

6.19
Solar Power Amendments
To Sac County Zoning Ordinance

- I. Scope - This article applies to all solar energy installations in the unincorporated areas of Sac County
- II. Purpose - Sac County has adopted this ordinance to meet the goals of the Comprehensive Plan and preserve the health, safety and welfare of the Community's citizens by promote the safe, effective and efficient use of active solar energy systems installed to reduce the on-site consumption of fossil fuels.
- III. Repealer. All Sac County Ordinances or parts thereof in conflict with the provisions of this Ordinance are repealed.
- IV. Severability. If any section, provision, 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 section, provision, or part thereof not adjudged invalid or unconstitutional.
- V. Effective Date. This Ordinance shall be in effect from and after its final passage, approval, and publication as provided by law.

Date: Introduction & First Reading _____ Date: Second Reading _____

Date: Third & Final Reading _____ Date of Publication: _____

Signed: _____, Chairperson Attest: _____, Auditor

VI. Sections Modified specifically, add the following language:

6.19.010 Solar Related Definitions

- 01. **Active Solar Energy System** - A solar energy system whose primary purpose is to harvest energy by transforming solar energy into another form of energy or transferring heat from a collector to another medium using mechanical, electrical, or chemical means.
- 02. **Building-integrated Solar Energy Systems** - An active solar energy system that is an integral part of a principal or accessory building, rather than a separate mechanical device, replacing or substituting for an architectural or structural component of the building. Building-integrated systems include but are not limited to photovoltaic or hot water solar energy systems that are contained within roofing materials, windows, skylights, and awnings.
- 03. **Concentrating Solar Polar-(also called concentrated solar power, concentrated solar thermal, and CSP)** systems generate power by using mirrors or lenses to concentrate a large area of sunlight, or solar thermal energy, onto a small area. Electricity is generated when the concentrated light is converted to heat, which drives a heat engine (usually a

steam turbine) connected to an electrical power generator or powers a thermochemical reaction.

04. **Grid-intertie Solar Energy System** - A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.
05. **Ground-mount** – a solar energy system mounted on a rack or pole that rests or is attached to the ground. Ground-mount systems can be either accessory or principal uses.
06. **Off-grid Solar Energy System** - A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility company.
07. **Passive Solar Energy System** - A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.
08. **Photovoltaic System** - An active solar energy system that converts solar energy directly into electricity.
09. **Renewable Energy Easement, Solar Energy Easement** - An easement that limits the height or location, or both, of permissible development on the burdened land in terms of a structure or vegetation, or both, for the purpose of providing access for the benefited land to wind or sunlight passing over the burdened land.
10. **Renewable Energy System** - A solar energy or wind energy system. Renewable energy systems do not include passive systems that serve a dual function, such as a greenhouse or window.
11. **Roof-mount** – a solar energy system mounted on a rack that is fastened to or ballasted on a building roof. Roof-mount systems are accessory to the principal use.
12. **Roof Pitch** - The final exterior slope of a building roof calculated by the rise over the run, typically but not exclusively expressed in twelfths such as 3/12, 9/12, 12/12.
13. **Solar Access** - Unobstructed access to direct sunlight on a lot or building through the entire year, including access across adjacent parcel air rights, for the purpose of capturing direct sunlight to operate a solar energy system.
14. **Solar Farm** - A commercial facility that converts sunlight into electricity, whether by photovoltaics (PV), or other conversion technology, for the primary purpose of wholesale sales of generated electricity. A solar farm is the principal land use for the parcel on which it is located.

15. **Solar Garden** – A commercial solar-electric (photovoltaic) array that provides electric power to a cluster of households (such as a subdivision) or businesses residing or located offsite from the location of the solar energy system.
16. **Solar Resource** –Is a view of the sun from a specific point on a lot or building that is not obscured by any vegetation, building, or object for a minimum of four hours between the hours of 9:00 AM and 3:00 PM Standard time on all days of the year.
17. **Solar Collector** - A device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.
18. **Solar Collector Surface** - Any part of a solar collector that absorbs solar energy for use in the collector's energy transformation process. Collector surface does not include frames, supports and mounting hardware.
19. **Solar Daylighting** - A device specifically designed to capture and redirect the visible portion of the solar spectrum, while controlling the infrared portion, for use in illuminating interior building spaces in lieu of artificial lighting.
20. **Solar Energy** - Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.
21. **Solar Energy System** - A device, array of devices, or structural design feature, the purpose of which is to provide for generation of electricity, the collection, storage and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating.
22. **Solar Heat Exchanger** - A component of a solar energy device that is used to transfer heat from one substance to another, either liquid or gas.
23. **Solar Hot Air System** - (also referred to as Solar Air Heat or Solar Furnace) – An active solar energy system that includes a solar collector to provide direct supplemental space heating by heating and re-circulating conditioned building air. The most efficient performance typically uses a vertically mounted collector on a south-facing wall.
24. **Solar Hot Water System** (also referred to as Solar Thermal) - A system that includes a solar collector and a heat exchanger that heats or preheats water for building heating systems or other hot water needs, including residential domestic hot water and hot water for commercial processes.
25. **Solar Mounting Devices** - Racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground.
26. **Solar Storage Unit** - A component of a solar energy device that is used to store solar generated electricity or heat for later use.

6.19.020 Special Uses when Authorized by the Board of Adjustment (C- District)

- .01 Utility Scale Solar Installations as described in Section 6.19.150.02
- .02 Solar Gardens as described in Section 6.19.150.02

6.19.030 Permitted Accessory Uses (C- District)

- .01 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01

6.19.040 Special Uses when Authorized by the Board of Adjustment (Ag- District)

- .01 Utility Scale Solar Installations as described in Section 6.19.150.02
- .02 Solar Gardens as described in Section 6.19.150.02

6.19.050 Permitted Accessory Uses (Ag- District)

- .01 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01

6.19.060 Special Uses when Authorized by the Board of Adjustment (R- District)

- .01 Solar Gardens as described in Section 6.19.150.02

6.19.070 Permitted Accessory Uses (R- District)

- .01 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01

6.19.080 Special Uses when Authorized by the Board of Adjustment (LA- District)

- .01 Solar Gardens as described in Section 6.19.150.02
- .02 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01

6.19.090 Permitted Accessory Uses after Cities and BOS approval (UT District)

- .01 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01
- .02 Utility Scale Solar Installations as described in Section 6.19.150.02
- .03 Solar Gardens as described in Section 6.19.150.02

6.19.100 Special Uses when Authorized by the Board of Adjustment (PR- District)

- .01 Solar Gardens as described in Section 6.19.150.02

6.19.110 Permitted Accessory Uses (I-S District)

- .01 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01

6.19.120 Special Uses when Authorized by the Board of Adjustment (I-S District)

- .01 Utility Scale Solar Installations as described in Section 6.19.150.02
- .02 Solar Gardens as described in Section 6.19.150.02

6.19.130 Special Uses when Authorized by the Board of Adjustment (I- District)

.01 Utility Scale Solar Installations as described in Section 6.19.150.02

.02 Solar Gardens as described in Section 6.19.150.02

6.19.140 Permitted Accessory Uses (I-1 District)

.01 Non-Utility Scale Solar Energy Systems as described in Section 6.19.150.01

6.19.150 SOLAR ENERGY STANDARDS

.01 Non-Utility Scale Solar Installations

- .1 Permitted Accessory Use. Active solar energy systems that are allowed as an accessory use are subject to certain requirements as set forth below. Active solar energy systems that do not meet the standards below will require a special use permit.
 - A. Height. Active solar energy systems must meet the following height requirements:
 - (1) Building- or roof-mounted solar energy systems shall not exceed the maximum allowed height in any zoning district. For purposes for height measurement, solar energy systems other than building-integrated systems shall be given an equivalent exception to height standards as building mounted mechanical devices or equipment.
 - (2) Ground- or pole-mounted solar energy systems shall not exceed 20 feet in height when oriented at maximum tilt.
 - B. Set Back. Active solar energy systems must meet the accessory structure setback for the zoning district and primary land use associated with the lot on which the system is located.
 - (1) Roof-mounted solar energy systems. In addition to the building setback, the collector surface and mounting devices for roof-mounted solar energy systems shall not extend beyond the exterior perimeter of the building on which the system is mounted or built, unless the collector and mounting system has been explicitly engineered to safely extend beyond the edge, and setback standards are not violated. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side yard exposure.
 - (2) Ground-mounted solar energy systems. Ground-mounted solar energy systems may not extend into the side-yard or rear setback when oriented at minimum design tilt.
 - C. Location.
 - (1) Building integrated or roof-mounted photovoltaic solar energy systems shall be allowed regardless of whether the system is visible from the public right-of-way, provided the building component in which the system is integrated

meets all required setback, land use or performance standards for the district in which the building is located.

- (1) Solar Energy Systems using ground-mounts shall be located in the side or rear yard in a Residential, Business, Interchange Service, or Industrial district.
 - D. Coverage. Roof or building mounted solar energy systems, excluding building-integrated systems, shall allow for adequate roof access to the south-facing or flat roof upon which the panels are mounted.
 - E. Historic Buildings. Solar energy systems on buildings within designated historic districts or on locally designated historic buildings (exclusive of State or Federal historic designation) will require a special use permit.
 - F. Approved Solar Components. Electric solar energy system components must have a UL listing and solar hot water systems must have an SRCC rating.
 - G. Plan Approval Required. All solar energy systems shall require administrative plan approval by the zoning official.
 - (1) Plan Applications. Plan applications for solar energy systems shall be accompanied by drawings that must show the location of the system on the building or on the property for a ground-mount system, including the setback from property lines.
 - (2) Plan Approvals. Applications that meet the setback requirements of this ordinance, and do not require a special use permit, shall be granted administrative approval by the zoning official. Plan approval does not indicate compliance with Building Code or Electric Code.
 - H. Compliance with Building Code. All active solar energy systems shall be consistent with the State of Iowa Building Code and solar thermal systems shall comply with HVAC-related requirements of the Electric Code.
 - I. Compliance with State Electric Code. All photovoltaic systems shall comply with the Iowa State Electric Code.
 - J. Compliance with State Plumbing Code. Solar thermal systems shall comply with applicable Iowa State Plumbing Code requirements.
 - K. Utility Notification. All grid-intertie solar energy systems shall comply with the interconnection requirements of the electric utility. Off-grid systems are exempt from this requirement.
- .2 Special Use. The county encourages the installation of productive solar energy systems and recognizes that a balance must be achieved between character and aesthetic considerations and the reasonable desire of building owners to harvest their renewable energy resources. Where the standards in 14.15.070.1.A, 14.15.070.1.B, or 14.15.070.1.C cannot be met without diminishing the minimum reasonable performance of the solar energy system, a special use permit may be sought from the Board of Adjustment.

- .3 Solar Access - Sac County allows for solar resources to be protected consistent with Iowa Statutes.
 - A. Solar Easements Allowed - Sac County allows solar easements to be filed, consistent with Iowa State Code 564A7. Any property owner can purchase an easement across neighboring properties to protect access to sunlight. The easement can apply to buildings, trees, or other structures that would diminish solar access. In situations where the easements are not voluntarily agreed to, the solar access regulatory board may determine whether or not granting an easement is appropriate, consistent with Iowa Statutes 564A.3.

.02 Solar Gardens or Utility scale solar installations.

- .1 Concentrating solar power (CSP) systems shall be prohibited.
- .2 A site plan shall be submitted and reviewed prior to the approval of a solar garden or utility scale solar installation, and shall require a Conditional Use Permit.
- .3 The application for a solar garden or utility scale solar installation shall include the following information on the site plan or in narrative form, supplied by the solar garden or utility scale solar installation owner, operator or contractor installing the structure(s):
 - A Number, location and spacing of solar panels/arrays.
 - B Planned location of underground or overhead electric lines.
 - C Project development timeline which indicates how the applicant will inform adjacent property owners and interested stakeholders in the community.
 - D Interconnection agreement.
 - E Decommissioning plan.
- .4 Site and Structure Requirements
 - A. Setback. Setbacks for all structures (including solar arrays) must adhere to the minimum principal setback standards for the zoning district where the project is located; greater setbacks may be recommended absent a solar access easement agreement.
 - B. Screening. A landscape buffer may be required to be installed and maintained during the life of the operation. Determination of screening requirements will be made by the Board of Adjustment as part of the review and approval process and will be based on adjacent or nearby surrounding land uses and topography.
 - C. Utility Connections. Reasonable efforts shall be made to place all utility connections from the solar installation underground, depending on appropriate soil conditions, shape and topography of the site, distance to the connection, or other conditions or requirements.

- D. Grading plan. A grading plan shall be submitted and shall include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, drainage, tree removal, etc.).
- E. Glare minimization. All solar panels must be constructed to minimize glare or reflection onto adjacent properties and adjacent roadways and must not interfere with traffic, including air traffic, or create a safety hazard.
- F. Aviation Protection - For solar farms located within 500 feet of an airport or within approach zones of an airport, the applicant must complete and provide the results of the Solar Glare Hazard Analysis Tool (SGHAT) for the Airport Traffic Control Tower cab and final approach paths, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.
- G. Compliance with local, state and federal regulations. Solar Garden and Utility scale solar installations shall comply with applicable local, state and federal regulations.
- H. Accessory structures. All accessory structures shall be subject to bulk and height regulations of structures in the underlying zoning district.
- I. Floodplain considerations. Utility scale solar installations are considered to be maximum damage potential structures and facilities for purposes of the floodplain district regulations.
- J. Signage. Warning signs, or manufacturer's, operator's or installer's identification signage, may be displayed.
- K. Fencing/security. A security fence must be installed along all exterior sides of the utility scale solar installation and be equipped with a minimum of one gate and locking mechanism on the primary access side. Security fences, gates and warning signs must be maintained in good condition until the utility scale solar installation is dismantled and removed from the site.

.5 Decommissioning and site reclamation plan.

- A. The application must include a decommissioning plan that describes: the anticipated life of the utility scale solar installation; the anticipated manner in which the project will be decommissioned; the anticipated site restoration actions; the estimated decommissioning costs in current dollars; and the method for ensuring that funds will be available for decommissioning and restoration.
- B. Following a continuous 1 year period in which no electricity is generated, or if substantial action on the project is discontinued for a period of 1 year, the permit holder will have 1 year to complete decommissioning of the utility scale solar installation. Decommissioning shall be completed in accordance with the approved decommissioning plan. The land owner or tenant must notify the County when the project is discontinued.