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Via Electronic Mail – margaret.hurley@mass.gov

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Assistant Attorney General
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10 Mechanic Street, Suite 301
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Re: Wendell Annual Town Meeting of May 1, 2024 / Warrant Article #1

Dear Ms. Hurley:

The Wendell Selectboard, in support of the Town Meeting vote, would like to submit this supplemental background information, scientific research documents, and media reports, to add to the record regarding a General Bylaw adopted at the Wendell Town Meeting of May 1, 2024. The bylaw was entitled the *General Bylaw for the Licensing of Battery Energy Storage Systems*, and it was adopted at Town Meeting by a vote of 100-1.

The Wendell Select Board embraces its solemn responsibility to protect the health, safety, and welfare of Wendell citizens. The proposed General Bylaw at issue is an attempt to exercise this responsibility, and address the Commonwealth's failure to do so. By promoting potentially dangerous technology in an effort to meet the goal of achieving net-zero Greenhouse Gas (GHG) emissions – without establishing clear regulations to protect health and safety, or clear limitations on where such systems can be located to protect vital natural lands—the Commonwealth threatens the health, safety, and welfare of the human population.

Article 97 of the Massachusetts constitution states that "The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment..." The imposition of dangerous technology into our town with state support is a clear violation of this right. We recognize that there are circumstances where local concerns must be over-ridden to further a greater good, but we call attention to the profound unfairness of concentrating the potential for catastrophic harm on a small rural population for a modest and diffuse benefit mostly to distant urban populations.

We also argue that industrial scale battery energy storage systems (BESS) that store electricity--whether or not it is derived from renewable source--should not be considered as furthering "the legislative goal of promoting solar energy in the Commonwealth." By breaking the link between

storage and GHG emissions, such systems are better understood as life-extension measures for fossil fuel infrastructure, as they in no way favor renewable, clean energy.

I. Stand Alone Battery Energy Storage Systems (BESS) have no connection to a solar generating installation, and are not "structures that facilitate the collection of solar energy," within the meaning of M.G.L.chapter 40A, s.3.

In a response by the Attorney General's office dated March 1, 2023 regarding an earlier Wendell bylaw proposal (Case #10721,) it was stated (on page 6, note 5) that "Battery energy storage systems qualify as "structures that facilitate the collection of solar energy under M.G.L. c. 40A, s 3," but we maintain that stand-alone BESS not directly connected to solar generators do not "facilitate the collection of solar energy." They store electrical energy from the grid indiscriminately, regardless of whether it was generated from fossils or sunlight. Moreover, lithium-ion batteries were not part of the roof-top systems addressed by this statute when it was enacted 39 years ago. In the 1980s, the U.S. Department of Energy (DOE) was working on An Exploratory Battery Development & Testing Program (ETD). In 1991, the ETD was refocused as the Utility Battery Storage Program (UBS) charged with developing an integrated BESS research program. In 1996, DOE expanded the UBS Program into the current ESS Program, developing storage technologies such as compressed air energy storage. It wasn't until 2009 that the DOE's energy storage program provided federal matching funds to support energy storage projects (https://www.sandia.gov/ess/history)

The Attorney General's response in the Wendell Case #10721 also cited another statute, Chapter 164, s. 1. as the source for the definition of an "energy storage system," a term which is nowhere to be found in Chapter 40A, s. 3. Even if energy storage systems were mentioned in Chapter 40A, s 3, the definition in Chapter164, s. 1 does not describe a technology that "facilitates the collection of solar energy."

Here is the definition of "energy store system" from Chapter 164, s.1:

"A commercially available technology that is capable of absorbing energy, storing it for a period of time and thereafter dispatching the energy and which may be owned by an electric distribution company; provided, however, that an energy storage system shall: (i) reduce the emission of greenhouse gases; (ii) reduce demand for peak electrical generation; (iii) defer or substitute for an investment in generation, transmission or distribution assets; or (iv) improve the reliable operation of the electrical transmission or distribution grid; and provided further, that an energy storage system shall: (1) use mechanical, chemical or thermal processes to store energy that was generated for use at a later time; (2) store thermal energy for direct heating or cooling use at a later time in a manner that avoids the need to use electricity at that later time; (3) use mechanical, chemical or thermal processes to store energy generated from renewable resources for use at a later time; or (4) use mechanical, chemical or thermal processes to capture or harness waste electricity and to store the waste electricity generated from mechanical processes for delivery at a later time. (emphasis added)

The verb "collection" does not appear anywhere in this definition. It is a different matter entirely to "store" energy rather than "collect" it. In the case of solar energy, it is photovoltaic cells that do the collection. Solar panels have no capacity to "store" energy, and energy storage systems have no capacity to "collect" energy. The closest verb in the definition is the reference to "absorbing" energy, since "to absorb" is commonly defined as "to take in, or soak up." An energy storage system cannot "facilitate the collection of solar energy, it can only store whatever energy is delivered to it from the grid or an attached generator. Battery energy systems cannot distinguish between solar or fossil generated electricity and, therefore, cannot reduce the emission of greenhouse gasses by favoring solar energy over fossil energy.

Chapter 40A, s.3 does not specifically mention "energy storage systems" of any type, and does not refer to the definition in Chapter 164. Given this fact, the extension of this law to BESS is unwarranted. Such an extension would require amending Chapter 40A, s. 3 to specifically include energy storage systems as "structures that facilitate the collection of solar energy."

For these reasons, we conclude that the Attorney General's footnote 5 in the Wendell Case #10721 is an error of law based on a mistaken interpretation, since a BESS is a "storage" device, which cannot "collect" solar energy, but only store electricity generated elsewhere. Because Chapter 40A, s. 3 does not mention energy storage, nor refer to Chapter 164, the Attorney General's footnote is merely speculative.

Solar energy systems are necessarily intermittent, since the sun goes down at night, and energy storage is required as solar energy replaces fossil energy, but storage of run-of-the-wire electricity doesn't reduce GHG emissions in any way and slows full deployment of renewable energy by time-shifting fossil energy without a concomitant reduction in emissions.

Similar concerns arise in connection with the Tracer Lane II decision also cited on page 6 of the Attorney General's response. This decision concerned large-scale solar arrays, not stand-alone battery energy storage systems, and does not address the question of whether or not such systems should be considered as "structures that facilitate the collection of solar energy." Indeed, we find no law that establishes such a finding.

II.Article 1, the General Bylaw, has articulated evidence of an important municipal interest grounded in protecting public health and safety.

The Attorney General's office, in a letter dated March 1, 2023, regarding case # 10721 indicated that Article XIV, Section (C)(7) on Wendell's Town Meeting warrant "had no articulated evidence of an important municipal interest, grounded in protecting the public health safety and welfare, that is sufficient to outweigh the public need for solar energy systems."

To address this issue in our 2024 General Bylaw, we here provide abundant evidence (see Attached document compilation) to demonstrate the grave risks associated with large-scale lithium-ion battery systems from fire, explosions, and toxic gasses associated with thermal-runaway events. The Purpose section of our General Bylaw should serve as "articulated evidence of an important municipal interest" grounded in health , safety and welfare. These large systems

involve many hundreds or thousands of individual lithium-ion cells, any one of which might contain a flaw that leads to overheating and the potential of spreading to neighboring cells in a positive feedback loop leading to disaster. It is because of such potentially catastrophic risks that we have adopted the general bylaw now before you.

Our concerns would be lessened if the state had established clear regulations to protect the people of Massachusetts from such risks, but our review of the Massachusetts Building Code (760 CMR) and the Massachusetts Comprehensive Fire Code (527 CMR) provide no assurance in this regard. There are regulations regarding battery energy storage systems in residential and commercial buildings (527 CMR Chapter 52), but we find nothing regarding utility-scale, stand-alone systems. As far as we can tell, Massachusetts has not adopted current standards from the National Fire Protection Association for Stationary Energy Storage Systems (NFPA 855) nor those from Underwriters Laboratories for Energy Storage Systems and Equipment (UL 9540). Nor has Massachusetts provided an effective alternative to these standards. When it comes to the safety of grid-scale BESS, the Commonwealth seems to rely entirely on the potentially self-serving claims of developers and manufacturers with no clear and explicit standards that must be met.

It is our firm belief that protecting residents from avoidable harm is a fundamental responsibility of governments. We take this responsibility seriously, and because of the grave risks associated with lithium-ion batteries, a risk that increases rapidly with the size of an installation, we hold the regulation of such installations to be a core municipal interest. As our statement of purpose concludes: "By responsibly regulating and managing the hazards associated with this energy technology, we seek to minimize the risks to the health, safety and welfare of the Wendell community.

III. DPU says "A Zero Risk Performance Standard is Unattainable."

In D.P.U. 22-59 , dated June 30, 2023, the Petition of Cranberry Point Energy Storage, LLC for a Comprehensive Exemption from the Zoning Bylaw of the Town of Carver, Massachusetts, a citizen's intervenor group pointed to several known Battery Energy Storage System (BESS) safety incidents involving the risk of thermal runaway for the particular battery storage system being used by the Cranberry Point project, The citizen's testimony determined that the risk "is not zero" (STPB Brief at 13; Exh. STPB-JH-1, at 17). The Company asserted that its Megapack 2XL was "a better and safer product, which incorporates important lessons learned from incidents involving" earlier lithium batteries. (Company Reply Brief at 9-11, citing, Exh. STPB-1-1, Att. Fisher Report, app. 2).

The DPU ruled that "the risks of thermal runaway for the Megapack 2XL, although not zero, appear to be lower than the risks associated with the Megapack 1." The DPU further noted (page 102, DPU 22-59) that the "Department does not believe that ensuring that a grant of a zoning exemption requires a zero-risk performance standard, as such a standard is unattainable."

In DPU docket 23-05, filed by Wendell Energy Storage 1, LLC, (Attachment 22, pages 9 and 10), the manufacturer of the Powin Stack 750E, the module which will be used in Wendell, states that "the primary hazard…is the uncontrolled combustion of explosive gasses from cell(s) in thermal runaway. In the unlikely scenario that all preventive measures have failed to stop thermal runaway, the primary mitigation measures are intended to minimize the concentration of explosive gases released such that explosive levels are never achieved. Secondary mitigation measures are focused on preventing external events that could force cells into thermal runaway, such as a prolonged electrical fire." According to Powin, "fires can only be caused by events external to the cells themselves, such as direct and prolonged exposure to a large electrical fire. Given this, the primary purpose of the fire suppression system installed in the Powin modules is to extinguish a fire that could force cells into a thermal runaway, not to stop in progress thermal runaway." The engineers may say that this is an "unlikely scenario"--until it happens once – and then local officials are the ones who have to deal with the scenario that was not supposed to happen.

The Selectboard of Wendell takes responsibility for protecting the health, safety and welfare of the residents of Wendell and its property. We are not comforted by the statement by the DPU that "a zero-risk performance standard…is unattainable." It may be that batteries are "safer" now than they were in the past, but as our General Bylaw states: "By responsibly regulating and managing the hazards associated with this energy technology, we seek to minimize the risks to the health, safety and welfare of the Wendell community." This is not a land use issue-- this is a technology issue. The Attached documentation of risk incidents includes multiple research studies showing that lithium-ion battery technology entails grave risks of serious harm, especially when large numbers of cells are brought together in one place. This point was driven home by the recent explosion and fire that killed 22 workers at a Korean warehouse storing large numbers of lithium-ion batteries.

The persistent risk of thermal runaway and the catastrophic consequences of such an event, especially in an under-protected small town, with a predominately volunteer fire department, and HAZMAT response one hour away, undercuts any claim that utility-scale BESS facilities deserve the same treatment as any other business. Inherently dangerous industries, such as those involving nuclear energy, deadly pathogens, lethal chemicals, or high explosives, have long required specific regulations to address the particular risks they entail.

IV. Article 1 is not a zoning by law, and is not subject to the process requirements of Chapter 40A

The Wendell General Bylaw does not regulate land use, it regulates a specific type of technology: Battery Energy Storage Systems. It is not formally or informally regulated through Wendell's zoning law, and makes no mention of any zones. It is not intended to prohibit or permit a use on any specific zoning classification. It allows the location of small BESS in any zone. It caps the size of power capacity of BESS installations regardless of the parcel within Wendell where it would be proposed, because of the attendant risks that come with this particular technology. As a General Bylaw, the process for licensing this technology does not have to

follow the procedure for adopting a zoning bylaw found in MGL Chapter 40A, s. 5. This bylaw seeks to limit the size of any BESS using lithium-ion batteries because of potentially significant safety issues, wherever it might be located. Consequently, it would qualify for a health and safety exemption even if it were a zoning ordinance under section 3 of Chapter 40A. For this reason, this General bylaw is not inconsistent with any provisions of Chapter 40A, because it is not a zoning bylaw, and does not violate any procedures for adoption. As our listing of local newspaper articles collected in this document shows, this bylaw was a very visible policy discussion, brought up in several public forums, including Selectboard meetings. The 100-1 vote in favor of this bylaw indicates the very strong level of support for this matter from residents in Wendell.

It should be further noted that the licensing process defined in the bylaw is not administered by the Planning Board, or the Zoning Board of Appeals, which handles all zoning matters. Because of the breadth of core concerns across various parts of town government, the Licensing Board is composed of representatives from multiple town boards and commissions concerned with the health, safety, and welfare of Wendell residents, while allowing no board or commission to overrule all others.

V. Article 1 sets clear and reasonable standards for issuing a license

The bylaw lays out in methodical detail the specific requirements for obtaining a license. For the most part, they amount to actions responsible developers are already taking on their own behalf or because of similar regulations in other jurisdictions. Our requirements follow closely on the recommendations of the National Fire Protection Association for Stationary Energy Storage Systems (NFPA 855) that are being widely adopted in other states. Our goal throughout has been to protect the health, safety, and welfare of Wendell residents without putting overly onerous or impractical restrictions on potential developers. We strongly support a transition to clean and sustainable energy, but must insist that it be conducted in a safe and responsible manner.

Our Licensing Requirements are basic to the operation of a BESS installation, such as: "The applicant shall provide a training plan, approved by the Town Fire Chief, for all specialized training required to respond to any emergency incident involving the BESS equipment." Or: "The applicant shall provide a Hazard Mitigation Analysis (HMA) as required by the applicable NFPA standards in effect at the time of construction." These requirements are straightforward, and related to the BESS process standards.

Licensing Findings as well, such as the evaluating the evacuation plan and whether or not the manpower and equipment are sufficient to respond to an emergency response scenario, are all related to the capacity of the applicant to respond to potential safety risk scenarios in its emergency response documents.

We can assure that the installation is in compliance with the Massachusetts Building Code (760 CMR) and the Massachusetts Comprehensive Fire Code (527 CMR) to the degree they specifically relate to battery energy storage systems in residential and commercial buildings (527 CMR Chapter 52), and for utility-scale, stand-alone systems. We would expect any BESS installations to be able to respond to current standards from the National Fire Protection Association for Stationary Energy Storage Systems (NFPA 855) and the Underwriters Laboratory for Energy Storage Systems and Equipment (UL 9540).

Sections D and E of Article 1 list out the basic licensing requirements and licensing findings the Board must follow as part of the overall licensing process. If any of these Requirements or Findings are considered to be more stringent for BESS, we note that the persistent risk of thermal runaway and the potentially catastrophic consequences of such an event, especially in an under-resourced small town in a predominantly forested area, undercuts any claim that utility-scale BESS facilities deserve the same treatment as any other business. Inherently dangerous industries, such as those involving nuclear energy, deadly pathogens, lethal chemicals, or high explosives, have long required specific regulations to address the particular risks they entail. The state of New York has been developing a new set of fire safety standards in response to a number of dangerous thermal runaway events in that state. (A list of these fire code recommendations are included in our research documents attached. (See IX. Evidence-based research on the safety track records of lithium-ion batteries.)

VI. Article 1 includes several requirements that are required as site suitability standards

The state legislature and the Governor have both recommended that their new clean energy legislation needs to provide "suitability standards" for battery storage and solar sites in order to avoid the use of sites that would not be approved if such standards were in place.

In a memo to her constituents, State Senator Jo Comerford, whose Hampshire, Franklin and Worcester District includes 24 communities, including Wendell, has stated: "The state must make a plan for equitably siting clean energy across the Commonwealth that prioritizes siting infrastructure on the built and disturbed environment *and* that recognizes that local governments know best how and where to site infrastructure within their borders…We need a clean energy revolution. Yesterday," Comerford warned: "Move too quickly and without sufficient nuance and we will be left with infrastructure that is not sited thoughtfully — where our invaluable natural and working lands once were."

In a May 11, 2024 letter to EEA Secretary Tepper, Senator Comerford indicated: "I support the CEISP recommendation on 'adoption of site suitability guidance to…be used in the pre-filing process to better understand and evaluate resource areas for quality development potential, and general social and environmental impacts, and a mitigation hierarchy to avoid, minimize and mitigate impacts of clean energy infrastructure siting on the environment and people to the extent practicable.' Accordingly, my top priority with respect to the siting of clean energy infrastructure remains finding *the right balance* between siting the infrastructure we need and protecting our natural lands. I believe one state map is needed, which considers site suitability for clean energy infrastructure…to establish 'go' and 'no go' areas for clean energy projects….This way, the

state, developers, municipalities, and community groups would all be referencing the same map. Infrastructure proposed for 'go' areas could be eligible for consolidated permitting, expedited…Infrastructure proposed for 'no go' areas should not be eligible for the consolidated permit, but it could still pursue the traditional permitting process." **(https://senatorjocomerford.org/senator-comerford-comments-on-ceisp-recommendations-to-eea/)**

Allison Gage, Senior Land Use Planner at the Franklin Regional Council of Governments, told the Western Mass Solar Forum audience on June 4, 2024: "I'm sure many of you are aware of the proposed large scale battery energy storage facility in Wendell, that has led to a regional outcry against the project because it would require cutting down 11 acres of forestland, and would sit on top of an aquifer that could be a water supply for the town. If site suitability was considered for that project, it probably would not have been proposed."

Wendell's General Bylaw, in Sections C3 and C4 contain several provisions that were developed to compensate for the current absence of statewide suitability standards. The General Bylaw identifies which sites are suitable, and which sites are unsuitable. These are factors needed to minimize environmental impacts. They are suitability factors similar to those likely to be included in legislation adopted before the end of the legislative session at the end of July, 2024. They are not zoning regulations per se, but rather "site suitability guidance" as recommended in the CEISP report.

VII. Severability & Conflicts

Since human health, safety, and welfare issues are intimately tied to the surrounding environment, it can be difficult to delineate a simple boundary between human health and safety and what might be considered traditional land-use concerns. For this reason, the bylaw includes language in Section I regarding Severability. We call attention to the option of removing portions of the General Bylaw judged to be invalid for any reason of law, without undermining the overall purpose of the bylaw to protect human health, safety and welfare.

As noted above, the CEISP refers to suitability standards as specific land qualities, like forest land, parking lots, or pre-developed land – not as zoning markers--but as environmental site conditions that are either suitable or unsuitable for battery energy installation siting. If your office were to find that any of our suitability standards should be considered de facto "zoning" regulations, the remainder of the bylaw should be considered valid in keeping with Section I.

VIII. Evidence-based research on the safety of lithium-ion batteries

The town of Wendell has compiled a collection of peer-reviewed science journal articles that analyze the fires, explosions, and toxic pollution that have become well-recognized risks of lithium-ion batteries in the scientific literature. These studies and reviews reinforce the DPU statement that "A Zero Risk Performance Standard…is Unattainable." We have also included media reports of thermal runaway events on several continents, and across the nation from Massachusetts and New York, to California, with some of the regulatory recommendations proposed to try and reduce the risks posed to communities like Wendell. We have focused on large scale battery projects, not the fires and deaths that have occurred from the use of lithium-ion batteries in small-scale consumer products such as electric bicycles or electric vehicles. Scientific research and media reporting on battery energy storage systems have been documenting safety concerns in this industry for at least a decade.

We hope the Attorney General will approve our General Bylaw, which is based on our long-standing concerns with the inherent dangers associated with this technology, and predicated on our responsibility to provide for the health, safety and welfare of our residents, their property, and the fragile natural ecosystems that surround us.

Sincerely yours,

Wendell Selectboard

Laurie DiDonato, Chair

Gillian Budine

Paul Doud