

## Division 18. - Solar Energy Systems

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### Section 30-638. – Purpose.

The purpose of this section is to:

(a) Allow the safe, effective, and efficient use of a solar energy system consistent with the goals and objectives set forth in the Sylvan Township Master Plan.

(b) Preserve and protect public health, safety, welfare, and quality of life by minimizing the potential adverse effects of solar energy systems, ~~including aesthetic impacts and risks to the values of adjoining properties.~~

Note: Houses without solar create more adverse

(c) Establish standard and procedures by which the siting, design installation, operation, and maintenance of solar energy systems shall be governed.

### Section 30-369. – Definitions.

*Accessory Use SES* – a solar energy system with the purpose primarily of generating electricity for the principal use on the site.

- ***Ground-Mounted SES:*** A solar energy system mounted on support posts that are attached to or rest on the ground.

- ***Building-Integrated SES:*** A solar energy system that is an integral part of a primary or accessory building or structure (rather than a separate mechanical device), replacing or substituting for an architectural or structural component of the building or structure. Building-integrated systems include, but are not limited to, photovoltaic ~~or hot water solar energy systems~~ that are contained within roofing materials, windows, skylights, and awnings.

Note: There are no building integrated solar hot water systems, also this disagrees with

- ***Roof-Mounted SES:*** A solar energy system mounted on racking that is attached to or ballasted on the roof of a building or structure

*Maximum Tilt* – the maximum angle of a solar array (i.e., most vertical position) for capturing solar radiation as compared to the horizon line.

*Minimum Tilt* – the minimal angle of a solar array (i.e., most horizontal position) for capturing solar radiation as compared to the horizon line.

*Participating Lot(s)* – lots under a signed lease or easement for development of a principal-use SES associated with the applicant project.

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*Principal-Use SES* – a commercial, ground-mounted solar energy system that converts sunlight into electricity for the primary purpose of off-site use through the electrical grid or export to the wholesale market

- *Principal Use (Small) SES*: Principal-Use SES generating up to and including 2 MW DC for the primary purpose of off-site use through the electrical grid or export to the wholesale market.
- *Principal-Use (Large) SES*: A Principal-Use SES generating more than 2 MW DC for the primary purpose of off-site use through the electrical grid or export to the wholesale market.

Megawatt Outputs to Acreage Needed	
Megawatts (DC)	Acres
1 MW*	5-10
2 MW	10-20
20 MW	100-200
100 MW	500-1000
200 MW	1000-2000
<i>*The average number of homes powered by 1 MW ranges from 150-210</i>	

*Solar Array* – a photovoltaic panel, solar thermal collector, or collection of panels or collectors in a solar energy system that collects solar radiation.

*Solar Energy System (SES)* – a photovoltaic system or solar thermal system for generating and/or storing electricity or heat, including all above and below ground equipment or components required for the system to operate properly and to be secured to a roof surface or the ground. This includes any necessary operations and maintenance building(s), but does not include any temporary construction offices, substation(s) or other transmission facilities between the SES and the point of interconnection to the electric grid.

**Section 30-370. – Accessory Use Solar Energy System (SES)**

Accessory Ground-Mounted SES, Building-Integrated SES, and Roof-Mounted SES shall be allowed in all zoning districts as accessory uses, subject to the following requirements:

(a) *Accessory Ground-Mounted SES:*

- (1) *Location:* Accessory Ground-Mounted SES in residential districts shall be located in the side or rear yard to minimize visual impacts from the public rights-of-way.

Accessory Ground-Mounted SES may be placed in the front yard with Planning Commission approval, where the applicant can demonstrate that placement of the SES in the side or rear yard will:



- a. Decrease the efficiency of the SES due to topography, accessory structures, or vegetative shading from the subject lot or adjoining lots;
  - b. Interfere with septic system, accessory structures, or accessory uses; or
  - c. Require the SES to be placed on the waterfront side of the principal building.
- (2) *Setbacks:* Accessory Ground-Mounted SES shall be subject to the yard and setback requirements of the district in which it is located, measured from the property line to the leading edge of the SES at minimum tilt.
- (3) *Height:* Accessory Ground-Mounted SES **shall not exceed 25 feet in height**, measured from the ground to the top of the system when oriented at maximum tilt.
- (4) *Lot Coverage:* The surface area covered by the Accessory Ground-Mounted SES shall not count towards the maximum lot coverage or impervious surface standards for the district.
- (5) ***Screening:* Accessory Ground-Mounted SES shall be reasonably screened from view of the surrounding streets and roads to the maximum extent practicable by garden walls, fences, hedges, landscaping, earth berms, or other means, except to the extent that such screening is either impracticable or would result in ineffective solar access on the lot in question.**
- (6) *Exemption:* Accessory Ground-Mounted SES used to power a single device or specific piece of equipment such as a lawn ornament, lights, weather station, thermometer, clock, well pump or other similar singular device is exempt from this Section.
- (7) *Installation:* Accessory Ground-Mounted SES shall be permanently and safely attached to the ground. Proof thereof shall be submitted to the Township Building Inspector prior to installation and shall be subject to the Building Inspector's approval.
- (8) *Utilities:* All related power transmission lines shall be placed underground.

(b) *Roof-Mounted SES:*

- (1) Roof-Mounted SES installed on a sloped roof surface shall not project vertically above the peak of the roof to which it is attached.
- (2) Roof-Mounted SES installed on a flat roof shall not project vertically higher than the height of the parapet wall surrounding the roof or shall be screened by architectural features.



- (3) Roof-Mounted SES shall be only of such weight as can safely be supported by the roof. Proof thereof shall be submitted to the Township Building Inspector prior to installation and shall be subject to the Building Inspector's approval.

(c) *Building-Integrated SES:*

1. Building-Integrated SES shall be subject to the same zoning regulations applicable to the building or structure.



- (d) The exterior surfaces of Accessory Use SES shall be generally neutral in color and substantially non-reflective of light.

- (e) Accessory Use SES-related battery systems shall be located within a secure temperature-controlled enclosure when in use. When no longer in use, such batteries must be disposed of in accordance with applicable laws and regulations.

- (f) Accessory Use SES shall conform to applicable industry standards and shall be installed, maintained and used only in accordance with the manufacturer's directions. The Building Inspector may inspect the completed installation to verify compliance.

- (g) Accessory Use SES shall comply with all applicable Township construction-related codes and permitting requirements.

- (h) Accessory Use SES installed on a nonconforming lot or building/structure or to serve a nonconforming use shall not be considered an expansion of the nonconformity.

- (i) A certificate of zoning compliance is required and shall be obtained from the Township Zoning Inspector for an Accessory Use SES in accordance with Section 30-36., except:

- (1) Applications for Accessory Ground-Mounted SES must include drawings that show the location of the system on the property, height, tilt features (if applicable), the principal structure, accessory structures, and setbacks to property lines.
- (2) Applications for Roof-Mounted SES must include horizontal and vertical elevation drawings that show the location and height of the SES on the building and dimensions of the SES.
- (3) Applications that meet the ordinance requirements shall be granted administrative approval.
- (4) Applications failing to meet the height, setback, location or lot coverage requirements set forth herein may be allowed as a special use, in accordance with Article 24.

### **Section 30-371. – Principal-Use Solar Energy System (SES)**

- (a) *Small Principal-Use SES:* A Small Principal-Use SES shall be allowed as a permitted use in all zoning districts, except the LR, SR1, MR and MHP Districts, **subject to the requirements of Subsection (c).**
- (b) *Large Principal-Use SES:* A large principal-use SES shall be allowed as a special land use in all zoning districts, except the LR, SR1, MR and MHP Districts, **subject to the requirements of Subsection (c).**
- (c) Principal-Use Solar Energy System (SES) Requirements:
  - (1) *Setbacks:* A Principal-Use SES shall be subject to the yard and setback requirements for a principal use/building of the district in which it is located, measured from the property line or road right-of-way to the leading edge of the SES at minimum tilt or any SES components. Required setbacks shall not apply to common property lines of participating lots.
  - (2) *Height:* A Principal-Use SES shall be subject to the height requirements of the district in which it is located, measured from the ground to the top of the system when oriented at maximum tilt.
  - (3) *Lot Coverage:* A Principal-Use SES shall not count towards the maximum lot coverage or impervious surface standards for the district.
  - (4) *Fencing:* A Principal-Use SES may be secured with perimeter fencing to restrict unauthorized access not to exceed 7 feet in height. Fencing is not subject to setback requirements.

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- (5) *Screening/Landscaping*: A Principal-Use SES shall be designed to follow the screening and/or landscaping standards for the zoning district of the project site. Any required screening and landscaping shall be placed outside the perimeter fencing.
- a. When current zoning district screening and landscaping standards are determined to be inadequate based on a legitimate community purpose consistent with local government planning documents, the Planning Commission may require substitute screening consisting of native deciduous trees planted 30 feet on center, and native evergreen trees planted 15 feet on center along existing non-participating residential uses.
  - b. The Planning Commission may reduce or waive screening requirements provided that any such adjustment is in keeping with the intent of the Ordinance (e.g., abutting participating lots; existing vegetation).
- (6) *Ground Cover*: A Principal-Use SES shall include the installation of perennial ground cover vegetation maintained for the duration of operation until the site is decommissioned. The applicant shall include a ground cover vegetation establishment and management plan as part of the site plan.
- a. Sites bound by a Farmland Development Rights (PA 116) Agreement **shall** follow the Michigan Department of Agriculture and Rural Development’s Policy for Allowing Commercial Solar Panel Development on PA 116 Lands.
  - b. Ground cover at sites not enrolled in PA 116 **shall** meet one or more of the four types of Dual Use defined in this ordinance.
    1. Pollinator Habitat: Solar sites designed to meet a score of 76 or more on the Michigan Pollinator Habitat Planning Scorecard for Solar Sites.
    2. Conservation Cover: Solar sites designed in consultation with conservation organizations that focus on restoring native plants, grasses, and prairie with the aim of protecting specific species (e.g., bird habitat) or providing specific ecosystem services (e.g., carbon sequestration, soil health).
    3. Forage: Solar sites that incorporate rotational livestock grazing and forage production as part of an overall vegetative maintenance plan.
    4. Agrivoltaics: Solar sites that combine raising crops for food, fiber, or fuel, and generating electricity within the project area to maximize land use.
  - c. Project sites that are included in a brownfield plan adopted under the Brownfield Redevelopment Financing Act, PA 381 of 1996, as amended, that contain impervious surface at the time of construction or soils that cannot be disturbed, are exempt from ground cover requirements.
- (7) *Land Clearing*: Land disturbance or clearing shall be limited to what is minimally necessary for the installation and operation of the SES and to ensure sufficient all-

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season access to the solar resource given the topography of the land. Topsoil distributed during site preparation (grading) on the property shall be retained on site.

- (8) *Access Drives*: New access drives within the SES shall be designed to minimize the extent of soil disturbance, water runoff, and soil compaction on the premises. The use of geotextile fabrics and gravel placed on the surface of the existing soil for temporary roadways during the construction of the SES is permitted, provided that the geotextile fabrics and gravel are removed once the SES is in operation.
- (9) *Wiring*: SES wiring (including communication lines) shall be placed underground.
- (10) *Lighting*: Lighting shall be limited to inverter and/or substation locations only. Light fixtures shall have downlit shielding and be placed to keep light on-site and glare away from adjacent properties, bodies of water, and adjacent roadways. Flashing or intermittent lights are prohibited.
- (11) *Signage*: Any signage shall be subject to the sign requirements of the district in which it is located.
- (12) *Sound*: The sound pressure level of a Principal-Use SES and all ancillary solar equipment shall not exceed 45 dBA at the property line of an adjoining non-participating lot. The site plan shall include modeled sound isolines extending from the sound source to the property lines to demonstrate compliance with this standard.
- (13) *Repowering*: In addition to repairing or replacing SES components to maintain the system, a Principal-Use SES may at any time be repowered by reconfiguring, renovating, or replacing the SES to increase the power rating within the existing project footprint.

A proposal to change the project footprint of an existing SES shall be considered a new application, subject to the requirements and review process applicable at the time of the request. Expenses for professional services and other studies resulting from an application to modify an SES will be reimbursed to the Township by the SES owner in compliance with established escrow policy.

- (14) *Decommissioning*: A decommissioning plan is required at the time of application.
  - a. The decommissioning plan shall include:
    - 1. The anticipated manner in which the project will be decommissioned, including a description of which above-grade and below-grade improvements will be removed, retained (e.g. access drive, fencing), or restored for viable reuse of the property consistent with the zoning district.

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2. The projected decommissioning costs for removal of the SES (net of salvage value in current dollars) and soil stabilization, less the amount of the surety bond posted with the State of Michigan for decommissioning of panels installed on PA 116 lands.
  3. The method of ensuring that funds will be available for site decommissioning and stabilization (in the form of surety bond, irrevocable letter of credit, or cash deposit),
    - b. A review of the amount of the performance guarantee based on inflation, salvage value, and current removal costs shall be completed every **four** years, for the life of the project, and approved by the Township Board.
    - c. An SES owner may at any time proceed with the decommissioning plan approved by the Planning Commission and remove the system as indicated in the most recent approved plan amend the decommissioning plan with the Planning Commission and proceed according to the revised plan.
    - d. Decommissioning an SES must commence when the soil is dry to prevent soil compaction and must be complete within 18 months after abandonment. An SES that has not produced electrical energy for 12 consecutive months shall prompt an abandonment hearing.
- (15) *Site Plan:* A site plan and supporting application material for a Principal-Use SES shall include a detailed site plan, including all applicable requirements established by Section 30-78, and all information necessary to confirm compliance with the requirements of this section.
- (16) *Additional Studies:* Additional studies may be required by the Planning Commission if reasonably related to the standards of this ordinance as applied to the application site, **such as, but not limited to:**
- a. Visual Impact Assessment: A technical analysis by a third party qualified professional of the visual impacts of the proposed project, including a description of the project, the existing visual landscape, and important scenic resources, plus visual simulations that show what the project will look like (including proposed landscape and other screening measures) a description of potential project impacts, and mitigation measures that would help to reduce the visual impacts created by the project and documented on the site plan.
  - b. Environmental Analysis: An analysis by a third-party qualified professional to identify and assess any potential impacts on the natural environment including, but not limited to wetlands and other fragile ecosystems, wildlife, endangered and threatened species, historical and cultural sites, and antiquities. If required, the analysis shall identify all appropriate measures to



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minimize, eliminate or mitigate adverse impacts identified and show those measures on the site plan, where applicable.

- c. Stormwater Study: An analysis by a third-party qualified professional that takes into account the proposed layout of the SES and how the spacing, row separation, and slope affects stormwater infiltration, including calculations for a 100-year rain event. Percolation tests or site-specific soil information shall be provided to demonstrate infiltration on-site without the use of engineered solutions.
- d. Glare Study: An analysis by a third-party qualified professional to determine if glare from the SES will be visible from nearby residents and roadways. If required, the analysis shall consider the changing position of the sun throughout the day and year, and its influence on the SES.

- Administrative Approval
- X Planning Commission Approval

	Accessory Ground-Mounted SES	Roof-Mounted SES	Building-Integrated SES	Small Principal-Use SES	Large Principal-Use SES
RC	•	•	•	X	X
MU-1	•	•	•	X	X
AG	•	•	•	X	X
LR	•	•	•		
SR1	•	•	•		
MR	•	•	•		
MHP	•	•	•		
LC	•	•	•	X	X
GC	•	•	•	X	X
HC	•	•	•	X	X
BP	•	•	•	X	X
I	•	•	•	X	X
I-ART	•	•	•	X	X