

## Solar Energy

### Definitions

**Solar Farm** - A solar panel or array composed of multiple solar panels on ground-mounted rack or poles which are one of the primary use(s) for the parcel of land on which it is located, or any solar energy system that has a primary purpose for wholesale or retail sales of generated electricity. Solar farms are limited to FR Forestry.

**Residential Solar Energy Systems** - Individual solar panels mounted on a roof, other structure or on the ground used primarily for the purpose of private electricity generation.

### Design Standards for Solar Farms

1. **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.
2. **Other Standards and Codes** - All solar farms shall be in compliance with any applicable local, state, and federal regulatory standards, and the National Electric Code as amended.
3. **Power and Communication Lines** - Power and communication lines running between banks of solar panels and to electric substations or interconnections with buildings shall be buried underground. Exemptions or variations may be granted in instances where shallow bedrock, water courses, or other elements of natural landscape interfere with the ability to bury lines.
4. **Minimum Lot Size** - No solar farm shall be erected on any lot less than 20 acres in size.
5. **Height** - Systems, equipment and structures shall not exceed thirty feet (30) in height when ground mounted. Excluded from this height requirement, however, are electric transmission lines and utility poles.
6. **Setbacks** - Ground mounted solar energy systems as part of a solar farm shall have a setback for all equipment including fences a minimum of 100 feet on the front and 50 feet from all other property lines, with the exception of residential property lines, in which the solar energy system shall be setback 100 feet for residentially zoned lots and existing residential properties, with the setback distance to be measured from the property line of the solar farm to the property line of residentially zoned lots or existing residential properties. Exemptions or variations may be granted to such setback requirement if the proposed or existing buffer is sufficient to screen the project from view from adjoining property or public right-of-way, if the owners of the adjoining properties agree to waive these setback requirements.

7. Screening and Fencing - Systems equipment and structures shall be fully enclosed and secured by a fence with a minimum height of 8 feet. Knox boxes and keys shall be provided at locked entrances for emergency personnel access. The Zoning Administrator shall have the discretion to recommend or at the discretion of the township board, a thirty (30) foot wide buffer of which part shall be consisting of a compact evergreen hedge or other type of evergreen foliage which shall be recommended along the entire perimeter of the facility, or an alternative buffer may also be considered. The buffer shall be planted at a minimum of three (3) feet tall and with the expectation that this hedge shall reach the height of at least eight (8) feet within three years and shall be maintained in good condition. If a vegetative buffer is to be part of the solar farm development, a landscape plan should be submitted for review and approval, that takes into account the type(s) of evergreens to be planted, along with the proposed spacing of the plantings, along with an evaluation of the soils. An alternative buffer may also be considered. Earth berms, other topographical features and existing wooded areas may be accepted in lieu or in combination of the above requirements, if they conceal the use from public view and are maintained.
8. Lighting - If lighting is provided at the site, lighting shall be shielded and downcast such that the light does not spill onto the adjacent parcel.
9. Noise - Noise levels measured at the property line shall not exceed fifty(50) decibels when located adjacent to an existing residence or residential district.
10. Installation and Design - Individual arrays/solar panels shall be designed and located in order to prevent glare toward any inhabited buildings on adjacent properties as well as adjacent street right-of-way.
11. Inspections - Each solar farm shall be required to have the facility inspected annually for 3 years, by approved independent party, following the issuance of a permit to verify continued compliance with the zoning regulations. Thereafter, inspections shall take place every three years, unless otherwise determined by the Grant Township Zoning Administrator. Additional inspections necessitate by complaints or otherwise shall not replace these inspection requirements.
12. Signage - An appropriate warning sign shall be provided at the entrance to the facility and along the perimeter to the solar farm project. The sign at the entrance to the facility shall include a 24 hour emergency contact number.

### **Design Standards for Residential Solar Energy Systems**

Roof mounted solar energy system shall comply to the following requirements:

1. Solar panels erected on a building shall not extend beyond the peak of the roof.

2. Roof mounted panels must be installed with a minimum of a three (3) foot setback from the edges of the roof, the peak, eave or valley to maintain pathways of accessibility. The exception is solar shingle installations.

Ground mounted solar energy systems shall comply to the following requirements:

1. Prior to the installation of a ground mounted solar energy system, the property owner shall submit a descriptive site drawing to the Zoning Administrator. This drawing shall include setbacks, panel size, and the location of property lines, buildings, fences, greenbelts, and road right of ways. This site drawing must be drawn to scale.
2. A ground mounted solar energy system shall not exceed the maximum building height for adjacent accessory buildings, but in any case the top of the system shall not be more than twenty-five (25) feet above the ground.
3. A ground mounted or free-standing solar energy system shall not be installed in the front yard.
4. All power transmission lines from a ground mounted solar energy system to any building or other structure shall be located underground.
5. There shall be a greenbelt screening any ground mounted solar energy systems and equipment associated with the system from any adjacent residences. The greenbelt shall consist of shrubbery, trees, or other non-invasive plant species that provide a visual screen. In lieu of a planting greenbelt, a decorative fence may be used.
6. A ground mounted solar energy system must be fenced in with at least a six (6) foot chain link fence, have a minimum setback from all property lines of one hundred twenty-five (125) feet and a minimum setback of one thousand (1000) feet from any residences on nearby properties.
7. Individual arrays/solar panels shall be designed and located in order to prevent glare toward any inhabited buildings on adjacent properties as well as adjacent street right-of-way.
8. In the event that a ground mounted solar energy system has been abandoned (meaning not having been in operation for a period of one (1) year), the system shall be removed by the property owner within six (6) months from the date of abandonment.

### **Application Requirements for Solar Farms**

The following information shall be provided as part of the application for special use permit:

- 1) A site plan with existing conditions showing the following:

- a. Existing property lines and property lines extending one hundred feet from the exterior boundaries, including the names of adjacent property owners and current use for those properties.
- b. Existing public and private roads showing widths of the roads and any associated easements.
- c. Location and size of any abandoned wells and sewage treatment systems.
- d. Existing buildings and any impervious surfaces.
- e. A contour map showing topography at two(2) foot intervals. A contour map of surrounding properties may also be required.
- f. Existing vegetation (list type and percent of coverage: ie. cropland/plowed fields, grassland, wooded areas, etc.)
- g. Waterways, watercourses, lakes and public water wetlands.
- h. Any delineated wetland boundaries.
- i. A copy of the current FEMA FIRM map that shows the subject property. And the one hundred year flood elevation and any regulated flood protection elevation, if available.
- j. Floodway, flood fringe and/or general flood plain district boundary, if applicable and not provided on the copy of the current FEMA FIRM map.
- k. Mapped soil according to the Grant Township survey.
- l. Surface water drainage patterns.
- m. The location of any subsurface drainage tiles.

## 2) Site Plan of Proposed Conditions:

- a. Location and spacing of solar panels.
- b. Location of access roads.
- c. Planned location of underground or overhead electric lines connecting the solar farm to a building, substation or other electric load.
- d. New electrical equipment other than at the existing building or substation that is to be the connection point for the solar farm.
- e. Sketch elevation of the premises accurately depicting proposed solar energy conversion system and its relationship to structure on adjacent land.

- f. Weed/grass control - applicant must present an acceptable weed/grass control plan for property inside and outside fenced area for entire property. The Operating Company during the operation of the Solar Farm must maintain the fence and adhere to the weed/grass control plan. If the operating company does not adhere to the plan within 15 days after notification, there can be a fine of \$500 per month.

3) Manufacturer's specifications and recommended installation methods for all major equipment, including solar panels, mounting systems and foundations for poles or racks.

4) The number of panels to be installed.

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

6) At the time of applying for the special use application, a written demonstration shall be provided that the applicant is in the queue to acquire an interconnect agreement. Then pre-operation of the project, a copy of an interconnect agreement with the appropriate electric utility, or a written explanation outlining why an interconnection agreement is not necessary should be provided to the township.

7) A decommissioning plan shall 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 operating company and or land owner have six months to complete the decommissioning plan or the Township will take the necessary decommissioning steps. The plan shall include provisions for removal of all structures (including equipment, fencing, and roads) and foundations, restoration of soil and vegetation and a plan ensuring financial resources will be available to fully decommission the site. Decommissioning security financing shall be required by the township in order to assure the proper decommissioning of the site. This security financing should be in the form of an irrevocable letter of credit or cash placed in a Township escrow account. The township board may, in its sole discretion, agree to accept security, or a portion thereof, in another form such as a bond or corporate guarantee.

An update to this decommissioning plan should be submitted to the township every three years. In addition, any decommissioning plans signed by the party responsible for decommissioning and the landowner (if different) shall be submitted with the application.

The township holds the right to require additional information as the township deems necessary to be part of the review of this plan.

8) This ordinance shall take effect thirty days after publication of the notice of adoption.