

Article 20 USE OF LARGE-SCALE SOLAR PHOTOVOLTAIC INSTALLATIONS⁷⁵

Section

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20.1 Purpose

The purpose of this bylaw is to promote the creation of new large-scale ground-mounted solar photovoltaic installations by providing standards for the placement, design, construction, operation, monitoring, modification and removal of such installations, which standards address public safety and minimize impacts on scenic, natural and historic resources and providing adequate financial assurance for the eventual decommissioning of such installations.

The provisions set forth in this section shall apply to the construction, operation, and/or repair of large-scale ground-mounted solar photovoltaic installations.

20.1.1 Applicability.

This section applies to large-scale ground-mounted solar photovoltaic installations proposed to be constructed after the effective date of this section. This section also pertains to physical modifications that materially alter the type, configuration, or size of these installations or related equipment.

20.2 Definitions

20.2.1 Siting, Construction, Regulation, Development, Generating and Distribution of Large Scale

Photovoltaic Installations: All installations shall be regulated by the Planning Board through Article 7-Special Permits, Article 8-Environmental and Community Impact Analysis, and Article 9-Site Plan Approval of the Town of Hubbardston Zoning Bylaws.⁷⁶

20.2.2 ~~Building Inspector~~Building Commissioner: The inspector of buildings, building commissioner, or local inspector, or person or board designated by local ordinance or bylaw charged with the enforcement of the Town's Zoning Bylaws

20.2.3 Building Permit: A construction permit issued by the ~~Building Inspector~~Building Commissioner; the building permit evidences that the project is consistent with the state and federal building codes as well as Town's Zoning Bylaws, which include those provisions governing ground-mounted large-scale solar photovoltaic installations.

20.2.4 Designated Location: Large scale ground mounted solar photovoltaic installations may be sited by Special Permit in all zoning districts in the Town of Hubbardston.⁷⁷

20.2.5 Large-Scale Ground-Mounted Solar Photovoltaic Installation: A solar photovoltaic system that is structurally mounted on the ground or a roof, with solar panels covering 20,000 square feet or more on one lot or minimum nameplate capacity of 250kW DC. A Large-Scale Ground-Mounted Solar Photovoltaic Installation may also include a Battery Energy Storage System (BESS).⁷⁸

20.2.6 Battery Energy Storage System (BESS): A device that reserves energy for later consumption that is charged by a connected solar system. The stored electricity is consumed after sundown, during energy demand peaks, or during a power outage.

20.2.6-7 On-Site Solar Photovoltaic Installation: A solar photovoltaic installation that is constructed at a location where other uses of the underlying property occur.

20.2.7-8 Rated Nameplate Capacity: The maximum rated output of electric power production of the Photovoltaic system in Direct Current (DC).

⁷⁵ Adopted 6/1/2010

⁷⁶ Amended 6/2/2015

⁷⁷ Amended 6/5/2018

⁷⁸ Amended 6/5/2018

20.2.8-9 Site Plan Review: review by the Site Plan Review Authority to determine conformance with the Town's Zoning Bylaws.

20.2.9-10 Site Plan Review Authority: For purposes of this bylaw, Site Plan Review Authority refers to the Planning Board.

20.2.10-11 Solar Photovoltaic Array: an arrangement of solar photovoltaic panels.

20.2.11-12 Zoning Enforcement Authority: The person or board charged with enforcing the zoning ordinances or bylaws.

20.2.12-13 Lot Size: A minimum of ~~80,000~~five acres (217,800 square feet) will be required for lots to have large solar ground mounted panels facilities placed on them. ~~Lots must conform to zoning setbacks for each district they are located in. A minimum of one contiguous acre (43,560 square feet) must be available for siting.~~ No dwelling or other structures – except those structures that are part of the facility are allowed on designated parcel. The aggregation of parcels in order to create a parcel of sufficient size to construct a qualifying facility will be considered.

20.3 General Requirements

The following requirements are common to all solar photovoltaic installations to be sited in designated locations:

20.3.1 Compliance with Laws, Ordinances and Regulations

The construction and operation of all large scale solar photovoltaic installations, including BESS, 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 of a solar photovoltaic installation shall be constructed in accordance with the State Building Code.

20.3.2 Building Permit and Building Inspection

No large scale solar photovoltaic installation shall be constructed, installed or modified as provided in this section without first obtaining a building permit.

20.3.3 Fees

20.3.3.1 The application for a building permit for a large scale solar photovoltaic installation must be accompanied by the fee required for a building permit.

20.3.3.2 The large Scale Solar Photovoltaic Installation Fee shall be \$2,000.00 which shall include the fees for the Special Permit and Site Plan Review applications.⁷⁹

20.3.3.3 All engineering fees, legal fees, publication fees, etc. incurred by the Planning Board during the application process and the Site Plan Review will be paid for by the applicant.

20.3.4 Site Plan Review

Large scale solar photovoltaic installations shall undergo site plan review by the Site Plan Review Authority, as set forth in this Section and Article 9 of the Zoning Bylaws prior to construction, installation or modification as provided in this section.⁸⁰

20.3.4.1 General

All plans and maps shall be prepared, stamped and signed by a Professional Engineer licensed to practice in Massachusetts.

20.3.4.2 Required Documents

Pursuant to the site plan review process, the project proponent shall provide the following documents:

- (a) A site plan showing:
 - i. Property lines and physical features, including roads, for the project site;
 - ii. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures;
 - iii. Blueprints or drawings of the solar photovoltaic installation 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;

⁷⁹ Amended 6/2/2015

⁸⁰ Amended 6/5/2018

- iv. 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 overcurrent devices;
- v. Documentation of the major system components to be used, including the PV panels, mounting system, ~~and inverter~~ and BESS, with technical specifications of the major system components, including the solar arrays, mounting system, electrical equipment and other supporting equipment and structures;
- vi. Name, address, and contact information for proposed system installer;
- vii. Name, address, phone number and signature of the project proponent, as well as all co-proponents or property owners, if any;
- viii. The name, contact information and signature of any agents representing the project proponent; ~~and~~

(b) Drawings, photographs and study showing:

- i. Color renderings not less than 1 inch = 50 feet showing site line views from abutting streets and properties of the proposed installation;
- ii. Color aerial view both before and after proposed installation showing tree coverage and buffer zone not less than 1 inch = 50 feet;
- 4-iii. A glare analysis and proposed mitigation, if any, to minimize the impact of glare on affected properties and roads;

~~(b)(c)~~ Documentation of actual or prospective access and control of the project site (see also Section 20.3.5);

~~(e)(d)~~ An operation and maintenance plan (see also Section 20.3.6);

~~(e)(e)~~ Zoning district designation for the parcel(s) of land comprising the project site (submission of a copy of a zoning map with the parcel(s) identified is suitable for this purpose);

~~(e)(f)~~ Proof of liability insurance; ~~and~~

~~(f)(g)~~ Description of financial surety that satisfies Section 3.12.3-;

~~(g)(h)~~ Decommissioning Plan⁸¹

The Site Plan Review Authority may waive documentary requirements as it deems appropriate.

20.3.5 Site Control

The project proponent shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar photovoltaic installation. Any special permit submitted under this section shall include a condition stating the above requirement and further stating that, in accepting the special permit the Applicant and Owner grant the Town permission to enter the property for the purpose of assessing and removing an abandoned or discontinued facility. This letter shall be signed and notarized by the applicant and owner.⁸²

20.3.6 Operation & Maintenance Plan

The project proponent shall submit a plan for the operation and maintenance of the large-scale ground-mounted solar photovoltaic installation, 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. This plan shall include measures for maintaining year-round safe access for emergency vehicles, snow plowing, storm water controls, and general procedures for operating and maintaining the energy facility including the fencing, fire access roads and landscaping. Use of pesticides and herbicides is prohibited.

20.3.7 Utility Notification

No large-scale ground-mounted solar photovoltaic installation shall be constructed until evidence has been given to the Site Plan Review Authority that the utility company that operates the electrical grid where the installation is to be located has been informed of the solar photovoltaic installation owner or operator's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

20.3.8 Dimension and Density Requirements

20.3.8.1 Setbacks

For large-scale ground-mounted solar photovoltaic installations, front, side and rear setbacks shall be as follows:

- (a) Front yard: The front yard depth shall be ~~distance allowed in zoning districts~~ at least 100 feet.
- (b) Side yard: Each side yard shall have a depth at least ~~50-75~~ feet.

⁸¹ Added 6/2/2015

⁸² Amended 6/5/2018

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(c) Rear yard. The rear yard depth shall be at least 50-75 feet.

Screening/Buffering may require greater setbacks (see Section 20.3.10.2(c)).

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20.3.8.2 Solar Panels and Appurtenant Structures and Fencing⁸³

All appurtenant structures to large- scale ground-mounted solar photovoltaic installations shall be subject to reasonable regulations concerning the bulk and height of structures, lot area, setbacks, open space, parking and building coverage requirements. All such appurtenant structures, including but not limited to, equipment shelters, storage facilities, BESS facilities, transformers, and substations, shall be architecturally compatible with each other. All structures will be hidden from view whenever reasonable by vegetation and/or joined or clustered to avoid adverse visual impacts.

All Solar Panels shall be screened from view by vegetation and in place prior to issuing the Certificate to Generate for the system. Such screening shall be provided in the required setback areas where existing vegetation setbacks is insufficient for year-round screening. Screens shall consist of evergreen vegetation 1.5 times the height of the highest solar panels. Berms or other methods to adequately screen the facility, depending on site specific conditions may be considered. Screen shall be maintained and replaced as necessary by the owner/operator of the solar energy system.

Fencing:

- a. Shall be not greater than eight (8) feet in height and shall surround the entire field.
- b. Shall be place four (4) inches off the ground to allow migration of wildlife.
- c. Solid fencing may also be required if necessary to adequately screen view of the facility.
- d. Fencing shall consist of a commercial grade, high quality (HF40 or better) framework, galvanized chain link, ends, corners and posts. The Planning Board may require additional measures such as coated galvanized fencing and screening bands or aluminized chain link.

20.3.9 Design Standards

20.3.9.1 Lighting

Lighting of solar photovoltaic installations shall be consistent with local, state and federal law. All lighting on the premises shall be by motion activated devices and no all-night lighting will be allowed unless so allowed by Planning Board. Lighting of ~~other all~~ parts of the installation, ~~such as including~~ appurtenant structures, shall be limited to that required for safety and operational purposes, ~~and shall be reasonably~~ shielded from abutting properties, and shall comply with international Dark Sky Standards FSA Certification Requiements. ~~Where feasible, lighting of the solar photovoltaic installation shall be directed downward and shall incorporate full cut off fixtures to reduce light pollution. There shall be no illumination without personnel on site.~~

20.3.9.2 Signage

Signs on large- scale ground-mounted solar photovoltaic installations shall comply with the Town's Zoning Bylaws, Article 17-Signs. A sign consistent with a municipality's sign bylaw shall be required to identify the owner and provide a 24-hour emergency contact phone number.

Solar photovoltaic installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar photovoltaic installation.

20.3.9.3 Utility Connections

Reasonable efforts, as determined by the Site Plan Review Authority, shall be made to place all utility connections from the solar photovoltaic installation underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

20.3.10 Safety and Environmental Standards

20.3.10.1 Emergency Services

The large scale solar photovoltaic installation owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the local 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 solar photovoltaic installation shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

20.3.10.2 Land Clearing, Soil Erosion, Habitat Impact, Screening Requirements⁸⁴

- (a) Land clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the solar energy systems or otherwise prescribed by applicable laws, regulations and bylaws. Existing vegetation shall remain in required setback areas ~~except~~

⁸³ Amended 6/5/2018

⁸⁴ Amended 6/5/2018

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~~where such vegetation would shade the solar energy system. However, in no event shall clearing of existing vegetation in setbacks exceed half the required setback width.~~ Adequate erosion control measures shall be provided for all proposed land clearing.

- (b) Protection of Natural Resources and Habitat – Large-scale ground-mounted solar energy systems shall be designed to minimize impacts to agricultural and environmentally sensitive land and to be compatible with continued agricultural use of the land whenever possible. Access driveways shall be constructed to minimize grading, removal of stone walls or roadside trees, and to minimize impacts to environmental or historic resources.
- (c) Screening/Buffering: Large-scale ground-mounted solar energy systems shall be screened year round from all adjoining properties in all zoning districts and from public and private ways. Screening will be in place prior to issuing the Certificate to Generate in all zoning districts. Such screening shall be provided in the required setback areas and where existing vegetation in setbacks is insufficient for year-round screening purposes. The screen shall consist of dense evergreen vegetative screening 1.5 times the height of the highest solar panels. Berms or other methods to adequately screen the facility, depending on site specific conditions may be considered. Screen shall be maintained and replaced as necessary by the owner/operator of the solar energy system.

20.3.11 Monitoring and Maintenance

20.3.11.1 Solar Photovoltaic Installation Conditions

The large-scale ground-mounted solar photovoltaic installation 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 Fire Chief and Emergency Medical Services. The owner or operator shall be responsible for the cost of maintaining the solar photovoltaic installation and any access road(s), unless accepted as a public way.

20.3.11.2 Modifications

All material modifications to a solar photovoltaic installation, including the addition of BESS made after issuance of the required building permit shall require approval by the Site Plan Review Authority.

20.3.12 Abandonment or Decommissioning

20.3.12.1 Removal Requirements

Any large-scale ground-mounted solar photovoltaic installation which has reached the end of its useful life or has reached the end of its useful life consistent with Section 3.12.2 of this bylaw shall be removed. 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 Site Plan Review Authority by certified mail of the proposed date of discontinued operations and plans for removal. Removal shall consist of:

- (a) Physical removal of all large- scale ground-mounted solar photovoltaic installations, structures, equipment, BESS, security barriers and transmission lines from the site.
- (b) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
- (c) Stabilization or re-vegetation of the site as necessary to minimize erosion. The Site Plan Review Authority may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

20.3.12.2 Abandonment

Absent notice of a proposed date of decommissioning and removal or written notice of extenuating circumstances, the solar photovoltaic installation shall be considered abandoned when it fails to operate for more than six months without the written consent of the Site Plan Review Authority. If the owner or operator of the large- scale ground-mounted solar photovoltaic installation fails to remove the installation in accordance with the requirements of this section within 120 days of abandonment or the proposed date of decommissioning, the Town may enter onto the property and physically remove the installation.

20.3.12.3 Financial Surety⁸⁵

Proponents of large-scale ground-mounted solar photovoltaic projects shall provide surety in the form of cash or certified bank check, held by and for the Town of Hubbardston in an interest bearing account 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 Planning Board, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the project proponent. This surety will be due and payable at the issuance of the building permit. Proof of payment in the form of a receipt from the Town

⁸⁵ Amended 6/2/2015

Treasurer will be shown to the ~~Building Inspector~~Building Commissioner before the permits are issued. Such surety will not be required for municipally- 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 amount shall include a mechanism for calculating increased removal costs due to inflation. As a condition of approval, an applicant shall bind itself to grant the necessary license or easement to the Town to allow entry to remove the structure. The Town shall have the right, but not the obligation to remove the facility.

20.4 Certificate to Generate^{86,87}

No solar facility may sell or distribute generated power until all conditions of the issued permit and requirements of this bylaw are approved and certified at a meeting of the Planning Board, and the "Certificate to Generate" is issued and recorded in the Worcester Registry of Deeds.

The Planning Board may revoke the "Certificate to Generate" for cause after a public hearing.

20.5 Reporting Requirements⁸⁸

The owner of the solar installation shall provide a report to the Planning Board in January of each calendar year with the following information: total amount of electricity generated, major maintenance performed; planned or actual major system modifications; change of ownership; changes to bond amounts.

⁸⁶ Added 6/2/2015

⁸⁷ Amended 6/5/2018

⁸⁸ Added 6/5/2018