

**Chapter 29**  
**ALTERNATIVE ENERGY SYSTEMS**

SECTION:

XX-29-1: Purpose

XX-29-2: Solar Energy Systems

XX-29-3: Windpower Management

**XX-29-1: PURPOSE:** The purpose of this chapter is to establish standards for alternative energy systems within the town. (Ord. 900, 18 Apr 22)

**XX-29-2: SOLAR ENERGY SYSTEMS:** All Solar Energy Systems and Solar Farms shall comply with the following standards:

- A. Interconnection. All solar energy systems that are connected to an electric distribution or transmission system, either directly or through the existing service of the principal use on the site, shall obtain an interconnection agreement with the electric utility in whose service territory the system is located. Off-grid systems are exempt from this requirement. Interconnection agreements shall be provided to the County if requested
- B. UL listing. Electric solar system components that are connected to a building electric system shall have an Underwriters Laboratory (UL) listing.
- C. Building and Electric Code. A building permit shall be obtained from the building official and all solar energy systems shall comply with the Minnesota and national electric code.
- D. Reflector systems. All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector that may affect adjacent or nearby properties. Steps to minimize glare nuisance may include selective placement of the system, screening on the side of the solar energy system facing the reflectors, reducing use of the reflector system, or other remedies that limit glare.
- E. Height standards. Rooftop solar energy systems shall not exceed the maximum allowed height in any zoning district, except that solar energy systems shall be restricted or allowed consistent with other rooftop mechanical devices for the zoning district in which the system is being installed. Rooftop systems shall be designed to blend into the building or roof design. On pitched roofs (with a slope greater than 15%) panels shall be flush-mounted and shall not extend above the peak of the roof. All ground-mount systems shall not exceed height limits for the district in which the collector is located, when the solar energy system is at its maximum (steepest) design tilt.
- F. Setbacks: All equipment and structures shall comply with setback and impervious surface coverage limitations for the zoning district in which the solar energy system is located and the provisions of this section.

- G. Stormwater and Erosion Control. Solar energy systems shall comply with all regulations related to storm water management.
- H. Performance Standards. All solar energy systems are subject to the performance standards in the applicable zoning district.
- I. Accessory Structure. Ground-mount accessory solar energy systems are subject to the accessory structure standards, including, without limitation, setback, height, and impervious surface coverage limits, except for solar farms as defined by this ordinance and regulated by this section.
- J. Shorelands. Within the Shoreland Overlay District, ground-mount accessory solar energy systems shall be located to limit visibility from the water in leaf-on conditions, as determined by the Zoning Administrator.
- K. Solar Farms:
  - 1. Solar farms shall be prohibited within the S District and WS District.
  - 2. A solar farm shall be located upon a lot or parcel having a minimum area of five acres.
  - 3. A solar farm shall comply with the following additional setback requirements:
    - a. US Highway 169: 2,640 feet
    - b. Side or rear lot lines: 50 feet.
  - 4. Solar farms shall not encroach upon any wetland or drainage and utility easement.
  - 5. In addition to the information required by chapter 5 of this ordinance, the following additional information shall be required for application for an interim use permit to allow a solar farm:
    - a. Site Plan. A detailed site plan for both existing and proposed conditions shall be submitted, showing the location of all areas where solar energy systems are to be placed, existing and proposed structures, property line, surface water drainage patterns, floodplains, delineated wetlands, toe and top of bluffs, ordinary high water mark and other protected natural resources, topography, electric equipment, and all other characteristics requested by the zoning administrator.

- b. Natural Resource Impact Assessment. For Solar Farms with a project size exceeding 10 acres, the applicant shall provide a Natural Resource Impact Assessment. The assessment must address impacts of the project (construction and maintenance phases) to natural resource, defined as natural vegetation, native plant communities, soils, surface waters, wetlands, wildlife and nongame species, and fisheries. The assessment must include a review of the Minnesota department of natural resources natural heritage information system (NHIS) to determine if any rare species or rare natural resource features are located in proximity to the project.
- c. Glare Study. Solar Farms utilizing a reflector system shall conduct a glare study (US Dept. of Energy's solar glare hazard analysis tool) to identify the impacts of the system on occupied buildings and transportation rights-of-way within a half mile of the project boundary.
- d. Agricultural Impact Assessment. If a Solar Farm is proposed to be located on existing agricultural land, the applicant must provide an agricultural impact assessment, which shall include:
  - (1) The total number of acres of prime agricultural soils (as defined in the USDA national soil survey handbook, Part 622.03(a1) or its successor) to be impacted.
  - (2) The total number of acres of actively farmed land to be impacted.
  - (3) Whether the property has an existing irrigation system that will be removed.
- e. Aviation Analysis. If the project is within the City of Princeton municipal airport airspace zoning plan (1977), 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, Federal Aviation Administration (FAA) review of solar energy projects on federally obligated airports, or most recent version adopted by the FAA. If the SGHAT indicates a completion of an air space case analysis (Form 7460) is required, the applicant must complete the form and provide the results.
- f. Decommissioning Plan.
  - (1) A decommissioning plan shall be required for solar farms to ensure that facilities are properly removed after the expiration of the

interim use permit, or, if earlier, after the useful life of solar panels and other facilities.

- (2) Decommissioning of solar panels and related facilities shall occur in the event the IUP expires or is terminated, and/or the solar panels are not in use for 12 consecutive months. The plan shall include provisions for removal of all structures, foundations, equipment and power and communication lines, restoration of soil and vegetation to its pre-developed condition.
  - (3) A financial guarantee in a form acceptable and approved by the town ensuring that financial resources will be available to fully decommission the site shall be required; The town board may require that the applicant provide a letter of credit, escrow, or other financial security in a form and amount approved by the town board, naming the town as obligee.
- g. Power and Communication Lines. Except for power and communication lines that are defined in this ordinance as essential services, all power and communication lines, including those running between banks of solar panels and to electric substations or interconnections with buildings, shall be buried underground, except as may be allowed by the zoning administrator in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or the distance to a substation reasonably precludes burial.
- h. Screening.
- a. Vegetative screening such as coniferous trees a minimum of six feet in height or an alternative approved by the zoning administrator, shall be installed around the perimeter of the solar farm at the time the solar farm is installed.
  - b. The town board may require that the applicant provide financial security in a form and amount set by the County Board, for the purpose of providing a financial guarantee for a minimum two year survival of the vegetative screening.

6. Notwithstanding the prohibition against transferring an interim use permit in section XX-5-6.E of this ordinance, the applicant and/or business entity that is granted an interim use permit for a solar farm pursuant to this ordinance may transfer the interim use permit through a change in ownership or control of the applicant and/or business entity without applying for a new or amended interim use permit, so long as the applicant and/or business entity meet the following conditions:
  - a. The applicant and/or business entity are in full compliance with all the terms and conditions set forth in the approved interim use permit
  - b. The applicant and/or business entity provides a 30 day prior written notice of the change in ownership to the zoning administrator by certified letter, which shall include the timeline for when the change will occur and to whom the ownership will transfer
  - c. The applicant and/or business entity demonstrates to the satisfaction of the town that the transfer shall not affect the financial security set forth in the conditions of the approved interim use permit. (Ord. 900, 18 Apr 22)

**XX-29-3: WINDPOWER MANAGEMENT:**

- A. Application: The purpose of this section is to regulate all proposed wind energy facilities with a rated capacity of less than 5 megawatts (5,000 kw) as either a permitted use or a conditional use within the districts established by chapter 45 of this ordinance.
- B. Categories: Windpower systems shall be divided into two categories; Hobbyist and Commercial.
- C. Compliance with Codes and Standards: All wind turbines shall be in compliance with all applicable state and federal regulatory standards including:
  1. Building code
  2. Electrical code
  3. National electric safety code.
  4. FAA requirements.
  5. MPCA / EPA regulation

D. Certifications Required:

1. Equipment shall conform to applicable industry standards for wind turbine design and related standards adopted by the American standards institute (ANSI).
2. The equipment shall have a manufacturer's certification that is in compliance with industry standards and all electrical is UAW listed.
3. Additional information may be required for all turbines that are experimental, used or prototype devices. Maintenance record, inspection by qualified wind energy professionals, or some other documentation of unit integrity may be requested.
4. A professional engineer registered in the state shall certify that the design, construction, and operation and that the tower and foundation are compatible with and appropriate for the turbine to be installed.

E. Commercial:

1. Plan Requirements: A description of the project including number and capacity of turbines, height and diameter of turbine rotors, turbine color, and rotor direction shall be submitted upon application of a conditional use permit. The description shall include the following:
  - a. A site plan, detailing the location of the project area boundaries, turbines, roads, transformers, power lines, communication lines, interconnection point with transmission lines, and other ancillary facilities or structures. (including support)
  - b. Topographic map of the project site and surrounding area.
  - c. Current land use on the site and of the surrounding area.
  - d. Distance to impacted properties.
  - e. Decommissioning plan.
  - f. Engineering certification of tower and foundation design suitability for turbine and soils.
  - g. Certification by an engineer as to compliance with all codes.
  - h. On experimental turbines, used or prototype devices, additional information may be requested.

- i. All wind turbines shall have a manual and automatic braking system device capable of halting operation in high winds as per the manufacturer’s design.
- 2. Minimum Area. The minimum area of the parcel or lot shall be 10 acres.
- 3: Setbacks:

| Object                              | Minimum Setback |
|-------------------------------------|-----------------|
| Residence Other Than Property Owner | 550 feet        |
| Property Line                       | 500 feet        |
| Public Right-of-Way                 | 500 feet        |

F. Hobbyist: This type of system is designed for small load personal use or to supplement commercial grid supplied electricity. The system may be connected to the commercial electrical grid and electricity sold.

- 1. Zoning Districts:
  - a. Allowed only in the R1 district, or commercial and industrial districts as established by chapter 45 of this ordinance.
  - b. Not permitted in the S district or WS district.
- 2. Plan Requirements: A description of the project including number and capacity of the turbine(s), height and diameter of turbine rotors, turbine color, and rotor direction shall be submitted upon application and shall include the following:
  - a. Site plan including the number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines and means of interconnecting with the electrical grid, and all related accessory structures. The site layout shall include distances and be drawn to scale.
  - b. Manufacturers certification.
  - c. Applications for wind turbines that directly connect to the commercial electrical grid shall be accompanied by a net excess generation (NEG) contract with the respective electrical power company.
- 3. Towers shall be freestanding and guyed, and shall not exceed 100 feet in height (exclusive of the rotor blades).
- 4. Total maximum electrical output shall not exceed 20 kilowatts.

5. Except as may be allowed by approval of a conditional use permit, the maximum number of wind turbines allowed on a property will be as follows:
    - a. One wind turbine for parcels or lots less than 5 acres in area.
    - b. Two wind turbines for parcels or lots 5 acres in area but less than 10 acres in area.
    - c. Three wind turbines for lots or parcels with an area of 10 acres or greater.
  6. Systems that directly connect to the commercial electrical grid shall conform to national electrical code (NEC).
  7. The minimum area of the parcel or lot shall be two acres.
  8. Towers shall be setback from all property lines and public road right-of-ways an amount equal to the height of the tower plus 25 feet.
  9. All wind energy conversion systems shall have a manual and automatic braking system device capable of halting operation in high winds as per the manufacturer's design.
- G. Noise Standards: Noise shall be regulated in accordance with Minnesota rules chapter 7030.
- H. Decommissioning:
1. The property owner shall ensure that facilities are properly decommissioned upon end of project life or facility abandonment. Decommissioning shall include: removal of all structures and debris to a depth of four feet; restoration of the soil; and restoration of vegetation (consistent and compatible with surrounding vegetation) shall also be required. A notice of the existing footing and location of the wind facility shall be recorded on the property's legal description at the same time the permit is recorded.
  2. The decommissioning plan shall include the following:
    - a. When and how a facility is to be decommissioned.
    - B. Estimated cost of decommissioning.
    - C. Financial guarantee to be used to accomplish decommissioning.



- I. Aesthetics: In the grant permit, the following conditions may be imposed to minimize visual impacts:
1. Coatings and Coloring: Non-reflective unobtrusive color. Black blades are acceptable for mitigation of icing.
  2. Signage: Including anything on the tower shall be consistent with the requirements or chapter 23 of this ordinance and may only be superseded by state or federal requirements.
  3. Lighting: Projects shall utilize minimal lighting. No tower lighting other than normal ground security lighting shall be permitted except as may be required by the FAA.
  4. Intra-project Power and Communication Lines: Shall follow applicable codes for all power lines.
  5. Security shall be addressed for the tower and any ancillary facilities.
  6. All wind turbines which are part of a commercial wind energy conversion system, shall be installed with a tubular, monopole type tower.
- J. Public Services:
1. Roads: The applicant and town engineer will conduct evaluation of current conditions. If damage occurs to road, applicant will be required to pay appropriate amount or repair road to pre-construction condition. The applicant will be required to obtain all required right-of-way permits.
- K. Interference The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by any wind turbines. The applicant shall notify all communication tower operators within two miles of the proposed wind turbine location upon application to the town for permits. No wind turbines shall be constructed so as to interfere with county, state, or federal transmissions of communications for safety. If a tower is found to interfere with the transmission of communications for safety, the landowner shall be responsible for the remediation or removal of the tower at their own expense. (Ord. 900, 18 Apr 22)