

590 Solar Energy Generation Facilities

591. Purpose

The purpose of this by-law is to encourage the use of solar energy generation facilities and provide for the construction and operation of ground-mounted solar energy facilities and to provide standards for the placement, design, construction, monitoring, modification and removal of large ground-mounted solar energy facilities that address public safety, minimize impacts on scenic, natural and historic resources of the Town and provide adequate financial assurance for decommissioning. The provisions set forth in this section shall take precedence over all other sections when considering applications related to the construction, operation, and/or repair of large ground-mounted solar energy facilities.

592. Applicability

All ground-mounted solar photovoltaic installations proposed to be constructed after the effective date of this section will be subject to Site Plan Review in accordance with Article 15 of this Zoning By-Law and the additional standards of this section. This section also pertains to physical modifications that materially alter the type, configuration, or size of these installations or related equipment. Roof-mounted solar energy facilities are not governed under this section and are permitted in all districts when connected behind the meter.

592.1 Compliance with Laws, Ordinances and Regulations

The construction and operation of all large ground-mounted solar energy facilities shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements.

592.2 Special Permit Granting Authority

The Zoning Board of Appeals shall be the Special Permit Granting Authority for large ground-mounted solar energy facilities requiring a Special Permit under this bylaw.

592.3 Site Plan Review Authority

The Planning Board shall be the Site Plan Review Authority for large ground-mounted solar energy facilities under this bylaw.

593. Application for Site Plan Review

Application for Site Plan Review shall require the filing of a site plan review application and site plan in accordance with Article 15 of this Zoning By-Law. Such plans shall contain the following specific information for an application to be considered complete:

- 593.1 Landscape plan including sizes, types and numbers of plantings and details. Existing vegetation and other unique land features shall be preserved where feasible.
- 593.2 Plans of the large ground-mounted solar energy facilities signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system and any potential shading from nearby structures.
- 593.3 Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures.
- 593.4 A stormwater management plan detailing the existing environmental and hydrological conditions of the site, proposed alterations of the site and all proposed components of the drainage system and any measures for the detention, retention, or infiltration of water, for the protection of water quality and protection from flooding.
- 593.5 A description of the solar energy facility and the technical, economic and other reasons for the proposed location and design shall be prepared and signed by a registered professional engineer.

- 593.6 Confirmation prepared and signed by a registered professional engineer that the large ground-mounted solar energy facilities comply with all applicable Federal and State standards.
- 593.7 One or three line electrical diagram detailing the solar photovoltaic installation, associated components, and electrical interconnection methods, with all National Electrical Code compliant disconnects and over current devices.
- 593.8 Documentation of the major system components to be used, including the photovoltaic panels, mounting system, inverters.
- 593.9 Documentation of the sound generated by equipment used in the production of electrical energy, including any proprietary documentation.
- 593.10 An operation and maintenance plan (see also section 595 on decommissioning).
- 593.11 The Planning Board may require the proponent to pay for professional services to evaluate the proposal.

594. Design Standards.

Unless otherwise expressly provided by this section of the bylaw requirements of the underlying zoning district shall apply, except and in addition, the following standards which shall apply.

- 594.1 Large ground-mounted solar energy facilities shall meet the following standards:
 - 1. Be sited on a parcel of at least three (3) acres in size (no less than 130,680 square feet).
 - 2. Meet the requirements and standards for industrial uses found in Article 7: Design Standards and Guidelines of this Zoning By-Law.
 - 3. The front yard depth shall be in accordance with Article 6 of this Zoning By-Law; provided, however, that where the lot abuts or is across the street from a Residential district or residential development, the front yard setback for all structures including fencing and vegetated buffer shall not be less than 50 feet, and may be more, as determined at the sole discretion of the permit granting authority, depending on visibility of the facility because of the density of vegetation and/or topography. Earthen berms and landscape plantings may be required according to Article 10: Landscaping, of this Zoning By-Law.
 - 4. Each side yard shall be in accordance with Article 6 of this Zoning By-Law; provided, however, that where the lot abuts a Residential district, the side yard setback and vegetated buffer shall not be less than 50 feet, and may be more, as determined at the sole discretion of the permit granting authority, depending on visibility of the facility because of the density of vegetation and/or topography. Earthen berms and landscape plantings may be required according to Article 10: Landscaping, of this Zoning By-Law.
 - 5. The rear yard depth shall be in accordance with Article 6 of this Zoning By-Law; provided, however, that where the lot abuts a Residential district, the rear yard setback and vegetated buffer shall not be less than 50 feet and may be more, as determined at the sole discretion of the permit granting authority, depending on visibility of the facility because of the density of vegetation and/or topography. Earthen berms and landscape plantings may be required according to Article 10: Landscaping, of this Zoning By-Law.
 - 6. All large ground-mounted solar energy facilities shall be fenced for security. Fencing that is visible from right-of-way or residences shall be a type of fence acceptable to the permit granting authority. All fencing shall be designed to blend into the landscape.
 - 7. The project proponent shall submit a plan for the operation and maintenance of the large ground-mounted solar energy facilities, which shall include measures for maintaining safe access to the installation, storm water controls, as well as general procedures for operational maintenance of the installation.

8. No large ground-mounted solar energy facilities shall be approved or constructed until evidence has been given to the permit granting authority that the utility company that operates the electrical grid where the installation is to be located has been informed of the large ground-mounted solar energy facilities owner or operator's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

594.2 On-site solar energy facilities shall meet the following standards:

1. Meet the requirements and standards found in Article 7: Design Standards and Guidelines, and Article 10: Landscaping, of this Zoning By-Law.
2. Be sized by electrical load according to the building they serve and must be connected to the customer side, behind the electrical service metering equipment.
3. Be setback, at a minimum, to the underlying district requirements for accessory structures.
4. Not cast glare to abutting uses by providing screening methods.
5. Not permit the equipment to create excessive noise to abutters by installing inverters as far from abutting structures as feasible.

594.3 These additional design standards shall apply to all systems:

1. All appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other and shall be screened from the view of persons not on the parcel, public rights-of-ways and all residential districts.
2. Lighting of solar energy facilities shall be consistent with state and federal law. Lighting of 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 photovoltaic installation shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.
3. There shall be no signs, except announcement signs, no trespassing signs or any signs required to warn of danger. A sign is required that identifies the owner and operator with an emergency telephone number where the owner and operator can be reached on a twenty-four hour basis.
4. All utility connections shall be underground except to the extent that underground utilities are not feasible in the reasonable determination of the board review.
5. Inverters and transformers shall be sited so as to minimize sound impact to residences.
6. Clear cutting of trees and natural vegetation shall be kept to the minimum necessary for the construction, operation and maintenance of the solar photovoltaic facility.
7. Setbacks shall provide for adequate screening of noise and glare from abutting uses and structures. Techniques such as dense natural vegetated plantings, earthen berms or increased setbacks will be required, depending upon site specific conditions. Setbacks shall not be disturbed by access roads, except where allowed by the permit granting authority for access to the site. Setbacks shall not be used for any purpose other than natural vegetation or other screening required by the reviewing board. Setbacks from property lines shall be as provided above for the type of large ground-mounted solar energy facilities.
8. The solar energy facilities owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the applicable fire chief. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the large ground-mounted solar

energy facilities shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

9. No solar energy facilities shall be constructed, installed or modified as provided in this section without first obtaining a building permit.
10. The solar energy facilities owner or operator shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the applicable fire chief and Emergency Medical Services. The owner or operator shall be responsible for the cost of maintaining the large ground-mounted solar energy facilities and any access road(s), unless accepted as a public way.

595. Abandonment or Decommissioning

The owner, operator, their successors in interest shall remove any ground-mounted solar energy facility which has reached the end of its useful life or has been abandoned. The owner or operator shall physically remove the installation no more than 150 days after the date of discontinued operations. The owner or operator shall notify the permit granting authority by certified mail of the proposed date of discontinued operations and plans for removal.

595.1 Decommissioning shall consist of:

1. Physical removal of all ground-mounted solar energy structures, equipment, security barriers and transmission lines from the site.
2. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
3. Stabilization and re-vegetation of the site as necessary to minimize erosion. The permit granting authority may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

595.2 Abandonment: Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the solar energy facility shall be considered abandoned when it fails to operate for more than one year without the written consent of the permit granting authority. If the owner or operator of the solar energy facilities fails to remove the installation in accordance with the requirements of this section within 150 days of abandonment or the proposed date of decommissioning, the town may enter the property and physically remove the installation.

595.3 Financial Surety: Proponents of ground-mounted solar energy facilities shall provide a form of surety, either through escrow account, bond or otherwise, to cover the cost of removal in the event the town must remove the installation and remediate the landscape, in an amount and form determined to be reasonable by the Town, equivalent to 125 percent of the cost of removal and compliance with the additional requirements set forth herein. Such surety will not be required for municipal- or state-owned facilities. The project proponent shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The submission shall include a mechanism for calculating and adjusting the increased value of the surety removal costs due to inflation.

596. Criteria for Special Permit Review and Approval.

- 596.1 If required, a Special Permit may be granted under this section if the Zoning Board of Appeals finds that each of the design review standards set forth above have been met and that the location of the ground-mounted solar energy facilities is suitable and that the size and design are the minimum necessary for that purpose.
- 596.2 The Zoning Board of Appeals shall also impose, in addition to any applicable conditions specified in this section, such conditions as it finds reasonably appropriate to safeguard the neighborhood, public or otherwise serve the purposes of this section, including, but not

limited to: screening, lighting, noise, fences, modification of the exterior appearance of the structures, limitation upon size, method of access or traffic features, parking, removal upon cessation of use or other requirements. Such conditions shall be imposed in writing and the applicant may be required to post bond or other surety for compliance with said conditions in an amount satisfactory to the Zoning Board of Appeals.

- 596.3 The Special Permit shall lapse if substantial use or construction has not commenced within two years of the date of issuance, except for good cause shown (including but not limited to appeals of the grant of the site plan or litigation enjoining the construction under the permit), and provided further that such construction, once begun, shall be actively and continuously pursued to completion within a reasonable time.

- 596.4 The Zoning Board of Appeals may require the proponent to pay for professional services to evaluate the proposal.