



# Habitat-Friendly Solar in the Local Ordinance

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# How should you incorporate solar habitat standards into your city or county codes?

- Scale and Definitions
- Which Districts
- Permitted or Conditional?
- Habitat and Related Standards
- Maintenance and Enforcement



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# Ordinances Reviewed

- Model Solar Zoning Ordinance (SunShot)
- Stearns County
- Carlton County
- Chisago County
- Clay County
- Mower County
- Scandia
- Sherburne County
- Swift County
- Winona County
- Wright County

## Zoning Ordinance



December 30, 2008

7th day of January, 2020, ratification, and Chapter 12.3: Solar

Articles 4.2, 5 and 12.3 amendment Commission Meeting in the published in the Winona Daily Zoning Ordinance on December

WHEREAS, the Winona amended Winona County Energy Systems; and

WHEREAS, a Notice of to the Winona County Z Commissioner's Room, News on October 6, 201

Adopted: December 1, 2017

December 12, 2019, at the 7:00 p.m. County Board Meeting in the Commissioner's Room, County Office Building, Winona, Minnesota was published in the Winona Daily News on November 27, 2019; and

# Ordinance comparisons

## Solar Standards Summary – Selected Minnesota Ordinances

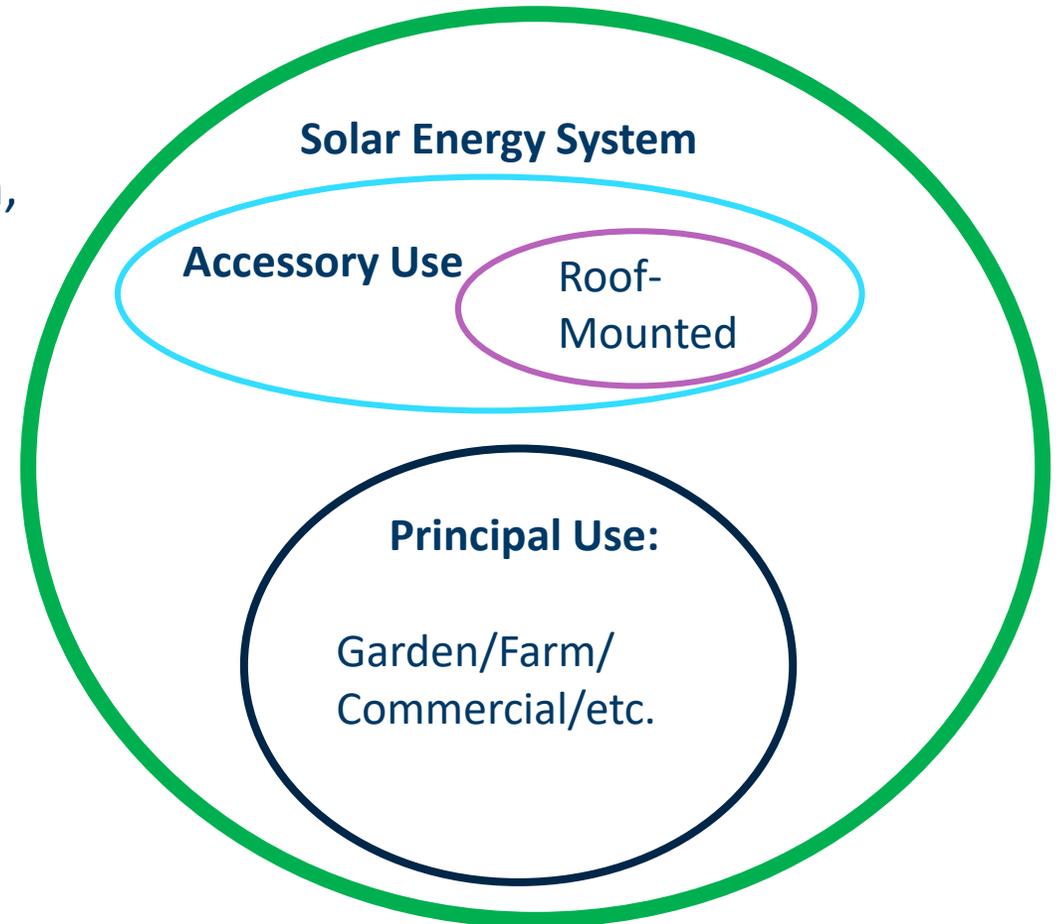
Community	Terminology	Use Type	Districts	Habitat Standard	Maintenance	Other requirements
Stearns County	Solar farms	CUP	Agricultural, Commercial, Industrial	Beneficial habitat standards incorporated by reference	Performance bond	New permitting process with SWCD
Carlton County	Commercial solar energy systems Solar farm, solar garden (ownership systems)	CUP or IUP	A-1, A-2, C-2, and M-1 Zoning Districts; 5 ac. minimum lot size	Beneficial habitat standards incorporated by reference	Bond for decommissioning required	Prohibited within 300'/600' of classified water bodies
Chisago County	Commercial solar energy systems	Admin. Permit; IUP if > 10 acres	Prohibited in Shoreland & adjacent to wildlife areas	Areas of bare ground at each facility shall be revegetated with a low-growing, accepted pollinator-friendly seed mix, and shall be maintained through the life of the project	Financial surety required for screening	<ul style="list-style-type: none"> <li>Community meeting required</li> <li>Vegetative screening, 75% opacity</li> <li>Blanding's Turtle protection;</li> <li>Security fence design</li> </ul>
Clay County	Large solar energy system Solar farm	CUP	Prohibited in Shoreland, Biologically Significant Areas, Aggregate Resources	Beneficial habitat standards incorporated by reference <ul style="list-style-type: none"> <li>Maintain until site is decommissioned</li> </ul>	Maintenance bond required, 125%, until vegetation established	
Mower County	Solar farm, Solar garden (ownership systems)	CUP Time-limited CUP (25 years) in urban growth areas around cities and villages	CUP in Agricultural and Rural Management Districts – prohibited in most others, with some exceptions for Urban Expansion	Perennial vegetation, short stature prairie; native, diverse; "Approved seed mix... consistent with USDA Native Habitat Development for Pollinators jobsheet". Neonic treatment prohibited.		<ul style="list-style-type: none"> <li>Roadway and trail buffers</li> <li>Decommissioning plan</li> <li>Financial guarantee</li> </ul>
Scandia (City)	Distribution-scale SES	CUP	Agricultural Core district Prohibited in River/Shoreland/Floodplain districts	"A deep-rooted grass and pollinator seed mix suitable to the soil and moisture conditions of the immediate area. Plant growth shall be stable and self-supporting		<ul style="list-style-type: none"> <li>Decommissioning plan</li> <li>Reflective glare limited</li> <li>Wildlife-friendly fence design</li> </ul>

# Ordinance comparisons

Community	Terminology	Use Type	Districts	Habitat Standard	Maintenance	Other requirements
				within two seasons from the date of project approval."		
<b>Sherburne County</b> <a href="#">(proposed language)</a>	Solar farm	IUP – minimum 5-acre parcel size	All districts except where prohibited: <ul style="list-style-type: none"> <li>• ½ mile of segments of Highways 10 and 169</li> <li>• Shoreland districts</li> <li>• Wetlands</li> <li>• Scenic &amp; Rec. River and Special Use districts</li> </ul>	<a href="#">"Installation and establishment of ground cover meeting the beneficial habitat standards established in the Prairie Establishment &amp; Maintenance Technical Guidance for Solar Projects prepared by the MN Department of Natural Resources."</a> <a href="#">Financial security required until vegetation is sufficiently established</a>	<a href="#">"All vegetated ground cover plans must be reviewed by the Sherburne County Soil Water and Conservation District before the application is deemed complete."</a>	<ul style="list-style-type: none"> <li>• Glare study for ½ mile radius</li> <li>• Agricultural impact assessment (prime soils, actively farmed)</li> <li>• Aviation analysis</li> <li>• Decommissioning plan</li> <li>• Screening requirements</li> <li>• Transfer provisions for IUP</li> </ul>
<b>Swift County</b> <a href="#">(proposed)</a>	Solar energy system <ul style="list-style-type: none"> <li>• Small (accessory)</li> <li>• Large (principal)</li> </ul>	P or CUP, varies by size	Agricultural, Urban Expansion NP in Floodway/wetlands C in Flood Fringe ( $\leq 1$ MW) C in Shoreland ( $\leq 1$ MW)			<ul style="list-style-type: none"> <li>• Decommissioning if unused or abandoned</li> <li>• Screening requirements</li> </ul>
<b>Winona County</b>	Solar energy system <ul style="list-style-type: none"> <li>• Small-scale (accessory)</li> <li>• Large-scale (principal)</li> </ul>	CUP/IUP – consider glare, road access, stray voltage	Agricultural/Resource Conservation	"Ground cover shall consist of perennial vegetation and incorporate pollinator friendly species as prescribed by the Winona County SWCD or other qualified individual..."		<ul style="list-style-type: none"> <li>• Decommissioning – may include financial security</li> <li>• Screening requirements</li> <li>• Visual impact analysis</li> <li>• Soil capability map</li> <li>• Avoid or mitigate historical, cultural, archaeological features</li> </ul>
<b>Wright County</b>	Solar energy system Solar energy farm (interim use, 30 years)	CUP	Agricultural, Commercial, Industrial Prohibited in residential districts	Noxious weeds prohibited; Planning Commission may specify vegetative cover, including M.S. 216B.1642 (beneficial habitat) requirements		<ul style="list-style-type: none"> <li>• Screening requirements</li> <li>• Decommissioning – 150% security deposit for reclamation</li> </ul>

# Definitions - Scale

- Most important: **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.
- Building-Integrated/Rooftop Solar (Accessory)
- Free-Standing Principal Uses:
  - Solar Garden
  - Solar Farm
  - “Distribution-Scale/Commercial SES”



# Definitions

7. **Non-Commercial Wind Energy Conversion System.** A Wind Energy Conversion System or combination of Wind Energy Conversion Systems with a nameplate capacity of less than 125 kilowatts (kW) and which is accessory to the principal land use and designed to supply energy for the principal use.
8. **Photovoltaic System.** An active solar energy system that converts solar energy directly into electricity.
9. **Roof or Building Mounted Solar Energy System.** A solar energy system that is mounted to the roof or building using brackets, stands, or other apparatuses.
10. **Solar Energy System (SES).** An active solar energy system that collects or stores solar energy and transforms solar energy into another form of energy or transfers heat from a collector to another medium using mechanical, electrical, thermal, or chemical means.
11. **Solar Farm.** A commercial facility that converts sunlight into electricity, whether by photovoltaics (PV), concentrating solar thermal devices (CST), or other conversion technology, for the principal purpose of wholesale sales of generated electricity.
12. **Solar Garden (also called a Community Solar Energy System).** A solar-energy system (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.



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# Permitted, Conditional, Interim Use?

- What are the advantages of a CUP or IUP process?
- Can the “end date” of a solar installation be accurately determined?
- What are the disadvantages?
- Is an Administrative Permit a viable alternative?

## Information Required for an Interim Use Permit

- Planning and Zoning Application
- Evidence of Ownership of the Property
- Required Fee (non-refundable)
- Scaled Map Showing Property and Location of Interim Use (floor plan if use is within a building)
- Description of Proposed Use and Timing of Use
- Electronic plans may be required as directed by staff
- Other necessary information as required by the Community Development Department

Community	Terminology	Use Type
Stearns County	Solar farms	CUP
Carlton County	Commercial solar energy systems Solar farm, solar garden (ownership systems)	CUP or IUP
Chisago County	Commercial solar energy systems	Admin. Permit; IUP if > 10 acres
Clay County	Large solar energy system Solar farm	CUP
Mower County	Solar farm, Solar garden (ownership systems)	CUP Time-limited CUP (25 years) in urban growth areas around cities and villages

# Which Districts?

- Agricultural (farmland preservation concerns)
- Rural
- Residential (uncommon for solar farms)
- Urban Expansion (urban growth concerns)
- Shoreland?
- Industrial



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# Landscape Requirements

- Habitat – Is a reference to statutory language enough?
- Maintain “until vegetation is established” or “for duration of project”?
- Do other ordinances affect the project?
  - Noxious weed or property maintenance ordinances?
  - Orderly annexation arrangements?
  - Stormwater requirements – impervious coverage?





# Zoning best practices for small-scale solar

<b>Definition</b>	Include storage and solar hot water heating installations in the definition of “solar,” differentiate by systems by area and rooftop versus ground-mounted
<b>By-right accessory use</b>	Allow small rooftop and ground-mounted PV in all major zoning districts
<b>Height</b>	Allow rooftop solar an exemption from or allowance above building height restrictions
<b>Accessory uses</b>	Exempt solar from counting toward accessory uses maximum
<b>Aesthetic requirements</b>	<ul style="list-style-type: none"> <li>• Exempt solar from rooftop equipment screening requirements</li> <li>• Allow PV installations to be seen from public roadways</li> <li>• Limit screening or aesthetic requirements to historic districts</li> </ul>
<b>Ground -mounted</b>	<ul style="list-style-type: none"> <li>• Include small ground-mounted systems as accessory structures</li> <li>• Require conditional use permit for principal use, ground-mounted systems</li> </ul>
<b>Lot coverage</b>	Exempt ground-mounted solar from lot coverage restrictions that apply to buildings
<b>Setbacks</b>	Avoid applying principal building setbacks
<b>Roof coverage</b>	Include fire code setback requirements in coordination with fire officials
<b>Glare</b>	Glare studies not needed unless solar is on or adjacent to airport, in which case it will be regulated by FAA, not the local jurisdiction
<b>Regulate based on impact/area</b>	<ul style="list-style-type: none"> <li>• Not capacity (kW) as efficiencies and technologies change over time</li> <li>• Not where energy is used (e.g. on-site) as it has no bearing on the impact</li> </ul>



# Zoning best practices for large-scale solar

<b>Definition</b>	<ul style="list-style-type: none"> <li>• Define large-scale solar as a unique land use (not an industrial land use),</li> <li>• Include storage in the definition of large-scale solar</li> <li>• Distinguish between small and large systems by area as needed</li> </ul>
<b>Enable Development</b>	Most large-scale solar will be a conditional or interim use in those districts where allowed, although small or community scale development can be a permitted use
<b>Standards address land use impacts</b>	Performance or design standards should focus on land use impacts and benefits, not on energy use or performance
<b>Recognize land use differences</b>	<ul style="list-style-type: none"> <li>• Exempt PV panels from coverage limits</li> <li>• Exempt PV panels from impervious surface standards if ground cover is suitably pervious (see co-benefits below)</li> </ul>
<b>Capture Co-Benefits</b>	<ul style="list-style-type: none"> <li>• Require habitat-friendly ground cover to be installed, established, and maintained</li> <li>• Enable co-location of agricultural uses (sometimes in place of ground cover)</li> <li>• Consider opportunities for floating solar</li> </ul>
<b>Screening requirements</b>	<ul style="list-style-type: none"> <li>• Look to existing screening requirements as a guide, consistency across land uses</li> <li>• Limit screening to residential districts or existing uses</li> <li>• Balance screening against larger setbacks, both are not necessary</li> </ul>
<b>Setbacks</b>	<ul style="list-style-type: none"> <li>• Look to existing setback distances as a guide</li> <li>• Balance setbacks with screening requirements (more screening, less setback)</li> <li>• Measure setbacks from array edge</li> </ul>
<b>Glare</b>	Glare studies not needed unless solar is adjacent to an airport. On-airport solar will be appropriately regulated by FAA, reference that
<b>Decommissioning</b>	Require decommissioning to a reasonable standard and financial risk

# Maintenance, monitoring over project life

## Responsibilities of:

- Developer
- Utility
- County or city staff
- SWCD or WD
- Other resource professionals

## Financial arrangements:

- Initial permit fee
- Maintenance bond



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# Other considerations

- Grazing under solar?
- Crops under solar?
- Future of the habitat at decommissioning
- Stormwater management – how are solar installations currently treated under stormwater regulations? How should they be treated?



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# Thank You!

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