ARTICLE

To see if the Town will vote to adopt the Municipal Energy Storage Systems Bylaw as a general bylaw for the Town of Shutesbury or take any other action related thereto.

GENERAL BYLAW REGARDING ENERGY STORAGE SYSTEMS

1. Purpose

The purpose of this bylaw is to protect the health, safety, and welfare of the residents of Shutesbury while supporting appropriately sited energy infrastructure.

It is understood that:

- All residents of the Town of Shutesbury rely upon private wells for clean potable water. Given this, groundwater resources must be protected from contamination and disruption in order to meet current and future residential needs.
- Shutesbury is a small rural town and its emergency response system is staffed, trained, and equipped to respond to residential house fires, minor wild fires, traffic accidents, and similar-scale emergencies. The Town's capacity to effectively respond to large-scale or complex industrial incidents is limited. Surrounding rural towns capable of rendering mutual aid are similarly staffed and equipped. Therefore, industrial facilities with the potential to cause large or complex fires may pose a heightened risk to public health and safety.
- The Town of Shutesbury is approximately 92 percent forested and the effects of climate change (e.g. increased frequency of drought conditions, decreased forest health, etc.) may increase the risk of catastrophic wildfires, including those caused by industrial fire incidents.

2. Definition

Energy Storage System (ESS) shall mean any mechanical, thermal, electrical, chemical, electrochemical, or other device that is used to store energy for use by the utility grid or to serve as an onsite energy backup system. Technologies may include but are not limited to pumped hydro, compressed air, molten salt (thermal), solid state, lithium-ion battery, lead-acid battery, flow battery, hydrogen, or flywheel.

3. Applicability

This bylaw shall apply to all non-residential operations of Energy Storage Systems in the Town of Shutesbury. Subsequent references to ESS shall exclusively apply to non-residential uses of energy storage systems.

4. Energy Storage System Licensing

To operate a non-residential energy storage system in the Town of Shutesbury, an Energy Storage System License shall be required.

The Energy Storage System Licensing Board (the Licensing Board) shall be the license granting authority for energy storage systems. The Energy Storage System Licensing Board shall consist of seven (7) voting members: All three members of the Select Board; one member appointed by the Conservation Commission; one member appointed by the Board of Health; one member appointed by the Planning Board; one member appointed by the Zoning Board of Appeals.

An application for an Energy Storage System shall be considered submitted to the Town of Shutesbury if it has been received by registered mail or hand delivered to the Town Clerk. The Licensing Board shall convene within 65 days after receipt of an Energy Storage System application the purpose of holding a public hearing regarding an application for an Energy Storage System License. The Licensing Board shall have up to 60 days from the close of the hearing to render a decision.

At its discretion the Licensing Board may create forms and procedures to apply to the energy storage system application and review process. The Licensing Board shall designate an individual to oversee and coordinate the application review process as defined in this bylaw or as determined by the Licensing Board.

The Licensing Board shall require all documentation established in this bylaw and may require additional data and documentation, at its discretion, to provide a basis for a decision. The Licensing Board is empowered to approve, reject, or approve with conditions any application for a Energy Storage System License. Licensing approval shall require a two-thirds vote of the voting members of the Licensing Board. If approved, applicant will receive an Energy Storage System License from the Town of Shutesbury.

If approved, an ESS license shall be in effect for a period determined by the Licensing Board of no less than ten years and no greater than twenty years. Renewal of an ESS License shall require a process whereby the Licensing Board can meet the requirements set out in Section 11, Licensing Findings.

5. Required Documentation

To receive a license for operations from the Energy Storage System Licensing Board, an applicant shall submit an Energy Storage System application and the required documents. Two copies of each document shall be provided in hardcopy and one copy in digital form.

A. An application for an Energy Storage System License shall be provided to the Town Clerk and shall include the following information:
   - Name, address, phone and email contact for the applicant.
   - Name, address, phone and email contact for the landowner.
   - Name, address, phone and email contact for the site operator.
   - Location of the proposed ESS storage system.
   - Nameplate power rating, storage capacity, and net generation capacity of the proposed ESS equipment.

B. The following documentation is required for an ESS license application to be considered

complete:

1. A project summary and site plan for the ESS. Additional copies of the project summary shall be mailed or hand delivered to the Fire Chief, Police Chief, and the Emergency Management Director in addition to the ESSLB.
2. Material Safety Data Sheets for the energy storage system unit and components, including but not limited to fire suppression chemicals that would be used in the case of a fire at the ESS.
3. A Hazard Mitigation Analysis as required by the applicable National Fire Protection Association standards in effect at the time of application.
4. If applicable, a completed MA DEPWPA Form 4a. Abbreviated Notice of Resource Area Delineation (ANRAD) that includes a wetland evaluation and map of the site. The ANRAD shall be submitted to the Conservation Commission, with copy to the ESSLB.
5. Written proof of regulatory compliance as outlined in Section 6 and a cover letter signed and dated by the applicant attesting to said compliance.
6. Design specifications including:
    a. For Battery Energy Storage Systems
        i. Energy storage units including cells, modules, and rack systems including manufacturer and model and unit levels of storage cells; pertinent UL test data.
        ii. Energy storage containers including but not limited to the general physical layout relative to doors, access panels, vents; interior layout of cabinets, racks, ductwork, compartmentation; ventilation system; construction materials.
        iii. Exterior of containers including spacing between containers and the specifications of structural supports/foundations for the containers.
        iv. Fire and explosion prevention and mitigation information including venting system operation; location of detectors and types of detectors/sensors including manufacturer and model, accuracy, and sensitivity; suppression system design, including type of agent, system layout, application rate, source.
    b. For Non-Battery Energy Storage Systems
    Additional specifications and details as determined by the Licensing Board.
7. Other analyses as may be requested by the Licensing Board related to the public health, safety, or welfare and/or the operation of the proposed ESS equipment.

6. Regulatory Compliance for Energy Storage Systems

All ESS in the Town of Shutesbury shall be consistent with all applicable local, state and federal regulations, including but not be limited to:

- Massachusetts Endangered Species Act (321 CMR 10.00)
- Massachusetts Wetlands Protection Act (310 CMR 10.00)
- Massachusetts Environmental Policy Act (301 CMR 11.00)
- Massachusetts Forest Cutting Practices (302 CMR 16.00)
- Shutesbury General Wetlands Protection Bylaw
- Shutesbury Board of Health guidelines

- United States Endangered Species Act (16 U.S.C. §1531 *et seq*. (1973)
- National Historic Preservation Protection Act (6 U.S.C. §§ 470a *et seq*.)

No ESS License shall be issued until all local, state, and federal requirements have been met, all required approvals issued, and documentation provided to the Licensing Board according to the process established by this bylaw.

The construction and operation of an ESS shall be consistent with all applicable local, state, and federal safety, construction, electrical, and communications requirements, including but not limited to:

- National Fire Protection Association (NFPA) "Standards for the Installation of Stationary Energy Storage Systems" (NFPA-855)
- Massachusetts State Building Code (780 CMR)
- Massachusetts Comprehensive Fire Safety Code (527 CMR 1.0)
- Massachusetts Electrical Code (527 CMR 12.00).

7. Emergency Response Requirements

A. The applicant shall provide an Emergency Operations Plan (EOP) as specified in the applicable NFPA standards in effect at the time of construction. Subsequent owners or operators will update the EOP as emergency response standards and guidance evolve.
B. The owner or operator shall ensure that Shutesbury fire, police, and emergency management personnel, as designated by the Licensing Board, are provided training and equipment sufficient to safely and effectively respond to an ESS emergency. The location of and access to equipment shall be determined by industry best practice for deployment in an emergency situation.
C. The owner or operator will provide the Shutesbury Fire and Police Chiefs with the means to access the facility perimeter gate in case of emergency.
D. Accurate and up-to-date 24-hour emergency contact information for ESS operators and all means of shutting down and/or disconnecting the ESS shall be clearly posted, where appropriate.
E. Accurate and up-to-date 24-hour emergency contact information for ESS operators shall be provided to the Shutesbury Fire Chief, Police Chief, and Emergency Management Director.

8. Design and Performance Standards

Energy Storage Systems in the Town of Shutesbury shall be built and operated with the following design and performance standards.

A. Size
The U.S. Energy Information Administration defines small scale ESS has having less than 1 MW of net generation capacity. No license is required for an ESS with a net generation capacity of less than 1MW. Energy storage systems with a net generation capacity greater than 1MW and no more than 10 MW shall require license approval by

the Shutesbury ESS Licensing Board. No ESS with a net generation capacity of greater than 10 MW shall be licensed.

B. Noise Mitigation
Noise generated during construction and operation of the ESS, either episodic or continual, shall be minimized and comply with local and state regulations, including Massachusetts Noise Control Regulation (310 CMR 7.10). Construction or maintenance activities shall be limited to Monday to Friday and shall not occur between the times of 7:00 p.m. and 7:00 a.m., except in case of an emergency that would affect public safety or the integrity of operations.

C. Visual Impacts
i. An ESS shall be constructed in a manner to minimize visual impacts including preserving natural vegetation to the maximum extent practicable, blending in equipment with the surroundings, and adding vegetative buffers to provide an effective visual barrier from adjacent roads and driveways, and to screen abutting residential dwellings. A vegetative screen shall be no less than 30 feet and will be composed of trees and shrubs staggered for height and density that shall be properly maintained.
ii. When possible, plantings shall be a diversity of plant species, with a preference for species native to New England. Use of exotic or invasive plants at the ESS, as identified by the most recent copy of the "Massachusetts Prohibited Plant List" maintained by the Massachusetts Department of Agricultural Resources, is prohibited.
iii. Landscaping shall be maintained and replaced as necessary by the owner or operator.

D. Utility Connections.
Every reasonable effort shall be made to place all utility connections underground, depending on appropriate soil conditions and topography of the site and any requirements of the utility provider, however electrical transformers, wires, or other utility interconnections may be above ground if necessary or as required by the utility provider.

E. Land Clearing, Soil Erosion, Stormwater, and Land Impacts
a. Prior to any site disturbance and construction, the limits of the work shown on the approved site plan shall be surveyed and clearly marked by a Professional Land Surveyor. Upon completion of the survey, the Professional Land Surveyor shall verify to the Licensing Board, in writing, that the limit of work, as shown on the approved site plans, has been established on site.
b. Erosion and sedimentation guidelines or "best management practices" will be implemented during the entire construction process and maintained until the site is stabilized and a properly designed stormwater management system is installed and operational. Applicants and/or owners and operators will ensure all applicable erosion control and stormwater management guidelines are strictly adhered to.
c. The design of the ESS shall minimize the use of concrete and other impervious materials to the maximum extent practicable.
~~d.~~ Clearing of natural vegetation shall be limited to that necessary for the safe construction, operation, and maintenance of the ESS. Grading that substantially

disturbs the existing soil profile and structure should be avoided; sites shall be selected where construction may be accomplished with minimal earth work.

e. Locating ESS, including access driveways and any associated drainage infrastructure on original, pre-construction grades in excess of 15% is prohibited.
f. ESS shall be designed to minimize impacts to forested land, and open agricultural land and fields, even if not in production.

F. Water Supply and Stormwater Protection
   a. The use of agents containing per-and polyfluoroalkyl substances (PFAS) for fire suppression or cooling is prohibited.
   b. In order to provide an adequate intervening land area for the infiltration of stormwater runoff from an ESS, ground alterations, such as stump removal, excavation, filling, and grading, or the construction of drainage facilities, access driveways, or other structural components of the ESS, are prohibited within 200 feet of a drinking water well or potable water supply.
   c. The Licensing Board may impose conditions to contain and control stormwater runoff that might negatively impact drinking water or related hydrologic features.

9. Special Requirement and Standards for Lithium-Ion Energy Storage Systems (LIESS)

Defective, mismanaged, or damaged, lithium-ion batteries can fail and undergo a process known as "thermal runaway," which is the rapid uncontrolled release of heat energy from a battery cell that may cause a chain reaction in neighboring battery cells and result in a larger battery fire or explosion. In a commercial-scale LIESS, this may pose a risk to public health, safety, and welfare.

Background on Lithium-Ion Energy Storage Systems

- According to the International Association of Fire and Rescue Services, "Lithium-ion batteries are fire prone and are notoriously difficult to extinguish - the more lithium the larger the fire".
- As reported by the Electric Power Research Institute, "fire management investigations have … recommended large water densities on the order of 500 hundred gallons per minute for a 1MWh [energy storage] system."
- The California Public Utility Commission states that "In practice, thermal runaway propagation in large stationary [energy storage] systems has not been successfully "extinguished" (a misleading fire-related term) by emergency responders once it starts. Limitations on exactly where water can be safely applied, coupled with the very large volumes of water needed, have made water spray as an emergency treatment of thermal runaway mostly ineffective with stationary energy systems in practice."

Given the increased risk posed to public health, safety, and welfare, applications for a LIESS license shall require the following additional documents:

a. A report prepared by an expert with relevant LIESS emergency response or industrial

firefighting credentials analyzing, under both "most-likely" and "worst-case" scenarios, 1) the extent and effects of a thermal runaway event affecting the facility; 2) the quantity of water needed to effectively control a thermal runaway event and/or resultant fire or explosion, including the estimated application rate (gallons per minute) and duration (minutes, hours, days); and 3) potential sources of water sufficient to meet the needs identified above.

b. A detailed plan for how runoff water from an emergency response action will be handled. This shall include information on:
    i. the location, design, capacity, and materials associated with any containment system
    ii. the identification and likely concentrations of any potential contaminants in runoff water
    iii. the amount and percentage of runoff water likely to be contained.
    iv. analysis of the potential environmental fate of any runoff water not contained, especially in relation to groundwater resources and including the likely pathway for runoff
    v. information about the handling and removal process for any contained water.
c. An analysis regarding the effects of a thermal runaway event on the LIESS

LIESS shall also have the following additional operational standards:

a. To minimize the likelihood of forest fires, a non-flammable buffer of no less than 100 feet, with no trees or brush shall be maintained around the LIESS
b. Spacing of LIESS units and other fire prevention measures for the LIESS as established by NFPA-855 or its successor.
c. An LIESS shall be designed so that in the instance of fire, noxious gases resulting from combustion will be contained or filtered, to the maximum extent practicable, mitigating the direct venting into the environment, unless otherwise recommended by NFPA-855 or its successor.
d. LIESS shall be required to have ready access to consistent and sufficient water supply to prevent or contain thermal runaway, in accordance with national or Massachusetts best practices. The water supply shall be either on-site or directly accessible to the ESS site. The supply and duration of water shall be consistent with the worst-case scenario identified in the report required in Section 9a of this bylaw
e. Water runoff from firefighting and heat reduction efforts related to an LIESS emergency response shall be contained onsite to prevent, to the maximum extent practicable, potential contamination of surface or groundwater resources.
f. To minimize the risk of contamination to public or private water supplies, an LIESS shall not be located closer than 400 feet to a functional drinking water well.

10. **Licensing Board Use of Independent Consultants**

The Licensing Board, at the expense of the applicant, may seek the services of an independent consultant to conduct a professional review and advise the Board on technical aspects of the applicant's proposal, in compliance with Mass. General Laws Chapter 44 Section 53G, or any amendments thereto.

11. **Required Licensing Findings**
No license to construct and operate an ESS shall be issued unless the Licensing Board finds that:

A. All required documents were submitted for an application and the Licensing Board determines these provided sufficient data upon which to assess the proposed ESS.
B. The applicant has adequately identified all hazards associated with the operation of the ESS, especially those related to potential fires, explosions, and groundwater contamination, and that mitigation proposed to address these hazards is sufficient.
C. The location of the ESS will minimize disruption and harm to the natural resources of Shutesbury, especially in regard to the ecological integrity and carbon sequestration/storage associated with contiguous forestland
D. Emergency response plans and available resources are sufficient to effectively address hazards associated with potential fires, explosions, or other incidents at the ESS.
E. That the operation of the ESS will not create an unreasonable or unacceptable risk to the health, safety, and welfare to the residents of Shutesbury, and, to the greatest extent feasible, avoid or minimize adverse effects to the natural environment.

12. Discontinued Operations
When an ESS terminates operation, the following abandonment and decommissioning requirements shall be met.

A. Removal Requirements
   i. Any ESS which has discontinued operations because it has reached the end of its useful life, has been abandoned, or has been permanently taken offline, shall be removed.
   ii. The owner or operator shall physically remove the ESS no later than 150 days after the date of discontinued operations.
   iii. The owner or operator shall notify the Town by certified mail, of the proposed date of discontinued operations and plans for removal.

B. Removal shall consist of:
   i. Physical removal of all components of the ESS, including but not limited to structures, foundations, equipment, security barriers, and on-site above-ground transmission lines. Associated off-site utility interconnections shall also be removed if no longer needed.
   ii. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
   iii. Restoration of the site to its natural preexisting condition, including stabilization or re-vegetation of the site as necessary to minimize erosion. The Special Permit Granting Authority may allow the owner or operator to leave landscaping or designated below-grade foundations and electric lines in order to minimize

erosion and disruption to vegetation.

C. Removal by the Town
If the owner or operator of an ESS fails to remove it in accordance with the requirements of this Bylaw within 150 days of discontinued operations or abandonment, the Town may enter the property and physically remove the ESS at the owner's expense, drawing from the escrow account or upon the bond or other financial surety provided by the applicant.

13. **Insurance & Financial Surety**
Any applicant for a license to construct and operate an ESS shall provide the following:

A. Proof of liability insurance in an amount of $25 Million per occurrence/$50M total, to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of any ESS operations including coverage for fires, flooding, and well water contamination.

B. A cash escrow account or other form of financial surety (e.g. a bond) acceptable to the Town of Shutesbury, pursuant to M.G.L. c. 44, §53G1/2 to be provided in the event of final licensing approval of the application and which shall be held by the Town, to cover the cost of removal, recycling, and disposal of the ESS and remediation and/or restoration of the site in the event the Town must remove the ESS and remediate and/or restore the site to its natural preexisting condition. The final amount and form of surety must be determined to be reasonable by the Licensing Board as the granting authority, but in no event should the amount exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein unless the Licensing Board makes a specific, documented finding that a higher amount is required to ensure removal and compliance for the ESS in question. The project applicant shall submit a decommissioning plan with a fully inclusive estimate of the costs associated with removal and site restoration, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal and site restoration costs due to inflation. Said estimated cost shall not deduct the value of material recycling given the potential expense and difficulty of recycling. Said surety in its full amount shall be presented to the Licensing Board prior to the commencement of construction. All legal documents required to enable the Town of Shutesbury to exercise the rights and responsibilities under the plan to enter the property, decommission the ESS, and physically remove it and restore the site to its natural condition shall be included in the decommissioning plan.

14. Waiver
Upon written request by the applicant, the Licensing Board may waive or reduce any requirement of this bylaw by the same majority vote required for the license itself, upon written findings included in the license if:

A. Special circumstances of the site, its surroundings, or the proposal that negate the need for imposition of the requirement, or the objectives of this section may be met in alternative manner; AND

B. That such a waiver or reduction will not derogate from the public purposes, protections, and intent of this bylaw.

Any waiver request must be made by the applicant at least 14 days prior to a public meeting of the Licensing Board where the waiver shall be considered. An affirmative or negative vote on a waiver shall not be construed as an approval or disapproval of the license sought.

15. Enforcement

The Licensing Board shall have the authority to enforce the provisions of this bylaw through the issuance of cease-and-desist orders, criminal court actions, or civil court actions.

16. **Severability & Conflicts**

The invalidity of any section or provision of this bylaw shall not invalidate any other section or provision thereof. If any provisions of this bylaw are found to be in conflict with provisions of other town bylaws, the provisions of this bylaw shall supersede the other bylaws.