

**Article 95 Large Scale Commercial Solar Energy Systems**

**Definition: Large Scale Commercial Solar Energy System:** An area of land containing energy facilities intended to be used to convert solar energy to electric or any other energy to be used off site, and includes all solar panels, arrays, mounting and tracking systems, inverters, transformers, batteries and related and appurtenant structures and facilities, such as access roads, driveways, and fencing. The term includes but is not limited to photovoltaic power systems, solar thermal systems, and solar hot water systems.

**Definition: Photometric plan:** (aka photometric analysis, photometric lighting study) is a digital survey of your site with a proposed lighting solution. This light study allows you to view the lighting level at the jobsite before construction begins.

**Definition: Solar Panel Glare:** Occurs when an observer sees a direct reflection of the sun caused by a specular (mirror-like) reflection from the surface of one or more solar panels

**Definition: Solar Glare Hazard Analysis Tool:** This tool determines when and where solar glare can occur throughout the year from a user-specified PV array as viewed from user-prescribed observation points.

Special User Permit Required.

Where Allowed: RA-1; WR-1

**\*Once ordinance finalized must update:**

- **RA-1 Section; Article 35; 3503 Special Uses**
- **WR-1 Section; Article 34; 3403 Special Uses**

1. Purpose and Intent: The purpose and intent of this section is to establish additional standards for the siting, installation, operation, repair, decommissioning, and removal of Large Solar Energy Systems as a special land use.

2. Ocular Impacts from Glare or Glint: A Large Solar Energy System shall meet all of the following glare and glint standards as demonstrated by the Solar Glare Hazard Analysis Tool or other approved tool or program:

- a. No more than a “low potential for after image” ocular effects from glint or glare on any residential structure, public road or other public way caused by the Large Solar Energy System.
- b. No potential for glare or glint or “low potential for after-image” ocular effects along the final approach path for any existing landing threshold or future thresholds as shown on the current Federal Aviation Authority-approved Airport Layout Plan for any airport within five (5) miles of the Large Solar Energy System. The final approach path is defined as two (2) miles from fifty (50) feet above the landing threshold using a standard three (3) degree flightpath.
- c. Ocular impacts shall be analyzed over the entire calendar year in five (5) minute intervals from when the sun rises above the sun horizon until the sun sets below the horizon.
- d. A copy of Ocular Impacts Analysis shall be provided to Zoning Administrator.

3. Compliance with State Building Code and the National Electric Safety Code: Construction of a Large Solar Energy System shall comply with the National Electric Safety Code and the current State of Michigan building code administered by the Township (as shown by approval by the Township Zoning Administrator) as condition of any special land use permit under this section. In the event of a conflict between the state building code and National Electric Safety Code (NESC), the NESC shall prevail. The design and construction of the Large Solar Energy System shall not produce electrical emissions that would interfere with aircraft communications systems or navigation equipment.

4. Certified Solar array Components: Components of a solar array shall be approved by the Institute of Electrical and Electronics Engineers (“IEEE”), Solar Rating and Certification Corporation (“SRCC”), Electronic Testing Laboratories (“EIL”), or other similar certification organization if the similar certification organization is approved by the Township, which approval shall not be unreasonably withheld.

5. Height: Maximum height of a solar array, other collection device or components of the Large Solar Energy System, excluding substation, buildings, and electrical transmission equipment, shall not exceed fifteen (15) feet as measured from the actual grade at the base of improvements, at any time or location on the property. Substation, building and electrical transmission equipment shall not exceed thirty-five (35) feet.

6. Lot Size: A Large Solar Energy System shall be located on one or more parcels with an aggregate area of ~~ten (10)~~ **20 (twenty) acres or greater.**

7. Setbacks: A minimum setback distance of thirty-five (35) feet from all exterior property lines of the Large Solar Energy System and existing public roads shall be required for all buildings and solar arrays, provided that a minimum setback of seventy-five (75) feet from the exterior property lines, and/or edge of road right of way shall

8. Screening/Security: A Large Solar Energy System shall be completely enclosed by perimeter fencing to prevent unauthorized access. The applicant will submit a fencing style type included in the site plan for approval by the Township. Electric fencing is not permitted. The applicant shall utilize existing topography and natural vegetation to the greatest extent possible to protect viewsheds from existing adjacent residential structures. The perimeter of Large Solar Energy Systems shall also be screened and buffered by installed evergreen vegetative plantings whenever existing natural vegetation does not otherwise reasonably obscure the Large Solar Energy System from existing adjacent residential structures and public roads, subject to the following requirements:

a. The Large Solar Energy Systems shall be exempt from the other landscape requirements of this ordinance.

b. An installed evergreen vegetative buffer shall be composed of evergreen trees that at planting shall be minimum of six (6) feet in height and shrubs two (2) feet in height. The evergreen trees shall be spaced no more than fifteen (15) feet apart on center (from the central trunk of one plant to the central truck of the next plant), and shrubs shall be spaced no more than seven (7) feet apart on center. All unhealthy (sixty (60) percent dead or greater) and dead

material shall be replaced by the applicant within one (1) year, or the next appropriate planting period, whichever occurs first.

c. All plant materials shall be installed between March 15 and November 15 at a time specified by a professional arborist or tree specialist. If the applicant requests a Final Certificate of Zoning Compliance from the Township and the applicant is unable to plant during the installation period, the applicant will provide the Township with a letter of credit, surety, or corporate guarantee for an amount equal to one and one-half (1.5) times the cost of any planting deficiencies that the Township shall hold until the next planting season. After all plantings have occurred, the Township shall return the financial guarantee.

d. Subject to subsection b. above, failure to install or continuously maintain the required vegetative buffer shall constitute a violation of this ordinance and any special use permit may be subject to revocation.

**9. Signage:** No advertising or non-project related graphics shall be on any part of the solar arrays or other components of the Large Solar Energy System. This exclusion does not apply to entrance gate signage or notifications containing points of contact or any and all other information that may be required by the Planning Commission and other authorities having jurisdiction for electrical operations and the safety and welfare of the public.

**10. Noise:** No component of any Large Solar Energy System shall emit noise exceeding forty-five (45) dBA as measured at the exterior property boundary or the existing public road right of way line.

**11. Lighting:** All lighting for parking lots, driveways, external illumination of buildings, or the illumination of signs shall be shielded, down directed lighting with full cut-off lenses, and shall be so arranged as to not adversely affect driver visibility on adjacent public roads.

**12. Distribution, Transmission, and Interconnection:** All collection lines and interconnections from the solar array(s) to any electrical substations shall be located and maintained underground inside the Large Solar Energy System, except in areas where technical or physical constraints make it preferable to install equipment above ground. This requirement excludes transmission equipment meant to connect the project substation to the local transmission system.

**13. Abandonment and Decommissioning:** Following the operational life of the project, the applicant or then current owner or operator shall perform decommissioning and removal of the Large Solar Energy System and all its components. Decommissioning shall include removal of all structures, concrete, piping, facilities, and other project-related materials above grade and any structures up to three (3) feet below grade, and all such materials shall be removed offsite for disposal. Any solar array or combination of photovoltaic devices that is not operated for a continuous period of twelve (12) months shall be considered abandoned and shall be removed under the decommissioning plan. The applicant or then current owner or operator shall provide written notice to the Zoning Administrator after the first thirty (30) days of continuous non-operation. The ground must be restored to a topography consistent with the surrounding properties as approved by the Planning Commission within three hundred sixty-five (365) days of abandonment or decommissioning.

**14. Inspection:** The applicant shall agree in writing that officials of the Township shall have the right, at any reasonable time, following notice to the applicant, to inspect within 30 days the premises on which any Large Solar Energy System is located. The Township may hire one or more consultants, to assist with inspections at the applicant's or project owner's expense. Inspections must be coordinated with, and escorted by, the applicant's operations staff at the Large Solar Energy Facility to ensure compliance with the Michigan Occupational Safety and Health Administration (MIOSHA), NESC and all other applicable safety guidelines.

**15. Maintenance and Repair:** Each Large Solar Energy System must be kept and maintained in good repair and condition at all times. If the Zoning Administrator determines that a Large Solar Energy System fails to meet the requirements of this ordinance and the special land use permit, or that it poses a safety hazard, the Zoning Administrator, or his or her designee, shall provide notice to the applicant of the violation. If, after a reasonable cure period (not to exceed 60 days), the violations are not corrected, the applicant is entitled to a hearing before the Planning Commission. If the Planning Commission determines that the violation requires that the Large Solar Energy System must be shut down, applicant shall immediately shut down the Large Solar Energy System and not operate, start, or restart the Large Solar Energy System until the violations have been resolved. Applicant shall keep a maintenance log on the solar array(s), which shall be available for the Township's review within 48 hours of such request.

**16. Housekeeping:** Applicant shall keep all sites within the Large Solar Energy System neat, clean and free of refuse, waste or unsightly, hazardous or unsanitary conditions.

**17. Roads:**

a. Any material damages to a public road located within the Township resulting from the construction, maintenance or operation of a Large Solar Energy System shall be repaired at the applicant's expense. In addition, the applicant shall submit to the Manistee County Road Commission and/or Michigan Department of Transportation a description of the routes to be used by construction and delivery vehicles and any road improvements that will be necessary to accommodate construction vehicles, equipment or other deliveries. The applicant shall abide by all county and state requirements regarding the use and/or repair of county and state roads.

b. There shall be a perimeter access road around the entire perimeter of the site, located just inside the security fencing. In addition, there shall be interior access roads between every third row of solar arrays. All interior roads shall be not less than fifteen (15) feet wide. Interior roads may be paved or graveled but in either case they shall be maintained so as to allow unobstructed passage and maneuvering by emergency vehicles, including snow removal. The terminal location of all interior roads shall be designed so as to permit emergency vehicles to safely turn around.

**18. Continuing Security:** If any Large Solar Energy System is approved for construction under this section, the applicant shall post decommissioning security prior to the start of construction in a mutually agreed upon form for an amount necessary to accomplish the work specified in the decommissioning plan as agreed upon by the Township and the applicant. The amount shall be reasonably sufficient to restore the property to its previous condition prior to construction and operation of the Large Solar Energy System. Such financial security shall be kept in full force and effect during the entire time that the Large

Solar Energy System exists or is in place, and such financial security shall be irrevocable and non-cancelable.

a. Continuing Obligations: Failure to keep any required financial security in full force and effect at all times while a Large Solar Energy System exists or is in place shall constitute a material and significant violation of the special land use permit and this ordinance, unless cured within sixty (60) days of notice from the Township, and will subject the Large Solar Energy System applicant, owner and operator to all remedies available to the Township, including enforcement action, civil action, request for injunctive relief, and revocation of the special land use permit.

b. Periodic Review. Not less than sixty (60) days after every five (5) year anniversary of the issuance of the special use permit for a Large Solar Energy System, the applicant or then current owner or operator, shall submit to the Planning Commission an updated decommissioning plan meeting the requirements of subsection 14, with current cost estimates for decommissioning the entire Large Solar Energy System. The amount of the financial security shall be adjusted by the Planning Commission following review of the updated decommissioning plan, and the applicant or owner shall fulfill the new financial security requirement within sixty (60) days of the adjustment.

c. Notice of Change of Owner/Operator. The applicant or owner of the Large Solar Energy System shall give written notice to the Zoning Administrator at least ten (10) business days prior to any change in ownership or change in the operator of the Large Solar Energy System.

**19. Other requirements:** Each Large Solar Energy System shall also comply with all applicable federal, state and county requirements, in addition to other applicable township ordinances.

**Data Required for Site Plans.**

**Additional Site Plan Information and Supporting Materials for Large Solar Energy Systems:**

All special use permit applications for a Large Solar Energy System must be accompanied by a detailed site plan meeting the requirements of Article 94 drawn to scale and dimensioned and certified by a registered engineer licensed in the State of Michigan, and displaying the following additional information:

- a. All lot lines and dimensions, including a legal description of each lot or parcel comprising the Large Solar Energy System.
- b. Names of owners of each lot or parcel within the Township that is proposed to be within the Large Solar Energy System.
- c. Vicinity map showing the location of all parcels and land uses and structures within 300 feet of the parcel comprising the Large Solar Energy System.
- d. Location and height of all proposed solar array(s), buildings, structures, electrical tie lines and transmission lines, security fencing, and all above-ground structures and utilities associated with the Large Solar Energy System.

- e. Horizontal and vertical (elevation) to scale drawings with dimensions that show the location of the proposed solar array(s), buildings, structures, electrical tier lines, substations and transmission lines, security fencing and all above ground structures and utilities on the property.
- f. Location of all existing and proposed overhead and underground electrical transmission or distribution lines within the Large Solar Energy System and within 100 feet of all exterior property lines of the Large Solar Energy System.
- g. Proposed setback from the solar array(s) to all existing and proposed structures within the Large Solar Energy System.
- h. Land elevations for the solar array (s) location and extending 100 feet beyond the parcel boundary of the Large Solar Energy System, and the relationship to the land elevations of all existing and proposed structures within the Large Solar Energy System at a minimum of 5' contours.
- i. Private driveways proposed to be located within and to the Large Solar Energy System from public roads, together with a detailed narrative regarding dimensions, composition, and maintenance of each proposed driveway. All driveway intersections with public roads shall be subject to Manistee County Road Commission or Michigan Department of Transportation approval, which approval shall be noted on the site plan, and shall be planned so as to minimize the use of lands for that purpose.
- j. Security measures to prevent unauthorized trespass and access during the construction, operation, removal, maintenance, or repair of the Large Solar Energy System.
- k. A written description of the maintenance program to be used for the solar array and other components of the Large Solar Energy System. The description shall include maintenance schedules, types of maintenance to be performed and equipment to be used.
- l. Planned lighting protection measures, including the location of all downward lighting and photometric plan.
- m. A solar glare hazard analysis plan using the Solar Glare Hazard Analysis Tool, developed by Sandia National Laboratories, (or similar tool or program approved by the Planning Commission) demonstrating compliance with the standards required by this Ordinance.
- n. A decommissioning plan meeting the requirements of this ordinance and including the procedures and schedule to be used and an estimate of the total cost of decommissioning the entire Large Solar Energy System and all of its components, as of the end of its expected useful life, prepared by a licensed engineer.
- o. A surface water runoff and detention plan for the entire site to be occupied by the Large Solar Energy System, showing the plan to capture and dispose of surface water falling or coming on to the site, as approved by the Manistee County Drain Commissioner and the Manistee County Soil Erosion and Sedimentation Office.
- p. A weed control plan.

- q. The name and address and other contact information for the manufacturer and installer of the Larger Solar Energy System and the proposed operator of the site, if not the applicant; the type and model of all major equipment components to be used, including but not limited to the photovoltaic panels, thermal energy, or hot water systems, mounting and tracking systems, inverters and transformers.
  - r. A copy of the application to the utility company that will be interconnecting the Large Solar Energy System at the proposed site.
  - s. If the Large Solar Energy System will utilize batteries or the storage of batteries, adequate design must be provided to show compliance with all applicable state and federal requirements regulating the outdoor storage of batteries.
  - t. Modeling of all surrounding properties and existing dwellings within 1000 feet of the exterior boundary of the Large Solar Energy System demonstrating compliance with the sound level requirements contained in Pleasanton Township Noise Ordinance. ~~of the ordinance.~~
5. Any other information deemed necessary to determine if the proposed site plan conforms to the requirements of this Ordinance.