

SECTION 8.10 GROUND-MOUNTED SOLAR ELECTRIC INSTALLATIONS (*added 2016, amended 2019, amended 2020*)

8.10-1 Purpose

The purpose of this bylaw is to facilitate and appropriately regulate the creation of Ground-Mounted Solar Electric Installations: (a) by providing standards for the approval, placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, protection and preservation of Town infrastructure (including roads), public nuisance, existing residential property and property value, impacts upon environmental, scenic, and historic resources; (b) by providing adequate financial assurance for the eventual decommissioning of such installations; and (c) by protecting large contiguous blocks of forest back-land based on the understanding that large unfragmented tracts provide many ecological benefits including improved water and air quality, sequestration of carbon, reduced movement of invasive species, provision of wildlife habitat and the support for greater biodiversity; as well as maintaining commercial forestry as a viable agricultural activity and providing many recreational opportunities for town residents.

8.10-2 Applicability

- A. This Section 8.10 applies to Large- Scale and Small-Scale Ground-Mounted Solar Electric Installations, as noted. Small-Scale Ground-Mounted Solar Electric Installations which are accessory to an existing residential or non-residential use which generate electricity principally used by such residential or non-residential use are permitted as of right, do not need to comply with this Section, but require a Site Plan Review from the Zoning Board of Appeals, as well as a building permit, and must comply with all other applicable provisions of the Town of Shutesbury Zoning Bylaw.
- B. This Section 8.10 also pertains to physical modifications that materially alter the type, configuration, or size of Ground-Mounted Solar Electric Installations or related equipment.
- C. Upon written request by the applicant, the Planning Board may waive or reduce any special requirement of this Section 8.10 by the same majority vote required for the permit itself upon written findings included in the permit of:
 - 1. special circumstances of the site, its surroundings, or the proposal that negate the need for imposition of the requirement; or the objectives of this section may be met in an alternative manner; and
 - 2. that such a waiver or reduction will not derogate from the public purposes and intent of this zoning bylaw.

In the case of a special permit, such requests must be made by the applicant no later than the close of the public hearing. An affirmative or negative vote under this paragraph shall not be construed as an approval or disapproval of the permit sought.

8.10-3 General Requirements

- A. Compliance with Laws, Bylaws, and Regulations

The construction and operation of all Ground-Mounted Solar Electric Installations shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part thereof shall be constructed in accordance with the Massachusetts State Building Code.

B. Mitigation for Loss of Carbon Sequestration and Forest Habitat

If forestland is proposed to be converted to a Ground-Mounted Solar Installation the plans shall designate thereon an area of unprotected (meaning, not subject to MGL. Ch. 184, §§ 31-33 at time of application) land on the same lot and of a size equal to four times (4X) the total area of such installation. Such designated land shall remain in substantially its natural condition without alteration, including prohibition of commercial forestry/tree cutting not related to the maintenance of the installation, until such time as the installation is decommissioned; except in response to a natural occurrence, invasive species or disease that impacts the trees and requires cutting to preserve the health of the forest. The Special Permit may be conditioned to effectuate and make enforceable this requirement.

C. Mitigation for Loss of Forest Habitat within the Installation

If forestland is proposed to be converted to a Ground-Mounted Solar Electric Installation the plans shall show mitigation measures that create a wildflower meadow habitat within and immediately around the Solar Electric System and a successional forest habitat in the surrounding areas managed to prevent shading until such time as the installation is decommissioned. The wildflower meadow shall contain a wide variety of plants that bloom from early spring into late fall, that are planted in clumps rather than single plants to help pollinators find them, that are native plants adapted to local climate, soil and native pollinators. At least 50% of the array footprint and perimeter shall be planned to have these flowering plants. Mowing shall be limited to no more than once annually. Plans for pollinator-friendly vegetation establishment and maintenance at the solar PV facility shall be compiled and written by a professional biologist or ecologist with relevant experience and expertise in pollinator habitat creation, grassland habitat restoration, and/or knowledge of native New England plant communities. The Special Permit may be conditioned to effectuate and make enforceable this requirement.

D. Mitigation for Installation of Perimeter Fencing

Any perimeter fencing within winter sight of a public roadway, driveway, or dwelling existing at the time of the special permit application shall be entirely black in color. The Special Permit may be conditioned to effectuate and make enforceable this requirement.

E. Mitigation for Disruption of Trail Networks

If existing trail networks, old Town roads, or woods or cart roads are disrupted by the location of the Ground-Mounted Solar Electric Installation, the plans shall show alternative trail alignments to be constructed by the applicant. The Special Permit may be conditioned to effectuate and make enforceable this requirement, although no rights of public access may be established hereunder.

F. Mitigation for Disruption of Historic Resources and Properties

Historic resources and properties, such as cellar holes, farmsteads, stone corrals, marked graves, water wells, or pre-Columbian features, including those listed on the Massachusetts Register of Historic Places or as defined by the National Historic Preservation Act, shall be excluded from the areas proposed to be developed, including clearing for shade management. A written assessment of the project's effects on each identified historic resource or property and ways to avoid, minimize or mitigate any adverse effects shall be submitted as part of the Special Permit. A suitable buffer area shall be established on all sides of each historic resource. The Special Permit may be conditioned to effectuate and make enforceable this requirement.

G. All plans and maps shall be prepared, stamped and signed by a Professional Civil

Engineer licensed to practice in the Commonwealth of Massachusetts.

- H. Vehicular access for the purpose of construction shall be from paved (bituminous or chip- sealed) Town roads. Any proposed waiver to this section under 8.10-2, C. shall be transmitted to the Shutesbury Highway Department and Selectboard with 35 days allowed for comment. No such waiver request shall be approved by the Planning 'Board without written concurrence from the Selectboard.
- I. Lots for Ground-Mounted Solar Electric Installations shall have the required frontage on a public way stated in Section 4.2-1 and defined in this zoning bylaw.
- J. In order to preserve the ecological integrity of Shutesbury's large blocks of undeveloped forestland as stated in Section 5.1-1 herein, no more than one Large Ground-Mounted Solar Electric Installation shall be permitted within the bounds of any set of public ways and/or Town borders as depicted on the map entitled Large Ground Mounted Solar Electric Installation Districts, and incorporated into this zoning bylaw.

8.10-4 Required Documents

The project applicant shall provide the following documents in addition to or in coordination with those required under Article IX below.

- A. Site Plan. A Site Plan additionally showing:
 - 1. Locations of wetlands and Priority Habitat Areas as defined by the Natural Heritage & Endangered Species Program (NHESP).
 - 2. Locations of local or National Historic Districts.
 - 3. Locations of all known, mapped or suspected Native American archaeological sites or sites of Native American ceremonial activity. Identification of such sites shall be based on responses, if any, to written inquiries with a requirement to respond within 35 days, to the following parties: all federally or state recognized Tribal Historic Preservation Officers with any cultural or land affiliation to the Shutesbury area; the Massachusetts State Historical Preservation Officer; tribes or associations of tribes not recognized by the federal or state government with any cultural or land affiliation to the Shutesbury area; and the Shutesbury Historical Commission. Such inquiries shall serve as a notice to the aforesaid parties and shall contain a plan of the project, specific identification of the location of the project, and a statement that permitting for the project is forthcoming. Accompanying the site plan shall be a report documenting such inquiries, the responses from the parties, a description of the location and characteristics, including photographs, of any Native American sites and the outcomes of any additional inquiries made based on information obtained from or recommendations made by the aforesaid parties. A failure of parties to respond within 35 days shall allow the applicant to submit the site plans.
 - 4. The project proponent must submit a full report of all materials to be used, including but not limited to the use of cleaning products, paints or coatings, hydro-seeding, fertilizers, and soil additives. When available, Material Safety Data Sheets will be provided.
- B. Blueprints. Blueprints or drawings of the installation signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts, showing:
 - 1. The proposed layout of the system and any potential shading from nearby structures.
 - 2. One- or three-line electrical diagram detailing the Ground-Mounted Solar Electric Installation, associated components, and electrical interconnection methods, with all

Massachusetts and National Electrical Code compliant disconnects and overcurrent devices.

C. General Documentation. The following information shall also be provided:

1. A list of any listed hazardous or known carcinogenic materials proposed to be located on the site in excess of household quantities and a plan to prevent their release to the environment as appropriate.
2. Name, address, and contact information for proposed system installer.
3. The name, contact information and signature of any agents representing the project applicant.

D. Site Control

The project applicant shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed Ground-Mounted Solar Electric Installation.

E. Operation and Maintenance Plan

The project applicant shall submit a plan for the operation and maintenance of the Ground-Mounted Solar Electric Installation, which shall include measures for maintaining safe access to the installation, stormwater management (consistent with DEP's and, where appropriate, Shutesbury's stormwater regulations and vegetation controls), as well as general procedures for operational maintenance of the installation.

F. Financial Surety

Applicants for Ground-Mounted Solar Electric Installations shall provide a form of surety, either through an escrow account, bond or otherwise, accessible to the Town of Shutesbury, to cover the cost of removal in the event the Town must remove the installation and remediate the site to its natural preexisting condition, in an amount and form determined to be reasonable by the SPGA, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein. The project applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation.

G. Utility Notification

No Ground-Mounted Solar Electric Installation shall be constructed, nor building permit issued, until evidence has been provided to the Planning Board that the utility company that operates the electrical grid where the installation is to be located has approved the solar electric installation owner or operator's intent to install an interconnected customer-owned generator and that the utility has approved connection of the proposed generator into their power grid. Off-grid systems shall be exempt from this requirement.

H. Proof of Liability Insurance

8.10-5 Dimensional Requirements

A. Minimum setbacks for all Large-Scale Ground-Mounted Solar Electric Installations shall be:

- Front street setback: 500 feet (as required for Forest Conservation District)
- Property line setback: 100 feet

B. Minimum setbacks for all Small-Scale Ground-Mounted Solar Electric Installations shall be:

- Front street setback: 100 feet
- Property line setback: 50 feet

C. Required setback areas shall not be counted toward a facility's total acreage.

8.10-6 Design and Performance Standards

A. Lighting

Large- and Small-Scale Solar Electric Installations shall have no permanently-affixed exterior lighting.

B. Signage

1. Sufficient signage shall be provided to identify the owner of the facility and provide a 24-hour emergency contact phone number.
2. Signage at the perimeter warning pedestrians is allowable.
3. Ground-Mounted Solar Electric Installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of such installation.

C. Control of Vegetation

Herbicides or pesticides may not be used to control vegetation or animals at a Ground-Mounted Solar Electric Installation.

D. Visual Impacts

1. Ground-Mounted Solar Electric Installation shall be designed to minimize visual impacts including preserving natural vegetation to the maximum extent possible, blending in equipment with the surroundings, and adding vegetative buffers to provide an effective visual barrier from adjacent roads and driveways, and to screen abutting residential dwellings.
2. When possible, a diversity of plant species shall be used, with a preference for species native to New England.
3. Use of exotic plants, as identified by the most recent copy of the "Massachusetts Prohibited Plant List" maintained by the Massachusetts Department of Agricultural Resources, is prohibited.
4. If deemed necessary by the Planning Board, the depth of the vegetative screen shall be 30 feet and will be composed of native trees and shrubs staggered for height and density that shall be properly maintained.
5. The owner/operator shall not remove any naturally occurring vegetation such as trees and shrubs unless it adversely affects the performance and operation of the solar installation.
6. Landscaping shall be maintained and replaced as necessary by the owner/operator of the Ground-Mounted Solar Electric Installation.

E. Utility Connections.

Electrical transformers, wires, or other utility interconnections shall be constructed as required by the utility provider and may be above ground if necessary; provided, however, that every reasonable effort shall be made to place all utility connections underground, depending on appropriate soil conditions and topography of the site and any requirements of the utility provider.

F. All electric power generated at a Ground-Mounted Solar Electric Installation shall be from Solar Energy.

G. Access Driveways shall be constructed to minimize finished width, grading, removal of stone walls or roadside trees, incompatible appearance from the roadway, and impacts to environmental or historic resources.

8.10-7 Safety and Environmental Standards

A. Emergency Services

1. Ground-Mounted Solar Electric Installations owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the Shutesbury Fire Chief.
2. The owner or operator shall cooperate with local emergency services to develop a written emergency response plan that is provided to Shutesbury police and fire departments.
3. All means of shutting down the solar electric installation shall be clearly marked.
4. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation. Contact information shall be provided annually to the Town Administrator including name, email and phone number for the designated person.

B. Land Clearing, Soil Erosion and Land Impacts

1. The facility shall be designed to minimize impacts to open agricultural land and fields, even if not in production. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the Ground-Mounted Solar Electric Installation. Grading that substantially disturbs the existing soil profile and structure is prohibited; sites shall be selected where construction may be accomplished without such earth work.
2. Prior to any site disturbance and construction, the limits of the work shown on the approved site plan shall be surveyed and clearly marked by a Professional Land Surveyor. Upon completion of the survey, the Professional Land Surveyor shall verify to the Planning Board, in writing, that the limit of work, as shown on the approved site plans, has been established on site.
3. The design shall minimize the use of concrete and other impervious materials to the maximum extent possible. Ground-Mounted Solar Electric Installation shall be installed on water permeable surfaces.
4. Locating Ground-Mounted Solar Electric Installations, including access driveways and any associated drainage infrastructure, on original grades in excess of 15% is prohibited.

C. Habitat Impacts

Large-Scale Ground-Mounted Solar Electric Installations shall not be located on permanently protected land subject to MGL Ch. 184, §§ 31-33 Priority Habitat and Bio Map 2 Critical Natural Landscape Core Habitat mapped by the Natural Heritage and Endangered Species Program (NHESP) and "Important Wildlife Habitat" mapped by the DEP.

D. Wetlands

1. The applicant will prepare MA DEP WPA Form 4a. Abbreviated Notice of Resource Area Delineation (ANRAD) that includes a wetland evaluation and map of the site. The ANRAD shall also be submitted to the Conservation Commission.
2. In order to provide an adequate intervening land area for the infiltration of stormwater runoff from a Solar Electric Installation, ground alterations, such as stump removal, excavation, filling, and grading, or the installation of drainage facilities or solar panels, are prohibited within 100 feet of any wetlands or hydrologic features subject to

the jurisdiction of the Shutesbury Conservation Commission.

3. The Planning Board may impose conditions to contain and control stormwater runoff that might negatively impact identified wetlands or other hydrologic features even if the proposed work area is outside the jurisdiction of the Conservation Commission.

8.10-8 Monitoring, Maintenance and Reporting

A. Solar Electric Installation Conditions

1. The Ground-Mounted Solar Electric Installation owner or operator shall maintain the facility in good condition.
2. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures.
3. Site access shall be maintained to a level acceptable to the Shutesbury Fire Chief and Emergency Management Director.
4. The owner or operator shall be responsible for the cost of maintaining the Solar Electric Installation and any access driveways.

B. Annual Reporting

1. The owner or operator of a Ground-Mounted Solar Electric Installation shall submit an annual report demonstrating and certifying compliance with the Operation and Maintenance Plan, the requirements of this Section 8.9 and the approved special permit, including but not limited to continued management and maintenance of vegetation, compliance with the approved plans and any special permit conditions, continuation of liability insurance, and adequacy of road access.
2. The annual report shall also provide information on the maintenance completed during the course of the year and the amount of electricity generated by the facility.
3. The report shall be submitted to the Select Board, Planning Board, Fire Chief, Emergency Management Director, Building Commissioner, Board of Health, and Conservation Commission (if a wetlands permit was issued) no later than 45 days after the end of the calendar year.

8.10-9 Abandonment or Decommissioning

A. Removal Requirements

1. Any Ground-Mounted Solar Electric Installation which has reached the end of its useful life, has been abandoned, or taken off line shall be removed.
2. The owner or operator shall physically remove the installation no later than 150 days after the date of discontinued operations.
3. The owner or operator shall notify the Special Permit Granting Authority by certified mail, of the proposed date of discontinued operations and plans for removal.

B. Decommissioning shall consist of:

1. Physical removal of all components of the Ground-Mounted Solar Electric Installation, including but not limited to structures, foundations, equipment, security barriers, and on-site above-ground transmission lines. Associated off-site utility interconnections shall also be removed if no longer needed.
2. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
3. Restoration of the site to its natural preexisting condition, including stabilization or re-vegetation of the site as necessary to minimize erosion. The Special Permit Granting

Authority may allow the owner or operator to leave landscaping or designated below-grade foundations and electric lines in order to minimize erosion and disruption to vegetation.

C. Decommissioning by the Town

If the owner or operator of a Ground-Mounted Solar Electric Installation fails to remove such installation in accordance with the requirements of this Section 8.9 within 150 days of discontinued operations or abandonment, the Town may enter the property and physically remove the installation at the owner's expense, drawing from the escrow account or upon the bond or other financial surety provided by the applicant.

8.10-10 Lapse of Approval

Any special permit shall automatically lapse if the Large-or Small-Scale Ground-Mounted Solar Electric Installation is not installed and functioning within two (2) years of the grant of the special permit or if the installation shall be considered abandoned.

8.10-11 Enforcement

A violation of this Bylaw shall be subject to the enforcement provisions of the Town of Shutesbury Zoning Bylaws, Section 10. 2.