

Article 23
Battery Energy Storage Systems (BESS)

SECTION

- (1) Purpose
- (2) Definitions
- (3) Applicability
- (4) General Requirements
- (5) Permitting Requirements for Tier 1 Battery Energy Storage Systems
- (6) Permitting Requirements for Tier 2 and Tier 3 Battery Energy Storage Systems
- (7) Safety Standards
- (8) Emergency Operation Plan
- (9) Ownership Changes
- (10) Abandonment
- (11) Severability
- (12) Financial Surety
- (13) Annual Reporting Requirement

1. **Purpose.** The purpose of this Section is to advance and protect the public health, safety, welfare, and quality of life by creating regulations for the installation and use of battery energy storage systems, with the following objectives:
 - 1.1. To provide a regulatory scheme for the location, construction and operation of battery energy storage systems consistent with best practices and safety protocols;
 - 1.2. To ensure compatible land uses in the vicinity of the areas affected by battery energy storage systems and to mitigate any potential impacts on abutting and nearby properties; and
 - 1.3. To mitigate the impacts of battery energy storage systems on environmental resources such as agricultural lands, forests, wildlife, wetlands, water supply, and other natural resources.

This Section shall be construed to be consistent with state law, including but not limited to the provisions of General Laws chapter 40A, section 3, and state regulations, including but not limited to the provisions of the State Building Code, State Fire Code, and State Electrical Code. In the event of any conflict between the provisions of this section and the provisions of state law or regulations, the state law and regulations shall prevail.

2. **Applicability**
 - 2.1. The requirements of this bylaw shall apply to battery energy storage systems permitted, installed, decommissioned or modified after the effective date of this bylaw, excluding general maintenance and repair. BESS subject to this bylaw are only those that exceed the following capacities:
 - Lead-acid with a capacity of greater than 70 kWh
 - Nickel with a capacity of greater than 70 kWh
 - Lithium-ion with a capacity of greater than 30 kWh
 - Sodium nickel chloride with a capacity of greater than 20 kWh
 - Flow with a capacity of greater than 20 kWh

Article 23 Battery Energy Storage Systems (BESS)

- Other battery technologies with a capacity of greater than 10 kWh BESS that do not meet the threshold capacities above are not subject to this bylaw and are allowed by right in all zoning districts.
- 2.2. A battery energy storage system that is subject to this bylaw is classified as a Tier 1, Tier 2 or Tier 3 Battery Energy Storage System as follows:
 - 2.2.1. Tier 1 Battery Energy Storage Systems have an aggregate energy capacity less than 0.5MWh and, if in a room or enclosed area, consist of only a single energy storage system technology.
 - 2.2.2. Tier 2 Battery Energy Storage Systems have an aggregate energy capacity equal to or greater than 0.5 MWh but less than 1MWh or are comprised of more than one storage battery technology in a room or enclosed area.
 - 2.2.3. Tier 3 Battery Energy Storage Systems have an aggregate energy capacity greater than 1MWh or are comprised of more than one storage battery technology in a room or enclosed area.
- 3. **General Requirements**
 - 3.1. All permits required by state codes, including but not limited to building permit, an electrical permit, and a fire department permit shall be required for installation of all battery energy storage systems.
 - 3.2. All battery energy storage systems, all Dedicated Use Buildings, and all other buildings or structures that (a) contain or are otherwise associated with a battery energy storage system and (b) subject to the requirements of the State Building Code, shall be designed, erected, and installed in accordance with all applicable provisions of the State Building Code 780 CMR, State Fire Code 527 CMR 1.00, and State Electrical Code 527 CMR 12.00. All battery energy storage systems shall comply with NFPA 855, Standard for the Installation of Stationary Energy Storage Systems.
 - 3.3. Energy storage system capacities, including array capacity and separation, are limited to the thresholds contained in NFPA 855.
 - 3.4. All access roads should be at least 12 'wide, constructed of an all-weather surface, and be cleared of obstructions on both sides by at least 2'. A 16 'vertical clearance should be maintained for large vehicle access. Access gates erected onsite should be at least 12 'wide, accessible via Hubbardston Fire Department lock. Access to all four sides of each enclosure should be provided where practical.
- 4. **Permitting Requirements for Tier 1 Battery Energy Storage Systems** Tier 1 Battery Energy Storage Systems are allowed by right in all zoning districts, subject to applicable provisions of the State Building Code, Electrical Code, Fire Code, and other applicable codes, and are subject to minor site plan review and such provisions of this bylaw as are applicable.
- 5. **Permitting Requirements for Tier 2 and Tier 3 Battery Energy Storage Systems** Tier 2 and Tier 3 Battery Energy Storage Systems are subject to this bylaw and require the issuance of a special permit in those zoning districts identified in Use Regulations Schedule in Article 4, and are subject to Site Plan Review pursuant to Article 9. Tier 1 and Tier 2 BESS shall comply with the applicable requirements set forth in this bylaw, as well as this Zoning Bylaw, and the Hubbardston General Bylaws. The following requirements apply to all Tier 1, Tier 2 and Tier 3 BESS subject to this bylaw, except where it is specifically noted to apply only to Tier 2 and Tier 3 BESS:
 - 5.1. Utility Connections. All utility connections including associated equipment and utility equipment shall be placed underground or pad mounted, unless soil conditions, shape, or

Article 23 Battery Energy Storage Systems (BESS)

topography of the site as verified by the Town's Consulting Engineer dictate above ground installation. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

- 5.2. Signage. Signage shall comply with the requirements of Article 17 of this Zoning Bylaw and the following additional requirements; in the event of a conflict between the provisions of Article 17 and this section, the requirements of this section shall prevail.
 - 5.2.1. The signage shall be in compliance with ANSI Z535 and shall include the type of technology associated with the battery energy storage systems, any special hazards associated, the type of suppression system installed in the area of battery energy storage systems, and 24-hour emergency contact information, including reach-back phone number.
 - 5.2.2. As required by the NEC, NFPA 70 (2020) Article 705.10 and Article 712.10 disconnect and other emergency shutoff information shall be clearly displayed on a light reflective surface. A clearly visible warning sign concerning voltage shall be placed at the base of all pad-mounted transformers and substations. Signage compliant with ANSI Z535 shall be provided on doors to rooms, entrances to BESS facilities, and on BESS outdoor containers.
- 5.3. Lighting. Lighting of the battery energy storage systems shall be limited to that minimally required for safety, security and operational purposes and shall be consistent with local, state and federal law. Lighting of other parts of the installation, such as appurtenant structures, shall be limited to that required for safety and operational purposes, shall be shielded to eliminate glare from abutting properties, shall be directed downward, and shall incorporate cut-off fixtures to reduce light pollution. All lighting shall comply with International Dark Sky Standards FSA Certification Requirements.
- 5.4. Vegetation and tree-cutting. Areas within thirty feet on each side of Tier 2 or Tier 3 Battery Energy Storage Systems shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted provided that they do not form a means of readily transmitting fire. Removal of trees should be minimized to the extent possible.
- 5.5. Setbacks. Tier 1, 2 and 3 Battery Energy Storage Systems shall be set back a minimum of 50 feet from all side, rear, and front lot lines. Tier 2 and Tier 3 BESS shall be set back a minimum of 200 feet from side, rear, and front lot lines that abut or are across a street from residential zoning districts or existing single, two-family, or multi-family structures. The minimum setback areas shall include a vegetated Buffer/Screening Area at least twenty feet wide along all property lines. Access drives and parking are allowed in the setback areas, but shall not intrude into the required Buffer Areas except where necessary to provide access or egress to the property. In addition, a minimum of 10 feet must be maintained, if within a building, between BESS components and all stored combustible materials, hazardous materials, high-piled storage, infrastructure. Other Setbacks: Battery Energy Storage Systems shall be sited at least one hundred fifty feet (150') from abutting properties' wells and septic systems.
- 5.6. Dimensional. Tier 2 and Tier 3 Battery Energy Storage Systems shall comply with the dimensional limitations for principal structures of the underlying zoning district as provided in Section 2300 of this Zoning Bylaw, unless otherwise provided in this bylaw.
- 5.7. Fencing Requirements. Tier 2 and Tier 3 Battery Energy Storage Systems, including all mechanical equipment, shall be enclosed by a minimum eight-foot-high fence with a self-locking gate to prevent unauthorized access unless housed in a dedicated-use building. Security barriers, fences, landscaping, and other enclosures must not inhibit required air flow to or exhaust from the BESS and components. Electrical equipment greater than 1,000V require a separate and

Article 23 Battery Energy Storage Systems (BESS)

additional means to restrict access. NFPA 855 requires specialty safety systems to be provided based on the BESS chemistry and installed location.

- 5.8. Screening and Visibility.** Tier 2 and Tier 3 Battery Energy Storage Systems shall have views minimized from adjacent properties to the extent reasonably practicable using architectural features, earth berms, landscaping, or other screening methods that will harmonize with the character of the property and surrounding area. Such features may not inhibit required air flow to or exhaust from the BESS and components and must comply with the setbacks established in paragraph 6 above.
- 5.9. Noise:** An Acoustic Study shall be provided in order to ensure that any increase in sound complies with Mass DEP requirement limiting any increase in ambient noise to be less than 10 decibels at the property line.
- 5.10. Mitigation for Loss of Carbon Sequestration and Forest Habitat.** If land that is Forestland or has been Forestland within one year immediately preceding the filing an application to install a Tier 2 or Tier 3 BESS, the plans shall designate thereon an area of unprotected (meaning, not subject to G.L. c. 184, sections 31-33 at time of application) land on the same lot and of a size equal to two times the total area of Forestland that will be eliminated, cut, destroyed, or otherwise disturbed by such installation. Such designated land shall remain in substantially its natural condition without alteration, including prohibition of commercial forestry or 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.
- 5.11. Mitigation for Disruption of Trail Networks.** If existing trail networks, old roads, or woods or cart roads are disrupted by the location of a Tier 2 or Tier 3 BESS, the plans shall show alternative trail alignments to be constructed by the applicant, although no rights of public access may be established hereunder.
- 5.12. Mitigation for Disruption of Historic Resources and Properties.** Historic resources, structures 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 for a Tier 2 or Tier 3 BESS. 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 application. A suitable buffer area as determined by the PEDB shall be established on all sides of each historic resource.
- 5.13. Batteries.** Failed battery cells and modules shall not be stored on the site and shall be removed no later than 30 days after deemed failed by the BESS operator or cell/module manufacturer. The operator shall notify the Hubbardston Fire Department in advance if the type of battery or batteries used onsite is to be changed.
- 5.14. Decommissioning Plan.** The applicant shall submit with its application a decommissioning plan for Tier 2 or Tier 3 BESS to be implemented upon abandonment and/or in conjunction with removal of the facility. The owner or operator of the BESS shall notify the Building Commissioner in writing at least twenty days prior to when a Tier 2 BESS or Tier 3 will be decommissioned. Decommissioning of an abandoned or discontinued Tier 2 BESS or Tier 3 shall be completed within six months after the facility ceases operation. The decommissioning plan shall include:
- 5.14.1.** A narrative description of the activities to be accomplished, including who will perform that activity and at what point in time, for complete physical removal of all battery energy

Article 23 Battery Energy Storage Systems (BESS)

- 6.5. Safety data sheet (SDS) that address response safety concerns and extinguishment.
- 6.6. Commissioning Plan. The system installer or commissioning agent shall prepare a commissioning plan prior to the start of commissioning. Such plan shall be compliant with NFPA 855 and document and verify that the system and its associated controls and safety systems are in proper working condition per requirements set forth in applicable state codes. Where commissioning is required by the Building Code, battery energy storage system commissioning shall be conducted by a Massachusetts Licensed Professional Engineer after the installation is complete but prior to final inspection and approval. A corrective action plan shall be developed for any open or continuing issues that are allowed to be continued after commissioning. A report describing the results of the system commissioning and including the results of the initial acceptance testing required by applicable state codes shall be provided to Zoning Enforcement Officer and the Hubbardston Fire Department prior to final inspection and approval and maintained at an approved on-site location.
- 6.7. Fire Safety Compliance Plan. Such plan shall document and verify that the system and its associated controls and safety systems are in compliance with state codes, including documentation that BESS components comply with the safety standards set forth in subsection 6.
- 6.8. Operation and Maintenance Manual. Such plan shall describe continuing battery energy storage system maintenance and property upkeep, as well as design, construction, installation, testing and commissioning information and shall meet all requirements set forth state codes and NFPA 855. Maintenance provisions will be driven by manufacturer requirements for the specific listed system.
- 6.9. Depending on the location of the BESS in relation to and its interaction with the electrical grid, interconnection will be completed per 527 CMR 12.00. System interconnections into utility grids shall be in accordance with NFPA 855. An accessible disconnect is required per 527 CMR 12.00.
- 6.10. Prior to the issuance of the building permit, engineering documents must be signed and sealed by a Massachusetts Licensed Professional Engineer.
- 6.11. Emergency Operations Plan. An Emergency Operations Plan compliant with NFPA 855 is required. A copy of the Emergency Operations Plan approved by the Hubbardston Fire Department shall be given to the system owner, the local fire department, and local fire code official. For so long as the BESS is operational, the operator shall provide the Fire Department, Police Department, Building Commissioner, and Town Manager's office with contact information for personnel that can be reached 24 hours per day every day, and this contact information shall be updated by the operator whenever there is a change in the information. The operator shall also be required to have an official representative be present onsite not later than two hours after notification by the Fire Chief, Police Chief, or their designee. A permanent copy shall also be placed in an approved location to be accessible to facility personnel, fire code officials, and emergency responders. The emergency operations plan shall include the following information:
 - 6.11.1. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.
 - 6.11.2. Procedures for inspection and testing of associated alarms, interlocks, and controls, including time intervals for inspection and testing.
 - 6.11.3. Procedures to be followed in response to notifications from the Battery Energy Storage Management System, when provided, that could signify potentially dangerous conditions,

Article 23 Battery Energy Storage Systems (BESS)

- 8.4. Abandonment.** The battery energy storage system shall be considered abandoned when it ceases to operate consistently for more than 90 days. If the owner and/or operator fails to comply with decommissioning upon any abandonment, the Town may, after compliance with any applicable state and federal constitutional requirements, enter the property and utilize the available bond and/or security for the removal of a Tier 2 BESS or Tier 3 and restoration of the site in accordance with the decommissioning plan.
9. **Severability.** Should any provision of this bylaw be determined to be void, invalid, unenforceable or illegal for whatever reason, such provision(s) shall be null and void; provided, however, that the remaining provisions of this bylaw shall be unaffected thereby and shall continue to be valid and enforceable.
10. **Financial Surety.**
- 10.1. **Surety Requirement.** Proponents of tier 2 or Tier 3 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 one hundred twenty-five (125%) percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the project proponent and reviewed and approved by the Planning Board.
- 10.2. **Payment of Surety.** This surety will be due and payable prior to the issuance of the building permit. Proof of payment in the form of a receipt from the Town Treasurer will be shown to the Building Inspector before the permits are issued. Such surety will not be required for municipal or state-owned facilities.
- 10.3. **Removal Cost Estimate and Access.** 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.
11. **Annual Reporting Requirement.** Once per year, the Owner or Operator of the tier 2 or tier 3 BESS installation must provide a report to the Planning Board
- 11.1. The report must contain
- 11.1.1. total amount of electricity acquired, stored and distributed during the past calendar year;
- 11.1.2. major maintenance performed;
- 11.1.3. planned or actual major system modifications;
- 11.1.4. change of ownership; and
- 11.1.5. changes to surety amounts.
- 11.2. The annual report must also include a professional safety inspection that is signed and certified by a Massachusetts Licensed Professional Engineer or Licensed Electrician.
- 11.3. **Filing Requirement.** Reports are due to the Hubbardston Planning Board by the last day of January of each calendar year.
- 11.4. **Penalty for Failure to File.** Failure to provide timely annual report will prompt the Hubbardston Planning Board to invoke a public hearing on the GS-BESS operation that fails to provide a report. The purpose of the public hearing is to gather the required reporting information, and review if cause exists to revoke the Certificate to Generate. Costs incurred to

Article 23 Battery Energy Storage Systems (BESS)

publish and advertise the public hearing are borne by the Owner of the GS-BESS. Energy Storage System installation.