Chapter XI

SOLAR ENERGY FARMS AND SOLAR ENERGY SYSTEMS

1. Purpose

A. The purpose of this Chapter is to maintain the City’s attractiveness, protect the safety of the people, and to promote the general welfare by providing legislation by which solar facilities can be located within the City of Princeton. These general objectives include, among others, the following:


2. To correct and prevent conditions that adversely affect and are likely to adversely affect the safety, general welfare, and health of nearby property owners.

3. To preserve the value of land and structures throughout the City.

2. Definitions

The following terms, as used in this section, shall have the meanings stated.

A. “Community Solar Garden” – means a community solar energy system that generates electricity by means of a ground-mounted or building-integrated solar system and that is supplied to multiple community members or businesses residing or located off-site from the location of the solar energy system under the provisions of Minnesota statutes 216B.1641 or successor statute.
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B. “Solar Collector” – means a device, structure or a part of a device or structure for which the primary purpose is to capture sunlight and transform it into thermal, mechanical, chemical or electrical energy.

C. “Solar Energy” – means radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

D. “Solar Energy System (Building-Integrated)” – means a solar energy system that is an integral part of a principal or accessory building, 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 or substitute for roofing materials, windows, skylights, awnings and shade devices.

E. “Solar Energy System (Ground-Mounted)” – means a freestanding solar system mounted directly to the ground using a rack or pole rather than being mounted on a building.

F. “Solar Energy System (Passive)” – means a system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

G. “Solar Farm” - means a commercial facility that converts sunlight into electricity, whether by photovoltaic (PV), concentrating solar thermal devices (CST), or other conversion technology, for the principal purpose of wholesale sales of generated energy.

H. “Solar Energy Farms” – means a solar array composed of multiple solar panels on ground-mounted rack or poles which are the primary land use for the parcel on which it is located and is greater than 100 kilowatts direct current (DC) rated capacity.

3. Requirements and Standards

A. Solar Energy Farms - Solar Energy Farms shall be subject to the following performance standards:

1. Solar Energy Farms are composed of multiple solar panels on multiple mounting systems (poles or racks), and generally have a direct current (DC) rated capacity greater than one hundred (100) kilowatts. Solar Energy Farms greater than one hundred (100) kilowatts in all zones and Solar Energy Systems greater than ten (10) kilowatts in all zones except for

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General Agriculture (AG) require a Conditional Use Permit. Solar Energy Farms are not allowed in shoreland or residential districts. Solar Energy Farms are allowed up to ten (10) megawatts.

2. Solar Energy Farms in agricultural, commercial, and industrial zoning districts may be up to twenty (20) feet in height at maximum design tilt.

3. Location within Lot: Solar Energy Farms must meet the primary structure setbacks for the zoning district and will be measured from the closest point at maximum orientation.

4. Storm water management shall meet the requirements of the City of Princeton and the State of Minnesota.

5. Erosion and sediment control shall meet the requirements of the City of Princeton and the State of Minnesota.

6. Foundations: The manufacturer’s engineer or another qualified engineer shall certify that the foundation and design of the solar panels is within accepted professional standards, given local soil and climate conditions.

7. Other standards and codes: All Solar Energy Farms shall be in compliance with any applicable local, state and federal regulatory standards, including the State of Minnesota Uniform Building Code, as amended; and the National Electric Code, and National Electric Safety Code as amended.

8. Power and communication lines: Power and communication lines running between banks of solar panels and to the point of interconnection of distribution utility or interconnections with buildings shall be buried underground as much as practical. Exemptions may be granted by the Commission in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines.

9. Application requirements: The following information shall be provided to the City of Princeton's Zoning Administrator for application of a Conditional Use Permit required in MN-1, MN-2, and B-3. (This is an allowed use in A-1 and A-2)

10. A site plan of existing applicable conditions showing the following:

   a. Existing property lines and property lines extending one hundred (100) feet from the exterior boundaries.

   b. Existing public and private roads and any easements.
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c. Location and size of any abandoned wells and sewage treatment systems.

d. Existing buildings and any impervious surface.

e. Topography at two (2) foot intervals and source of contour interval, unless determined otherwise by the Princeton Planning and Zoning Department.

f. Existing vegetation.

g. Waterways, watercourses, lakes and wetlands.

h. The one hundred (100) year flood elevation and Regulatory Flood Protection Elevation, if available.

i. Floodway, flood fringe and/or Flood Plain (FP) district boundary, if applicable.

j. The shoreland district boundary, if any portion of the project is located in a shoreland district.

k. In the shoreland district, the ordinary high water level.

l. In the shoreland district, the toe and top of a bluff within the project boundaries.

m. Surface water drainage patterns.

11. Site Plan of Proposed Conditions:

a. Planned location and spacing of solar panels.

b. Planned location of access roads.

c. Planned location of underground or overhead electric lines connecting the Solar Energy Farm or Solar Energy System to the building, substation or other electric load.

d. Planned new electrical equipment other than at the existing building or substation that is the connection point for the Solar Energy Farm.

e. Proposed erosion and sediment control measures as required in
elsewhere in the City of Princeton Zoning Ordinance. If required, the Planning Commission may review the associated land alteration for a Solar Energy Farm or Solar Energy System and issue a Conditional Use Permit for that land alteration as part of the request for the Solar Energy Farm or Solar Energy System Conditional Use Permit.

f. Proposed storm water management measures.

g. Sketch elevation of the premises accurately depicting the proposed Solar Energy Farm or Solar Energy System and its relationship to structures on adjacent lots (if any) unless determined otherwise by the City of Princeton Planning and Zoning Department.

h. Specifications and proposed installation methods for all planned major equipment including solar panels, mounting systems and foundations for poles or racks.

i. The planned number of panels to be installed.

j. A description of the method of connecting the array to a building or substation.

k. A copy of the submitted interconnection application with the local electric utility or a written explanation outlining why an interconnection application is not necessary.

l. A decommissioning plan may be required to ensure that facilities are properly removed after their useful life. Decommissioning of solar panels must occur in the event they are not in use for twelve (12) consecutive months. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and a plan describing the financial resources that will be available to fully decommission the site. The Commission may require the posting of a bond, letter of credit or the establishment of an escrow during some point of the life of the project to ensure proper decommissioning.

m. The Conditional Use Permit for Solar Energy Farms shall expire at the same time that the Solar Energy Farm lease expires, but in no case shall exceed thirty years. A new Conditional Use Permit can be applied for and the City may issue a new Conditional Use Permit for an existing Solar Energy Farm under the terms the City of Princeton Zoning Ordinance. The Commission may waive the expiration requirement for Solar Energy Farms located on property owned by the City or the PUC and other unique...

18. The Commission may require a buffer between Solar Energy Farms or Solar Energy Systems and adjoining properties.

19. The Commission may require a greater setback between adjoining properties if conditions warrant.

20. Payment In Lieu of Taxes. Notwithstanding that Minnesota Statutes Section 272.02, Subdivision 24 (or its successor) classifies real property upon which a solar energy generating system is located that is used primarily for solar energy production (subject to the production tax under Minnesota Statutes Section 272.0295) as class 3a, the City may require the applicant to enter into a Payment In Lieu of Taxes Agreement to compensate the City for any prospective tax revenue that may be lost due to such reclassification.

B. **Solar Energy Systems**

Solar Energy Systems ten (10) kilowatts and under are a permitted accessory use in all zoning districts. Solar Energy Systems over ten (10) kilowatts and not exceeding hundred (100) kilowatts require a Conditional Use Permit.

Solar Energy Systems one hundred (100) kilowatts and under are a permitted accessory use in the General Agricultural (AG) zoning district.

1. Accessory Building Limit: Solar Energy Systems, either roof or ground-mounted, do not count as an accessory building for the purpose of limits on accessory buildings.

2. Height: Solar Energy Systems are subject to the following height requirements:

   a. Building or roof-mounted Solar Energy Systems shall not exceed the maximum allowed height in any zoning district.

   b. Ground or pole-mounted Solar Energy Systems shall not exceed fifteen (15) feet in height when oriented at maximum tilt in residential zones and may be allowed up to twenty (20) feet in other zones.

3. Location within Lot: Solar Energy Systems must meet the accessory structure setback for the zoning district and will be measured from the closest point at maximum orientation. If attached to the primary structure the Solar Energy Systems must meet the setbacks for the primary structure.
4. **Approved Solar Components**: Electric Solar Energy System components must have an Underwriters Laboratory (UL) listing.

5. **Compliance with State Electric Code**: All Solar Energy Systems shall comply with the Minnesota State Electric Code.

6. **Utility Notification**: No Solar Energy System shall be installed until evidence has been given to the Department that the owner has notified the utility company of the customer’s intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

C. **Passive Solar Energy Systems** - Passive solar energy systems are exempt from the requirements of this section and shall be regulated as any other building element.

D. **Ground Mounted/Building Integrated Solar Energy Systems** - Ground-mounted solar energy systems shall not exceed fifteen feet (15’) in height. Building-integrated solar energy systems shall not exceed the maximum height permitted in the zoning district.

E. **Solar Panel Glare** - All solar farm and community solar garden facilities shall be designed and located in order to prevent reflective glare toward any inhabited buildings on adjacent properties, as well as adjacent street rights-of-way. Steps to control glare nuisance may include selective placement of the system, screening on the side of the solar array facing the reflectors, reducing use of the reflector system, or other remedies that limit glare.

F. **Safety Measures** - A clearly-visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations. All mechanical equipment, including any structure for batteries or storage cells, shall be completely enclosed by a minimum eight (8) foot high fence with a self-locking gate, and provided with screening in accordance with the landscaping provisions of Princeton’s Code.