

REPORT OF PLANNING BOARD ON PROPOSED SOLAR BYLAW AMENDMENT

January 10, 2018 Special Town Meeting

Article 1

SOLAR PHOTOVOLTAIC INSTALLATIONS

Article 1. To see if the Town will vote to amend Chapter 255 (Zoning) of the Town's Code in regard to Solar by amending: Section 255-10, Terms Defined, to insert various new terms and their definitions and to reorder the various terms alphabetically; in Section 255-19 Use Regulations Schedule by inserting new uses related to Solar Photovoltaic Installations, and in Article VII, Supplemental District Regulations, by inserting a new Section 255-48 Solar Photovoltaic Installations as detailed in the Planning Board's Report to Town Meeting or take any other action thereto.

The ***proposed changes*** are as follows:

1. Amend Section 255-10 of the South Hadley Zoning Bylaw by adding the following:

As-of-Right Siting: The siting of a development may proceed without the need for a special permit or other discretionary approval. However, development shall be subject to site plan review to determine conformance with local zoning ordinances, bylaws, federal and state building codes, and to protect the public health, safety and welfare. Siting of projects cannot be prohibited, but can be reasonably regulated by the Planning Board as the Site Plan Review Authority.

Institutional Building: A building not used either as a principal accessory use to a commercial, industrial or residential use; generally used for a municipal, educational or religious purpose.

Municipal Properties: As used in this Chapter, municipal properties shall be interpreted to mean any land or property owned in fee by either the Town of South Hadley (including semi-autonomous entities such as the South Hadley Electric Light Department), South Hadley Fire District #1, or South Hadley Fire District #2.

Project Proponent: The applicant, property owner, installation developer, operator and management entity, jointly and severally, of a project. Each of the responsible parties shall be responsible for adhering to the requirements set forth in this By-Law.

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

Solar Photovoltaic Installation: An active solar energy system that converts solar energy directly into electricity.

Solar Photovoltaic Installation, Canopy Mounted: A solar photovoltaic system that is structurally mounted on a canopy over a parking area.

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Solar Photovoltaic Installation, Ground Mounted: A solar photovoltaic system that is structurally mounted on the ground and is not roof-mounted.

Solar Photovoltaic Installation, Roof Mounted: A solar photovoltaic system that is structurally mounted on the roof of a building.

Solar Photovoltaic Installation, Large-Scale: A solar photovoltaic system that has a rated nameplate capacity greater than 250 KW DC.

Solar Photovoltaic Installation, Medium-Scale: A solar photovoltaic system that has a rated nameplate capacity of more than 10 KW DC but not more than 250 KW DC.

Solar Photovoltaic Installation, Small-Scale: A solar photovoltaic system that has a rated nameplate capacity of 10 KW DC or less.

2. **Amend Section 255-19 Use Regulations Schedule by inserting the following new uses related to Solar Photovoltaic Installations into the Business Use Classification and indicate how they are to be permitted or prohibited and insert the footnotes as noted below.**

Uses to be Inserted:

- Solar Photovoltaic, Large-Scale
- Solar Photovoltaic, Medium-Scale
- Solar Photovoltaic, Small-Scale

Where/How Permitted:

Large-scale Solar Photovoltaic Installations to be noted as permitted by Site Plan Review in all zoning districts but subject to the following restrictions which are to be included in footnotes to be inserted:

- a) Large-Scale ground mounted, canopy, and roof installations are only permitted on municipally-owned properties except for the following:
 - 1) Canopy Installations on non-municipal land may only be placed in existing parking lots in the Industrial or Business zoning districts and the entire array must be located over a single, contiguous parking area.
 - 2) Roof mounted on non-municipal land may be placed on industrial, commercial, or institutional buildings if the entire generating array is located on a single-building.

Medium-scale Solar Photovoltaic Installations to be noted as permitted only by Special Permit in all districts unless they meet the same criteria as Large-Scale ground mounted, canopy, and roof installations. The following restriction on Medium-scale Solar Photovoltaic Installations is to be included in footnotes to be inserted:

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- b) Medium-scale Solar Photovoltaic Installations whether ground mounted, canopy, or roof installations are permitted on municipally-owned properties subject to Site Plan Review.
- c) Medium-scale Solar Photovoltaic Installations which are to be canopy installations and not located on municipal land are permitted by Site Plan Review only if they are placed in existing parking lots in the Industrial or Business zoning districts and the entire array must be located over a single, contiguous parking area.
- d) Medium-scale Solar Photovoltaic which are to be roof mounted installations and not located on municipal land are permitted by Site Plan Review only if they are placed on existing industrial, commercial, or institutional buildings in which case they may be approved in any zoning district by Site Plan Review.
- e) Medium-scale Solar Photovoltaic Installations to be permitted if accessory to another principal use on the same parcel by Site Plan Review in all districts (however, if the principal use is only allowed by Special Permit, the Solar Photovoltaic Installation may be only permitted by Special Permit.)

Small-scale Solar Photovoltaic installations to be permitted As-Of-Right in all zoning districts subject to the following restriction which is to be included as a footnote:

- f) Only if accessory to another principal use on the same parcel or on municipally owned property are to be permitted by As-Of-Right in all zoning districts.

All other Small-scale Solar Photovoltaic installations require a Special Permit.

3. Amend Article VII, Supplemental District Regulations, by inserting a new Section 255-48 Solar Photovoltaic Installations

255-48 Solar Photovoltaic Installations

- A. Purpose - The purpose of this Section is to provide standards for the placement, design, construction, operation, monitoring, modification and removal of Ground Mounted and Canopy Mounted Solar Photovoltaic Installations, as permitted in Chapter 255-Attachment 1 “Use Regulations Schedule”, that address public safety and minimize impacts on scenic, natural and historic resources.
- B. Applicability - This Section applies to all Solar Photovoltaic Installations, as permitted in Chapter 255-Attachment 1 “Use Regulations Schedule”, 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.
- C. As-Of-Right Siting
 - 1). Solar Photovoltaic Installations, in many instances are permitted As-Of-Right in many zoning districts in the “Use Regulations Scheduled” (Chapter 255-Attachment 1). In most cases, these are still subject to Site Plan Review in

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accordance with requirements below and Article XII of Chapter 255 of the Town Code (the Zoning Bylaw).

D. Special Application/Plan Requirements - Special Permits & Site Plan Review - All applications for which a Special Permit or Site Plan Review are required, in addition to the requirements of Chapter 255-Article IX and Chapter 255-Article XII of the Town Code (and Planning Board Regulations adopted pursuant to), shall also include and comply with the following:

- 1). Plans shall include an analysis of the proposed cut and fill for the site.
- 2). Required Documents:
 - (a) A site plan showing:
 - 1) 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
 - 2) One- or three-line electrical diagram detailing the solar photovoltaic installation, associated components, and electrical interconnection methods, with all Massachusetts Electrical Code compliant disconnects and overcurrent devices;
 - 3) Documentation of the major system components to be used, including the PV panels, mounting system, and inverter;
 - 4) Name, address, and contact information for proposed system installer;
 - (b) Stormwater management plan and assessment including an analysis as to the impact that the installation might have on the patterns and rate of stormwater runoff.
 - (c) Erosion & sediment control plan
 - (d) Documentation of actual or prospective access and control of the project site
 - (e) An operation and maintenance plan including a schedule for revisions to the plan
 - (f) Utility Notification evidence that the utility company that operates the electrical grid where the installation is to be located has been informed of the solar photovoltaic installation Project Proponent's intent to install an interconnected customer owned generator.
 - 1). Exception: Off grid systems shall be exempt from this requirement.
 - (g) Vegetative analysis and planting plan which identifies the extent to which existing vegetation will be removed, particularly native trees of a caliper of 10" or more and plans to replant the area and meet the screening requirements.
 - (h) Vegetative management plan. This plan is to address maintenance of the vegetation on the entire site with particular attention to vegetation under the ground mounted solar photovoltaic installations

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and methods taken to preclude any impact on adjacent and nearby properties.

- (i) Landscaping and Screening Plan. This plan is to particularly focus on replacement of the native trees and screening from view of the roadway and adjacent and nearby residential properties.
- (j) Abandonment & Decommissioning Plan
- (k) Wildlife analysis including a description as to how the development has been designed to minimize adverse impacts on wildlife.

E. General Requirements:

1). Dimension Requirements

(a) Ground Mounted Solar Photovoltaic Installations shall comply with the same dimension requirements required of principal buildings in the underlying district, except that for medium and large-scale installations the following shall apply:

- 1). Front, rear and side yard setbacks shall be a minimum 50 feet
- 2). Access roads or driveways shall be setback at least 25 feet from side and rear lot lines.
- 3). Where Site Plan Review or a Special Permit is required, the Planning Board may impose a greater setback if they determine that a greater setback is essential to address the criteria for granting such approval and will not unduly restrict the installation and operation of the installation.

a. Exception: Ground Mounted Solar Photovoltaic Installations shall not be subject to the Maximum Lot Coverage limitations unless the area under the Panels is paved or made otherwise less pervious for the Installation.

(b) Canopy Mounted Solar Photovoltaic Installations shall comply with the same dimension requirements required in the underlying district for parking lots. However, if such Installations are not to be installed over pre-existing parking lots, the Planning Board may consider them to be Principal Structures and require them to meet the corresponding setback requirements.

2). Structures - All structures for Ground Mounted and Canopy Mounted Solar Photovoltaic Installations including all appurtenant structures (such as, but not limited to, equipment shelters, storage installations, transformers, and substations) shall be architecturally compatible with each other.

3). Visual Impact Mitigation - The plan for Ground Mounted Solar Photovoltaic Installations shall be designed to maximize the preservation of on-site and abutting natural and developed features.

(a) In natural (undeveloped) areas, existing vegetation shall be retained to the greatest extent possible.

(b) In developed areas, the design of the installation shall consider and incorporate human-designed landscape features to the greatest extent, including contextual landscaping and landscape amenities that complement the physical features of the site and abutting properties.

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- (c) Whenever reasonable, structures should be screened from view by vegetation and/or joined or clustered to avoid adverse visual impacts and be architecturally compatible with each other.
- (d) Vegetation shall be of varieties native to New England and a mix of deciduous and evergreen species.
- (e) Vegetative screening shall reach a mature form to effectively screen the installation within five years of installation.
- (f) The mature height of the vegetated screening shall be such that the installation's structures are not apparent to a person upon any public road and viewing the installation from a height of 10 feet.
 - 1). Exception: The Planning Board may grant an exception to this provision where topographic conditions of the site make compliance with this restriction impractical or would unduly restrict the installation. Where an exception is made, the Planning Board may establish alternative vegetative requirements.
- (g) Planting of the vegetative screening shall be completed prior to final approval of the photovoltaic installation by the Building Inspector.

4). Design Standards

- (a) Projects shall be designed to:
 - 1). minimize the volume of cut and fill, the number of removed trees 10" caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, the extent of stormwater flow increase from the site, soil erosion, and threat of air and water pollution
 - 2). maximize pedestrian and vehicular safety both on the site and entering and exiting the site and on roadways adjoining the site;
 - 3). minimize obstruction of scenic views from publicly accessible locations;
 - 4). minimize visual intrusion by controlling the visibility of parking, storage, or other outdoor service areas viewed from public ways or premises residentially used or zoned;
 - 5). minimize glare from headlights and light trespass onto adjoining residential properties;
 - 6). preclude glare impacts on motorists on adjacent and nearby roadways;
 - 7). Ensure adequate access to each structure for fire and service equipment and adequate provision for utilities and stormwater drainage.
- (b) Site Lighting - Lighting of solar photovoltaic installations shall be consistent with local, state and federal law. All lighting associated with the facility shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Lighting of the solar photovoltaic installations shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.
- (c) Signage – No signage on solar photovoltaic installations is permitted other than those required to identify voltage and electrocution hazards

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as well as 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.

- (d) Utility Connections - Reasonable efforts, as determined by the Planning Board, 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.
- (e) Fencing – It is anticipated that Solar Photovoltaic Installations (especially Ground Mounted Medium and Large Scale Installations) will be enclosed by fencing. Any fencing installed for a Medium or Large Scale Installation shall be designed to minimize impacts on wildlife movements and aesthetics. Accordingly, such fencing is to leave a gap of no less than 6 inches between the ground and the bottom of the fencing. Further, such fencing is to be of a color and texture so as to blend into the background.
- (f) Screening – Medium and Large Scale Ground Mounted Solar Photovoltaic Installations shall be screened from view from adjoining and nearby residential properties and from adjoining roadways. This screening is to be incorporated into the landscaping plan and should, to the extent appropriate, include a combination of fencing and vegetation.
- (g) Impact on Wildlife – Medium and Large-Scale Solar Photovoltaic Installations shall be designed and constructed, to the extent reasonable, so as not to have adverse impacts on wildlife habitats and behavior patterns. Project Proponents are to demonstrate how they have taken this into consideration in planning their development.

5). Safety and Environmental Standards

- i. Emergency Services - Project Proponents shall provide whatever materials (such as, a copy of the project summary, electrical schematic, and site plan) and contact information are requested by the Fire Chief and other appropriate authorities. Project Proponent shall cooperate with local emergency services in developing an emergency response plan.
- ii. Land Clearing, Soil Erosion and Habitat Impacts - Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the solar photovoltaic installation or otherwise prescribed by applicable laws, regulations, and bylaws. Such installations shall not occur on any slopes greater than 15% in order to minimize erosion. No more than 50% of the land parcel utilized for solar photovoltaic installations shall contain land requiring clearing of forest.
- iii. No topsoil shall be removed from the land parcel under consideration for solar photovoltaic installations. If earthworks operations are required, topsoil

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shall be stockpiled within the property bounds and protected against erosion until such time earthwork operations are completed and topsoil can be re-spread over parcel. Earthworks shall be planned to limit export of soil material (non-topsoil) to 1000 cubic yards per acre affected by installation. A detailed earthworks estimate is a required submittal component proving this quantity is maintained.

- iv. Impact on Agricultural and Environmentally Sensitive Land – Solar Photovoltaic Installations and Agricultural usage of the properties should be mutually supportive and the Solar Photovoltaic Installation is to be designed and installed to reflect this principal. Accordingly, Medium and large scale solar photovoltaic installations 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. No more than 50-percent of the total land area proposed for the solar photovoltaic installation may be occupied by the solar panels, with the remainder of the land remaining as open space either in its natural state, developed as community recreation, agricultural use, or similar state as approved by the Planning Board.
- v. Vegetation Management - Herbicides, pesticides, or chemical fertilizers shall not be used to manage vegetation at the ground mounted solar photovoltaic installation. Low growing herbaceous ground cover underneath the solar array is encouraged wherever possible.

Generally, land associated with the ground mounted solar photovoltaic installation shall be covered and grown in natural vegetation. Ground surface areas beneath solar arrays and setback areas, to a reasonable extent shall be pervious to maximize on-site infiltration of stormwater. Impervious paving of areas beneath solar arrays is prohibited. To the greatest extent possible, a diversity of plant species shall be used, with preference given to species that are native to New England. Use of plants identified by the most recent copy of the “Massachusetts Prohibited Plant List” maintained by the Massachusetts Department of Agricultural Resources is prohibited. Herbicides shall be applied only by properly licensed personnel in conformance with all applicable state regulations.

- vi. Stormwater – The Installation shall be designed and maintained to have no net impact on the pre-existing Stormwater Runoff either in rate or discharge point
 - vii. The cumulative amount of native trees of a caliper of 10” or more which are to be removed for the installation and operation of a medium or large scale solar photovoltaic installation shall be replaced by a total amount of such trees with the minimum planting size of 5” caliper.
- 6). Abandonment & Decommissioning Plan (Medium and Large Scale Solar Photovoltaic Installations) – Medium and Large Scale Ground Mounted Solar Photovoltaic Installation which has reached the end of its useful life or has been abandoned (i.e. when either it fails to be completed within a commercially

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reasonable time (such that power generation can commence), or it fails to operate for an elapsed time of more than one year without the written consent of the Planning Board) shall be removed. The owner or operator shall physically remove the installation within 150 days of abandonment or the proposed date of decommissioning. The owner or operator shall notify the Planning Board by certified mail of the proposed date of discontinued operations and plans for removal.

The Abandonment & Decommissioning Plan, at a minimum, shall include a detailed description of how all of the following will be addressed:

- i. Physical removal of all structures; equipment, building, security barriers and transmission lines from the site, including any materials used to limit vegetation.
- ii. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
- iii. Stabilization or re-vegetation of the site as necessary to minimize erosion. The Planning Board may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.
- iv. Financial surety for decommissioning - Proponents shall provide a form of surety, either through escrow account, bond or other form of surety approved by the Planning Board to cover the estimated 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. The project proponent shall submit a fully inclusive detailed itemized cost estimate of the town's estimated costs associated with removal and full decommissioning of the installation and site, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation at the end of the installation's useful life. Said estimated cost shall not include or deduct the value of material recycling. Said surety in its full amount shall be presented to the Planning Board prior to the commencement of construction.
- v. All legal documents required to enable the Town to exercise its rights and responsibilities under the plan to decommission the site, enter the property and physically remove the installation.

7). Monitoring and Maintenance

- i. Solar Photovoltaic Installation Conditions - Project Proponents shall maintain the installation 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 local Fire Chief. The Project Proponent shall be responsible for the cost of maintaining the solar photovoltaic installation
- ii. Modifications – Any changes to the plans approved by the Planning Board shall be submitted to the Town Planner/Planning Director for determination

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if further Planning Board review is warranted prior to issuance of the building permit. If further Planning Board review is deemed warranted, such further review and approval by the Planning Board shall be obtained prior to issuance of the building permit.

- iii. Updating – Project Proponent shall be responsible for updating the Operations and Maintenance Plan a) whenever personnel with responsibilities identified in the plan change and b) no less than every 5 years.
- 8). Outside Consultant Fees – In addition to the normal filing fee, the Planning Board can charge the applicant with a fee to hire “outside consultants” to assist the Board in administering and reviewing applications.
- 9). Waivers - The Planning Board may, upon the prior written request of the applicant, waive any of the requirements of this sub-section, but must state their reasons for doing so in writing as part of their decision.

OBJECTIVES: The objectives of this article are to 1) provide for the development and use of solar photovoltaic installations as an element of becoming a Green Community; 2) Minimize the potential for converting natural land into renewable energy sources; and 3) help meet the SHELD objectives of providing viable renewable energy as part of their production portfolio.

SUMMARY: This article mirrors, in some respects, the model bylaw provided by the state. However, it has been adapted to fit South Hadley’s unique needs and environment. Large scale installations are provided for on municipal land and on sites already developed (parking lots and roofs). By doing so, this bylaw expands the public benefit of the large installations while minimizing the potential loss of our natural resources.

BACKGROUND: The Town is intending to seek approval as a Green Community. One of the criteria for being a Green Community is to have “As of Right” siting for at least one of the following:

- Renewable or alternative energy generating facilities, or
- Renewable or alternative energy research & development facilities, or
- Renewable or alternative energy manufacturing facilities

While the Town may be able to demonstrate that the South Hadley Zoning Bylaw meets the requirements under the second or third option, there are obstacles including the lack of or limited amount of space which might be available for such use and the vagueness of the Zoning Bylaw in terms of industrial uses. Additionally, meeting the first option makes the Town eligible for a potential incentive bonus when it comes to Green Communities grants.

In the course of developing this proposal, the Town learned that SHELD, under pressure from the State, is seeking to develop renewable energy generating facilities as part of its supply portfolio. The only way this can reasonably be achieved is through amendment of the Zoning Bylaw to make commercial operation of such facilities permissible. The SHELD Manager and

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Engineer have been consulted on this proposed Bylaw and changes were made prior to the public hearing to incorporate much of their comments.

RELATIONSHIP TO MASTER PLAN: The Master Plan, adopted in 2010, was based on four core Plan Principles including “Sustainability”:

Promoting policies and actions that will meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability should be understood broadly to include maintaining a long-range focus for Town actions and investments as well as the stewardship of the Town’s natural lands, parks, and public buildings. Sustainability also implies renewed attention to efficiency, or making the most of what we have, whether measured in infrastructure, energy, money, or time, or in natural resources like land and water.

Renewable energy and energy conservation measures are essential to being sustainable. This proposed amendment is aligned with the Core Principle of the Master Plan. The proposed amendment is structured so as to encourage the retention of natural lands and areas while accommodating development of renewable solar energy sources.

PUBLIC HEARING: The Planning Board discussed the potential amendment including several drafts over the course of several meetings during 2017 and held a public hearing on the proposed Zoning Bylaw amendment on Monday, December 4, 2017. A number of persons (in addition to the Planning Board members and Planning Director) were in attendance at this hearing.

Comments made during the public hearing were generally supportive of the proposed amendment as drafted. The South Hadley Electric Light Department (SHELD) engineer indicated that SHELD might want to undertake a large solar facility on leased land and suggested that the proposed amendment be revised to accommodate that approach. There was discussion of options as to how this could be accommodated; however, the Board determined that it would leave the proposal as written. It was suggested that if SHELD developed a more specific plan for a large facility on leased land, they could come forward with a proposal to amend the Zoning Bylaw at that time (with a 3-6 month lead time before the Town Meeting).

Other comments questioned whether a solar installation would be too much for the carrying capacity of a roof. It was noted that would need to be addressed in the building permit process as well as Site Plan Review/Special Permit based on a specific project and specific building.

A comment was made as to the aesthetics of a solar photovoltaic installation – some people like them and some don’t. But, it was suggested that some facilities are necessary even though they may not be aesthetically appealing.

RECOMMENDATION: The Planning Board, at their December 4, 2017 meeting, voted to recommend approval of this article as presented. At their meeting on January 8, 2018, the Planning Board unanimously voted to approve this report including the article as presented herein.

FINAL REPORT