

**PROPOSAL - GAGE COUNTY PLANNING AND ZONING SOLAR REGULATIONS  
(As of 9-13-2022)**

**6.8 SOLAR ENERGY CONVERSION SYSTEMS**

6.81 INTENT: In order to balance the need for clean, renewable energy resources with the protection of the health, safety, and welfare of the residents of Gage County, Nebraska, the County finds these regulations are necessary in order to ensure that all solar energy conversion systems (SECS) are appropriately designed, sited and installed. These regulations pertaining to all solar energy conversion systems are intended to respond to equipment available at the time of adoption. Gage County recognizes that this is an emerging technology and that new means of collecting energy are under development. Accordingly, these standards will be reviewed and may be amended as technology advances.

**6.81 TYPES OF SOLAR CONVERSION SYSTEMS:**

- A. CLASS 1 - Small Solar Energy Conversion System (SSECS) -** A SSECS which has a rated capacity of up to one hundred (100) kilowatts and which is incidental and subordinate to another use of the same parcel. A system is considered a small solar energy system only if it supplies energy for site use, except that when a parcel on which the system is installed also received electrical power supplied by a utility company, excess electrical power generated and not presently needed for onsite use may be sold back to the utility company. To be used in conformance with Nebraska State Statutes 70-2001 through 70-2005, regarding the net metering of distributed generation systems of 25 kilowatts and less.
  
- B. CLASS 2 - Commercial Solar Energy Conversion System (CSECS) -** A CSECS which has a rated capacity of one hundred (100) kilowatts to two (2) megawatts, under a common or aggregated ownership that includes substations, cables/wire, convertors and other building accessories, whose main purpose is to supply electricity to on and off-site customers. CSECS may be included as an aggregated project, such as those projects that are developed and operated in a coordinated fashion, but which have multiple entities separately owning one or more of the CSECS within a larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also part of the aggregated project.
  
- C. CLASS 3 – Commercial Solar Energy Conversion System (CSECS) -** A CSECS which has a rated capacity greater than two (2) megawatts, under a common or aggregated ownership that includes substations, cables/wire, convertors and other building accessories, whose main purpose is to supply electricity to off-site customers. CSECS may be included as an aggregated project, such as those projects that are developed and operated in a coordinated fashion, but which have multiple entities separately owning one or more of the CSECS within a larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also part of the aggregated project.

- N. Photovoltaic System: An active solar energy stem that converts solar energy directly into electricity.
- O. Rooftop or Building Mounted Solar Energy System: A solar energy system that is mounted to the roof or building using brackets, stands or other apparatus.
- P. Solar Collector (Accessory): A device, structure or a part of a device or structure that the principal purpose is to transform solar radiant energy into thermal, mechanical, chemical or electrical energy.
- Q. Solar Glare: The glare effect that occurs when the sun reflects on the conversion system and that can affect people or near-by properties.
- R. Solar Energy: Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.
- S. Solar Energy System (SES): An aggregation of parts including bases, structures, panels, convertors, generators and configuration necessary to convert the power of solar into mechanical or electrical energy; e.g. photovoltaic, heat, etc.
- T. Substation: Any electrical facility utilized to convert electricity produced by a SES for inter-connection with high voltage transmission lines.
- U. Transmission Line: The electrical power lines that are high voltage transmission lines carrying electricity over medium to long distances rather than directly interconnecting and supplying electric energy to retail customers.
- V. Yard, Front: A yard extending from the front lot line of the SECS and adjoining a public street or road to the front of the SECS between side lot lines.
- W. Yard, Rear: A yard extending between side lot lines and measured horizontally at right angles to the rear lot line from the rear lot to the nearest point of the SECS.
- X. Yard, Side: A yard between the SECS and the side lot line measured horizontally at right angles to the side lot line from the side lot line to the nearest point required minimum open space between the property line and the SECS.

### **6.83 Class 1 - Small Solar Energy Conversion System:**

**Class 1 - Small Solar Energy Conversion System (SSECS) -** A SSECS which has a rated capacity of up to one hundred (100) kilowatts and which is incidental and subordinate to another use of the same parcel. A system is considered a small solar energy system only if it supplies energy for site use, except that when a parcel on which the system is installed also received electrical power supplied by a utility company and excess electrical power generated which is not presently needed for onsite use may be sold back to the utility company. To be used in conformance with Nebraska State Statutes 70-2001 through 70-2005, regarding the net metering

(FAA).

7. All electrical wires associated with a SSECS other than the wires necessary to connect the junction box and the grounding wires shall be located underground.

8. All ground mounted electrical and control equipment must be labeled and secured to prevent unauthorized access. A structure may not have step bolts or a ladder within eight (8) feet of the ground that is readily accessible to the public.

9. The owner of a SSECS shall minimize and mitigate any interference with electromagnetic communications, such as radio, telephone, internet or television signals caused by the facility.

10. Construction sites must be re-graded and re-vegetated to minimize environmental impacts.

11. SSECS application must include a plan during the application process that states all equipment, support structures, electrical equipment and fences will be removed upon the discontinuance of the system's operation.

12. Solar panels shall conform to the required front, side and rear lot setback requirements, except as provided herein:

- a) A solar panel which is attached to an integral part of the principal building may project two feet into the front yard; six feet into the rear yard; and two feet into the side yard.
- b) A solar panel which is freestanding shall be located only in the required rear or side yard provided it does not exceed 12 feet in height and not closer than five feet to any existing easement as measured from the closest point of structure including the foundation and anchorage's nor shall the solar panel be located in the required front yard.
- c) The physical structure and connections to existing structures shall conform to the applicable state building and electrical codes.
- d) Comply with any and /or all State and Federal regulations, if applicable.

13. Pre-Existing Solar Panels, as of December 6, 2022 may continue to be utilized so long as continuously maintained in operational condition.

14. The Gage County Zoning Administrator may require other testing and safeguards, prior to approval, as deemed necessary.

**B. Application Requirements for Class 1 - Small Solar Energy Conversion Systems:**

1. Application Requirements must include:
  - a. The name (s) of project applicant.
  - b. Name of the project owner (s).
  - c. The legal description and address of the project.
  - d. A description of the project including: number, type, nameplate generating capacity, agreement and means of interconnecting with the electrical grid.
  - e. Site layout, including the location of property lines, easements, wetlands, protected

From Public Road: CSECS shall maintain a minimum setback distance from any public road of at least seventy five (75) feet measured from center of road or the highway right of way, whichever is greater.

From Participating Property: No setback is required between an adjacent residence of a property participating, in the same aggregated project.

From Non-Participating Property: CSECS shall maintain a minimum of seventy five (75) feet from property line.

From Non-Participating Existing Dwelling: CSECS shall maintain a minimum setback of 660 feet (1/8 mile) from property line.

From Churches, Public Schools, Rockford Lake State Park, NRD Big Indian, NRD Wildcat Lake and Homestead National Historical Park: CSECS shall maintain a minimum setback of 1,320 ft (1/4 mile) from property line.

From Approved Platted Subdivisions: CSECS shall maintain a minimum setback of 1,320 ft (1/4 mile) from property line.

From Towns and Villages that do not have applicable zoning regulations: CSECS shall maintain a minimum setback of 1,320 ft (1/4 mile) from property line.

- C. Waiver of Set-back Requirements: Set-back requirements may be waived by agreement between adjoining landowners provide that:
- a) Said agreement for waiver is made in writing;
  - b) Said agreement is presented to the Zoning Administrator upon application for zoning permit; and
  - c) Said agreement shall be recorded in the Gage County Register of Deeds Office, indexed to the affected properties.
4. Structures shall meet applicable industry structural codes, shall be neutral in color and shall not be used to display advertising.
5. CSECS shall meet all requirements for placement with the Federal Aviation Administration (FAA).
6. CSECS shall provide visual screening for adjacent non-participating, public park uses and school uses:
1. Fences, walls, berming, vegetation or some combination thereof to provide visual screening shall be used. Fencing, walls or berming may be used to supplement other screening methods, but shall not account for over fifty percent (50%) of the screening. Existing natural features, topography and vegetation may be used to achieve visual screening if provided in accordance to the visual screening requirements provided herein.

8. The owner of a CSECS shall minimize and mitigate any interference with electromagnetic communications, such as radio, telephone, internet or television signals caused by the facility.
9. Construction sites must be re-graded and re-vegetated to minimize environmental impacts and the plan must be submitted with the application.
10. Each CSECS system application shall have a decommissioning plan outlining the means, procedure and costs of removing all related support infrastructure. This plan must be submitted with the application, and state all equipment, support structures, electrical equipment and fences will be removed upon discontinuance of the system's operation within one (1) year.
11. The CSECS shall comply with any and/or all State and Federal regulations, if applicable.
12. The Gage County Planning Commission and Gage County Board of Supervisors may require other testing and safeguards, prior to approval, as deemed necessary.
13. A Solar Resource Measurement Device used for the purpose of a solar energy conversion system is permitted by a Conditional Use Permit, approved by the Gage County Zoning Administrator for the Aggregated Project and must meet setback requirements of those established for a CSECS. If the Solar Resource Measurement Device is non-functional, it shall be removed after a period of two (2) years from discontinuance.
14. Each CSECS must have a 911 address.
15. The CSECS shall be designed and placed in such a manner to minimize adverse visual and noise impacts on adjacent areas. Such things as screenings, fencing, vegetation, trees, shrubs and pollinator plantings can be used, however such design should be included in the application documents.
16. In no case shall a CSECS be located within any required setback or in any front yard area; except that a non-participating landowner can waive a setback requirement by a written agreement submitted at the time of the application. Such agreement must be filed with the Register of Deeds and proof of that filing shall be provided to the Gage County Planning & Zoning Administrator prior to approval of the permit.
17. Structures for the CSECS project must provide a structural analysis, stamped by a licensed engineer registered in the State of Nebraska.
18. Colors and surface treatment of the CSECS and supporting structures shall, to the greatest extent possible, minimize disruption of the natural characteristics of the site. No logos or advertisements are allowed on these structures. The project shall be marked with a visible identification number applicable to the project with current contact numbers
19. Reasonable measures shall be taken to mitigate specific adverse visual impacts such as potential glint or reflections which affect residences within or immediate adjacent to the project area.

From Towns and Villages that do not have applicable zoning regulations: CSECS shall maintain a minimum setback of 2,640 feet (1/2 mile) from property line.

C. Waiver of Set-back Requirements: Set-back requirements may be waived by agreement between adjoining landowners provide that:

- d) Said agreement for waiver is made in writing;
- e) Said agreement is presented to the Zoning Administrator upon application for zoning permit; and
- f) Said agreement shall be recorded in the Gage County Register of Deeds Office, indexed to the affected properties.

4. Structures shall meet applicable industry structural codes, shall be neutral in color and shall not be used to display advertising.

5. CSECS shall meet all requirements for placement with the Federal Aviation Administration (FAA).

6. CSECS shall provide visual screening for adjacent non-participating, public park uses and school uses:

2. Fences, walls, berming vegetation or some combination thereof to provide visual Screening shall be used. Fencing, walls or berming may be used to supplement other screening methods, but shall not account for over fifty percent (50%) of the screening. Existing natural features, topography and vegetation may be used to achieve visual screening if provided in accordance to the visual screening requirements provided herein.

a. If the visual screening is for adjacent non-participating residential uses, it shall be provided as follows:

i. If the screen is required, the screen shall cover one hundred percent (100%) of the surface area of a vertical plane extending along the property line adjacent to the CSECS at an amount equal to or greater than the surface area of the dwelling to be visually screened, plus seventy five (75) feet in both directions or until it reaches a public road right-of-way, which comes first, and from the ground to a height of at least eight (8) feet above the adjacent ground.

b. If the visual screening is for adjacent non-participating public park or school uses, it shall be provided as follows:

i. The screen shall cover at least seventy percent (70%) of a vertical plane extending along the entire property line adjacent to the CSECS from the ground to a height of at least eight (8) feet above the adjacent ground.

c. If the visual screening is achieved through a fence or wall, it shall be provided

established for a CSECS. If the Solar Resource Measurement Device is non-functional, it shall be removed after a period of two (2) years from discontinuance.

15. Each CSECS must have a 911 address.

16. The CSECS shall be designed and placed in such a manner to minimize adverse visual and noise impacts on adjacent areas. Such things as screenings, fencing, vegetation, trees, shrubs and pollinator plantings can be used, however such design should be included in the application documents.

17. In no case shall a CSECS be located within any required setback or in any front yard area; except that a non-participating landowner can waive a setback requirement by a written agreement submitted at the time of the application. Such agreement must be filed with the Register of Deeds and proof of that filing shall be provided to the Gage County Planning & Zoning Administrator prior to approval of the permit.

18. Structures for the CSECS project must provide a structural analysis, stamped by a licensed engineer registered in the State of Nebraska.

19. Colors and surface treatment of the CSECS and supporting structures shall, to the greatest extent possible, minimize disruption of the natural characteristics of the site. No logos or advertisements are allowed on these structures. The project shall be marked with a visible identification number applicable to the project with current contact numbers

20. Reasonable measures shall be taken to mitigate specific adverse visual impacts such as potential glint or reflections which affect residences within or immediate adjacent to the project area.

21. The applicant shall minimize or mitigate any interference with electromagnetic communications, such as radio, telephone or television signals caused by any solar energy facility.

#### **6.86 Application Requirements:**

The applicant for a conditional use permit for construction of a CSECS shall file an application with the Gage County Zoning Administrator. The application shall include the name(s) of the project applicant(s); the name of the project owner(s); the legal description and address for the project. The application shall also include the following documents:

A. A survey map illustrating the following:

1. Property lines, dimensions, acreage encompassed and contours with appropriate intervals for site evaluation.

5. Commercial activities.

- I. Application shall meet all requirements of NDEE, NRCS and NRD Districts in the project area. Soil erosion, sediment control and storm water runoff plan shall address what types of erosion control measures will be used during each phase of the project. It shall identify plans for
1. Grading;
  2. Construction and drainage of access roads;
  3. Design features to control dust;
  4. Design features to maintain downstream water quality;
  5. Re-vegetation to ensure slope stability;
  6. Restoring the site after temporary project activities;
  7. Disposal or storage of excavated materials;
  8. Protecting exposed soil;
  9. Stabilizing restored material and removal of silt fences or barriers when the area is stabilized; and
  10. Maintenance of erosion controls throughout the life of the project.
- J. Applicant shall provide information regarding flora and fauna of the proposed project area including:
1. Officially listed threatened or endangered species;
  2. Critical habitat and habitat conditions;
  3. An avian study based on the U.S. Fish and Wildlife Service
- K. A pre-construction noise and glare study shall be conducted; and shall include all property within 1320' feet of the CSECS. Projections of any glare on a structure shall include the extent and duration of the glare on the existing structure. The protocol, methodology and modeling shall be included in the study. The complete results and full study report shall be submitted to the Gage County Planning Commission for review at the time of the application.
- L. Standard drawings of the structural components of the CSECS.
- N. Certification by a registered licensed Engineer in the State of Nebraska that shows:
1. There is a substantial need for the proposed use of CSECS, one hundred and one (101) kW or greater;
  2. All applicable local, state and federal building, structural and electrical codes have been followed;
  3. The site is feasible for a CSECS; and can be successfully operated in the climate conditions found in Gage County;
  4. The design and safety of the proposed CSECS can withstand weather related events;



and site shall be enclosed with a locked protective fence at least eight (8) feet high around the site.

- E. The CSECS operator shall maintain a current insurance policy which will cover liability, installation, operation and any possible damage or injury that might result from the failure of any part or parts of the generation and transmission facility. The amount of said policy shall be established as a condition of approval. The CSECS shall be warranted against any system failures reasonably expected in severe weather operation.
- F. An Emergency Operations Plan (EOP) must be placed on file and kept current with Gage County Zoning Administrator Gage County Emergency Management and Fire and Rescue Department (s) within the project jurisdiction. The plan shall include an all-hazards planning approach, based on an emergency incident or disaster of any magnitude or geographic size that may cause disruption to the function of CSECS and include contacts for notification.
- G. Upon completion of the CSECS project the Applicant shall meet with local Fire and Rescue jurisdiction to review the Emergency Operations Plan.

**6.88 Discontinuation and Decommissioning**

- A. A cash escrow account is required before the permit is approved to guarantee removal and restoration upon discontinuation, decommissioning or abandonment of the facilities. The amount of the escrow shall include the current gross cost of decommissioning and restoration and the permit holder shall be responsible for the holding/setup fee. It shall be funded at a minimum of 10% increments annually until fully funded to satisfy the current projected decommissioning and restoration costs. The amount required may change when projected costs are reviewed and updated every 5 years. After being fully funded by year 10, the applicant shall continue to fund the escrow at 3% of its value for the life of the project with repeated 5-year cost reviews and updates. Any escrow amounts which are more than actual costs shall be returned to the Applicant within (90) days after the facilities have been fully decommissioned.

Upon transfer of any CSECS permit, the permit holder shall submit proof that the escrow has been reassigned. The transfer of a CSECS permit must be filed with the Register of Deeds and evidence of that filing shall be presented to the Gage County Planning and Zoning Administrator and Gage County Board of Supervisors.

- B. A CSECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Gage County Zoning Administrator outlining the steps and schedule for returning the CSECS to service. All CSECS and accessory facilities shall be removed four (4) feet below ground level within ninety (90) days of the

- C. All noise complaints regarding the operation of any CSECS shall be referred, in writing, to the Gage County Planning and Zoning Administrator and the Gage County Board of Supervisors.
- D. The Gage County Board of Supervisors shall determine whether a violation has occurred.