# ARTICLE 23
# Text in RED shows amendments to the current bylaw
# Text in BLUE shows floor amendments @ ATM

**Amend Section XXVIII and Section I**
Amend Section IB
Add definitions:
**Energy Storage System**: A device utilized to store electrical energy (AC or DC) by converting electrical energy into chemical energy or vice-versa. May consist of a single battery or multiple batteries or other means which accomplish this conversion. May also include any devices utilized to provide cooling to said storage device.
**Small Capacity Energy Storage System**: Any energy storage system of less than **150** kWh.
**Large Capacity Energy Storage System:** Any energy storage system of **150** kWh or larger.

Amend definition:
**Solar Energy System:** All equipment, machinery and structures utilized in connection with the conversion of light to electricity. This includes, but is not limited to, transmission, collection and supply equipment, substations, transformers, service and access roads. Energy storage systems are not included in this definition, except where specifically mentioned in § 28.

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## Section XXVIII Solar Energy Systems (Adopted May 6, 2012)

### 28.1 Purpose
The purpose of this by-law is to provide for the construction and operation of solar energy systems, energy storage systems and to provide standards for the placement, design, construction, monitoring, modification and removal of said systems 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 solar energy systems and energy storage systems.

### 28.2 Applicability
This section applies to all solar energy systems and energy storage systems proposed to be constructed after the effective date of this section.

### 28.3 Definitions
See § 1B

### 28.4 General Requirements for all Solar Energy Systems and Energy Storage Systems
The requirements of §28.4 are common to all solar energy systems and energy storage systems.

28.4.1 Compliance with Laws
The construction and operation of all proposed solar energy systems and energy storage systems shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, environmental, electrical, communications and aviation requirements.

28.4.2 Expiration
A permit issued pursuant to this bylaw shall expire if: (a) the solar energy system or energy storage systems is not installed and functioning within 24-months from the date the permit is issued; or, (b) the solar energy system is abandoned.

28.4.3 System Conditions
Owners of solar energy systems and energy storage systems shall be responsible for maintaining them in good condition. Maintenance shall include, but not be limited to, structural repairs, spill containment systems, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Services. The project owner shall be responsible for the cost of maintaining the solar energy system or energy storage system and any access road(s), and the cost of repairing any damage occurring as a result of operation and construction.

28.4.4 Modifications

All material modifications to a solar energy system and energy storage system made after issuance of any approval issued pursuant to this bylaw shall require approval by the Planning Board as provided in this bylaw.

28.4.5 Violations

It is unlawful for any person to construct, install, or operate a solar energy system and energy storage system that is not in compliance with this bylaw or with any condition contained in an approval or permit issued pursuant to this bylaw.

## 28.5 Solar Energy System Permits

28.5.1 Building-Integrated Solar Energy System and Energy Storage System

28.5.1.1 Building-Integrated Solar Energy Systems and, if associated, Small Capacity Energy Storage Systems shall not be erected, constructed, installed or modified as provided in this section without first obtaining an a building permit from the building inspector.

28.5.1.2 Building-Integrated Solar Energy Systems Solar system that are not flush mounted to an existing roof but are "slanted or tilted" to meet desired angles, must not exceed the overall building height limits of the underlying district. The height shall be measured to the highest protruding point of the solar system at its fullest extension.

28.5.1.3 Building-Integrated Energy Systems, and, if associated, Small Capacity, Energy Storage Systems may be located in any zoning district of the Town of Hadley.

28.5.2 Small-Scale, Ground-Mounted Energy System and Small Capacity Energy Storage System

28.5.2.1 Small-Scale, Ground-Mounted Energy Systems, and if associated, Small Capacity, Energy Storage Systems shall not be erected, constructed, installed or modified as provided in this section without first obtaining an Administrative Review per § 28.6 of this bylaw and a building permit. The Planning Board may waive any part of the Administrative Review it judges to be unnecessary to the review of a particular plan. **(Amend 10/25/2012)**

28.5.2.2 Small-Scale, Ground-Mounted Energy Systems and associated Small Capacity, Energy Storage Systems may be located in any zoning district of the Town of Hadley.

28.5.3 Large-Scale, Ground-Mounted Solar Energy Systems and Large Capacity Energy Storage Systems

28.5.3.1 On-Site Generation

Large-Scale, Ground-Mounted, Solar Energy Systems and Large Capacity Energy Storage Systems that are designed as On-Site Solar Energy Systems shall not be erected, constructed, installed or modified as provided in this section without first obtaining an Administrative Review per § 28.6 of this bylaw and a Commercial Site Plan Approval from the Planning Board per Section VIII of the Hadley Zoning Bylaw, and a building permit from the building inspector.

28.5.3.2 Off-Site Generation

Large-Scale, Ground-Mounted Solar Energy Systems and Large Capacity Energy Storage Systems that are designed as Off-Site Solar Energy Systems shall not be erected, constructed, installed or modified as provided in this section without first obtaining an Administrative Review per § 28.6 of this bylaw, Commercial Site Plan Approval per Section VIII of the Hadley Zoning Bylaw, a Solar Energy System Special Permit per § 28.7 of this bylaw and § 6.2.2 of the Hadley Zoning Bylaw (all from the Planning Board); and a building permit from the building inspector.

28.5.3.3 Districts

Large-Scale, Ground-Mounted, Solar Energy Systems shall only be located in the Agricultural/Residential District or in the Industrial District.

Large Capacity Energy Storage Systems shall only be permitted in the Agricultural/Residential District or in the Industrial District however, these are prohibited in the Aquifer **Protection** District Overlay Zones.

28.5.3.4 Screening

Large-Scale, Ground-Mounted Solar Energy Systems, Large Capacity Energy Storage Systems and appurtenant structures shall be adequately screened from view from public ways and neighboring properties with vegetation or behind other existing structures.

28.5.3.5 Consultants

Upon submission of an application for a Large-Scale, Ground-Mounted Solar Energy Systems, and Large Capacity Energy Storage Systems, the Planning Board will be authorized to hire outside consultants, pursuant to MGL c. § 53G. As necessary, the applicant may be required to pay the consultant's costs.

28.5.3.6 Abandonment and Decommissioning

28.5.3.6.1 Financial Surety

The Planning Board shall require owners of proposed Large-Scale, Ground-Mounted Solar energy systems and Large Capacity Energy Storage Systems to provide a form of surety, either through escrow account, bond or otherwise as determined by the Town Treasurer, to cover the cost of removal in the event the Town must remove the system, of an amount 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 applicant. The surety account or bond will be managed by the Town Treasurer's office.

Such surety will not be required for municipally or state-owned systems. The 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 and other causes over the life of the system.

28.5.3.6.2 Abandonment

Absent notice of a proposed date of decommissioning, the system shall be considered abandoned when the energy system fails to operate for more than one year without the written consent of the Planning Board. The Planning Board shall determine in its decision what proportion of the energy system is inoperable for the system to be considered abandoned. If the applicant fails to remove the energy system in accordance with the requirements of this section within 150 days of abandonment or the proposed date of decommissioning, the town shall have the authority to enter the property and physically remove the energy system, upon receipt of an appropriate court order or written consent of the owner.

28.5.3.6.3 Removal Requirements

Any large-scale, ground-mounted solar energy system or Large Capacity Energy Storage Systems that has reached the end of its useful life or has been abandoned shall be removed. When the energy system is scheduled to be decommissioned, the applicant shall notify the Town by certified mail of the proposed date of discontinued operations and plans for removal. The owner/operator shall physically remove the energy system no more than 150 days after the date of discontinued operations. At the time of removal, the energy system site shall be restored to the state it was in before the energy system was constructed or any other legally authorized use. More specifically, decommissioning shall consist of: (a) physical removal of all solar structures, energy storage devices, equipment, security barriers and transmission lines from the site: (b) disposal of all solid and hazardous waste in accordance with local and state waste disposal regulations: and, (c) stabilization or re-vegetation of the site as necessary to minimize erosion.

## Section 28.5.4 Large Capacity Energy Storage Systems

28.5.4.1 Large Capacity Energy Storage systems shall be permitted per §28.5.3.3 whether or not it is associated with a solar energy generating system,

28.5.4.2 Large Capacity Energy Storage Systems shall comply with Section 28.5.3 of this Bylaw,

28.5.4.3 Additional requirements / Considerations for Large Capacity Energy Storage Systems shall include:

28.5.4.3.1 Shall comply with NFPA 855 as amended

28.5.4.3.2 Type of cooling medium

28.5.4.3.3 If cooling is a liquid, liquid shall be non-toxic
28.5.4.3.4 No hazardous chemicals shall be permitted, with exception for liquid in batteries if that type of battery is utilized,
28.5.4.3.5 Noise produced by any Energy Storage System shall comply with M.G.L Chapter 111 Section 142 A-M
28.5.4.3.6 Spill containment shall be provided for any system containing liquid, said spill containment shall have a containment capacity of 110% for each liquid, and shall be fire resistant and heat resistant to 2300 degrees F,
28.5.4.3.7 Spill containment shall be designed to prevent accumulation of water, rain, snow, etc. or shall include a maintenance program to drain such items on a routine (as accumulated) basis,
28.5.4.3.8 Energy Storage units shall be installed on a ground mount concrete pad; ie, there shall be no footings or foundation.
28.5.4.3.9 Removal of earth to facilitate installation of Energy Storage System is prohibited,
28.5.4.3.10 All electrical wiring shall be below grade
28.5.4.3.11 Fire prevention/ controls: specifically on-site availability to prevent, control, and/or extinguish any fire
28.5.4.3.12 Maximum Energy Storage capacity shall not exceed five megawatt DC (5,000,000 watts direct current) of electrical energy
28.5.4.3.13 A fire hydrant shall be located within 300 feet of the energy storage containers of a Large Scale Energy Storage Facility
28.5.4.3.14 Shall be set back a minimum of 300 feet from any residential unit in use
28.5.4.3.15 Shall be equipped with a water-based sprinkler system with design density and installation prescriptively meeting the requirements of NFPA 13. The system shall be comprised of dry piping and open type sprinkler heads installed throughout the enclosed ESS enclosure which shall be supplied through a 4" Storz Style Fire Department Connection which shall be piped a minimum of 50' away from the ESS enclosure or as approved by the Fire Chief. This Bylaw shall not take the place of any sprinkler or specialized suppression system which may be required under Massachusetts General Laws Chapter 148-Fire Laws or Massachusetts Fire Prevention Regulations 527 CMR 1 and referenced NFPA 1-2021 or any referenced standard stated therein.

## 28.6 Solar Energy System Administrative Review Requirements

For § 28.6: Small scale solar energy systems shall include Small Scale Solar Systems and, if associated, Small Capacity Energy Storage Systems; Large scale solar systems shall include: Large-Scale Solar Systems and Large Capacity Energy Storage Systems

28.6.1 Authority

The Planning Board will perform an Administrative Review for all small-scale, large scale ground-mounted solar energy systems to assure compliance with the regulations in this section of the bylaw.

28.6.2 Purpose

This Administrative Review serves to verify conformance with the requirements of this bylaw. It does not constitute a special permit or discretionary approval.

28.6.3 Procedures for Administrative Review

28.6.3.1 Interdepartmental Review

The Planning Board shall transmit one copy of each application to the Building Inspector, Conservation Commission, Fire Department, and Police Department, who shall review the application and submit their recommendations and comments to the Planning Board concerning

28.6.3.1.1 The adequacy of the data and methodology used by the applicant to determine the impacts of the proposed development;
28.6.3.1.2 The effects of the projected impacts of the proposed development; and

28.6.3.1.3 Recommended conditions or remedial measures to accommodate or mitigate the expected impacts of the proposed development.

Failure of Boards or Departments to make recommendations within twenty-one (21) days of the referral of the application shall be deemed to be lack of opposition.

28.6.3.2 Timeline for decision

The Planning Board shall take final action within ninety (90) days from receipt of a complete application to the Planning Board. The Planning Board's final action in writing shall consist of either:

28.6.3.2.1 Approval of the site plan based on a determination that the proposed project is in compliance with the standards set forth in this bylaw;

28.6.3.2.2 Disapproval of the site plan based on a determination that the proposed project does not meet the standards for review set forth in this bylaw; or

28.6.3.2.3 Approval of the project subject to any conditions, modifications and restrictions which will ensure that the project meets the standards set forth in this bylaw.

28.6.4 General Required Documents

The Administrative Review application shall be accompanied by five (5) copies of deliverables including the following:

28.6.4.1 A site plan showing:

28.6.4.1.1 Property lines and physical dimensions of the subject property with contour intervals of no more than 10 feet:

28.6.4.1.2 Location, dimensions, and types of existing major structures on the property:

28.6.4.1.3 Location of the proposed solar system structures, foundations, and associated equipment:

28.6.4.1.4 The right-of-way of any public road that is contiguous with the property;

28.6.4.1.5 Any overhead or underground utilities;

28.6.4.1.6 Location and approximate height of tree cover;

28.6.4.1.7 Property lines of adjacent parcels within 300 feet:

28.6.4.1.8 At least one (1) color photography of the existing site, measuring eight (8) inches by ten (10) inches.

28.6.4.2 Solar system technical specifications, including manufacturer and model:

28.6.4.3 One or three line electrical diagram showing associated components, and electrical interconnection methods, with all NEC compliant disconnects and overcurrent devices:

28.6.4.4 Contact information and signature of the project proponent, as well as all co-proponents, if any, and all property owners:

28.6.4.5 Contact information and signature of agents representing the project proponent, if any:

28.6.4.6 Contact information for the person(s) responsible for public inquiries throughout the life of the system:

28.6.4.7 A plan for maintenance of the solar energy system, including maintenance of spill containment system per §28.5.4.3.7:

28.6.4.8 Solar energy system specifications of cooling and fire protection per §28.5.4.3.2, §28.5.4.3.11, and 28.5.4.3.13:

28.6.4.9 Tower foundation blueprints or drawings signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts:

28.6.4.10 Electrical schematic:

28.6.4.11 Analysis and design documents, completed by a structural engineer registered to practice in the Commonwealth of Massachusetts, demonstrating that the proposed building is structurally sufficient to support the permanent installation of any proposed building-integrated solar energy system:

28.6.4.12 Elevation drawings of the building with the proposed building-integrated solar energy system installed, viewed from north, south, east, and west:

28.6.4.13 Building schematic detailing point(s) of connection and associated supports for the building-integrated solar energy system:

28.6.4.14 Schematic of attachment method for connecting the building-integrated solar energy system to the building:

28.6.4.15 Documentation that shows the owner of the solar energy systems has Liability Insurance per § 28.6.5 of this bylaw:

28.6.4.16 Documentation that shows the owner of the solar energy system has Site Control per § 28.6.6 of this bylaw:

28.6.4.17 Documentation that shows the owner of the solar energy system has notified the electric utility of this installation per § 28.6.7 of this bylaw. Off-grid solar energy systems are exempt from this requirement.

28.6.5 Proof of Liability Insurance

The applicant shall be required to provide evidence of liability insurance in an amount, and for a duration sufficient to cover loss or damage to persons and property caused by the failure of the system.

28.6.6 Site Control

At the time of its application, the applicant shall submit documentation of actual or prospective control of the project site sufficient to allow for installation and use of the proposed system. Documentation shall also include proof of control over setback areas and access roads, if required. Control shall mean the legal authority to prevent the use or construction of any structure for human habitation within the setback areas.

28.6.7 Utility Notification

No solar energy system shall be installed until evidence has been given that the utility company has been informed of the customer's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

28.6.8 Land Clearing, Soil Erosion and Habitat Impacts

Clearing of natural vegetation shall be limited to that which is necessary for the construction, operation and maintenance of the solar system and that which is otherwise prescribed by applicable bylaws and regulations. All solar energy systems shall be installed with adequate ground clearance such that maintenance of the ground below the panels may be maintained by mechanical means and/or animals.

28.6.9 Soil Permeability

All land associated with Solar Energy System shall be natural vegetation. No system shall use impervious surfaces in its foundations, footings or paths between solar panels. Exceptions are concrete slabs on grade to support electrical switchgear and enclosures.

28.6.10 Wildlife Corridors

Solar energy systems shall be designed and constructed to optimize the maintenance of wildlife corridors.

28.6.11 Setbacks

Solar energy systems shall be set back a distance of at least 50 feet from the nearest property line and private or public way except along Route 47, a designated scenic byway, where systems shall be set back a distance of at least 100 feet from the public way or behind the principal structure thereon, whichever is less. The Planning Board may reduce the minimum setback distance as appropriate, based on site-specific considerations, or written consent of the affected abutter(s), if the project satisfies all other criteria for the granting of site plan approval under the provisions of this section. Large Capacity Energy Storage Systems shall also meet setback per § 28.5.4.3.14 On-Site Solar Energy Systems shall be located in back yards and side yards, and not in front yards or the required front yard setback.

28.6.12 Parking

Reasonable on-site parking is required for vehicles that will service solar energy systems. However, the Parking Requirements under § 5.4 of the Town of Hadley Zoning Bylaw do not apply to solar energy systems.

## 28.7 Solar Energy System Special Permit Requirements

For § 28.7: Solar energy systems shall include: Large scale solar systems and Large Capacity Energy Storage Systems.

The construction of a Large-Scale, Ground Mounted Solar Energy System, and if associated Large Capacity Energy Storage System, intended for off-site generation shall require a special permit as set forth in § 28.5.3.2 of this bylaw, and shall comply with all requirements set forth herein.

28.7.1 Lighting
Lighting of parts of the solar energy system shall be limited to that required for safety and operational purposes, and shall be shielded from abutting properties.

28.7.2 Signage and Advertising
Signs on the solar energy system shall comply with the requirements of the Town's sign regulations, shall not be used for displaying advertising of any kind, and shall be limited to:

28.7.2.1 Maximum of (3) signs shall be allowed providing the information as detailed in § 28.7.2 and no sign shall exceed 2 square feet in size; **(Amend 10/25/2012)**

28.7.2.2 Those necessary to identify the owner, provide a 24-hour emergency contact phone number;

28.7.2.3 Educational signs providing information about the system and the benefits of renewable energy;

28.7.2.4 Any signs as may be required by government agencies may be exempt from this sign section.

28.7.3 Utility Connections
Reasonable efforts shall be made to locate all utility connections from the solar energy system 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.

28.7.4 Appurtenant Structures
All appurtenant structures to such solar energy systems shall be subject to the same regulations concerning the bulk and height of structures and determining yard sizes, lot area, setbacks, open space, and building coverage requirements as may apply in the underlying zoning district. Whenever reasonable, structures should be screened from view by vegetation.

28.7.5 Emergency Services
The applicant shall provide a copy of the project summary, electrical schematic, and site plan to the local emergency services providers, as designated by the Planning Board. Upon request the applicant shall cooperate with local emergency services in developing an emergency response plan. All means of disconnecting the solar energy system shall be clearly marked. The applicant or system owner shall maintain a phone number and identify a responsible person for the public to contact with inquiries and complaints throughout the life of the project.

28.7.6 Unauthorized Access
The solar energy system shall be designed to prevent unauthorized access. Electrical equipment shall be locked where possible.

28.7.7 Operation & Maintenance Plan
The applicant shall submit a plan for maintenance of access roads and storm water controls, as well as general procedures for operational maintenance of the solar energy system.

28.7.8 Visualizations
The Planning Board may select up to four sight lines, including from the nearest building with a view of the solar system, for pre- and post-construction view representations. Sites for the view representations shall be selected from populated areas proximate to the proposed solar energy system. View representations shall have the following characteristics:

28.7.8.1 View representations shall be in color and shall include actual pre-construction photographs and accurate post-construction simulations of the height and

breadth of the solar system (e.g. superimpositions of the solar system onto photographs of existing views:

28.7.8.2 All view representations will include existing, or proposed, buildings or tree coverage:

28.7.8.3 Include description of the technical procedures followed in producing the visualization (distances, angles, lens, etc.).

28.7.9 Landscape Plan

A plan indicating all proposed changes to the landscape of the site, including temporary or permanent roads or driveways, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures. Lighting shall be designed to minimize glare on abutting properties and be directed downward with full cut-off fixtures to reduce light pollution.

## 28.8 Commercial Site Plan Approval

Except where they are inconsistent with the provisions of this bylaw, the requirements of the Commercial Site Plan Approval, as defined in Section VIII of the Town of Hadley Zoning Bylaw, also apply to Large-Scale, Ground-Mounted Solar Energy Systems and Large Capacity Energy Storage Systems in all districts allowed under this bylaw.