. “Solar energy system (SES)” means 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, in such configuration as necessary to convert radiant energy from the sun into mechanical or electrical energy.
7. “Solar energy system building integrated” means 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 façade 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.
8. “Solar energy system building mounted” means a SES that is securely fastened to any portion of a building roof, whether attached directly to a principal or accessory building.
9. “Solar energy system ground mounted” means a SES that is not located on a building and is installed on the ground.
10. “Total system height for building mounted system” means the height above 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.
11. “Total system height for ground mounted system: means the height above grade from the highest point, including the supporting structure, related equipment and the collector panels. Adjustable angel systems shall be measured from the highest point when the system is at its maximum vertical extension.
12. “Utility scale solar energy system” means a solar energy system that supplies electrical power or thermal energy solely for use by off-site consumers.
13. “Watt” (W) is the International System of Units’ standard unit of power, the equivalent of one (1) joule per second.

**159.03 PERMITTED SES.** The following SES are permitted in all zoning districts within the City, subject to the stated limitations:

1. A building integrated SSES.

2. A building mounted SSES attached to the roof of an accessory or primary structure.
3. A ground mounted SSES as an accessory use or structure to a primary structure per Chapter 166.
4. LSES are not allowed in residential or commercial zones and may be constructed only in I-2 Heavy Industrial zones.
5. Utility scale solar energy systems are not permitted.

#### **159.04 REGULATIONS AND REQUIREMENTS.**

1. It shall be unlawful to construct, erect, install, alter or locate any SES within the City, unless pre-approved with a building permit.
2. A site plan showing the location of the system on the site, the area of the base of the system and the total height of the system.
3. Standard drawings, specifications of system components, and dimensional representations of the system and all its parts, including the supporting frame and footings.
4. A line drawing of the electrical components and path of electricity.
5. For systems to be mounted on existing buildings an engineering analysis showing sufficient structural capacity of the receiving structure to support the SES per current code requirements and certified by an Iowa licensed professional engineer is required.
6. A copy of the customer invoice clearly stating an accurate valuation of the SES, support structure and all physical components of the system. Valuation will exclude any rebates and must reflect actual current retail value.
7. Compliance With All Governmental Regulations. The owner/operator of the SES shall obtain any other permits required by other federal, State and local agencies/departments, prior to erecting the system.
8. Installation and Inspection. Installation shall be subject to inspection by the City building inspector or Public Works' appointee. Installation must be done in accordance with manufacturer's instructions (AMI). All work must be completed according to the current applicable building, fire and electrical codes. All electrical components must meet current code recognized test standards.
9. Color. The color of the support base of 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.

10. Lighting. No lighting other than required safety lights or indicators shall be installed on the SES.
11. Signage. No advertising or signage other than the manufacturer's identification logo shall be permitted on the SES.
12. Maintenance. The SES 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 will be subject to abatement as such. Vegetation will be maintained at and around SES per Chapter 56 of the Creston Code of Ordinances. Multiple violations of Chapter 56 will be documented and any SES with three (3) or more violations in one (1) calendar year will be cited for nuisance abatement removal at the owner's expense.
13. Displacement of Parking Prohibited. The location of the SES shall not result in the net loss of minimum required parking.
14. 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.
15. 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.
16. 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.
17. Shutoff. A clearly marked and easily accessible shutoff for any SES that generates electricity will be required.
18. Electromagnetic Interference. All SESs 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 up to and 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.
19. Removal. If the SES remains nonfunctional or inoperative for a continuous period of one (1) 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 subject to nuisance abatement as such.

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 nonconforming structure under the provisions of the Zoning Ordinance. Exceptions include 159.05 Subsections 6, L and M will be followed including pre-existing SES.

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

22. Bulk Regulations. No more than one SES may be placed on any zoned lot and not more than one SES on connected lots of single ownership.

#### **159.05 GROUND MOUNTED SES.**

1. No part of 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 with the regulations for accessory use of structures in zoning and subdivision 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 SES shall not be located in the front yard setback. For the purpose of corner lots this would mean any yard in front of or any side of the house facing a street as explained in Chapter 166.

4. A SES shall not be located in any required buffer or setback as set forth in Chapter 166. Additionally, a system may be located 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.

5. A SES located on a zero (0) lot line lot shall not comply with requirements set forth in Chapter 166.

6. No portion of an SES shall be located closer than six (6) feet to the principal building or to any other building or structure on the lot or location. In addition, a SES shall not occupy more than thirty (30) percent of the rear yard.

7. The setback for any public utility main such as water, sewer, gas or electric shall be seven feet.

8. No SES shall be located which may obstruct vision between a height of thirty (30) inches and ten (10) feet on any corner lot within a vision triangle of twenty-

five (25) feet formed by intersecting street right of way lines or must meet Chapter 168 requirements, whichever is greater.

#### **159.06 BUILDING MOUNTED SES.**

1. The SES shall be set back not less than two (2) feet from the exterior perimeter of the roof for every one (1) foot the system extends above the parapet wall or roof surface. The SES must also be set back to the vertical wall line as not to utilize any overhanging soffits for support.
2. Should the SES be mounted on an existing structure that does not conform to current setback requirements, the SES shall be installed to meet the current setback requirements applicable to the structure in Chapter 166 or current accepted ICC requirements, whichever is greater.
3. Panel arrangement shall be placed 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 current applicable building, fire and safety codes.

#### **159.07 BUILDING INTEGRATED SES.**

1. The SES must conform to current setback requirements which pertain to the structure.
2. Access pathways for the SES shall be provided in accordance to all current applicable building, fire and safety codes.

#### **159.08 HEIGHT.**

1. Ground Mounted SES. The maximum height of the SES shall not exceed ten (10) feet in height as measured from existing grade.
2. Building Mounted SES. The total system height including mounting system shall not extend higher than twelve (12) inches above the roof surface of a sloped roof.
3. The collector panel surface and mounting system shall not extend higher than seven (7) feet above the roof surface of a flat roof.
4. Building Integrated SES. The collector panel shall maintain a uniform profile or surface with the building's vertical walls and roofing.

#### **159.09 SIZE.**

1. Ground Mounted SES. Size of the SES is calculated by measuring the total surface area of the collector panels for the system and shall not exceed 780 square feet in residential or commercial zones.

2. Building Mounted SES. System size will be determined by the available roof area subject to the installation, minus the required setbacks or access pathways. Roof mounted systems shall not exceed 780 square feet for total surface area in residential or commercial zones.

3. Building Integrated SES. System size will be determined by the available building surface area subject to the installation, minus the required access pathways. System to be installed according to manufacturer's instructions (AMI).

**159.10 VIOLATIONS AND PENALTIES.** Any violation of the provisions of the chapter shall be a municipal infraction. In addition to the provisions set out in the section herein, the City may proceed in law, or in equity, against any person, firm or corporation for violation of any section or subsection of this chapter.

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