

SOLAR ENERGY GENERATING SYSTEMS

Definitions.

Abandonment means the date at which any part of a solar energy generating system has been out of service for a continuous period of 6 months.

Dual-use systems means solar energy systems where photo-voltaic panels are attached to structures or buildings without any impact on the primary use (e.g. photo-voltaic panels on structures cantilevered over parked cars or benches; solar panels located on a piece of infrastructure such as a sign or light).

Ground mounted solar energy generating system (also known as free-standing solar energy systems) means a solar energy system that is structurally mounted to the ground. The panels may be stationary or revolving and of any size.

Operations and maintenance plan means a plan outlining the operations and maintenance of a solar energy system, to include safety measures and procedures for maintenance.

Roof mounted and building integrated solar energy generating systems means a solar energy system in which solar panels are mounted on top of the roof of a structure either as a flush-mounted system or as modules fixed to frames which can be tilted toward the south at an optimal angle. The definition also includes a solar energy system that is an integral part of a principal or accessory building and include, but are not limited to, photovoltaic or hot water systems that are contained within roofing materials, windows, walls, skylights and awnings.

Solar access means space open to the sun and clear of overhangs or shade, including orientation of streets and lots to the sun, so as to permit the use of active and/or passive solar energy generating systems on individual properties.

Solar energy generating system means a complete assembly consisting of one or more solar collectors and associated mounting hardware or equipment, intended to provide for the collection, storage and distribution of solar energy for heating or cooling, electricity generation, or solar/thermal hot water systems, these may be ground-mounted, dual-use, roof-mounted and building-integrated systems.

Surface area means the total airspace projected over the ground, footprint of accessways and any appurtenant structures associated with the solar energy generating system.

Total height of solar energy system means the total vertical distance as measured from the average elevation of the finished grade adjacent to the fixed base of the support structure, to the highest part of the system.

Total land area of the system means the total area of a parcel(s) physically occupied by the solar energy generating system installation.

Total rated capacity means the maximum rated output of electrical power production of the photovoltaic system in watts of direct current (DC).

Viewshed analysis is a computational algorithm that delineates a viewshed, the area that is visible (on the base terrain surface) from a given location. The analysis uses the elevation value of each cell of the digital elevation model (DEM) to determine visibility to or from a particular cell.

Section S-1 Purpose.

The purpose of this section is to allow for the construction and operation of private and public solar energy generating systems designed to produce energy for use on site or off site, by establishing appropriate standards to ensure safe, effective and efficient use of solar energy systems compatible with surrounding uses.

Section S-2. Applicability.

This section shall apply to all solar energy generating systems except the following:

- (1) Solar energy generating systems for municipal use.
- (2) Building integrated and roof-mounted solar energy generating systems which are permitted by right in all zoning districts
- (3) Non-structural maintenance, like-kind repair or reconstruction of equipment, provided that it does not constitute an expansion of a solar energy generating system. For the purposes of this section, expansion of a solar energy generating system means a change in the total land area of the system or its associated equipment.
- (4) Ground-mounted solar energy generating systems intended to satisfy the electricity needs of the principal use of the lot provided.

Section S-3. Application requirements.

Solar energy generating systems permitted by special exception. In addition to the submission requirements of site plan review, an application for a solar energy generating systems permitted as a special exception shall contain the following information:

- (1) A narrative describing the proposed solar energy generating system, including an overview of the project; the project location; the total rated capacity of the solar energy system; dimensions of all components and respective manufacturers; and a description of associated facilities and how the system and associated facilities comply with the standards of this article.
- (2) An accurate scaled site plan of the subject property showing the planned location of the proposed solar energy generating system and all associated facilities; property lines, adjoining streets and access; topographic contour lines; existing and proposed buildings; fencing; structures; potential shade from nearby trees and structures; vegetation; driveways, parking and curb cuts on the subject property; specifications for all proposed electrical cabling/transmission lines, accessor equipment and landscaping, including the tallest finished height of the solar collectors and name, address, phone number and signature of the project proponent, as well as co-proponents or property owners, if any, the names, contact information and signature of any agents representing the project proponent. The site plan shall show any proposed off-site modifications to provide grid connections, access the installation, or to maintain the proposed solar energy system.
- (3) Information on any connections to the grid including evidence of meeting the local electric utility's transmission and distribution interconnection requirements (this may be a condition of approval if a copy of the application for interconnection with the electric utility provider is submitted).
- (4) Documentation that the solar generation equipment has been approved under the UL certification program and that the system complies with all applicable local, state and federal codes/regulations with the standards regarding signal interference. Electrical component and connection information shall be in sufficient detail to allow for a determination that it meets state electrical codes.

Section S-4. Approval.

Solar energy generating systems permitted by special exception. The planning board is authorized to retain experts at the applicant's expense to evaluate technical information or conduct studies that it finds

necessary in order to determine whether these standards will be met. The planning board shall consider the following standards:

- (1) *Maximum Lot size.* The maximum size for any single solar project is limited to 15 acres, not including the required vegetated buffer. The lot size is measured by the area included within the fenced portion of the project and the full access road.
- (2) *Lot coverage.* The paved, mounting block, or otherwise impervious areas of sites on which ground mounted solar energy systems are installed shall comply with current zoning allowances
 - .. For the purposes of this section, photovoltaic cells, panels, and arrays shall not be considered impervious areas provided the soil underneath the collector is not compacted and remains vegetated in accordance with the standards applicable to vegetation established in Maine Department of Environmental Protection, Chapter 500, Permanent Stabilization.
- (3) *Buffer area.* All solar energy generating system installations shall be completely surrounded by a vegetated buffer zone, except for the access road. The width of the buffer zone will be 50 feet.
 - The vegetated buffer zone must consist of at least one native evergreen tree every 20 feet that have a normal maximum growth height of at least 40 feet. Any tree that is planted must be at least 5 ft tall. No routine maintenance or pruning will be allowed below 25' within the vegetative buffer zone.
- (4) *Viewshed analysis.* The analysis will be conducted from the center of the project with the center cell elevated above the ground surface to the height of the solar panels for the proposed project. The analysis will be conducted with the 25' vegetated buffer zone and without. Both analyses and maps must be submitted in the project package.
- (5) *Visual impact.* An Applicant shall make reasonable efforts, as determined by the planning board, to minimize visual impacts associated with the installation of a solar energy generating system. The board shall consider the size, location and topography of the site, the characteristics of the surrounding property and the amount and type of development on said properties in determining the amount and type of screening and buffering that it deems appropriate.
- (6) *Height regulations.* The total height of the solar energy generating system and all appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations shall not exceed 20 feet.
- (7) *Glare.* Solar panels are designed to absorb (not reflect) sunlight and are generally less reflective than other varnished or glass exterior materials. However, solar panel placement should minimize or negate any solar glare impacting nearby properties or roadways, without unduly impacting the functionality or efficiency of the solar energy system.
- (8) *Lighting.* Ground-mounted solar energy generating system lighting shall be consistent with local, state and federal law. Lighting of other parts of the installation, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cutoff fixtures to reduce light pollution.
- (9) *Unbuilt areas.* Where possible, in unbuilt areas, solar energy generating system installations shall maintain the permeability of the ground. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the solar energy generating system or as otherwise prescribed by applicable laws, regulations and bylaws/ordinances.
- (10) *Steep slope installations.* All solar energy generating system installations that have a ground slope exceeding 10 degrees are required to have a stormwater runoff plan with appropriate attenuation and storm storage capacity to prevent sediment transport.

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- (11) *Technical and safety.* A copy of the as-built site plan for the solar energy generating system shall be provided and approved to the local fire department official. The applicant will provide all needed site specific fire management training for the site. All means of shutting down the solar energy generating system shall be clearly marked.
- (12) *Maintenance.* The owner or operator of the solar energy generating system shall maintain the facility in good condition. Proper maintenance of the facility means that it is operating as designed and approved. Maintenance shall include, but not be limited to, painting, structural repairs, repairing damaged panels and integrity of security measures. The solar energy generating system must be properly maintained and kept free from all hazards, including, but not limited to, faulty wiring, loose fastenings, being in an unsafe condition or detrimental to public health, safety or general welfare. Site access shall be maintained to a level acceptable by the local fire prevention officer for emergency response. The owner or operator shall be responsible for the cost of maintaining the solar energy generating system and any access road(s), unless accepted as a public way.
- (13) *Operation and maintenance plan.* The owner or operator shall submit a plan for the operation and maintenance of ground-mounted and dual-use solar energy systems, which shall include measures for maintaining safe access to the installation, stormwater controls, as well as general procedures for operational maintenance of the installation.
- (14) *Standard compliance.* All solar energy generating system installations shall be installed in compliance with the photovoltaic systems standards of the latest edition of the National Fire Protection Association (NFPA) 1, Fire Prevention Code. All wiring shall be installed in compliance with the photovoltaic systems standards identified in the latest edition of the National Electrical Code (NFPA 70).

Section S-5. Abandonment or decommissioning.

Abandonment and removal of ground mounted and dual use solar energy systems and all supporting infrastructure.

- (1) The owner or operator shall follow the state requirements for decommissioning. ([getPDF.asp \(mainelegislature.org\)](http://getPDF.asp(mainelegislature.org))),
- (2) The town may revoke any approvals and/or pursue removal of the solar energy system at the owner or operator's expense in the following circumstances:
- The solar energy system is at any time left in an unsafe condition in respect to federal, state or local safety standards (as determined by the town code enforcement officer); or
 - The solar energy system has not been brought back to a safe condition/operation or removed from the site within the required timeframe; or
 - The solar energy system is defective or abandoned and has not been removed from the site within required timeframe.
- (3) *Financial surety.* Before the start of construction, the owner or operator of a solar energy system shall provide a form of surety, either through a town or state controlled escrow account or performance bond, in an amount sufficient to cover the cost of decommissioning in the event the town determines the solar energy system to be abandoned in accordance with subsection (a)(2) above. This amount shall be based upon a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer, and submitted to the planning board at the time of application. The amount shall include a mechanism for calculating increasing removal costs due to inflation.