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Watonwan County Solar Ordinance

I. Scope - This article applies to all solar energy installations in Watonwan County

II. Purpose – Watonwan County has adopted this regulation for the following purposes

To promote the health, safety, and general welfare within the county and promote the effective and efficient use of solar energy systems by establishing uniform standards, regulations, and procedures governing the design, placement, use, and eventual decommissioning of Solar Energy Systems. In no case shall the provisions of this Ordinance guarantee rights to solar access.

Definitions

Agrivoltaics – A solar energy system co-located on the same parcel of land as agricultural production, including crop production, grazing, apiaries, or other agricultural products or services.

Building-integrated Solar Energy Systems – A 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.

Community-Scale Solar Energy System – A commercial solar energy system that converts sunlight into electricity for the primary purpose of serving electric demands off-site from the facility, either retail or wholesale. Community-scale systems are principal uses and projects typically cover ten (10) acres or less.

Community Solar Garden – A solar energy system that provides retail electric power (or a financial proxy for retail power) to multiple community members or businesses residing or located off-site from the location of the solar energy system, consistent with Minn. Statutes 216B.1641 or successor statute. A community solar garden may be either an accessory or a principal use.

Grid-intertie Solar Energy System – A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.

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.

Large-Scale Solar Energy System – A commercial solar energy system that converts sunlight into electricity for the primary purpose of wholesale sales of generated electricity. A large-scale solar energy system will have a project size greater than 10 acres and is the principal land use for the parcel(s) on which it is located.

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.

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.

Photovoltaic System – A solar energy system that converts solar energy directly into electricity.

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, as defined in Minn. Stat. 500.30 Subd. 3 or successor statute.

Roof-mount – A solar energy system mounted on a rack that is fastened to or ballasted on a structure roof. Roof-mount systems are accessory to the principal use.

Roof Pitch – The final exterior slope of a roof calculated by the rise over the run, typically but not exclusively expressed in twelfths such as 3/12, 9/12, 12/12.

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.

Solar Carport – A solar energy system of any size that is installed on a carport structure that is accessory to a parking area, and which may include electric vehicle supply equipment or energy storage facilities.

Solar Collector – The panel or device in a solar energy system that collects solar radiant energy and transforms it into thermal, mechanical, chemical, or electrical energy. The collector does not include frames, supports, or mounting hardware.

Solar Daylighting – Capturing and directing the visible light spectrum for use in illuminating interior building spaces in lieu of artificial lighting, usually by adding a device or design element to the building envelope.

Solar Energy – Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

Solar Energy System – A device, array of devices, or structural design feature, the purpose of which is to provide for generation or storage of electricity from sunlight, or the collection, storage and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating.

Solar Farms - A solar array composed of multiple solar panels on ground-mounted rack or poles which is not directly connected to or designed to serve the energy needs of the primary use but rather for the primary purpose of wholesale sales of generated electricity. Solar farms include but are not limited to community solar gardens which are defined as a solar-electric (photovoltaic) array that provides retail electric power (or a financial proxy for retail power) to multiple community members or businesses residing or located off-site from the location of the solar energy system, consistent with Minn. Statutes 216B.1641 or successor statute. May be considered a Large-Scale Solar Energy System.

Solar Hot Air System (also referred to as Solar Air Heat or Solar Furnace) – A 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 includes a solar collector to preheat air or supplement building space heating, typically using a vertically-mounted collector on a south-facing wall.

Solar Hot Water System – 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.

Solar Mounting Devices – Racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground.

Solar Resource – 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, and can be measured in annual watts per square meter.

III. General Standards

A. Public Safety –

1. Systems shall be designed and operated in a manner that protects public safety

B. Wetland –

1. Systems shall not be installed on any lands listed on the National Wetland Index on or after the date of adoption of this ordinance (adoption date).

C. Advertising –

1. Systems shall not be used to display advertising, including; signage, streamers, pennants, spinners, reflectors, ribbons, tinsel, balloons, flags, banners or similar materials. The manufacturers and equipment information, warning, or indication of ownership shall be allowed on any equipment of the solar energy system provided they comply with the prevailing sign regulations.

IV. Permitted Accessory Use

Solar energy systems are a permitted accessory use in all zoning districts where structures of any sort are allowed, subject to certain requirements as set forth below. Solar carports and associated electric vehicle charging equipment are a permitted accessory use on surface parking lots in all districts regardless of the existence of another building. Solar energy systems that do not meet the following design standards will require a variance or conditional use permit.

A. Height - 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.

3. Solar carports in non-residential districts shall not exceed 20 feet in height.

B. Set-back - 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, except as allowed below.

1. **Roof- or Building-mounted Solar Energy Systems** – 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. The collector and racking for roof-mounted systems that have a greater pitch than the roof surface shall be set back from all roof edges by at least two (2) feet. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side-yard exposure. Solar collectors mounted on the sides of buildings and serving as awnings are considered to be building-integrated systems and are regulated as awnings.
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, except as otherwise allowed for building mechanical systems.

C. Visibility - Solar energy systems in residential districts shall be designed to minimize visual impacts from the public right-of-way, as described in C.1-3, to the extent that doing so does not affect the cost or efficacy of the system. Visibility standards do not apply to systems in non-residential districts, except for historic building or district review as described in E. below.

1. **Building Integrated Photovoltaic Systems** - Building integrated 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.
2. **Aesthetic restrictions** – Roof-mount or ground-mount solar energy systems shall not be restricted for aesthetic reasons if the system is not visible from the closest edge of any public right-of-way other than an alley, or if the system meets the following standards.
 - a. Roof-mounted systems on pitched roofs that are visible from the nearest edge of the front right-of-way shall have the same finished pitch as the roof and be no more than ten inches above the roof.
 - b. Roof-mount systems on flat roofs that are visible from the nearest edge of the front right-of-way shall not be more than five feet above the finished roof and are exempt from any rooftop equipment or mechanical system screening.
3. **Reflectors** - All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector affecting adjacent or nearby properties.

D. Lot Coverage - Ground-mount systems total collector area shall not exceed half the building footprint of the principal structure.

1. Ground-mount systems shall be exempt from lot coverage or impervious surface standards if the soil under the collector is maintained in vegetation and not compacted.
2. Ground-mounted systems shall not count toward accessory structure limitations.
3. Solar carports in non-residential districts are exempt from lot coverage limitations.

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) must receive approval of the community Heritage Preservation Commission, consistent with the standards for solar energy systems on historically designated buildings published by the U.S. Department of Interior.

F. Plan Approval Required - All solar energy systems requiring a building permit or other permit from Watonwan County shall provide a site plan for review.

1. **Plan Applications** - Plan applications for solar energy systems shall be accompanied by to-scale horizontal and vertical (elevation) drawings. The drawings must show the location of the system on the building or on the property for a ground-mount system, including the property lines.

2. **Plan Approvals** - Applications that meet the design requirements of this ordinance shall be granted administrative approval by an authorized zoning official and shall not require Planning Commission review. Plan approval does not indicate compliance with Building Code or Electric Code.

G. Approved Solar Components - Electric solar energy system components must have a UL or equivalent listing and solar hot water systems must have an SRCC (Solar Rating and Certification Corporation) rating.

H. Compliance with Building Code - All solar energy systems shall meet standards required by any applicable local building and State of Minnesota Building Code. Solar thermal systems shall comply with HVAC-related requirements of the Energy Code.

I. Compliance with State Electric Code - All photovoltaic systems shall comply with the Minnesota State Electric Code.

J. Compliance with State Plumbing Code - Solar thermal systems shall comply with applicable Minnesota 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.

V. Principal Uses

Watonwan County encourages the development of commercial or utility scale solar energy systems where such systems present few land use conflicts with current and future development patterns. Ground-mounted solar energy systems that are the principal use on the development lot or lots are conditional uses in selected districts.

A. Principal Use General Standards

1. Site Design

a. Set-backs – Community- and large-scale solar arrays must meet the following setbacks:

1. Property line setback for buildings or structures in the district in which the system is located.
2. Roadway setback of 175 feet from the ROW centerline of State highways and CSAHs, 133 feet for other roads.
3. Housing unit setback of 150 feet from any existing dwelling unit.
4. Setback distance should be measured from the edge of the solar energy system array, excluding security fencing, screening, or berm.

b. Screening – Community- and large-scale solar shall be screened from existing residential dwellings.

1. A screening plan shall be submitted that identifies the type and extent of screening.
2. Screening shall be consistent with Watonwan County's screening standards typically applied for other land uses requiring screening.
3. Screening shall not be required along property lines within the same zoning district, except where the adjoining lot has an existing residential use within 300 feet of the proposed solar system.
4. Watonwan County may require screening where it determines there is a clear community interest in maintaining a viewshed.

c. Ground cover and buffer areas - The following provisions shall be met related to the clearing of existing vegetation and establishment of vegetated ground cover. Additional requirements may apply as required by Watonwan County.

1. Large-scale removal of mature trees on the site is discouraged. Watonwan County may set additional restrictions on tree clearing or require mitigation for cleared trees.
2. The project site design shall include the installation and establishment of ground cover meeting the beneficial habitat standard consistent with Minnesota Statutes, section 216B.1642, or successor statutes and guidance as set by the Minnesota Board of Water and Soil Resources (BWSR).
3. The applicant shall submit a planting plan accompanied by a completed "Project Planning Assessment Form" provided by BWSR for review by BWSR or the County SWCD.

4. Beneficial habitat standards shall be maintained on the site for the duration of operation, until the site is decommissioned. The owner of the solar array shall allow the County SWCD to conduct a site visit to verify compliance.

5. Watonwan County may require submittal of inspection fee at the time of the initial permit application to support ongoing inspection of the beneficial habitat ground cover.

d. Foundations - A qualified engineer shall certify that the foundation and design of the solar panel racking and support is within accepted professional standards, given local soil and climate conditions.

e. Power and communication lines - Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by Watonwan County in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or distance makes undergrounding infeasible, at the discretion of the zoning administrator.

2. Stormwater and NPDES - Solar farms are subject to any applicable stormwater management erosion and sediment control provisions and NPDES permit requirements. Solar collectors shall not be considered impervious surfaces if the project is certified as beneficial habitat solar, as described in A.1.c.2. of this ordinance.

3. Other standards and codes - All solar farms shall be in compliance with all applicable local, state and federal regulatory codes, including the State of Minnesota Uniform Building Code, as amended; and the National Electric Code, as amended.

4. Site Plan Required - A detailed site plan for both existing and proposed conditions must be submitted, showing location of all solar arrays, other structures, property lines, rights-of-way, service roads, floodplains, wetlands and other protected natural resources, topography, electric equipment, and all other characteristics requested by Watonwan County. The site plan should show all zoning districts and overlay districts.

5. 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.

6. Decommissioning - A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life.

a. Decommissioning of the system must occur in the event the project is not in use for 12 consecutive months.

- b. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and assurances that financial resources will be available to fully decommission the site.
- c. Disposal of structures, infrastructures, and/or foundations shall meet the provisions of the Watonwan County Solid Waste Ordinance.
- d. Watonwan County may require the posting of a bond, letter of credit or the establishment of an escrow account to ensure proper decommissioning.

B. Community-Scale Solar – Watonwan County permits the development of community-scale solar, subject to the following standards and requirements:

- 1. Rooftop gardens permitted** - Rooftop community systems are permitted in all districts where buildings are permitted.
- 2. Community-scale uses** - Ground-mount community solar energy systems must cover no more than ten acres (project boundaries), and are a permitted use in industrial and agricultural districts, and permitted with standards or conditional in all other non-residential districts. Ground-mount solar developments covering more than ten acres shall be considered large-scale solar.
- 3. Dimensional standards** - All structures must comply with setback, height, and coverage limitations for the district in which the system is located.
- 4. Other standards** - Ground-mount systems must comply with all required standards for structures in the district in which the system is located.

C. Large-Scale Solar - Ground-mount solar energy arrays that are the primary use on the lot, designed for providing energy to off-site uses or export to the wholesale market, are permitted under the following standards:

- 1. Conditional use permit** – Solar farms are conditional uses in agricultural districts, industrial districts, and airport safety zones subject to A.1.5. of this ordinance, and in the landfill/brownfield overlay district for sites that have completed remediation.

Example Use Table

Use Type	Residential	Mixed Use	Business	Industrial	Agricultural, Rural, Landfill	Shoreland	Floodplain
Large-scale solar				C	C		
Community-scale solar	C	C	C	P	P		
Accessory use ground-mounted solar	P	P	P	P	P	P	
Rooftop solar	P	P	P	P	P	P	P

P = Permitted

C = Conditional

Blank Cell = Prohibited