



**FOOTHILLS HEALTH DISTRICT**  
**Goshen, Westhampton, Williamsburg & Whatley**  
P.O. Box 775  
Williamsburg, MA 01096  
(413) 268-8404  
foothills@burgy.org



## **Battery Energy Storage System Regulations**

Foothills Health District

3/5/2026

DRAFT

# FHD Draft BESS Regulation

## Planning Board Synopsis:

These regulations are intended to ensure that Battery Energy Storage Systems (BESS) are safely sited and operated due to risks such as fire (including thermal runaway), hazardous materials, groundwater contamination, and limited local emergency response capacity.

From a Planning Board perspective, the primary involvement is in **site design and access**. The regulations require that facilities be laid out to support effective emergency response, including access roads that are at least 12 feet wide, built for all-weather use, and provide adequate vertical clearance for fire vehicles. Site design must also allow emergency vehicles to reach all sides of the installation where feasible, and include properly sized gates with fire department access.

In addition, the Planning Board should consider whether existing or proposed roads can realistically accommodate large emergency vehicles, especially in areas with narrow, rural, or constrained roadway conditions. Overall, the Planning Board's role is to ensure that the physical layout and access to the site support safe and effective emergency response, while the Board of Health focuses on broader health, environmental, and operational risks.

For further information... Please see *Authority and Findings and Purpose*.

## Board of Health Synopsis

Please see *Authority and Findings and Purpose*.

## A. AUTHORITY

These regulations shall be effective on and after August 15, 2024, for all existing and future Battery Energy Storage System (BESS) installations. The Board of Health adopts these regulations under the authority of MGL Ch. 43B (the Home Rule statute), and MGL Ch. 111, Sec. 31, which provides that "Boards of health may make reasonable health regulations." These regulations are also adopted pursuant to MGL Ch.111, Sec.127A, which states in part "This section may not be deemed to limit the right of any board of health to adopt such rules and regulations as, in its opinion, may be necessary for the particular locality under its jurisdiction; provided, such rules and regulations do not conflict with the laws of the commonwealth or the provisions of the code."

The Board of Health also notes that the Massachusetts Legal Handbook for Local Boards of Health, 3rd Edition (2022) states on page 37 that "Regulations may be prospective in nature. That is, boards of health may require precautions to avoid potential dangers as well as to restrict conditions actually harmful." City

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of *Waltham v. Mignosa*, 327 Mass. 250, 251-52 (1951); *Commonwealth v. E.E. Wilson Co.*, 241 Mass. 406, 410, (1922); *Town of Holden v. Holden Suburban Supply Co., Inc.*, 343 Mass. 187, 191 (1961).

M.G.L. c. 111, §§ 143 – 150 gives boards of health the legal authority to regulate noisome trades. A noisome trade is defined as a “trade or employment which may result in a nuisance or be harmful to the inhabitants, injurious to their estates, (or) dangerous to the public health, or may be attended by noisome and injurious odors . . .” G.L. c. 111, § 143 (Hugo & Sbarra, 2025)

Under Massachusetts law, because BESS facilities may result in a nuisance, be harmful to the inhabitants, injurious to their estates, and/or dangerous to public health, a local board of health must be a part of the process from the outset when considering a proposal to allow the siting of such a facility. Maintaining and operating a BESS facility generates constant 24/7 sound and presents a risk of toxic exposure in the event of a fire, presenting risks to the public health of abutters and nearby households. MAHB respectfully submits that a BESS facility would constitute a noisome trade (Hugo & Sbarra, 2025).

Boards of health are authorized by G.L. c. 111, § 122 to examine all nuisances which, in their opinion, may be injurious to the public health, and shall destroy, remove or prevent the same. They shall make regulations for public health and safety, violations of which shall be punished by a fine not exceeding one thousand dollars.

## **B. FINDINGS AND PURPOSE**

Foothills Health District Board of Health regulations do not currently address BESS facilities. Based on review of current information available to the public, the Board finds that such facilities present inherent dangers, including contamination of water and soil, hazardous materials, off-gassing, damage to roads, thermal runaway events, and pollution from noise and light.

After consideration of the risks posed by such facilities, the Board of Health has determined that regulation of such facilities is necessary to protect the health, safety, well-being and quality of life of our community from possible harm resulting from the siting and/or operation of BESS installations.

In particular, most of the towns have a limited emergency response capacity and do not have the resources, manpower, equipment, or training to effectively mitigate and manage an incident of the magnitude of thermal runaway or other substantial hazard incident or accident associated with operation of a BESS installation.

A predominant concern is the Town's limited water supply; there is no municipal water supply. All water needs are met by the use of private wells, which are subject to contamination from chemicals in runoff water. Such wells cannot possibly provide the water needed in the event of a thermal runaway; water would need to be pumped and transported from other locations, resulting in a delayed and limited response.

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In addition, as climate change evolves and the threat of droughts increases, the risks to quantity and quality of groundwater and subsurface sources of water, including aquifers identified as vital future municipal water supplies, will only increase. Therefore, these water sources must be vigilantly protected.

Local boards of health are also concerned with the effects of a runaway fire event. When a lithium-ion battery catches fire, it releases a complex mixture of toxic and hazardous substances in the smoke. The exact composition can vary depending on the battery's chemistry, size, and how it was damaged. Batteries in BESS facilities are of the largest size and the risks are at the outer edge of the extremes (Hugo & Sbarra, 2025).

The toxic substances of concern include hydrogen fluoride (HF), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), hydrogen cyanide (HCN), sulfur dioxide (SO<sub>2</sub>), volatile organic compounds, particulate matter, and heavy metals including cobalt, nickel, manganese, lithium compounds, and aluminum oxide. The health hazards from these can include respiratory damage, chemical burns, organ damage, and death in extreme cases (Hugo & Sbarra, 2025)

Given the substantial risks that a BESS installation would present for the Town, and for the purpose of guarding against those risks, all BESS installations must be carefully sited and constructed, and operated in such a fashion as to minimize the risk of harm from the inherent dangers of such facilities.

These regulations are adopted for the purpose of providing for siting and construction, and operation that will serve the purpose of minimizing that risk of harm.

## **C. DEFINITIONS**

For the purposes of these regulations, the following definitions shall apply:

**Battery Energy Storage System (BESS):** An Energy Storage System that uses rechargeable batteries, which utilize reversible electrochemical processes to store electrical energy by means of any battery chemistry, including lithium-ion, lithium iron phosphate, sodium ion and others.

- A BESS is a stationary installation that may receive electrical energy to be stored directly from a generating facility or from the electrical grid, or both, and may dispatch energy to the grid, or to support a residential, commercial, or industrial purpose without using the grid, or both.
- A BESS shall include the rechargeable batteries themselves and any appurtenant or related equipment or structures; such equipment shall include, but is not limited to, battery modules, inverters, transformers, and wiring, switches or any other equipment needed to receive or dispatch energy, as well as equipment to support temperature, fire suppression or status monitoring and associated alarms; and said structures shall include, but are not limited to, equipment enclosures, supporting slabs or foundations, fences, gates, and structures providing physical or operational support or impacts mitigation.

**Board of Health:** Shall refer to the Board of Health of each respected town with the Foothills Health District and its designated health agents, the Foothills Health District.

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**Energy Storage System:** Technology that is capable of absorbing energy, storing it for a period of time and thereafter dispatching the energy (see M.G.L. c. 164, §1.)

**Hazardous Materials:** Any substance or mixture of physical, chemical, or infectious characteristics posing a significant, actual or potential hazard to water supplies or to human health if such substance or mixture were discharged to land, water, or air of the Towns of the Foothills Health District.

**Noisome Trades:** A trade or employment which may be harmful to the inhabitants of the Towns of the Foothills Health District or injurious to their estates, dangerous to the public health, or may be attended by injurious odors.

**Nuisance:** An act or failure to perform a legal duty which causes or permits a condition to exist which injures or endangers the public health, safety or welfare of the inhabitants of the Towns of the Foothills Health District.

### **D. GENERAL REQUIREMENTS**

1. All BESS installations shall require a Permit from the Board of Health for construction and operation.
2. All permits required by state and local codes, including but not limited to a building permit, an electrical permit, and a fire department permit shall be required for installation of all battery storage systems.
3. The construction and operation of all BESS installations, regardless of power rating or storage capacity, shall comply with all applicable local, state, and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements.
  - a. All BESS installations shall comply with all Board of Health regulations. All BESS facilities, including buildings and fixtures forming a part thereof, shall be constructed in accordance with all applicable building codes, including the Massachusetts State Building Code, 780 CMR.
  - b. In addition, all BESS facilities shall meet the standards of the State Fire Code, 527 CMR 1.00, and State Electrical Code, 527 CMR 12.00.  
All BESS installations shall comply with the National Fire Protection Association (NFPA) Standard for the Installation of Stationary Energy Storage Systems - NFPA 855.
  - c. BESS installation storage capacities, including array capacity and separation, shall be limited to the thresholds in NFPA 855, including UL9540 and any successor or revision to these standards.
4. To provide for emergency vehicle access and egress, all access roads shall be at least 12 feet wide, constructed of an all-weather surface, and be cleared of obstruction on both sides by at least two feet. A 16-foot vertical clearance shall be maintained for large vehicle access.
  - a. Access gates erected on the site of the BESS installation shall be at least 12 feet wide to enable the access of emergency vehicles, and shall be accessible by the local Fire Department via lockbox.

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- b. Access shall be provided to all four sides of each installation component enclosure to the greatest extent practical.
5. Containment measures BESS shall be designed in accordance with the specific battery chemistry, system configuration, and associated failure modes to prevent the release of hazardous materials and protect soil and groundwater resources.
  - a. The applicant shall submit a containment design and supporting documentation prepared and certified by a qualified third-party expert with demonstrated experience in BESS technology. Such documentation shall evaluate:
    - i. Potential leakage,
    - ii. Thermal events,
    - iii. Fire suppression byproducts,
    - iv. and demonstrate that the proposed containment system is adequate under worst-case conditions.
  - b. All containment systems shall be subject to independent expert review in accordance with Section F. The Board of Health shall rely on said expert review in determining compliance with this regulation and may retain an outside consultant at the applicant's expense.
6. Lighting of the BESS installation shall be limited to that minimally required for safety, security, and operational purposes.
  - a. Lighting of appurtenant equipment and structures shall be limited to that required for safety and operational procedures, shall be shielded to eliminate glare onto abutting properties, shall be directed downward, and shall incorporate cut-off fixtures to reduce light pollution.
7. Noise barriers shall be installed and placed around the site so that broadband sound levels from the BESS of more than 10 dB above ambient or a "pure tone" condition are not produced, in compliance with Massachusetts Department of Environmental Protection (DEP) standards.
8. To promote protection of water resources, all BESS installations shall be sited at least 150 feet from any water supply well and any septic system, and a minimum of 50 feet from each property line of the site.
9. Signage shall be in compliance with the standards of the American National Standards Institute and shall identify the type of technology associated with the BESS, any special hazards associated with the BESS, the type of fire/hazard suppression system installed in the area of the BESS, and 24-hour emergency contact information, including reach-back phone number.
10. All fencing of any type shall be constructed of materials with minimal amounts of PFAS/PFOS, and consistent with findings and determinations in any required Hazardous Materials analysis.

## **E. PERMIT REQUIREMENTS**

### **1. Permit Term and Renewal**

1. All BESS Permits will be valid for one calendar year and shall be run through to December 31 of the year issued.

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2. The permit shall be renewed annually, and a renewal fee, as specified in the Board of Health Fee Schedule shall be required each year.
3. The renewal fee must be submitted to the Board at least 30 days prior, but not more than 90 days prior to expiration.
4. Failure to renew the permit within 30 days of expiration may result in revocation of the permit to operate.
5. The Board will maintain a fee schedule in accordance with MGL Chapter 40, Section 22F, which may be adjusted from time to time, at any regularly-called Board of Health meeting.

## **2. Application Requirements**

1. Any application to the Board of Health for a Permit to construct or operate a BESS shall include the following:
  - a. Name of applicant.
  - b. Address of applicant.
  - c. A certified plan, prepared and stamped by a qualified professional, demonstrating that all requirements set forth in Section D have been met.
  - d. Location of the proposed BESS installation.
  - e. Power rating and storage capacity of the proposed BESS installation.
  - f. A training plan, approved by the local Fire Chief, for all specialized training required to respond to any emergency event involving the BESS installation. It shall include an emergency response guide with specific protocols and procedures for local emergency response personnel for all known hazards. A training exercise shall be conducted on at least an annual basis.
  - g. An Emergency Operations Plan (EOP) as required by National Fire Protection Association (NFPA) standards in effect at the time of construction. The EOP shall include:
    - i. Procedures for safe shutdown, de-energizing, or isolation of equipment 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.
    - ii. Procedures for inspection and testing of associated alarms, interlocks, and controls, and a timeline for such inspections.
    - iii. Procedures to be followed when responding to notifications from the BESS management system signifying potentially dangerous conditions and notification to the Fire Department in the event of a system failure.
    - iv. Emergency procedures to be followed in the presence of potentially dangerous conditions such as fire, explosion, liquid or vapor release, or damage to the installation.
    - v. An emergency evacuation plan tailored to the towns of the Foothills Health District and feasible in consideration of the town's variable road conditions.
  - h. A Hazard Mitigation Analysis (HMA) as required by the applicable NFPA standards in effect at the time of construction.

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- i. A description of battery components and specific chemical and physical makeup and composition of all materials operation, including fencing.
- j. An air dispersion model and analysis to determine and document the extent and resulting effects of a thermal runaway event affecting the battery cells proposed for use in the BESS installation.
- k. An analysis of the manpower and equipment needs for an emergency response to any thermal runaway event affecting the cells proposed for use in the BESS installation. In addition, the applicant shall pay for analyses by outside consultants as may be requested by the Board of Health. (See section F, below). Results of these analyses may be used to establish permit conditions or limitations and/or operation limitations. The subjects of the analyses may include but are not limited to:
  - i. Hazardous Materials Analysis, including testing for PFAS/PFOS in construction materials, and any known or potential byproducts of a thermal event.
  - ii. Hydro/geological Analysis, including baseline testing of wells within a specified distance from the proposed installation location, based on the particulars of the application.
  - iii. On-site Sound Analysis to determine compliance with DEP noise limits during operation of the BESS.
  - iv. Vibration Analysis and Monitoring Program Survey of existing structures within 250 feet of blast areas.
  - v. Air Quality Analysis.

### **3. Groundwater Discharge**

1. Any discharge of pumped groundwater off-site should be performed in accordance with all federal, state, and local regulations. Chemical testing by a state-certified laboratory shall be conducted, and lab reports reviewed by the Board of Health prior to disposal.

### **4. Groundwater Monitoring Requirements**

1. A comprehensive characterization of site hydrologic conditions shall be required. This shall include the installation of permanent groundwater monitoring wells, of sufficient number and location to allow for evaluation of both up-gradient and down-gradient water quality.
2. The applicant shall develop and submit a site-specific Groundwater Monitoring Plan, based on recommendations from a qualified third-party expert, detailing well locations, sampling frequency, parameters to be tested, and reporting procedures.
3. The Groundwater Monitoring Plan shall be subject to independent expert review in accordance with Section F and must be approved by the Board of Health prior to permit issuance.

### **5. Decommissioning Plan**

1. The applicant shall include a decommissioning plan to be implemented upon abandonment and/or in conjunction with removal of the BESS. The decommissioning plan shall include:

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- a. A narrative description of the activities to be accomplished as well as the time frame, and identification of the party responsible, for the complete physical removal of all BESS installation components, structures, equipment, 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. The anticipated life of the BESS.
- d. The estimated decommissioning costs and how said estimate was determined.
- e. The method of ensuring that funds will be available for decommissioning and restoration.
- f. The method by which the decommissioning funds amount will be kept current with the cost of decommissioning.
- g. The manner in which the site will be restored, including a description of how any changes to the surrounding areas and other systems adjacent to the BESS, such as, but not limited to, structural elements, building penetrations, means of egress, and required fire detection and suppression systems, will be protected during decommissioning and confirmed as being safe and properly functioning after the BESS is removed.
- h. A listing of any contingencies for removing from service an intact operational BESS that has been damaged by fire or other casualty event.

### **6. Financial Security**

1. The owner and/or operator of the BESS shall continuously maintain a fund or bond payable to the Towns of Foothills Health District, in a form approved by the Towns of Foothills Health District, for the removal of the BESS, in an amount to be determined by the Towns of Foothills Health District, for the period of the life of the BESS installation. All costs of the financial security shall be borne by the applicant.

### **7. Application Review Process**

1. The Board will complete its initial review of the application submission for completeness within 90 days of receipt.
2. The applicant will be notified of any deficiencies in writing, listing any additional information, analyses, or evaluations requested by the Board.
3. The applicant must submit the requested supplemental information before the full review process can be started.
4. Once the application submission is deemed complete, the Board shall schedule at least one hearing to solicit public comments, with a descriptive hearing notice being published in a newspaper of local circulation at least 7 days prior to the hearing.
5. The final review process and the decision on the issuance of a permit will be rendered, in writing, within one year of the receipt of the complete application package, as determined by the Board of Health under this section.

## **F. USE OF OUTSIDE CONSULTANTS**

1. If, after receiving an application or other request for review or sign-off, the Board of Health determines that in order to decide any issue raised by an application it requires technical advice unavailable from municipal employees, it may employ outside consultants in accordance with the provisions of **M.G.L. c.44, §53G**. The Board of Health may require that the applicant pay a reasonable consultant fee for the employment of outside consultants chosen by the Board.
2. All fees assessed pursuant to this section shall be reasonable in light of:
  - a. the complexity of the proposed project as a whole;
  - b. the complexity of particular technical issues;
  - c. the size and character of the proposed project;
  - d. the projected construction costs; and
  - e. fees charged by similar consultants in the area.
3. If the applicant fails to pay the consultant fee within 10 days of receiving written notification of the selection of consultant, the Board of Health may deny the permit.
4. Prior to paying the consultant fee, the applicant may appeal the selection of the consultant to the Town's Select Board. The grounds for such an appeal shall be limited to claims that the selected consultant has a conflict of interest or does not possess the minimum required qualifications. The minimum qualifications shall consist of either an educational degree in or related to the field at issue or three or more years of practice in the field at issue or a related field.
  - a. The required time limits for action upon the application by the Board of Health shall be extended by the duration of the appeal.
  - b. In the event that no decision is made by the Select Board within one month following the filing of the appeal, the selection made by the Board of Health shall stand.
  - c. The appeal shall not preclude further judicial review, if otherwise permitted by law, on the grounds provided for in these regulations.
5. Consultant fee funds shall be deposited in a special account established by the Town Treasurer pursuant to M.G.L. c.44, §53G, and may be expended only for the purposes described.
6. Within 30 days of completion of the BESS installation or such time as the applicant formally withdraws the application, the applicant shall receive a final report of funds in the special account and shall be paid any unspent excess in the account, including accrued interest.

## **G. INSURANCE AND FINANCIAL SECURITY**

1. Any applicant to the Foothills Health District Board of Health for a Permit to construct and operate a BESS shall also provide the following:
  - a. Proof of liability insurance in an amount of \$ 10 million to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of any BESS installation, including coverage for fires, explosions and flooding events.
  - b. A cash deposit or other form of financial security or guarantee (e.g. a bond) acceptable to the Town of Foothills Health District, pursuant to M.G.L. c.44, §53G1/2 shall be provided in the event of final approval of the application and shall be held by the Town to cover the cost of removal, recycling, and/or disposal of the BESS installation and

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remediation and/or restoration required in the event the Town must remove the BESS installation and perform any remediation and/or restoration required as a result of operation or failure of operation of the BESS.

### **H. CHANGE OF OWNERSHIP**

1. If the owner or operator of the BESS installation changes or the owner of the property changes, the permit shall remain in effect, provided the successor owner or operator assumes in writing all of the obligations of the permit and decommissioning plan.
2. A new owner or operator of the BESS installation shall notify the Board of Health in writing of such change in ownership or operator within 30 days of the change.
3. The permit for the BESS installation shall be void if a new owner or operator fails to provide written notification to the Board of Health in the required timeframe.
4. Reinstatement of a void permit shall be subject to the same application, review and approval processes as for new applications.

### **I. ABANDONMENT**

1. A BESS installation shall be considered abandoned when it ceases to operate continuously for more than 90 days.
2. If the owner and/or operator fails to comply with the decommissioning requirements upon any abandonment, the Town of Foothills Health District may, after compliance with any state or federal requirements, enter the property and utilize the available financial security for the removal of the BESS installation and any required remediation and/or restoration in accordance with the decommissioning plan.

### **J. ENFORCEMENT OF THE REGULATIONS**

1. The Board of Health shall have the authority to enforce the provisions of these regulations through the issuance of cease-and-desist orders, criminal complaints, or civil court action.
2. As an alternative to criminal prosecution in a specific case, the Board of Health may issue a citation under the noncriminal disposition procedure pursuant to M.G. L. c.40, §21D.
3. For purposes of noncriminal disposition, violation of the regulations shall be subject to the Board of Health fee schedule which may be periodically amended.

### **K. SEVERABILITY**

1. The invalidity or unenforceability of any section or provision of these regulations, as declared by the valid judgment of any court of competent jurisdiction, shall not affect the validity or enforceability of any other provision, which shall remain in full effect.

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