

SOLAR ENERGY FACILITIES.

Sunlight is utilized to generate energy through a facility consisting of one (1) or more solar devices under common ownership or operational control. Such a facility may include, but not be limited to, substations, cables/wires and other buildings and accessory structures whose main purpose is to supply energy on-site or to off-site customer(s):

1. **LARGE SOLAR ENERGY FACILITY (SOLAR FARM).** The purpose of this Subsection is to establish minimum requirements and regulations for the placement, construction and modification of large solar energy facilities (Solar Farms), as defined in Article XVI, while promoting the safe, effective, and efficient use of such energy facilities as a conditional use in specified zoning districts.

- a. **Location.** All large solar energy facilities (Solar Farms) are limited to the Agricultural (AA) and Industrial (I) and districts. Large solar energy facilities are not permitted on any properties enrolled in the PA 116 Farmland and Open Space Preservation Program.
- b. **REGULATIONS AND DESIGN STANDARDS.** All large solar energy facilities (Solar Farms) shall comply with the following minimum regulations and design standards.

1. **DESIGN STANDARDS.**

- a. **MINIMUM LOT SIZE.** No large solar energy facility (Solar Farm) shall be erected on any Lot less than twenty (20) acres in size.

MAXIMUM LOT COVERAGE: The maximum lot coverage ratio for a large solar energy facility, including PV solar panels shall be 10%.

- b. **MAXIMUM HEIGHT.** The maximum height for a solar panel shall be fourteen (14) feet. The maximum height of a Power Switchyard shall not exceed the minimum height needed to tie into electric transmission lines. The height of all other buildings and accessory structures shall comply with the maximum building height requirements of the applicable zoning district in which the Solar Farm is located. The height of required lightning rods attached to the Power Switchyard or Solar Farm related equipment shall not be subject to the foregoing height limitations. The height of lightning rods shall be limited to that height necessary to protect the Power Switchyard and Solar Farm equipment from lightning.

Commented [K1]: Some jurisdictions limit solar to industrial districts only. This is also appropriate.

Commented [K2]: This was the state of the Law until Spring 2019. Nothing in the new rules pre-empts local control of land for solar development.

c. SETBACKS. Large solar energy facility (Solar Farm) solar panels and other structures shall be set back five hundred feet (500) from all lot lines and public road rights-of-way, or the district setbacks stated in the underlying zoning district, whichever is greater. In addition, large solar energy facility (Solar Farm) solar panels and other structures must be located at least five hundred (500) feet from all existing RA Residential or C Commercial district land and existing residences at the time the Solar Farm is granted conditional use approval, unless the lot is comprised of a portion of the lot containing the residence. In addition, large solar energy facility (Solar Farm) solar panels and other structures shall not be located within a fifty foot (50') drain easement. When a large solar energy facility (Solar Farm) comprises of lots of more than one owner, the internal setback shall not apply.

Commented [K3]: Alternatively, one could insert a 2,500' setback to unleased property lines that can be waived by the developer acquiring an easement from the neighboring landowners. That is a more market driven approach.

d. SAFETY/ACCESS.

1. Security fencing shall be installed around all electrical equipment related to the Solar Farm including, but not limited to, transformers and transfer stations.
2. Appropriate warning signage shall be placed at safe intervals at the entrance and perimeter of the large solar energy facility (Solar Farm).
3. A safety plan shall be in place and updated regularly with the fire department having jurisdiction over the Solar Farm.

e. NOISE. No operating large solar energy facility (Solar Farm) shall produce noise that exceeds any of the following limitations.

1. Forty (40) Dba Lmax, as measured at the property line of any adjacent RA Residential or C Commercial zoned land in existence at the time the Solar Farm is granted conditional use approval.
2. Forty (40) Dba Lmax, as measured at any neighboring residence in existence at the time the Solar Farm is granted conditional use approval, between the hours of nine (9) p.m. and seven (7) a.m.

Commented [K4]: Because inverter noise often has a "tone", a 5dBA reduction is in order. We know from EPA and the WHO that 40 decibels is an appropriate noise limit in quiet rural areas. Lmax makes it an absolute limit rather than an hourly average. This is preferred and easier to enforce.

3. Forty (40) Dba Lmax, as measured at the lot lines of the project boundary.
4. In addition to the above limitations, a sound barrier of a solid decorative masonry wall or evergreen tree berm, with trees spaced not less than 10 feet apart shall be constructed to reduce noise levels surrounding all inverters, no more than ten (10) feet from all inverters, no less than the height of all inverters and no more than three (3) feet above the height of all inverters.

f. VISUAL APPEARANCE & MAINTENANCE

1. Large solar energy facility (Solar Farm) buildings and accessory structures shall utilize materials, textures, and neutral colors customary with Solar Farms and that to the extent which is prudent and feasible will blend the facility into the existing environment.
2. Prior to construction of solar farm, all existing drainage tile must be inspected by means of robotic camera and the imagery submitted to the Township to establish baseline condition of tile. Any damaged or inoperable tile shall be repairer prior to construction and such repairs shall be documented and a report submitted to the landowner and township indicating the location, nature and satisfactory completion of such repairs. While the solar farm is in operation, all drain tile shall be inspected every three (3) years in the fashion noted above and all video footage and a report of any damage or failure shall be submitted to the Township. Any tile failure shall be corrected within 60 days of discovery and such repairs shall be documented and a report submitted to the landowner and township indicating the location, nature and satisfactory completion of such repairs. The Township reserves the right to have the Building Inspector or other agent present at the time of repair.
3. Supports shall be constructed to preserve any drainage field tile and/or drainage system. Any broken/missing field tiles shall be repaired and made in operable condition as soon as possible after damage and/or failure.

Commented [K5]: Unlike wind turbines which have no means of noise mitigation except distance, inverter arrays can be surrounded by noise abating structures.

Commented [K6]: This is appropriate. The new PA116 rules state that if in the farm reverts to a wet land status due to failed drainage, under state law it can no longer be farmed. One can image 30 years from now when the project ends and the fields are wet that the developer's defense will be "how do you know the tile worked right from the beginning"? 30 years from now is a long time and witnesses may even be dead.

4. An appropriate maintenance plan, including property maintenance of the grounds, shall be presented to the Planning Commission for review and approval.

5. Lighting of the large solar energy facility (Solar Farm) shall be limited to the minimum necessary, supplied with down lighting, and in no case shall any illumination from such lighting extend beyond the perimeter of the Solar Farm. The Township may require use of a photometric study to make this determination.

6. No large solar energy facility (Solar Farm) shall produce glare that would constitute a nuisance to occupants of neighboring properties or to persons traveling neighboring roads. Upon written notice from the Township Building Inspector, or such other person designated by the Township Board, to the owners of the Solar Farm that glare from the Solar Farm is causing a nuisance to occupants of neighboring property or to persons traveling neighboring roads, the owner of the Solar Farm shall have a reasonable time (not to exceed twelve (12) months) from the date of such notice to remediate such glare.

7. Large solar energy facilities (Solar Farms) shall be screened from any adjacent property that is residentially zoned or used for residential purposes. The screen shall consist of shrubbery, trees, or other non-invasive plant species which provides a visual screen. At least fifty percent (50%) of plants must be evergreen trees, which shall not be less than six (6) feet tall at the time of planting. In lieu of a planting screen, a decorative fence that is at least fifty percent (50%) opaque may be used.

8. Developer shall furnish an assurance in a form acceptable to the Township that guarantees that 100% of the PV panels and attendant electrical apparatus, wiring, metal support structures, etc., shall not enter the waste stream.

9. Developer shall offer a property value guarantee acceptable to the Township that will make solar array neighbors whole financially in the event

Commented [K7]: Many jurisdictions are requiring earthen berms. This is also reasonable.

Commented [K8]: PC solar waste is a growing problem. Europe is demanding recycling. The US has not yet taken that step nationally.

Commented [K9]: Developers claim there is little risk to PV array neighbors' property values. If that is the case, they should gladly guarantee it.

that proximity to utility scale solar development is harmful to residential property values. This shall be made available to all property owners within 1 mile of the project boundary.

10. Developer shall install and maintain pollinator habitat in accordance with the MSU Pollinators Scorecard as published in 2018.
- g. MEDIUM VOLTAGE CABLE. All medium voltage cable within the project boundary shall be installed underground at a depth in accordance with current National Electrical Code standards and except for Power Switchyards or the area within a substation. All electrical interconnections and distribution components must comply with all applicable codes and public utility requirements.
2. LOCAL, STATE AND FEDERAL PERMITS. A large solar energy facility (Solar Farm) shall be required to obtain all necessary permits from the Michigan Department of Environmental Quality and any applicable municipal/county or Federal permits.
3. AGREEMENTS/EASEMENTS. If the Lot on which the project is proposed is to be leased, rather than owned, by the owner of the Solar Farm, all property within the project boundary must be included in a recorded easement(s), lease(s), or consent agreement(s) specifying the applicable uses for the duration of the project. All necessary leases, easements, or other agreements between the owner of the Solar Farm and property owners must be in place prior to commencing construction, unless specified otherwise by the conditional use permit.
- c. PERMIT APPLICATIONS. An application for a conditional use permit to establish a large solar energy facility (Solar Farm) shall include a complete description of the project and documentation to sufficiently demonstrate that the requirements set forth in this Ordinance will be met. Supporting documentation for addressing the review criteria (required standards and findings for making a conditional use determination) is also to be provided. The Planning Commission and/or Township Board may require any information reasonably necessary to determine compliance with this ordinance.

It is preferred that any related conditional use permit applications for substations or new transmission lines be considered in conjunction with the conditional use permit application for the large solar energy facility (Solar Farm); however, if the details of those improvements are not available at the time of application for the large solar energy

Commented [K10]: http://rightofway.erc.uic.edu/wp-content/uploads/2019/02/MSU_Solar_Pollinators_Scorecard_2018_posted.pdf

facility (Solar Farm), they may be considered later, through subsequent conditional use permit review. At a minimum, the intended route for connecting to the power grid and the alternative locations of any substation shall be disclosed with the application for the large solar energy facility (Solar Farm).

The owner(s) and/or operator of the Solar Farm shall post a security bond or escrow or irrevocable letter of credit in a form acceptable to the Township equal to one-hundred twenty five (125) percent of the total estimated decommissioning, code enforcement and reclamation costs. The cost of decommissioning shall be reviewed between the operator and the Township Board every two (2) years to ensure adequate funds are allocated for decommissioning; the security bond or escrow or irrevocable letter of credit, defined herein, shall be appropriately adjusted to reflect the current decommissioning estimate. This security bond or escrow or irrevocable letter of credit shall be issued by a 3rd party and paid by the operator.

Commented [K11]: Important to have escrowed funds for code enforcement. Liability insurance does not cover code enforcement. Those actions are at township expense.

The security bond or escrow or irrevocable letter of credit shall be posted and maintained with a company licensed to do business in the State of Michigan or a Federal- or State-chartered lending institution acceptable to the Township.

Any bonding company or lending institution shall provide the Township with 90 days' notice of the expiration of the security bond or escrow or irrevocable letter of credit. Lapse of a valid security bond or escrow or letter of irrevocable credit is grounds for the actions defined below.

In the event of sale or transfer of ownership and/or operation of the Solar Farm, the security bond or escrow or irrevocable letter of credit shall be maintained throughout the entirety of the process and the new owner shall be required to provide a new security bond or escrow or irrevocable letter of credit.

If at any time during the operation of the Solar Farm or prior to, during, or after the sale or transfer of ownership and/or operation of the Solar Farm the security bond or escrow or irrevocable letter of credit is not maintained, the Township may take any action permitted by law, revoke the special land use, order a cessation of operations, and order removal of the structure and reclamation of the site.

- d. PROVISIONS FOR CONDITIONAL USE PERMIT REVIEW. In addition to the standards set forth for conditional use approval in Section 7.21, the Solar Farm shall comply with the following standards:

1. SOLAR FARM DESCRIPTION. The application for the Solar Farm shall identify the Solar Farm buildings and accessory structures, the time period to construct the Solar Farm, the phasing of construction, if any, and the anticipated useful life of the Solar Farm.
2. ENVIRONMENTAL SITING CONSIDERATIONS. The applicant shall provide evidence of compliance with applicable State of Michigan statutes including, but not limited to: Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act; (MCL 324.3101 et. Seq.; Part 91, Soil Erosion and Sedimentation Control (MCL 324.9101 et. Seq.) and any corresponding County ordinances; Part 301, Inland Lakes and Streams, (MCL 324.30101 et. Seq.); Part 303, Wetlands (MCL 324.30301 et. Seq.); Part 365, Endangered Species Protection (MCL324.36501 et. Seq.); and such other applicable laws and rules in force at the time the application is considered by the Township Board.
3. SITE PLANS. Site plans shall conform with Section 7.23 and shall identify (1) all lots in the Solar Farm, and as to each lot, existing and proposed (a) buildings, (b) accessory structures, (c) utilities, (d) transmission lines, (e) solar panels, (f) drainage ways, (g) grades, (h) topographical conditions, (i) vegetation, (j) regulated wetlands, (k) regulated floodplains, (l) regulated and endangered species, and (m) regulated lakes, streams or ponds; (2) required setbacks; (3) access routes to lots that are a part of the Solar Farm; (4) proposed road and driveway improvements; (5) any lots within three hundred (300) feet of a large solar energy facility (Solar Farm); (6) proposed transmission lines to and from Power Switchyards and/or between lots; (7) proposed signage; and (8) methods for dust and erosion control. All maps and visual representations need to be drawn at an appropriate scale and in accordance with Section 7.23 (Site Plan Review and Approval).
4. ENVIRONMENTAL INFORMATION. The Applicant shall provide evidence of compliance with the Environmental Siting Considerations as required in this Section.
5. HAZARDOUS WASTE. As applicable, the application must include plans for the spill prevention, clean-up, and disposal of fuels, oils, and hazardous wastes.
6. TRANSPORTATION PLAN FOR CONSTRUCTION AND OPERATION PHASES. Proof of an agreement with the County Road Commission, and the Michigan Department of

Transportation (if applicable) regarding any construction phase of the project, is required.

7. DECOMMISSIONING PLAN. Describe the decommissioning and final land reclamation plan to be followed after the anticipated useful life, or abandonment, or termination of the large solar energy facility (Solar Farm), including evidence of proposed commitments with property owners to ensure proper final reclamation of the Solar Farm with seasonal grasses or to an agricultural ready condition, repairs to roads for damage caused by the Solar Farm, if any, and within twelve (12) months from the notice of abandonment issued by the Township to complete decommissioning and land reclamation. All roads, above grade and subsurface improvements must be removed at the end of project.
8. COMPLAINT RESOLUTION. The Industrial Solar Energy Facility applicant shall submit a detailed, written complaint resolution process developed by the Industrial Solar Energy Facility applicant to resolve complaints from the Township board or the property owners or residents concerning the construction or operation of the Industrial Solar Energy Facility. The complaint resolution process must be approved by the Planning Commission as a condition of approval of the special land use permit application.

The Township board shall appoint a 3 member complaint resolution committee to oversee and participate in all complaint resolution discussions or meetings between the Township property owner or resident and the Industrial Solar Energy Facility owner.

The complaint resolution committee shall consist of (1) Township board member, (1) Planning Commission member, and (1) qualified elector chosen by the Township Board from the community.

Commented [K12]: Often developers demand a seat on this board. That should be avoided.

The Township board shall be kept apprised of all complaints and shall receive a report outlining the issues, the progress, and the resolution of each such complaint.

2. SMALL SOLAR ENERGY FACILITY. Notwithstanding other provisions of this Section of the Ordinance, Small Roof-Mounted or Ground-Mounted Solar Energy Facilities shall be considered a permitted use in all zoning districts as an accessory to a principal use. A Small Solar Energy Facility shall be required to have appropriate building permits.

Commented [K13]: Solar has appropriate uses and locations and it is wise to permit solar for onsite use when it can be done without aesthetic harm to neighbors.

a. All Small Solar Energy Facilities are subject to the following minimum requirements:

1. A small solar energy facility shall provide power for the principal use and/or accessory use of the property on which the small solar energy facility is located and shall not be used for the generation of power for the sale of energy to other users, although this provision shall not be interpreted to prohibit the sale of excess power generated from time to time to the local utility company.
2. A small solar energy facility connected to the utility grid shall provide written authorization from the local utility company to the Township acknowledging and approving such connection.
3. A roof-mounted facility may be mounted on a principal building or accessory building. A roof-mounted facility, whether mounted on the principal building or accessory building, may not exceed the maximum principal building height or accessory building height specified for the building type in the underlying zoning district. In no instance shall any part of the small solar energy facility extend beyond the edge of the roof.
4. A ground-mounted facility shall not exceed a height of fourteen (14) feet.
5. The surface area of a ground-mounted facility, regardless of the mounted angle, shall be calculated as part of the overall lot coverage.
6. A ground-mounted facility or facility attached to an accessory building shall not be located within the required front yard setback.
7. The minimum ground-mounted small solar energy facility setback distance from the property lines shall be equivalent to the principal building setback of the underlying zoning district.
8. All mechanical equipment associated with and necessary for the operation of the small solar energy facility shall comply with the following:
 - a. Mechanical equipment shall be screened from any adjacent property that is residentially zoned or used for residential purposes. The screen shall consist of shrubbery, trees, or other non-invasive plant species which provides a visual screen. At least fifty percent (50%) of plants must be evergreen. In lieu of a planting screen, a decorative fence that is at least fifty percent (50%) opaque may be used.

- b. Mechanical equipment shall not be located within the minimum front yard setback of the underlying zoning district.
 - c. Mechanical equipment for ground-mounted facilities shall comply with the setbacks specified for principal structures in the underlying zoning district.
- 9. Solar panels shall be placed such that concentrated solar radiation or glare shall not be directed onto nearby properties or roadways.
- 10. All power transmission lines from a ground-mounted small solar energy facility to any building or other structure shall be located underground.
- 11. A small solar energy facility shall not be used to display advertising, including signage, streamers, pennants, spinners, reflectors, ribbons, tinsel, balloons, flags, banners or similar materials. The manufacturers and equipment information, warning, or indication of ownership shall be allowed on any equipment of the solar energy facility provided they comply with the prevailing sign regulations.
- 12. The design of the small solar energy facility shall conform to applicable industry standards. A building/zoning permit shall be obtained prior to construction. In the case of a roof-mounted facility, the existing roof structure and the weight of the facility shall be taken into consideration when applying for a small solar energy facility permit.

All wiring shall comply with the applicable version of Michigan's construction codes. The local utility provider shall be contacted to determine grid interconnection and net metering policies. The Applicant shall submit certificates of design compliance obtained by the equipment manufacturer from a certifying organization.
- 13. The small solar energy facility shall comply with all applicable Township ordinances and codes so as to ensure the structural integrity of such facility.
- 14. Before any construction can commence on any small solar energy facility, the property owner must acknowledge in writing that he/she is the responsible party for owning/leasing and maintaining the solar energy facility.

b. If a ground-mounted small solar energy facility is removed, any earth disturbance as a result of the removal of the ground-mounted facility shall be graded and reseeded.

- c. If a small solar energy facility has been abandoned (meaning not having been in operation for a period of six (6) months) or is defective or is deemed to be unsafe by the Building Inspector, the facility shall be required to be repaired by the owner to meet federal, state and local safety standards, or be removed by the property owner within the time period allowed by the Building Inspector. If the owner fails to remove or repair the defective or abandoned small solar energy facility, the Township may pursue legal action to have the facility removed at the owner's expense.
- 3. SOLAR ACCESS. The Township makes no assurance of solar access other than the provisions contained within this Section. The Applicant may provide evidence of covenants, easements, or similar documentation for abutting property owners providing access to solar energy for the operation of a solar energy facility.

SAMPLE