

Solar Energy Systems Ordinance

Draft – January 28, 2025

1. Purpose and Scope.

- a. The purpose of this section is to adopt and incorporate the requirements of Wis. Stats. § 66.0401 and § 66.0403 as a local ordinance, to regulate Solar Energy Systems (“SES”) for the production of electricity and/or conversion of energy for uses on site as well as those systems which produce electricity for off-site use and distribution. The regulations of this section have been established to ensure SES are sited, constructed, maintained, operated and decommissioned in a manner that maximizes utilization of Jefferson County’s solar energy resources, while also protecting the health, safety and welfare of the community. The provisions listed under this section are not intended to be a duplication of any federal or state requirement or to exceed that authority granted to Wisconsin counties.
- b. All applications regulated by this section may be subject to additional conditions and restrictions consistent with Wis. Stat. §66.0401, where such conditions are considered and applied on a case-by-case basis, as well as satisfy one of the following:
 - i. Serves to preserve or protect the public health or safety.
 - ii. Does not significantly increase the cost of the system or significantly decrease its efficiency.
 - iii. Allows for an alternative system of comparable cost and efficiency.
- c. No Solar Energy System shall be erected, enlarged or extended without conformance to the provisions of this section and other applicable restrictions, as evidenced by the issuance of a Zoning Permit by the Zoning Administrator and where required, Conditional Use Permit approval by the Planning & Zoning Committee.

2. Definitions

- a. “Accessory Solar Energy System” means, but is not limited to, a photovoltaic energy system that converts solar energy to usable thermal, mechanical, chemical, or electrical energy, where such solar energy system is accessory to the principal use of the land and serve the land or structures on the same parcel (e.g., solar panels providing energy for a dwelling on the same lot). Accessory Solar Energy Systems are not intended for use as a public utility or to provide energy into the grid and generate less than 1,000 kilowatts (1 megawatt).
- b. “Battery Energy Storage System” (BESS) means electrochemical devices that charge or collect energy from the grid or a generation facility, store that energy, and then discharge that energy at a later time to provide electricity or other grid services.
- a. “Conditional Use Permit” means a discretionary permit for a listed conditional use, granted by the Jefferson County Planning & Zoning Committee, pursuant to the notice and hearing procedures set forth in the sec. 11.05 of the Jefferson County Zoning Ordinance, upon application by the owner and to which various conditions may be attached and must be adhered to by the applicant.

- b. "Energy Storage" means any technology that is capable of absorbing electricity, storing the electricity for a period of time, and redelivering the electricity.
 - c. "Kilowatt" means a unit of power equal to one thousand watts.
 - d. "Large Solar Energy Systems" means, but is not limited to, connected arrays of photovoltaic panels, their supporting structures and/or mounting systems, the network of necessary electrical wires and conduit (above and below ground), power poles, inverters, transformers, and supporting substations, or a concentrated mirror thermal energy generating facility and its respective components. These facilities are designed for nominal operation at a nameplate capacity of 100 megawatts or more. A Certificate of Public Convenience and Necessity issued by the Wisconsin Public Service Commission (PSC) is typically associated with these facilities. This includes facilities which directly convert and transfer solar energy into thermal or electrical energy.
 - e. "Megawatt" means a unit of power equal to one million watts, especially as a measure of the output of a power station.
 - f. "Owner" means the owner of the property, applicant or developer
 - g. "Small Solar Energy System" means but is not limited to, connected arrays of photovoltaic panels, their supporting structures and/or mounting systems, the network of necessary electrical wires and conduit (above and below ground), power poles, inverters, transformers, and supporting substations. These facilities are designed for nominal operation at a nameplate capacity of less than 100 megawatts and do not meet the definition of an "accessory solar energy generating system." This includes facilities which directly convert and transfer solar energy into thermal or electrical energy.
 - h. "Solar Energy System" means a set of devices or equipment which directly converts and then transfers solar energy into usable forms of thermal or electrical energy, including any Accessory Solar Energy System, Small Solar Energy System and Large Energy Solar Systems.
 - i. "Zoning Permit" means written approval by the Zoning Administrator that is required before commencing any development including any structural addition or alteration or change in use as defined by the Jefferson County Zoning Ordinance s. 11.03.
3. General Requirements. The following are requirements of all solar energy systems (SES):
- a. All SES shall be designed to limit grading, soil compaction and native vegetation removal.
 - b. No SES or related structure shall be located in the regulated floodplain.
 - c. No SES or related structure shall be located in a designated wetland.
 - d. Setbacks: Setbacks are measured from the closest point of an array, transformer, converter, inverter, battery, etc., excluding perimeter fences except where specifically noted.
 - i. All SES and related structures and equipment shall meet the underlying zoning district setbacks, and highway setbacks.
 - ii. All SES and related structures and equipment, including perimeter fences, shall meet the applicable shoreland setbacks except as it relates to any DNR approved waterway crossings.

- iii. Small and Large SES shall also meet the following setbacks:
 - 1. 500 feet from non-participating residential homes
 - 2. 700 feet from non-participating residential homes with an SES on three sides, with additional screening approved by the Planning and Zoning Committee
- e. Height: The maximum height for solar collectors or arrays is 18 feet, measured to the highest point.
- f. Code Compliance: A SES shall comply with all applicable building codes and HVAC-related requirements of the Energy Code.
- g. Agricultural Protection: Small and Large SES located in the A-1 or A-2 zoning district must provide a site and soil assessment that identifies the soil type and classification (prime or non-prime for agricultural purposes) for the project area. The SES shall be designed to protect and preserve prime agricultural soils and utilize a maximum of 25% prime soil of the entire project area. On a case-by-case basis an excess of 25% of prime agricultural soil may be used as part of a Small or Large SES if mitigation measures are implemented to preserve the prime soil, which may include the following:
 - i. Co-location of agricultural uses (agrivoltaics or other agricultural uses) on the project site.
 - ii. Placing agricultural conservation easements on an equivalent number of prime soil acres adjacent to or surrounding the project site.
 - iii. Other mitigation measures approved by the Planning and Zoning Committee.
- h. All access locations must obtain a fire number, unless waived by the Director
- i. Good Repair: An owner shall construct, operate, repair, maintain and replace SES facilities as needed to keep the SES in good repair and operating condition in a manner that protects the public health, safety, and welfare of the community.
- j. Reflectors and Glare: Any owner or installer of an ASES shall reduce the amount of glare directed towards surrounding properties and residential homes. The use of reflectors or solar enhancer shall be limited. In cases where reflectors or solar enhancers are required to enhance solar production, the owner shall minimize reflected light from affecting adjacent or nearby properties. Measures to minimize reflected light include selective placement of the system, screening the solar collector, modifying the orientation of the system, reducing use of the reflector system, or other remedies that limit reflected light
- k. Decommissioning: A Decommissioning Plan shall be required to ensure that Small and Large SES are properly removed after their useful life. A decommissioning plan shall include how the project area will be decommissioned and returned to its pre-solar development state. The plan shall include how decommissioning will occur, timeline and method for financial compensation or assurance and how materials will be recycled or disposed of. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and restoration of the land to a condition reasonably similar to pre-existing conditions, including de-compaction of the entire site (i.e. panel array locations, access roads, etc.). Access

roads may remain in place with written approval from the landowner. The Plan shall also include a Decommissioning Cost Analysis and the financial assurance in the amount of the difference between decommissioning cost and estimated salvage value. All solar equipment shall be decommissioned and disposed of in accordance with federal, state and local regulations.

- i. Decommissioning of the SES shall occur when the SES has ceased commercial operation for a consecutive period of twelve (12) months.

L. Reporting Requirements:

- i. Small and Large SES shall provide a yearly report by March 1st of each year to the Planning and Zoning Committee. The report, at minimum, shall include the following for the previous year:
 1. Report on power generation
 2. Estimated timeline for the SES including, but not limited to, construction commencement dates, operational date and life expectancy dates and any upcoming key dates
 3. Planned, proposed or completed construction projects or updates to the SES
 4. Report and update to the Decommissioning Plan including justification for updating the plan and financial assurance. Yearly, the Decommission Plan shall be reviewed and updated based on current conditions including any financial assurances.
 5. Any other information requested by the Planning and Zoning Committee or Department

4. Small Solar Energy Systems (Small SES)

- a. Permitting Requirements: Small SES require a Conditional Use Permit and a Zoning Permit prior to the start of construction.
- b. Zoning Districts: Small SES may be located within the A-1 Exclusive Agricultural and A-2 Agricultural and Rural Business zoning district as a conditional use, subject to the requirements of this ordinance. In addition, a small SES may be permitted as a conditional use, subject to the requirements of this ordinance, within the A-T zoning district with written approval from the closest municipality.
- c. Conditional Use Permit
 - i. Application Process. The application for a Conditional Use Permit shall be processed in accordance with the procedures set forth in Section 11.05 of this ordinance.
 - ii. Application Requirements. The application for a Conditional Use Permit for a small SES shall include the following items as applicable to the project:
 1. Site Plan: A site plan shall be submitted including, but not limited to, the following:
 - a. Existing and proposed improvements
 - b. Existing and proposed structures
 - c. Existing and proposed topography
 - d. Existing and proposed fencing

- e. Utilities
 - f. All above ground and underground components
 - g. Wetlands as determined by a wetland delineation
 - h. Waterways (navigable and non-navigable), drainage ditches, underground drain tiles, etc.
 - i. Drainage District ditches
 - j. Floodplain
 - k. Public roads, access roads and internal roadways
 - l. Access locations and driveways
 - m. Setbacks shall be shown on the site plan
 - n. Any other information required by the department
2. Proposed Transportation Routes: A plan identifying the proposed construction transportation routes including the type and quantity of equipment being transported.
 3. Drainage Plan: A plan identifying the existing drainage features and proposed drainage features including the drainage patterns, drain tiles, ditches and any proposed modifications.
 - a. The plan should include how drainage will be maintained and how damage, problems, or complaints will be resolved.
 4. Construction Schedule: A plan documenting the major milestones throughout the construction process including the start and end of construction.
 5. Vegetation Management Plan: A plan documenting the following shall be submitted:
 - a. Existing conditions
 - b. Proposed planting map with native Wisconsin species and densities
 - c. Proposed management of vegetation
 6. Grading Plan: A plan identifying the existing grading, topography and percent slope and the proposed grading. No grading shall occur on slopes greater than 20% and all slopes greater than 20% shall be protect from development and erosion. A plan identifying the slopes greater than 20% and their protection measures shall be included.
 7. Decommissioning Plan
 8. Lighting Plan: A plan documenting the proposed lighting at the project site. Lighting shall not affect neighboring properties and shall use shielded fixtures.
 9. Erosion Control Plan including all erosion control measures, timing of placement, maintenance and removal
 10. Storm Water Management Plan
 11. Screening plan that identifies the type and extent of screening from roadways and residences. Section 11.07(c) of this ordinance shall set the minimum requirements and the Committee may require

additional screening or conditions on a case-by-case basis.

12. Airport Notification: SES located within 5 miles of an airport shall provide notice of the proposed SES to the airport operator and owner. The applicant shall provide an affidavit stating which airports were provided notice and documentation of such notice. If no airports are within 5 miles, the owner shall provide documentation that no airports are within 5 miles.
13. Fencing Plan: A plan shall be submitted identifying the type of fencing utilized for the project and the proposed setbacks. Perimeter fencing for the site shall use wildlife-friendly fencing standards that include clearance at the bottom.
14. Agreements, leases or other documentation with affected landowners and/or communities outlining any site-specific terms or conditions of development and assuring maintenance of land to be owned or used for common purposes, including, but not limited to joint development agreements, road maintenance agreements and agreements with the Drainage Board.
15. Any other documentation as identified by the Director or the Planning and Zoning Committee.

iii. Conditional Use Permit Review Criteria: In addition to the criteria set forth in Section 11.05 of the Jefferson County Zoning Ordinance, the review for a Conditional Use Permit shall address and consider the following:

1. To the extent feasible and practical, plans to use the land for both agriculture and electricity generation, possibly including but not limited to:
 - a. Planting and maintaining pollinator-friendly native plant species and reduced herbicide applications.
 - b. Grazing of livestock
 - c. Planting of crops
 - d. Other agricultural uses
2. The preservation of prime agricultural soils and the use of non-prime agricultural soils
3. Reasonable construction standards, including phasing to limit the area of disturbance; hours of construction to limit disruption to residents; and light pollution mitigation.
4. Maintenance and repair of damage to local roads due to project construction, possibly in the form of a Road Maintenance Agreement
5. Maintenance and repair to local drainage systems
6. Financial assurance during the construction phase in the form of a surety bond, letter of credit, escrow account, reserve fund, parent guarantee or other suitable financial mechanism.
7. Decommissioning plan, as defined in section 3.k., above, which

includes provisions for removal of all structures and foundations, restoration of soil and vegetation and financial assurance that funds will be available for project decommissioning costs.

d. Zoning Permit Requirements

- i. Permit Requirement. The owner must apply for and receive a Zoning Permit from the Department before installing, constructing, or expanding any Small SES.
- ii. Application Process. The application for a Zoning Permit shall be processed in accordance with the procedures set forth in Section 11.03 of this ordinance.
- iii. Permit Fee. The owner shall pay an application fee at the time the application is filed with the Department.
- iv. Application Requirement. The application for a zoning permit shall include the following items as applicable to the project:
 1. Name and contact information of applicant, owner and installer.
 2. A narrative of the proposed project, including a description of the subject property, address(es), parcel numbers, and any unique circumstances within the project area.
 3. Final design and site plans, which shall include a scalable drawing showing the location of all drives, entrances, easement labels and locations, trails, and signs; panels, inverters, energy storage systems, and any other planned infrastructure; vision clearance triangles; floodplain(s); wetland(s); and shoreland zone boundaries, and setbacks.
 4. Documentation of all other permits and approvals.
 5. Other documentation as determined by the Department.
 6. A Point of Contact throughout the construction process.
- e. Additional Permitting Requirements. Additional permits and processes may be required under the Jefferson County Zoning Ordinance.
- f. Operator Ownership Change. Notice shall be provided to the County for any change in ownership of the Small Solar Energy System on or before the effective date of the change.
- g. Other Approvals. A copy of all necessary state and federal permits and approvals shall be submitted to the Department within 30 days of receiving said authorizations.
- h. Postconstruction Filing Requirement. Within 90 days of the date a Small SES commencing operation, the owner shall file with the Department an as-built description of the facility, an accurate map of the facility showing the location of all infrastructure, geographic information system (GIS) information showing the location of said infrastructure, and current information identifying the owner(s) and operator(s), including designated contact(s), of the Small SES.
- i. Construction Meetings: As a condition of approval, the developer shall hold a

preconstruction meeting, post construction meeting and monthly update meetings with the local Town and County Officials.

5. Large Solar Energy Systems (Large SES)

a. Zoning Permit Requirements

- i. Permit Requirement. The owner must apply for and receive a Zoning Permit from the Department before installing, constructing, or expanding any Large SES.
- ii. Application Process. The application for a Zoning Permit shall be processed in accordance with the procedures set forth in Section 11.03 of this ordinance.
- iii. Permit Fee. The owner shall pay an application fee at the time the application is filed with the Department.
- iv. Standards for Review. The standards for reviewing a permit application for a Large SES are consistent with Wis. Stat. 66.0401 and 66.0403 as well as Wis. Stat. 59.69 and are not more restrictive than the PSC-approved site plan as part of the Certificate of Public Convenience and Necessity.
- v. Application Requirement. The application for a Zoning Permit shall include the following items, as may be applicable:
 1. Name and contact information of owner, applicant, and installer.
 2. A copy of the PSC authorization and a copy of the final application packet and documentation submitted to the PSC for approval;
 3. A narrative of the proposed project, including a description of the subject property, address(es), parcel numbers, and any unique circumstances within the project area, as may have been identified during the PSC review;
 4. Site Plan: A site plan shall be submitted including, but not limited to, the following:
 - a. Existing and proposed improvements
 - b. Existing and proposed structures
 - c. Existing and proposed topography
 - d. Existing and proposed fencing
 - e. Existing and proposed utilities
 - f. All above ground and underground components
 - g. Wetlands, waterways, ditches, underground drainage systems, etc.
 - h. Floodplain
 - i. Public roads, access roads and internal roadways
 - j. Access locations and driveways
 - k. Setbacks shall be identified in the site plan
 - l. A point of contact throughout the construction process.
- vi. Additional Permitting Requirements. Additional permits and processes may be required under the Jefferson County Zoning Ordinance.

- vii. Operator Ownership Change. Notice shall be provided to the County for any change in ownership of the Large SES 10 days prior to the effective date of the change and contact information of the new owner shall be included with the notice.
- viii. Other Approvals. A copy of all necessary state and federal permits and approvals shall be submitted to the Department within 30 days of receiving said authorizations.
- ix. Postconstruction Filing Requirement. Within 90 days of the date a Large SES commences operation, the owner shall file with the Department an as-built description of the facility, an accurate map of the facility showing the location of all infrastructure, geographic information system information (GIS) showing the location of said infrastructure, and current information identifying the owner(s) and operator(s), including designated contact(s), of the Large SES
- x. Construction Meetings: As a condition of approval, the developer shall hold a preconstruction meeting, post construction meeting and monthly update meetings with the local Town and County Officials.

6. Accessory Solar Energy System (ASES)

- a. Permit Requirement. The owner must apply for and receive a Zoning Permit from the Department before installing, constructing, or expanding any ASES.
- b. Ground-mounted systems shall not count toward accessory structure limitations in the underlying zoning district.
- c. Zoning District: ASES may be permitted in all zoning districts as an accessory structure, except the N and W zones.
- d. Height: An ASES must meet the following height requirements:
 - i. Roof mounted ASES shall not exceed the maximum allowed height in the underlying zoning district and shall not extend more than five feet above the surface of the roof.
 - ii. Ground or pole mounted ASES shall not exceed 18 feet in height when oriented at its maximum tilt.
- e. Setback(s):
 - i. Roof mounted ASES: In addition to the structure setback from the underlying zoning district, the ASES, including the collector surface and mounting devices, shall not extend more than three feet beyond the exterior perimeter of the building on which the structure is mounted or built.
 - ii. Ground or pole mounted ASES: Ground or pole mounted SES may not extend into the required yard setbacks for the underlying zoning district at any point.
- f. Lot Coverage:
 - i. Ground-mount systems total collector area shall not exceed the building

footprint of the principal structure

- g. Grades: The ASES shall utilize existing grades and the area of the ASES shall not be artificially elevated higher than the existing grades of the property.

7. Battery Energy Storage Systems (BESS)

- a. Applicability: The requirements of this section apply to all battery storage system with a rated nameplate capacity of equal to or greater than 1 megawatt.

- b. Permitting Requirements:

- i. BESS are required to obtain a Zoning Permit prior to the start of construction.
- ii. BESS are subject to the requirements under section 4. above, as well as the standards listed in 6, where applicable.
- iii. BESS associated with a Large SES are subject to the requirements of Section 5., above.

- c. General Requirements:

- i. Setbacks:

- 1. 1,500 feet from residential, business, municipal, school, or town structures
- 2. 1,000 feet from a drinking water system or source
- 3. 500 feet from waterways or waterbody
- 4. Other setbacks as required by the underlying zoning district and Planning and Zoning Committee

- ii. All BESS shall be designed in compliance with all applicable building, fire, and electrical codes.

- iii. Security & Screening: BESS shall have a perimeter fence of at least 7 feet in height, consistent with the requirements established in National Fire Protection Association (NFPA) 70. BESS shall also comply with specifications established in NFPA 855 relating to barriers and buffering.

- iv. Safety Requirements: BESS shall comply with the latest published version of the National Fire Protection Association (NFPA) 855, *Standard for Installation of Stationary Energy Storage Systems*, as of the date of the submission of permit application, except where this section is more restrictive.

- 1. Prior to the issuance of a Zoning Permit for a BESS, applicants are required to:

- a. Submit documentation verifying the proposed design meets NFPA 855 requirements.
- b. Submit an emergency response plan
- c. Submit a plan for offering site specific training to the applicable fire service and emergency personnel prior to commencing operation
- d. Conduct a hazard mitigation analysis if specified by NFPA 855

- v. BESS containers and structures shall be labeled with a date of first usage by a stamped metal nameplate including a serial number. Containers shall be clearly labeled and marked to identify its contents and contact information in case of emergency.
- vi. Decommissioning: A decommissioning plan that ensures the return of all participating properties to a useful condition, including removal of above-surface facilities and infrastructure that have no ongoing purpose, shall be provided by the applicant. The plan shall include a timeline including when the decommissioning will begin, how long it is anticipated to complete and when it will be completed.
- vii. The decommissioning plan shall include, but is not limited to, financial assurance in the form of a bond, a parent company guarantee, or an irrevocable letter of credit, to be determined by applicant. The amount of the financial assurance shall not be less than the estimated cost of decommissioning the energy facility, after deducting salvage or recycling value, as calculated by a third party with expertise in decommissioning, hired by the applicant.

Sources:

- Columbia, Calumet, Walworth, Marathon and Kenosha County
- WI Solar Model Ordinance – Great Plains Institute
- American Farmland Trust

