COMMONWEALTH OF MASSACHUSETTS

ENERGY FACILITIES SITING BOARD

In the Matter of the Petition of Hillman Energy Center, LLC Pursuant to G.L. c. 40A § 3 for an Exemption From the Zoning Bylaws of the Town of Tewksbury, MA	)	**EFSB-25-08**

POST HEARING INITIAL BRIEF
FILED BY
INTERVENORS MAUREEN DIPALMA AND DENNIS SHEEHAN

Intervenors Maureen DiPalma and Dennis Sheehan ("DiPalma and Sheehan) file this Initial Post Hearing Brief in the matter of Hillman Energy Center, LLC, EFSB-25-08.

Filed this 20th day of March, 2026 by Counsel to DiPalma and Sheehan, Christopher Senie.

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I. Introduction

Hillman Energy Center, LLC and its parent company East Point Energy, LLC (together the "Company") propose to install a 125-megawatt Battery Energy Storage System ("BESS") at 73/75 Hillman Street in Tewksbury. The facility will include 134 Hithium LX 5015 battery containers, 40 EPC Power M-10 Inverters and one 150 MVA Power Transformer (the "Project").

The Company filed a petition ("Petition") with the Energy Facilities Siting Board ("EFSB", "Siting Board" or the "Board") seeking an exemption from certain provisions of the Tewksbury Zoning By-laws ("By-law" or "By-laws") in order to make possible the installation of its proposed BESS.[1]

The Petition seeks not only a waiver of specific By-law provisions, but a comprehensive exemption from the whole By-law[2].

The Motion to Intervene filed in this matter by Maureen Dipalma and Dennis Sheehan ("DiPalma and Sheehan"), who together own 6 parcels of land with 7 buildings located thereon adjacent to the proposed project site ("Project Site"), was granted by the Presiding Officer on November 14, 2025. DiPalma and Sheehan have actively participated in this proceeding, submitting the pre-filed testimony of six expert witnesses, making and responding to discovery and record requests and conducting direct and cross examinations. Intervenors DiPalma and Sheehan now submit this initial post-hearing brief.

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[1] Historically, most cases involving a petition for exemption from local zoning by-laws by a utility company have been decided by the Massachusetts Department of Public Utilities ("DPU"), the State agency with the authority to grant such petitions until recently. This function was changed to the Siting Board with the passage of Chapter 239 of the Acts of 2024: "An Act Promoting A Clean Energy Grid, Advancing Equity and Protecting Ratepayers", often and herein referred to as the "Climate Act".

[2] As to which the Company must show that a public harm will result if the comprehensive exemption is not granted (Cranberry Point Energy Storage, LLC, DPU-22-59, June 30, 2023).

a. Public Utilities and the Concept of a Zoning Exemption

It is the Company's burden to establish by substantial evidence of record that it is "reasonably necessary for the convenience or welfare of the public" to waive local zoning so as to enable the placement of this facility on the Project Site. The Company has not met this burden.

The language in quotes in the prior paragraph is the legal standard applicable to a request to waive sections of the local zoning by-laws, which is contained in the State's Zoning Statute M.G.L. c. 40A Section 3.

> Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the department of telecommunications and cable or the energy facilities siting board shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structures **is reasonably necessary for the convenience or welfare of the public**….[3]

This statutory allowance for relief from local zoning by-laws does not read as a blanket free pass on zoning. This is demonstrated through the use of language such as "may be exempted in particular respects" and "shall […] determine the exemptions required."

The legislature intended particular focus on just what zoning requirements the Town Meeting voters had put into its zoning by-laws should be waived by the Board where such is *reasonably necessary for the convenience or welfare of the public*.

[3] EFSB substituted for DPU by St. 2024, c. 239, §37 (effective February 18, 2025).

This zoning exemption provision has existed and been used for decades to allow public utility companies that are highly regulated to proceed with necessary energy-related infrastructure projects even when they conflict with local zoning provisions. These entities are "public service corporations," the phrase used in the above statute. With the need to expand energy storage, a relatively new technology that is expected to reduce the amount of energy our power plants must produce to meet demand (as some energy can be stored and later used during peak times), the legislature, in the 2024 Climate Act, expanded the concept of a public service corporation to include private energy storage development companies that are not public utilities.

Private enterprises like the Company are risking large sums of money to take advantage of the legal framework that allows them to sell power back to the grid at considerable profits. By allowing private companies to undertake the needed expansion of battery storage, the State government and public utilities do not have to raise the funds to install the needed BESS facilities, all of which is understandable.

However, the historical use of the zoning exemption tool has been by trustworthy seasoned public utilities. BESS facilities are critical, but the pool of petitioners now seeking zoning exemptions for this purpose are relatively inexperienced businesses that are largely unregulated. These profit-driven companies, by virtue of the Climate Act, now have "public service corporation" legal status, but lack the traditional safeguards of being regulated utility companies. Because of this shift, the Siting Boad must be careful to ensure that, in each case, given the particulars of the proposed site, it is indeed reasonably necessary to waive local zoning by-law provisions, and that the petitioners and their projects are fully vetted and substantiated. It

is with this heightened sense of care in mind that the facts established by the record are examined in this brief.

b. A Poor Siting Decision

The Company has made a poor siting decision in choosing the Project Site for its proposed utility-scale battery storage facility, for the following reasons, which will be addressed in detail below:

1. There are numerous residences and commercial spaces in very close proximity to the Project Site. The Project Site is too close to these structures to allow the full decay to safe levels of toxins that may be released in a thermal runaway or fire event at the facility. This has been established by an air dispersion model prepared by the company ioMosaic Corporation, an expert witness retained by DiPalma and Sheehan. The expert testimony on this point has not been refuted by experts in chemical engineering or risk assessment.
2. The Project Site lies in a Groundwater Protection District (the local classification) and a Zone II (the State classification). A Zone II is a wellhead protection area that has been determined by hydro-geologic modeling and approved by the Department of Environmental Protection ("DEP"). Some of the water that infiltrates into the ground at and around the site recharges the public drinking water supply of the Tewksbury Hospital. State guidance and regulations, and a section of the By-law called Groundwater Protection District, enumerated as Section 5.6 (herein "Section 5.6"), require either sufficient permeable land area or a system for artificial recharge of precipitation that will not result in the degradation of groundwater quality. 310 CMR 22.21 (2) (b) 7. The Plan for the project does not meet this regulatory requirement, as reviewed below. The

stormwater management plan also fails to provide a solution for waters that might become contaminated with toxins in the event of a thermal runaway or fire, as required.

3. The Petitioner has failed to demonstrate that noise from the operation of the BESS will meet the Massachusetts Department of Environmental Protection (herein "MassDEP" or "DEP") Noise Pollution Policy ("Noise Policy") by: (1) not increasing ambient sound pressures by more than 10dB(A) above ambient; and (2) not creating a pure tone. The loudest piece of equipment to be installed is the M-10 inverters with medium-voltage transformers; there will be 40 of these placed throughout the site (Transcript, Page 1442). The noise model offered by the Petitioner did not input data on the sound power levels which had been certified by an independent laboratory (unlike the information provided for the BESS containers). Rather, these were estimated. The results of the noise models in the record (prepared by acoustic engineers for both the Company and DiPalma and Sheehan) show that, even assuming the claimed sound power levels of the M-10 inverters with the noise reducing attachment are accurate, the sound pressure levels will exceed the limits of the Noise Policy at the property line and at nearby sensitive receptors.
4. The response to many discovery and record requests was that since the plans for the Project are only at 30% design level, the information sought is not available. The plans were at 30% designed on March 26, 2025 (the date on the plans initially filed in April of 2025) and are still at 30% design today, a year later. The Petitioner used the low level of plan design to prevent parties and the Board from having the information needed to conduct effective cross examination at the adjudicatory hearing and adequately prepare direct testimony.

5. The consideration of alternatives and alternative sites was inadequate. The Petitioner presented three alternative sites around the same substation. Two of these were rejected for reasons that would have been obvious right away upon consideration (not enough land for the facility; the presence of wetlands; distance to connect to the substation). The third candidate site is actually superior to the chosen site: (1) no homes within 1,000 feet whereas the Project Site has 14 single-family homes and part of a senior housing community within this distance; and (2) not located in a Zone II, but was rejected because the cost to connect to the substation would have been "prohibitively expensive", when in fact, this was not shown to be the case. The presentation of alternative sites was an empty exercise to attempt to satisfy the obligation, not an earnest effort to select a site for the Project that will meet applicable standards, and to demonstrate this by meaningful comparisons.
6. It is true that increasing the amount of energy storage is a high priority of the State, which has set a goal of 5,000 MW of new energy storage by the year 2030. But this does not mean that the EFSB must approve all proposed battery storage proposals. The Board conducted ten days of evidentiary hearing sessions and received testimony from about a dozen experts so that it can decide whether a zoning exemption ought to be granted in this case. Notwithstanding the urgent need, there exists a possibility that a petitioner will propose a project that should not be built at the selected location. DiPalma and Sheehan believe that the great weight of the evidence presented indicates that this project should not be exempted from local zoning requirements.

7. The Town of Tewksbury has played a key role in the review of this proposed BESS facility, as is common with such petitions. The Board encourages the active participation of the local government in this process and counts on and takes into consideration negotiations toward what is called a host community agreement. In many respects this is a good thing. However, it should be noted that to the extent that Town bodies will make some of the decisions on permitting for the project, the local land use process can become tainted by the offer of enormous amounts of money to the Town. In this case, in addition to many payments the Company will make to the Town to cover all possible out of pocket costs, both during development/construction and thereafter, the Petitioner has promised the Town an increase in tax revenues (in the form of what is called "payments in lieu of taxes", or "Pilot") from the current amount of $72,197 per year (Exh. RR- D/S-9) to over $2,000,000 per year. These excess funds will no doubt be used for good municipal purposes. However, there is no question that the promise of these revenues has put a chill on the local land use process and deliberations. That chill has impacted the hearing process in this matter. The Board of Health was "advised that neither Town Counsel nor Special Town Counsel may represent us due to potential differing interests" (Board of Health Petition to Intervene).

II. The Components of A BESS Container

The base unit involved in a battery storage system is called a "cell." A cell is about the size of a small book, based on the dimensions provided in Exh. Attachment I (UL cell test report): roughly 6.5 inches wide, 8 inches tall and 3 inches thick (more precisely and in metric: length 174.7 mm; height 204.47 mm; depth 71.7 mm - Exh. Attachment I). The cells proposed for the

Project are of a battery type called lithium-iron-phosphate (sometimes herein “LFP”), a newer technology.

Cells are grouped in modules. The Hithium design selected for the proposed project has 104 cells in a module, pictured below (Exh. Attachment J, Page 33).

There are 8 modules to a rack, and 6 racks in the battery container (see image below from Page 4 of Exh. DS-1):

Structure of Battery container

Thus, there are 4,992 cells in one BESS container (Transcript, Page 436).

III. Safety

a. Thermal Runaway and Fire at a BESS Facility

Because battery storage involves heat created as energy moves into and out of a BESS container and its cells, and because so many cells are packed tightly into a container, thermal runaway and fire events can involve the full container. In a thermal runaway, the battery "undergoes a rapid self-sustaining increase in temperature" Exh. R-EFSB-12 (1), Pages 94 and 95. This leads to off-gassing and can lead to a fire in the container.

The Company was asked to provide a list of all "thermal events that occurred in the United States over the past 5 years" (Exh. EFSB-S-41). Twenty-five thermal runaway events were described in the response, a number involving a full BESS container.

This exhibit ends with this statement:

> Additionally, the Hillman HMA (Hazard Mitigation Analysis) and ERP (Emergency Response Plan) will incorporate lessons from incidents such as Moss Landing, Warwick and Escondido, adopting conservative staging distances, clear apparatus access, robust municipal water availability for exposure protection, and a deliberate non-entry strategy. Taken together, these differences show that while Hillman shares the general hazard profile of utility-scale BESS facilities, its chemistry, enclosure design, modern safety subsystems, and emergency procedures address many of the vulnerabilities observed in prior U.S. incidents.

The Hazard Mitigation Analysis ("HMA") and Emergency Response Plan ("ERP") for the Project referenced in the above quote are treated in detail in a later section.

The approach to handling a thermal runaway/fire event will be defensive, allowing the incident to run its course. The same exhibit discussed the response to the 25 incidents: "Responders consistently relied on defensive tactics rather than interior intervention, which

aligns with the Hillman ERP's expected emphasis on standoff distances, monitoring, and allowing a compromised unit to self-consume while exposures are protected."

b. Toxins that Can be Released and Travel Downwind

DiPalma and Sheehan retained the services of ioMosaic Corporation ("ioMosaic"). Three qualified chemical engineers and risk analysts from the firm reviewed the materials submitted in this matter, prepared pre-filed testimony and participated in the adjudicatory hearing. They also prepared an air dispersion model examining how far into the surrounding community of homes and businesses toxins would travel in two common air stability conditions during a thermal runaway or fire within a BESS container (Exh. SD-iMC, dated December 19, 2025 and Exh. SD-iMC-B dated January 19, 2026).[4] The results of the model are reviewed in the next section.

The chemistry of energy storage cells has changed in recent years. The newer chemical makeup of the lithium-iron-phosphate batteries contain materials that are likely to produce more toxins than the earlier models. Of primary concern are two dangerous toxins: carbon monoxide ("CO") and hydrogen fluoride ("HF").

In exhibit HEC-SD-FP-9, David Blake and James Close of ioMosaic testified as follows:

> The Moss Landing incident cited involved an LG nickel-manganese-cobalt (NMC) BESS facility. This is a different chemistry than is proposed for the Project by the Company. Being a different chemistry, the off-gases from this incident would be different from the gases released from the lithium-iron-phosphate (LFP) battery…..HF production potential is mainly driven by fluorine-containing compounds in the electrolytes and electrode binders, which are common in both LFP and NMC cells. However, on an energy-normalized basis (per kWh), LFP installations can contain more total cell materials/electrolyte per unit stored energy, which can increase the available fluorine inventory per kWh and increase the HF emission rate per kWh.

[4] Pre-filed Testimony of Dr. Georges A. Melhem, Ph.D., FAIChE, David Blake, and James Close of ioMosaic.

Three hundred and forty-one residents who live in the vicinity of Moss Landing sought medical care due to symptoms after the thermal runaway event in 2025. (Exh. HEC-SD-FP-9). This is best understood by considering the movement of toxins in the air (via a plume) during a thermal runaway or fire event at a BESS facility.

c. Air Dispersion Modeling

As mentioned above, DiPalma and Sheehan hired ioMosaic to prepare an air dispersion model, which is found in Exhibits SD-iMC and SD-iMC-B. The conclusion was that toxins can reach well into the surrounding area at concentrations that will exceed the Environmental Protection Agency's ("EPA") AEGL-2, which could result in irreversible or serious health effects ("AEGL-2") to the general population.[5]

The ioMosaic air dispersion model considered the downwind travel from the Project Site of plumes of gas focusing on CO and HF. The model considered two air stability classifications and two wind speeds. These are: D air stability classification, 5 meters per second wind speed, this combination noted as "D5", and F air stability classification, 2 meters per second wind speed, or "F2" (Transcript, Page 543). Two event scenarios were considered: a full BESS container fire (1 container in the project of 134) and a rack fire, which is $1/6^{th}$ of a container (Exh. SD-iMC and SD-iMC-B). The results for HF in a 4-hour exposure are as follows:

- Figure 5, Page 9 BESS Fire (one container) HF in D5 conditions, – plume travels ~1,000 feet downwind
- Figure 7, Page 11 BESS fire (one container) HF in F2 conditions, – plume travels ~2,800 feet downwind

[5]AEGL stands for "Acute Exposure Guideline Level."

- Figure 11, Page 15 RACK Fire (1/6th of container) HF in D5 conditions, – plume travels ~570 feet downwind
- Figure 13, Page 17 RACK Fire (1/6th of container) HF in F2 conditions, – plume travels ~1,000 feet downwind

  Exh. SD-iMC-B Pages 9-17.

A 4-hour exposure is considered reasonable given the considerable testimony that the approach to such a thermal runaway or fire will be to let it run its course (a defensive first responder approach). See above and also Exh. EFSB-S-78.

Stability class/wind speed of D5 is the most common and is representative of an average day with a moderate amount of vertical air movement and a 5 meter/second (m/s) wind speed (~11.2 mph). Stability class F2 is representative of a calm night with little vertical air movement and a 2 m/s wind speed (~4.5 mph). (Transcript, Page 543).

The results for CO, in the Mosaic air dispersion model, were similar distances to the above for HF. ioMosaic concludes at Page 24 of SD-iMC-B as follows: "Due to the risk of public exposure to the public, it is not recommended that this project be located at this site."

The ioMosaic testimony was not contradicted by countervailing evidence during the hearing. The Company's main fire safety consultant is a firm known as Energy Safety Response Group ("ESRG") based on Columbus, Ohio (Exh. HE-PB). This exhibit states that ESRG is "made up of retired firefighters and emergency responders."

ESRG, on behalf of the Company, contracted with a firm known as Hazard Dynamics, of Austin, Texas (Transcript at Page 427) to do a model limited to CO and volatile organic compounds ("VOC'"). The expert witness from Hazard Dynamics was Dr. Keven Marr

(Transcript, Page 428). Dr. Marr has a Ph.D. degree in aerospace engineering and is licensed professional engineer (Transcript, Page 428). Dr. Marr is not a chemist or chemical engineer.

Excluded from the Hazard Dynamics model by the scope of the assignment was an examination of HF or other toxins.

> Q. Was your scope of work not to include other possible toxins – for example, hydrogen fluoride? A. Yes, our scope of work was discussed to include CO, carbon monoxide, and VOC's, per the discussion with the team at Hillman, as well as Chief Morris, who was instrumental in preparing the hazard mitigation analysis, to limit or address only the carbon monoxide and volatile organic compounds as potential species of interest.
>
> Transcript, Page 430.

Before being released into the market, BESS containers and their components are tested at independent laboratories in terms of the potential for explosions and fire, and their spread. These results are made public to land use agencies like the Board. There is reference in the record to certain "UL" test results (UL 9540 and UL 9540A, which are specific to energy storage systems).

Dr. Marr confirmed that UL9450A testing does not concern itself with HF:

> Their test method, UL 9540A, which is conducted by various national test labs, is – the purpose of that test is to determine the fire/explosion hazards based on, yes, the thermal runaway behavior of these types of systems. Q. Thank you. And would those labs throughout the country that are licensed to do these UL tests be testing for hydrogen fluoride? A. Not – per the standard, the UL 9540A standard, hydrogen fluoride is not required."
>
> Transcript, Page 437.

Dr. Marr testified that the scope of work for the Hazard Dynamics model was driven by the Hazard Mitigation Analysis.[6] But when questioned, he indicated that he had not seen the HMA for the Project.

[6] A draft HMA was submitted to the Board in this proceeding (Exh. DS-G-20 (1)).

> Q. Did you have contact with Chief Morris on another project or for this one? A. So the way we interact is that through the hazard mitigation analysis, that's what identifies the need for doing a plume study or other studies, whether it's fire study, explosion study, et. cetera, et cetera. And so by being contracted through ESRG, we were basically asked to provide a plume study. Because there was a decision in the HMA that said we need to look at this particular risk. And so that was the scope of our work. Q. I see. So the scope of work we talked about in the beginning which limited your study to carbon monoxide and volatile organic compounds was a scope of work provided by ESRG? A. It was a scope of work in discussions; right? So this was discussions – projects evolve, as we start learning more about things. So there were scope-of-work discussions with the team in, again, trying to interpret the models in the right way. It's all about the interpretation. Q. But who did Hazard Dynamics contract with? A. ESRG is who we contracted with. Q. And have you seen the draft hazard mitigation analysis for this proposal? A. We have not reviewed that. We. Again, relied on conversations with ESRG in terms of what they were needing to support that document.
>
> Transcript, Pages 460 and 461.

The Hazard Dynamics study is based on a 30-minute exposure. It became clear through the testimony of Dr. Marr that the plan is to have the first responders move people out of harm's way within that 30-minute period.

> Yes. And I will say – and I want to kind of bring this up a little bit in terms of the AEGL, which we choose what we choose. This is in discussion with Chief Morris – not just Chief Morris, but a lot of folks we work with. We work with a lot of folks. We've talked to a lot of other AHJs, authorities having jurisdiction, in trying to understand how do we interpret these results. In our discussions with a lot of folks, the 30-minute ends up – it's a nice number, because you have to also, again – this whole purpose that we like to think about of these studies is to help the fire service understand how do you keep people safe; right?....What we've heard from them is that 30 minutes is a good proxy because they can do something – things can happen within 30 minutes, whether it's hey, shut your doors, right? Shelter in place. That's something that they can ask you to do. Whether it's somebody just being like, man, imagine you had a campfire and you're sitting around the campfire. The wind starts blowing smoke into your face. What do you do? You get up and walk out. You walk away. So within 30 minutes someone can reasonably – you know, the question is, within 30 minutes can someone reasonably move from an area that is AEGL-2 and above to an area that is AEGL-1 and below. Those are some of the considerations I've heard from firefighters when they look at these types of studies. Those are the things they're looking for.
>
> Transcript, Pages 499 and 500.

Further:

> Here you have a little bit of this AEGL-2 going beyond the fence line here; right? And so that's where the fire department would be looking at and developing the right attack. But again, this is 30 minutes, and the question is can you close your doors in 30 minutes? Yes, you can, right. Can you walk, you know, 10 feet to cover in 30 minutes, outside of that space? Yes, you can.
>
> Transcript, Page 510.

This testimony on this question of the safety of nearby occupants taken as a whole demonstrates a few things of importance:

1. There is recognition by the only expert for the Company that did an air dispersion model that toxins can get "past the fence line" and that the fire fighters might have to tell people to "close their door" or "walk away," or "walk to cover." But this ignores the fact that there is a 470-unit elderly community which includes an assisted living facility in close proximity to the Project Site. Many in this population will have difficulty moving out of harm's way.
2. This testimony assumes that the first responders will be able to tell, with some kind of monitors, where the edge of AEGL-2 is ("within 30 minutes can someone reasonably move from an area that is AEGL-2 and above to an area that is AEGL-1 and below" – Transcript at Page 500). There is no evidence in the record that it will be possible for first responders to advise members of the community on how to move around to avoid what will be a shifting plume of toxic gases.[7]

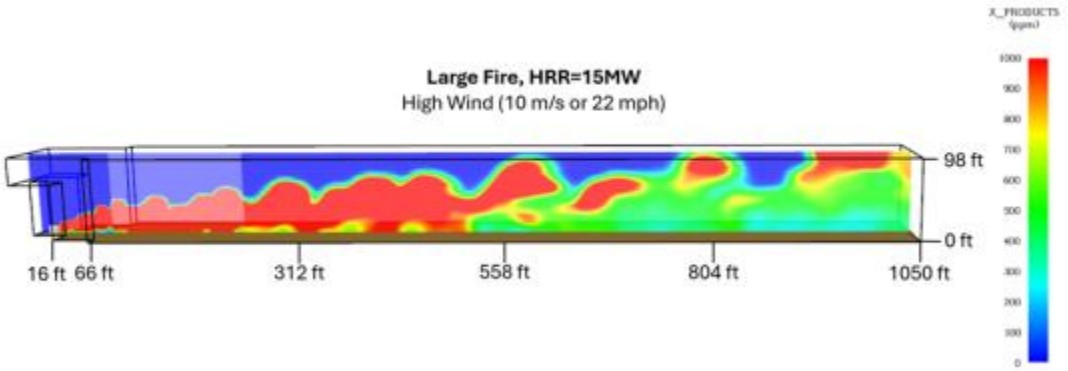
[7] In fact, there was evidence that the monitors typically used, the "four or five gas meters", do not measure for HF (Transcript, Pages 1279 and 1280). There is no evidence in record of a first responder ever using a monitor that measures HF and being able to use this to relocate occupants to safety.

3. It is clear that the modeling done by Hazard Design was very much driven by ESRG, the firm that has a keen understanding of firefighting but lacks chemical engineering expertise.

Dr. Marr confirmed that HF would be in the plume he modeled:

> Q. But what about a low-percentage species? A. If it's not in the chemical model, it would not be in there. But at the same time, with these low chemical species, they follow the same path; right? They're all mixed. You're not going to get, say HF elsewhere, other than in this plume – right? Because that is – that is how fluid mechanics works. Once it's well mixed, it stays mixed. It's not going to automatically stratify and go higher or lower. In fact, HF is lighter than a lot of this stuff. So it will stay mixed within that plume. So it's a good marker for where any gas species – gas species coming out of the container would be."
>
> Transcript, Page 524.

The following is Figure 17 of Dr. Marr's report, as modified to provide distances (Exh. RR-DS-6 (1), at Page 19:



This figure shows in red color a dinosaur-shaped plume that remains close to the ground and stretches downwind to about 600 feet before elevating to heights above nearby structures. The caption to this figure reads: "Figure 17: The Model of a full unit fire with high wind conditions. In this scenario, the combustion products do not rise immediately due to high wind conditions,

but they do rise over time while also mixing with air. X_PRODUCTS is the concentration of combustion produces in ppm. The distances shown are measured from the front of the enclosure." Exh. RR-6 (1) at page 18.

The red plume shown in Figure 17 (which represents a concentration of over 1,000 parts per million of all gases within the plume) includes HF (as per Dr. Marr's testimony as quoted above).

Chief Morris, whose firm hired Hazard Dynamics, testified differently, saying that the HF "falls out of the plume."

> "Scientifically we know that the reactivity of HF or wall absorption that's been discussed previously – so the ability of that HF to make contact with the metals inside the enclosures, the encasing metals of both the cell, module, rack and enclosure level, that <u>any HF falls out of a plume rapidly and quickly</u>.
>
> Transcript at Pages 1264 and 1265.

Chief Morris was asked about this testimony on cross examination:

> Q. Thank you. But in your comment, which was in the context of the fact that HF is highly reactive to water and other elements, like metals, around it, you said it falls out of the plume. I'm just wondering, does this go into the ground? A. To one theory – and again, I don't want to speak outside of my – again, I'm not a chemical engineer, and I don't specifically have an expertise in toxicity. My understanding of the interpretation of the data and the results of lack of findings of HF include reactivity locally with the metal enclosures and its elimination from any smoke that would be detected at a further point such as the project site boundary.
>
> Transcript at Pages 1272 and 1273.

Chief Morris did not answer the question of what happens to the HF that "falls out of the plume", other than to confirm that he does not know.

In Exh. EFSB-S-34, Chief Morris responded to an EFSB question on release concentrations this way:

During a BESS fire or severe failure event (e.g., internal cell failure progressing to thermal runaway), the system can release a mixture of gases and fine particulate. Depending on the chemistry, this may include carbon monoxide, carbon dioxide, hydrogen, various hydrocarbons species, HF and other acid gases, and other sub-micron solid particulates. In the immediate vicinity of the burning, venting, or off-gassing modules, the concentrations of individual gases can exceed IDHL values for irritant/toxic species, and total particulate concentrations can be high enough to present an inhalation hazard. Based on testing and monitoring following real world failures, this condition would be present itself primarily within the fenced area of the BESS site. Particle size distributions are typically dominated by fine and ultrafine particles in the respirable range (order of 0.01-1um), with some larger agglomerates, which remain suspended and can be transported downwind.

The phrase "real world failures" as used above was mentioned numerous times during the hearing sessions, but the record does not include any studies that support the position that toxins do not go past the property line of BESS facilities (the "fenced area").

Since Chief Morris indicated in the response to EFSB-S-34 above that "HF and other acid gases, and other sub-micron solid particulates" can be produced in such an event, it is curious why ESRG specifically limited the Hazard Dynamics scope of work for it's air dispersion model to CO and VOC's.

While Chief Morris has impressive credentials as a former Fire Chief, he does not have the scientific and engineering qualifications of the chemical engineers at ioiMosaic. On the other hand, Dr. Georges Melhem, the Founder, President and CEO of ioMosaic holds a Ph.D and M.S. in Chemical Engineering (Exh. SD-iMC-A).

Dr. Melhem testified as follows (Transcript, Page 538 et. seq):

Q. Dr. Melhem, are there substances in BESS battery materials that can become HF in a thermal runaway event or fire?

A. Yes. If the electrolyte or the electrolyte mixture that's used in the battery contains something like lithium phosphorus hexafluoride, that molecule has six fluorines in it, and it will decompose when heated, roughly at about 200 degrees C, somewhere between

180- and 200-degrees C. LiPF6 will break down and decompose to make fluorinated compounds. The fluorinated compounds can react with moisture to create hydrogen fluoride, and the hydrogen fluoride compound as well as other fluorinated compounds and complexes could also take the form of particulates. They could be also dispensed along with HF, and can be deposited, you know, downwind under the right conditions.

Q. Thank you. With regard to the HF, hydrogen fluoride, there was testimony earlier in this matter from Dr. Marr, (Hazard Dynamics) which I'll quote from Page 516 of the transcript. He testified, "Well, if I put it in the container and it comes out as HF and it starts hitting the sides of this container metal, what happens to the HF? It goes away. It may not be able to be outside of that – of the container, because it reacts with things inside the container." Do you agree with that statement?

A. No, I respectfully disagree. Although HF is highly reactive, the reaction – the reaction between HF and any metal surfaces or any other, you know, objects in the battery container or the battery module or the rack, the residence time is so short; it's far too short for the HF to react with any of these surfaces. Furthermore, these surfaces, if they're metal surfaces, they're already oxidized, and they do contain a very small, micron-level oxide layer that cannot be easily, you know, corroded away by HF. It takes time. So no, I don't agree with that statement at all.

Neither air dispersion model (ioMosaic and Hazard Dynamics) appeared to account for the sound barrier walls planned to abate noise, which will be 30 feet tall along the eastern edge of the Project Site and 18 feet tall on the southern edge. The EFSB staff made a record request asking DiPalma and Sheehan's experts at ioMosaic to examine the impact of the walls on the fate and transport of CO and HF into the community. This analysis was completed. The presence of the sound barrier walls does not materially shorten dispersion distances from the BESS, and actually creates a more hazardous condition:

- Due to the turbulence and mixing at the top of the wall, and the expansion that occurs on the leeward side, higher concentrations of contaminants are drawn closer to the ground on the leeward side.

- Because of the additional mixing as a result of travelling over the wall, and the log-linear dependence of distance on initial dilution, we don't expect any material change to our original dispersion estimates.

- For both carbon monoxide and HF, lower flow rates at the F stability classification, such as from the modeled BESS rack fire, the presence of the wall results in a more hazardous scenario than the previously modelled condition as the higher concentrations are drawn toward ground level.

  RR- EFSB-11 at page 2.

In connection with the above discussion about toxins extending into the community around the Project Site, the "community" was described as follows by the Company in Exh. EFSB-SS-8:

> There are 14 single family residences within 1,000 feet of this site. The Company's response to EFSB-G-13 identified 470 multi-family units within 1,000 feet of the Project Site; however, it is important to note that not all of these 470-multi-family units are in fact within 1,000 feet of the Project Site. The 470 multi-family units refers to the entirety of the multi-family units at the Emerald Court development. Only a portion of the Emerald Court units are actually within the 1,000 feet radius, but due to a lack of GIS data, it was not possible to quantify the units within 1000 feet more accurately.

Below is a depiction of the community (with scale) as shown in Exh. Attachment C - Supplemental, Figure 6.1, Page 22 of 41 (the Project Site is outlined in yellow; the western part of the Emerald Court senior housing facility is identified and the structures labeled with an "R" are single family homes.)

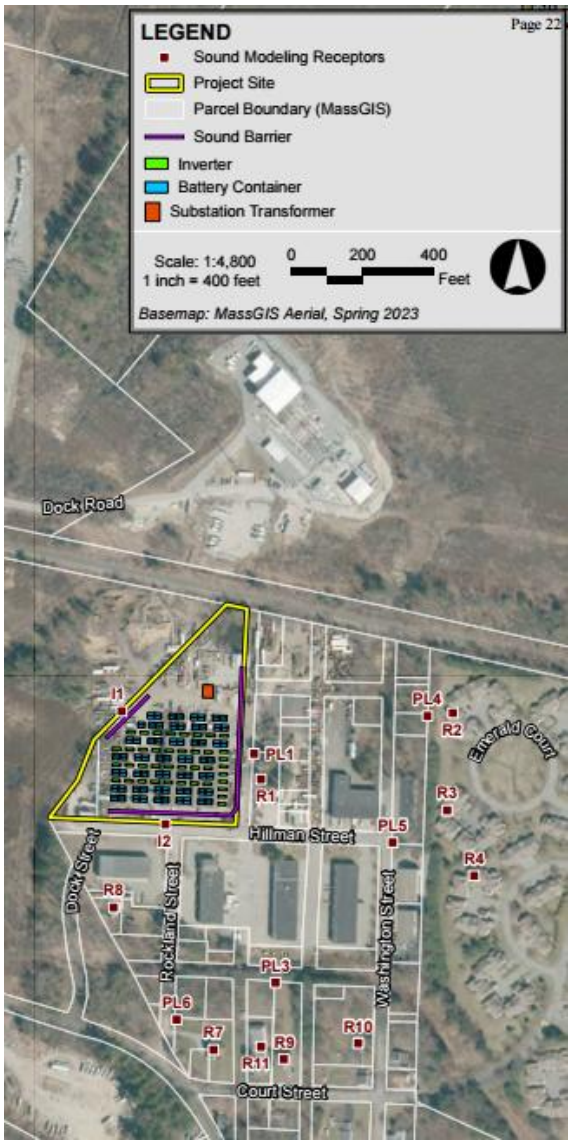


Figure 6.1, Page 22 of 41, Attachment C-Supplement.

The full Emerald Court community can be seen below in Figure 16, Page 20, Pre-filed Testimony ioMosaic (Exh. SD-iMC-B), which illustrates the spread of the toxin HF into the community in a fire of one BESS container in D5 stability/wind speed conditions (AEGL-2, the blue circle, continues into the western half of the housing village).

Figure 16: Entire BESS Unit Fire - HF Toxicity – D5 Conditions – Footprint at 6 ft Elevation

There is another air dispersion model in the record. In Exh. HEC-SD-S-1.17, there is a model prepared by Coffman Engineers dated July 14, 2025. This modeled battery storage project will be located in Santa Fe County, New Mexico. The executive summary indicated the purpose of the study:

> This report documents the air plume simulation modeling effort conducted to assess potential fire/thermal runaway related to hazardous material released from the Rancho Viejo battery energy storage system (BESS) facility. This analysis seeks to improve the understanding of the potential downwind flash fire, explosion and toxicological hazard during a battery failure incident.

The study concludes that "Plume modeling result for combustion phase fire scenarios indicate that gas concentrations will exceed the limit required to cause health effects in

unprotected persons, including sensitive individuals, at a distance of closer than 1,306 feet from the affected unit(s).” Exh. HEC-SD-S-1.17, Page iii.

The Rancho Viejo is a small project; 38 BESS containers compared to the 134 at the Project Site. The specified BESS units also use lithium-iron-phosphate batteries. The study continues:

> When ignition of the gases released during the thermal runaway event occurs, the resulting fire tends to consume a large amount of the flammable gases but the combustion of thermal runaway gases is expected to produce several toxic gas species, including but not limited to hydrogen fluoride (HF), carbon monoxide, sulfur dioxide (SO2), hydrogen cyanide (HCN), nitric oxide (NO) and hydrogen chloride (HCl).
>
> Exh. HEC-SD-S-1.17, Page 4.

What is interesting about the Rancho Viejo study is that it was commissioned by the BESS proponent, not a group of concerned citizens with properties in the area. The closest habitable structure to the planned facility in Santa Fe County was further than 1,300 feet away (so outside the area of concerns with regard to toxins).

The figures in the Rancho Viejo and ioMosaic models are quite similar:

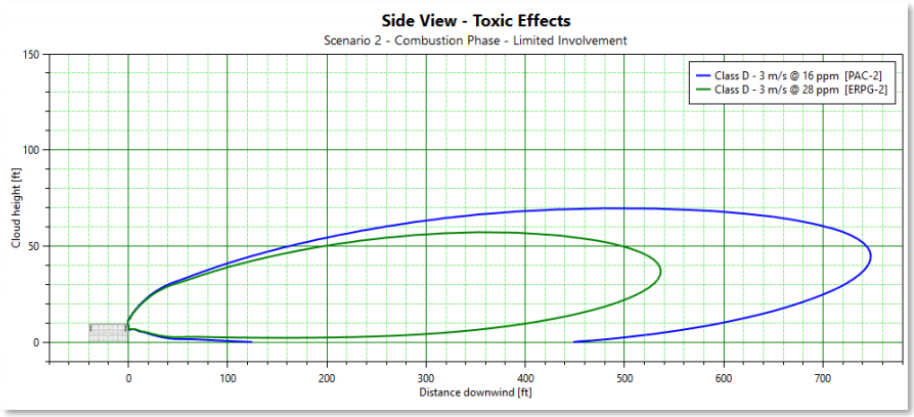
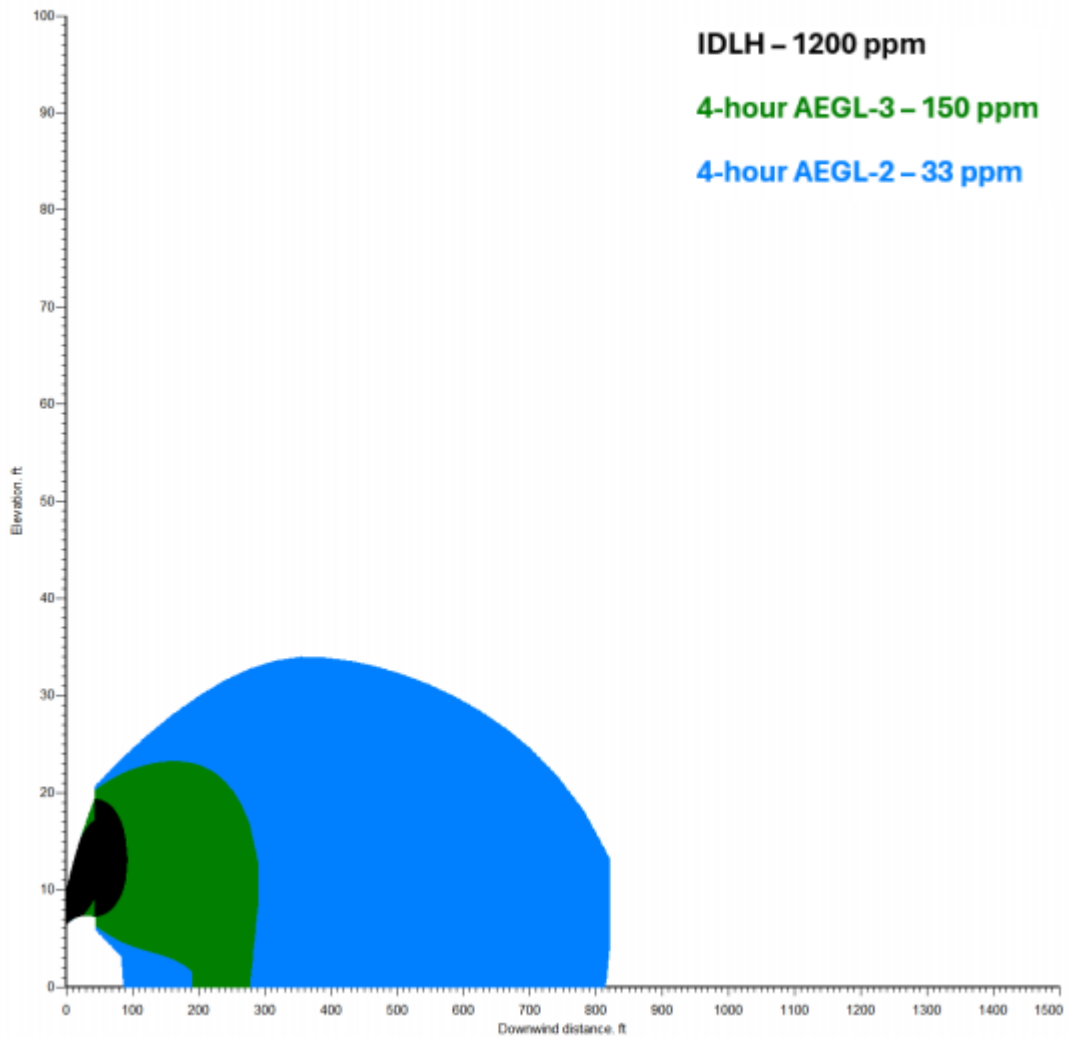


Figure 13 – Scenario #2 Toxic Gas Cloud (Class D at 3 m/s Atmospheric Conditions) Side View

In the above, using stability classification D with 3 m/s the toxic gas cloud extended downwind over 700 feet, mostly at or close to ground level.

Using D5 (very close to D3), ioMosaic modeled CO going about the same distance (Page 12 of Exh. SD-iMC-B):

Figure 8: BESS Rack Fire - CO Toxicity - D5 Conditions - Vertical Dispersion Profile



ioMosaic's plume analysis for HF at D5 is about 1,000 feet if an event involved one container, and about 570 feet if only one rack (SD-iMC-B). Plumes extend farther if under a F air stability classification.

A danger zone is becoming clear from the data in this record. Using the D and F air stability classifications makes good sense. Even under the most favorable conditions, toxic gas clouds are expected to extend downwind in the range of 600-1,300 feet (in some cases even farther). The

statements that HF "falls from the plume", or that all toxins do not go past the property line do not hold up.

One home owned by DiPalma and Sheehan is located about 40 feet from the closest part of the Project Site, and about 84 feet from the closest piece of proposed equipment. As to this property, Hazard Dynamics concluded: "A house is approximately 80 feet away from the Hillman Energy Center site…Based on the model results and the prevailing wind direction at the site, it is possible that carbon monoxide could cause serious health effects (reach AEGL-2 levels) at the nearest house…" (Exh. Attachment H, Page 2).

d. National Fire Prevention Association

The Company and its expert witnesses often referred to the National Fire Prevention Association ("NFPA") standard 855, both prior versions and the latest which is dated 2026. The Company has confirmed that it is bound to meet the provisions of the 2026 edition. Transcript, Page 1064-1065 and Exh. DS-S-16. NFPA 855 (2026) incorporated new language concerning toxins that can be released from a BESS thermal runaway or fire.

DiPalma and Sheehan referenced sections of Annex G of NFPA 855 (2026) throughout the proceeding. The Company's expert, Chief Morris, pointed out that Annex G is advisory only. Transcript, Page 1274. However, Annex G contains valuable information that should be considered whenever dealing with a lithium-ion BESS for guidance on thermal runaway fire risk and mitigation. Within Annex G is a flow chart that demonstrates the necessary elements of an HMA. Transcript, Page 955. Most importantly, the purpose of Annex G is to help the AHJ implement safety requirements:

> G.1.2.1….The purpose of this annex is to help stakeholders, designers, and authorities having jurisdiction (AHJs) understand and implement minimum safety requirements through a permitting and inspection process to ensure efficiency, transparency, and safety in their local communities.

Additionally, Annex G lists hazard conditions for lithium-ion batteries under emergency/abnormal conditions, including chemical hazards:

> G.2.6.2(2) … *Chemical hazards:* There can be the potential for off-gassing of hazardous vapors under abnormal conditions depending on the size of the cells and level of failure.

DiPalma and Sheehan's fire safety expert Professor Milosh Puchovsky agreed that with regard to the above section, it is good engineering practice to consider the impact of toxic and highly toxic gases such as these, as recommended by NFPA 855. Transcript, Page 929 – 930.

In Annex G the following new language (indicated by gray shading) was added in the 2026 version of NFPA 855 at pages 94 and 95 (Exh. RR-EFSB-12):

> G.7.3.6.1….During cell thermal runaway, the battery undergoes a rapid self-sustaining increase in temperature. In this situation, additional flammable and toxic gas species might be produced including hydrogen fluoride (HF), hydrogen cyanide (HCN), various hydrocarbon gases (e.g., CH_4, C_2H_4, C_2H_5 and so forth), in addition to those gases produced during cell venting. The gas temperature during thermal runaway can reach much higher levels, often exceeding 500 degrees Celsius (932 degrees Fahrenheit), resulting in the rapid release of large volumes of flammable or toxic gases, posing a significant hazard to human health and the environment.

DiPalma and Sheehan conclude this section on air dispersion modeling and the safety concerns about toxins extending into the surrounding community with one rendering in the record that depicts the close proximity of Emerald Court to the Project Site.

Exh. RR-EFSB-3(1) Part 1.

While the above rendering is not scaled, Figure 6.1, Page 22 of 41, of Exh. Attachment C-Supplement allows one to scale the distance between Emerald Court and the Project Site, the closest residential units of which are in the range of 600-650 feet away from the Project Site. There are also numerous single-family homes even closer as shown in Exh. Attachment C-Supplement.

e. The HMA and ERP

The Hazard Mitigation Analysis ("HMA") and Emergency Response Plan ("ERP"), as alluded to above, are important documents to be considered by land use authorities in making siting decisions for BESS facilities, and yet in the proceeding before the Board, these were offered quite late in the process, only in response to a discovery request, and as draft documents to be finalized after the EFSB must make a decision on the pending Petition.

Professor Puchovsky testified as to the serious shortcomings of the draft HMA and ERP, reviewed below.

i. The Hazard Mitigation Analysis ("HMA")

The 2026 edition of the National Fire Prevention Association ("NFPA 855") requires an evaluation of the consequences of a thermal runaway condition or a mechanical failure condition in a single BESS unit. NFPA 855 Section 4.4.2.1(1). The draft HMA that has been submitted by the company does not provide an evaluation of such consequences. Transcript, Page 930. The HMA actually does not rely on the new 2026 standard of the NFPA at all. The HMA notes that it is based on the 2020 version of the NFPA. Transcript, Page 932.[8]

The HMA is missing many important aspects outlined by the 2026 NFPA 855. One is the requirement for consideration of the goals and objectives of all stakeholders. Professor Puchovsky interpreted the NFPA's definition of stakeholders to mean "any party that has a vested

[8] In DS-S-16 the Company was asked if it agrees that the 2026 edition of NFPA would apply to the Project. Counsel responded: "Objection. This request calls for a legal conclusion. 527 CMR 1.05 calls for compliance with the 2020 edition of NFPA 855. Chief Morris also responded to the question: "Notwithstanding the forgoing objection, the Company intends to comply with NFPA 855, 2026 edition."

interest in the energy storage system and its potential outcome under both normal and abnormal operations." Transcript, Page 932. The HMA did not address the goals and objectives of the stakeholders such as DiPalma and Sheehan, who own many buildings in the immediate vicinity of the project area.

Furthermore, it is unclear what standards the HMA relied upon in quantifying fire and explosion hazards, as well as fire development response to such events. Additionally, NFPA 855 requires that the overall installation address any emergency power supply system to the BESS under both normal and abnormal conditions. There is no such reference in the document. Transcript, Page 936.

While the HMA states that upon failure of an explosion mitigation system an explosion could result, there is no analysis as to how that explosion or resulting fire would be characterized, nor does it explain the threat that would be present to the emergency response team and the surrounding community. Transcript, Page 934. Likewise, the HMA fails to address the range of worst-case hazard scenarios. While fire suppression systems are noted, they are not proposed. Transcript, Page 935-936. Professor Puchovksy specified some of the hazards that should have been identified in the HMA, below.

> So again, this is something that should be addressed by the HMA, to identify sort of the range of hazards that could be produced – right? – whether it's from a thermal runaway event, from an explosion potentially that would occur, from stranded energy in energized equipment, from just the amount of water, if water is to be used. Again, it's really unclear from the documents that were produced should you be applying water or not applying water; right? And if you do apply water, sort of how much is going to be necessary? Because what I understand is you're going to apply firefighting water. Again, I don't know how much would be necessary and for what purpose. How that's collected, where it's collected, what that runoff might be is something that is to be addressed by the HMA. And so how that differs – again, differs to what; right? Are you talking about a chemical plant fire or are you talking about a fire in, you know, a single-family home?

Transcript, Page 958-959.

Professor Puchovsky continued, emphasizing the importance of addressing all potential hazards in the HMA, which the company has not provided.

> But that's where the HMA is so critical, to be able to address all those hazards. And some of those hazards are going to be addressed by built-in systems, and others need to be addressed by responding personnel, and how they do that, you need to articulate those hazards. If there's an explosion, well, how big? Or if it doesn't explode and there's just this toxic cloud of gas that's emitted because for whatever reason it hasn't heated up to the point where it causes a fire but it's emitting a tremendous amount of gas – I've seen a fair amount of this before, you know, a lithium-ion battery, which is really what these are in some way. The energy storage systems are lithium-ion batteries compressed. There's just more and more of them, to be able to hold more energy. But as they go into thermal runaway, they can emit vast amounts of smoke for extended periods of time, and smoke, I mean, any affluent that's produced. Smoke is usually from a fire, but in this case, they're just toxic species that are being emitted. And that can go on for quite some time before an ignition actually occurs.
>
> Transcript, Page 959-960.

The necessity of an HMA for a BESS project is at the core of NFPA 855. Transcript, Page 945-946. Whereas other types of fire hazards are addressed in the fire code with specific, prescriptive provisions, BESS projects are so new that they do not have local or state building codes attached to them. There is no detailed procedure for the safe installation of a BESS project in the fire code. That is why NFPA 855 (2026) emphasized the importance of the HMA in identifying and addressing fire hazards for BESS projects, as Professor Puchovsky emphasized in his testimony.

> So, at the core of NFPA 855 is the hazard mitigation assessment. So 855 was introduced because, unlike other types of fire hazards, which are addressed in what I would say is a prescriptive manner – you look through the fire code. There are prescriptions in that code that would address how one might be able to provide safety. BESS systems are different, so there really aren't prescriptive provisions […] So in NFPA 855, while it does some of

> that, at the core is this hazard mitigation assessment, and that hazard mitigation assessment is there for anybody that want to make a decision about fire safety; right? So it's there to address those hazards, identify those hazards, and the range of conditions under which those hazards could occur, and then to identify protective measures. And those protective measures may be built into a unit, or they may need to be added elsewhere, to develop the overall safety.
>
> Transcript, Page 945-946.

In its responses to discovery, the Company has referred to the Authority Having Jurisdiction ("AHJ") in the plural. See responses to EFSB-S-7, 11, and 16 - all say **AHJs** plural. The 2026 updated version of NFPA 855, in section 3.2.2, there is provided a definition of the AHJ as: "An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure." (Exh. DS-T-2).

This is elaborated on in the NFPA Annex, Section A.3.2.2. Authority Having Jurisdiction (AHJ). This section reads in part:

> The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA standards in a broad manner because jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the AHJ may be a ...state...department... having statutory authority." (Exh. DS-T-2)

The EFSB is a state agency having statutory authority to decide whether to waive local zoning by-laws. In doing so, it balances the benefits with the potential harm. Here is the applicable language on the EFSB's role in this proceeding which comes directly from the Petition in this matter, at pages 38 and 39:

> When making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Siting Board examines:

> (1) the present or proposed use **and any alternatives or alternative sites identified**; (2) the need for, or public benefits of, the present or proposed use; and (3) the environmental impacts or any other impacts of the present or proposed use. Cranberry Point Energy Storage, LLC, D.P.U. 22-59, at 40 (2023); Medway Grid, LLC, D.P.U. 22-18/22-19, at 34 (2023). The Siting Board then balances the interests of the general public against the local interest and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public. Cranberry Point Energy Storage, LLC. D.P.U. 22-59, at 40 (citing Boston Gas Company, D.T.E. 00-24, at 2-6 (2001); Tennessee Gas Pipeline Company, D.T.E. 01-57, at 5-6 (2002)); Medway Grid, LLC, D.P.U. 22-18/22-19, at 34 (citing, e.g., NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 17-147, at 8 (2019)). (Bolding provided).

The EFSB balances the interests of the general public against the local interest and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public. This makes the Board an AHJ, using that term broadly as prescribed in the above-quoted NFPA Annex, Section A.3.2.2.

Whether or not the EFSB agrees that it is an AHJ, the Board needs more complete versions of the HMA and ERP in order to conduct the balancing of interests in determining whether it is reasonably necessary for the convenience or welfare of the public to put a BESS facility in this location. In order to balance the interests of the public, it will be crucial for the Board to understand the risks and the approaches to managing those risks that will be employed.

The HMA and ERP both still being in draft form will make it difficult for the Board to balance the interests of the public with the interests of the Company. There has been no timeline proposed as to when they will be completed. In response to D/S-S-28, the Company response was simply: “The Company will submit the ERP and HMA prior to commercial operation.”

Neither document indicates what additional information is necessary, or what final stage of BESS design completion is necessary to finalize the document. Transcript, Page 935. This

information is crucial to determining whether it is reasonably necessary for the convenience or welfare of the public to put a BESS in this location.

ii. The Emergency Response Plan ("ERP")

While the purpose of an HMA is to articulate the hazards of a potential project, the goal of an ERP is to lay out the actions to be taken by emergency personnel in response to certain cues. Transcript, Page 951. However, Professor Puchovsky emphasized that an ERP cannot be developed until an HMA has been completed because you need to know the potential hazards of a project before you can form a plan to respond to them. Transcript, Page 960. Additionally, the draft forms of these two documents are not cohesive. Professor Puchovsky pointed out that the ERP brings up hazards that are not addressed by the HMA in his testimony.

> You know, the ERP brings up hazards that aren't addressed by the HMA, like stranded energy. It talks about explosions. The emergency response plan seems – it creates warnings, but it doesn't tell anybody what to do. It just says "be careful." Yet the HMA says, "Well, if my explosion prevention system fails, an explosion could result, and ERP's going to handle it." Well, how? What is the purpose of my fire detection system? How is all this supposed to work together under the range of scenarios? And so that should be asked of any HMA.
>
> Transcript, Page 989-990.

Chief Morris stated that the ERP will stay in draft form until the final walk-through and training with the fire department of the physical site. Transcript, Page 186-187. He stated that this was to allow for the fire department and AHJ to engage in a "collaborative process closer to commissioning," but DiPalma and Sheehan argue that this will actually have the opposite effect. By not providing the EFSB or local boards, such as the Board of Health, with a finalized version of the ERP until the site is finalized, they will not get to have input in the development process. Neither the Board nor local boards will be able to consider the ERP's emphasis, or lack thereof,

on public health and safety. If not final drafts, at least these documents should have progressed to the point where they can assist the Board in a thoughtful analysis of the risks and responses.

f. Proprietary Information

Three record requests sought important information that was not provided because the expert witness (Chief Morris) testified that it is proprietary. Here is what was not provided for this reason:

1. Exh. D/S-S-2 – Heat Release Rate calculations and supporting raw data (Chief Morris: "this data is part of proprietary manufacturer test records and are not included in the attachments."). *Note, this was eventually provided after the close of the hearing*.

2. Exh. D/S-S-6 – Electrolyte composition (Chief Morris: "traditionally proprietary manufacturer information").

3. Exh. D/S-S-8 – Vent flow area, opening pressure, or failure pressure (Chief Morris: "Venting behavior is addressed through UL: 9540A testing and NFPA 69 Analysis rather than through disclosure of proprietary vent design parameters").

This information was sought so that ioMosaic could prepare the most accurate air dispersion model. On the witness stand, Chief Morris testified that he did not ask for this information and did not know if it is in fact proprietary. He said he assumed it was:

> Q. Well, there was also a UL 9450A test of the cell, the module and the unit. So when you got this request, did you reach out to the laboratory – there were different laboratories for each one of those – to see if you could get the heat release rate? A. [Morris] I did not request raw data of any company regarding UL 9450A. Q. How do you know that it's proprietary? A. [Morris] That would be an assumption I made on why it's generally not included. I'm not making a legal argument to that."
>
> Transcript, Page 1285.

IV. Protecting Drinking Water and the Wetlands

a. Avoid Degradation of Groundwater Quality

The Company proposes to locate the planned BESS facility in what is known as a Zone II, which is a wellhead protection area that has been determined by hydrogeologic modeling and approved by the Department of Environmental Protection ("DEP") under its Drinking Water Program. (see 310 CMR 22.00 et. seq.). This particular Zone II protects the public drinking water supply of Tewksbury Hospital. According to the filed Consumer Confidence Report on the well, in the year 2024 the hospital drew and used over 3,100,000 gallons of water from this well (Exh. D/S-T-30).

Section 5.6 is part of a regulatory framework that includes the Federal and State Safe Drinking Water Acts and regulations promulgated thereunder. Critical language of Section 5.6 is taken directly from the above cited State regulation, other parts from a sample zoning by-law encouraged by DEP and posted on its website.

While a BESS system is not a prohibited use in a Zone II, siting such a facility therein necessitates a careful and prescribed look at applicable restrictions and protective parameters. It also requires enough land to accommodate the proposed size of the facility while meeting specific regulations and standards. State regulations prohibit making more than 15% of a Zone II site impervious surface "**unless a system for artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality**": 310 CMR 22.21 (2) (b) 7. The headings and subheadings of this section are as follows: 310 CMR 22.00 (Drinking Water), subsection 22.21 (Groundwater Supply Protection) sub-subsection (2) (Wellhead Protection

Zoning and Nonzoning Controls). Section 5.6 is an essential part of ensuring compliance with this key State regulation, which places an emphasis on local "**zoning controls.**"

The Company's proposal shows 36% impervious surface, more than double the allowed percentage (Exh. Attachment B Supplemental, Page 1). The Company's proposal does not call for an artificial recharge of precipitation that would satisfy the above State standard (as discussed below). The Company acknowledges as much in the requested waiver of Section 5.6.

The Company appears to believe that because it will be decreasing the percentage of the Project Site which is impervious from what exists today, no further consideration of what type of system should be used for this unique purpose is warranted. However, both the current and proposed uses are over the 15% allowance and thus the protective State and local regulations apply.

Also, the Company's determination to present what it considers to be an improved condition (reducing impervious surface area from the present condition) works against another requirement; that the BESS facility be "located within a self-containment area so that in the event of a fire, fire extinguishing chemicals will be completely contained" (the wording in quotes is from a DEP document identified and discussed below). So, in the present case, more impervious surface resulting from the requirement to place the BESS in a self-containment area is actually better for the environment, provided it is combined with the right kind of artificial recharge system.

The critical question is: What does the State Regulation 310 CMR 22.21 (2) (b) 7. mean by the words, "unless a system for artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality"?

Clearly, the goal is to prevent degradation of groundwater quality. There are two indicators from the DEP which provide clarification. The first is the sample zoning by-law posted on the DEP website that provides the following:

> "[F]or lots occupied, or proposed to be occupied by other uses a stormwater management plan shall be developed which provides for the artificial recharge of precipitation to groundwater though site design that incorporates natural drainage patters and vegetation and though use of constructed (stormwater) wetlands, wet (detention) ponds, water quality swales, sand filters, organic filters, or similar site-appropriate best management practices capable of removing nitrogen and other contaminants from stormwater."
>
> (See: https://www.mass.gov/info-details/sample-impervious-zoning-bylaw. The model by-law is called: "Sample Impervious Zoning By-law")

The same language appears in Section 5.6 (the Town adopted the State's suggested by-law language nearly verbatim). This provides civil engineers and stormwater management experts with the tools required to design a BESS site in a Zone II with the features that will best protect the public drinking water supply (use of a vegetated stormwater system, "Vegetated System").

The second indication is a document signed by the Commissioner of the DEP on August 20, 2025, entitled "Guidance on Public Health, Safety and Environmental Impacts of Electric Battery Storage and Electric Vehicle Chargers." This guidance ("Guidance") is attached as Exhibit A to the Motion for Partial Summary Decision ("Motion") filed by DiPalma and Sheehan in this matter. It is also a public State document of which the Board can take judicial notice. The Climate Act directed the DEP, in consultation with the Board of Fire Prevention Regulations ("BFPR") and the Department of Energy Resources ("DOER") to issue the Guidance.

One section of the Guidance deals with the placement of BESS facilities in a Zone II. The Guidance says that public water suppliers and **BESS project applicants** should heed a prior

guidance document on proposed solar and wind energy projects on lands owned or controlled by public water systems for drinking water. The Commissioner then recites the safeguards the DEP expects BESS project applicants to observe (originating in that prior guidance and reiterated in the more recent one required by the Climate Act):

> Example conditions include locating BESS above the 100-year floodplain and within a self-containment area so that in the event of a fire, fire extinguishing chemicals will be completely contained. (Guidance at page 11.)

The Company is expected to take the position that the Guidance only applies to those who own or control the public water supply. However, this would result in one landowner (who happens to own or control the public water supply) having to provide full containment for a proposed BESS within a Zone II, while an abutter (who does not own or control the system but is located in the same Zone II) is able to ignore the requirement for its BESS. This is not what is meant by the Guidance, which is a directive that BESS project applicants heed the prior guidance.

Between the DEP's suggested local zoning by-law, which the Town of Tewksbury adopted and which the Company asks the EFSB to waive, and the Guidance, it is clear that if a developer chooses to locate a BESS in a Zone II it should:

1. Not locate the facility within the 100-year floodplain
2. Ensure that the battery storage units are in a "self-contained area so that in the event of a fire, fire extinguishing chemicals will be completely contained."
3. Incorporate "natural drainage patterns and vegetation and …. use constructed (stormwater) wetlands, wet (detention) ponds, water quality swales, sand filters, organic filters, or similar site-appropriate best management practices capable of removing nitrogen and other contaminants from stormwater."

The Project Site is not in a 100-year floodplain. However, the Company's plans do not incorporate placing the battery containers in a self-contained area, nor does the plan incorporate the Vegetated System prescribed in Section 5.6, following the DEP's sample by-law.

Another indicator that the self-containment requirement applies in this case can be found in the draft host community agreement negotiated by the Company and the Town of Tewksbury ("Host Community Agreement" or "HCA"), which is found in Exh. TEWK-JC. Section 12G at page 13 reads:

> Water Collection – Fire Suppression: Runoff resulting from water used in fire suppression activities will be directed into the stormwater management system for the Project site. The stormwater management design will meet the Massachusetts Stormwater Policy recommendations, unless exempted by the EFSB. Water collected in the stormwater management detention basin, catch basins, vortex units (or similar) and/or other collection facilities will be monitored during firefighting activities. Hillman Energy Center shall have a licensed environmental services company on contract to remove and properly dispose of affected runoff water within the stormwater management system."

The clear intent is that all firefighting wash (or rainfall that might occur during or immediately after a run-away fire event) should be collected and properly disposed of. The above language uses the words "to remove and properly dispose of affected runoff water <u>within the stormwater management system</u>". It does not anticipate removing affected runoff from the wetlands. The only way this can be done is by placing the BESS facility within a self-contained area as the Guidance requires. The Company's expert on stormwater management was asked by the EFSB Staff if the designed system can contain all firefighting wash or rainwater:

> Q. I see. Okay, So more specifically, then, could you – could you – the way that it's designed right now, could you, I don't know, flick a switch of something and stop, stop the fluid from percolating? Could you do that if you wanted to? Let's just say just a hypothetical. A. [HOLMES] Yeah, in the system as we have it designed, you know, there is no means for shutting the flow of water off.
>
> Transcript, Page 120.

Section 5.6 is not a standalone zoning by-law but is rather the implementation of the Federal and State Safe Drinking Water Acts ("SDWA")[9]. Unlike by-law provisions on height limitations or required setbacks, or even allowed uses, Section 5.6 cannot be waived by the EFSB as it is required by State and Federal laws and regulations.

Even if the Board believes it has the power to set aside this State requirement incorporated into the By-law per 310 CMR 22.21 (2), it should not waive this important section of the By-law. Further, there is a ready mechanism for the Board itself to apply Section 5.6 rather than waive its critical provisions (see section below on Permitting a BESS).

There is no practical way to remove contaminants from the proposed underground infiltration system. Once polluted stormwater enters the chambers they begin infiltrating into the subsurface and underlying groundwater immediately. The chambers cannot be considered effective containment devices.

b. The Overlay District

The Project Site falls entirely within both the Town of Tewksbury Groundwater Protection District and the DEP-approved Zone II (see maps at EFSB-G-14 (1). A portion of one of the referenced maps appears below. The Project Site is outlined in yellow, the Groundwater Protection District in aqua, and the Zone II in blue.

[9] The term "standalone zoning by-law" is used here to mean a by-law that does not implement a specific Federal or State law or regulation.

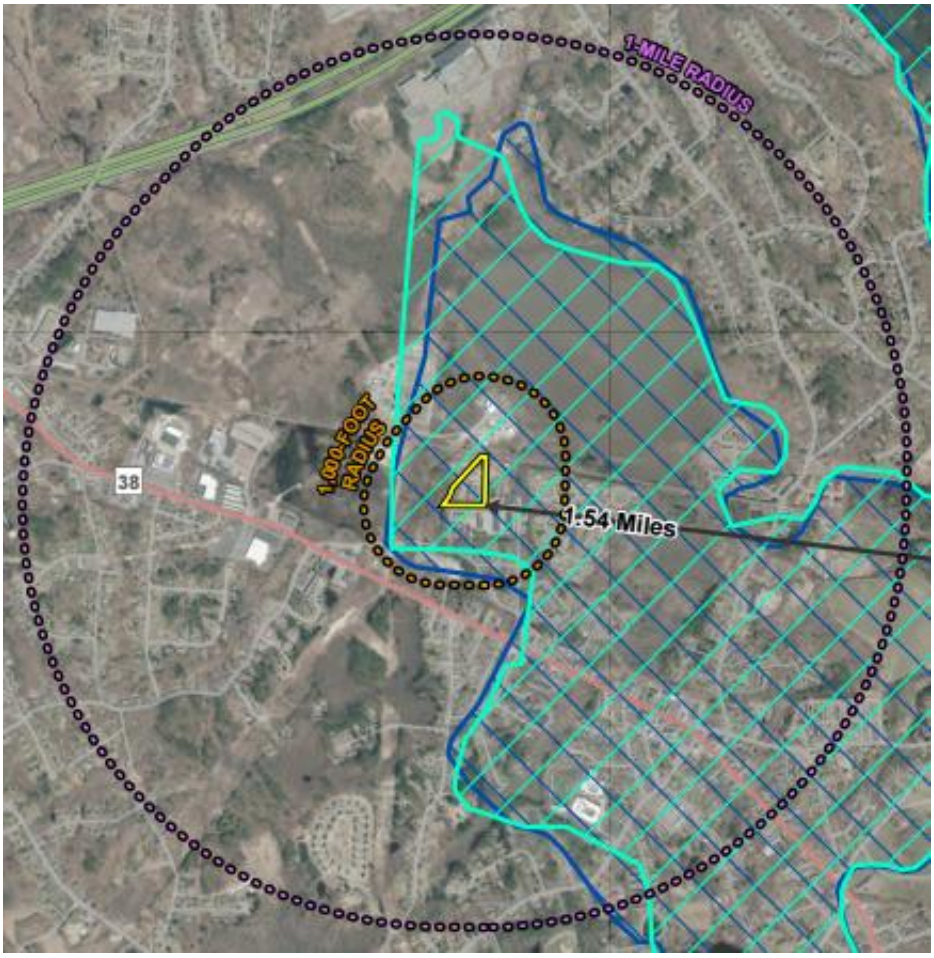


Exhibit EFSB-G-14 provides information about the public water supply well protected by this Zone II:

> MassDEP Source ID #3295001-03G, locally identified as the 'East & Maple Street Well' (Well 3) is a groundwater source used by the Tewksbury Hospital Public Water Supply. According to publicly available information, this well is currently an active source of drinking water for the hospital's public water supply.

The Company's waiver request in its Petition (Exh. HEC-1) reads at Page 34 as follows:

> According to the Zoning Map, the Project Site lies in the Groundwater Protection overlay district. Section 5.6 of the Zoning Bylaw imposes use restrictions and special permit requirements for uses within the overlay district. Section 5.6.3.A. does not list energy storage systems as a permitted use within the Groundwater Protection overlay district, and therefore the Company's proposed use is prohibited. Even if such a use were

> permitted, Section 5.6.3.C. requires a special permit for the storage or handling of toxic or hazardous materials, and Section 5.6.3.C.3 requires a special permit for any 'system of storm water management and artificial recharge of precipitation'.
>
> Page 34 of Exh. HEC-1

The Company recognizes, in this request for waiver, that there will be hazardous materials in the Zone II associated with the Project and wishes to avoid special permit review of how they will be handled and whether the resources in the area (both wetlands and the public water supply) will be adequately protected from contamination. The Company also wants relief from special permit type review of its claimed compliance with the State's Stormwater Management Act and Handbook.

Subsection C of Section 5.6 (requiring a special permit issued by the Planning Board for developments in the Groundwater Protection District) reads:

> A system of stormwater management and artificial recharge of precipitation must be designed, and approved by the Planning Board to: prevent untreated discharges to wetland and surface water; preserve hydrologic conditions that closely resemble pre-development conditions; reduce or prevent flooding by managing peak discharges and volumes of runoff; minimize erosion and sedimentation; not result in significant degradation of groundwater; reduce suspended solids and other pollutants to improve water quality and provide increased protection of sensitive natural resources.

The Board heard expert testimony on the proposed stormwater management plan offered by the Company. DiPalma and Sheehan hired Scott Horsley to prepare pre-filed testimony and appear at the hearing for both further direct and cross examination.

c. Challenges to the Site – the Testimony of Scott Horsley

Mr. Horsley's credentials as a specialist in stormwater management are set out in Exh. SD-SW, A, B and C and discussed in the Transcript at Pages 612-614.

Mr. Horsley was asked about the challenges of the Project Site; his replay is as follows:

Well, it's in a Zone II wellhead protection area, which is a drinking water protection area. It's also adjacent to a bordering vegetated wetland. It also has an isolated wetland on site, and it's also quite shallow to groundwater, which is a vulnerability constraint."

Transcript Page 616

Mr. Horsley was asked if local groundwater protection by-laws are required by State regulations. His reply appears at Transcript, Page 617:

Actually, both State and Federal. As I mentioned earlier, I worked very closely with U.S. EPA nationally to roll out the national drinking water program. And the guidance from EPA was, or still is, to have states develop regulatory programs but really recognizing that the real land-use controls sit at the local government level. So both EPA – in fact, I wrote the guidance documents for the EPA on local protection by-laws and ordinances. The same thing at the State is, under the Massachusetts drinking water regulations requires local codes to be put in place to protect groundwater.

Mr. Hosley was asked if it is possible to safely put a BESS facility in a Zone II.

Yes, I think it's possible. Q. What would be needed? A. Well, certainly to meet all of the local requirements that have been put in place; and then, you know, possibly some other site-design-site-design concepts – specifically, stormwater design, the vegetated practices as outlined in the local bylaw, and I do think some sort of a containment system would make sense as well. Q. Did you take a look at whether the proposed project of 134 BESS containers could be – could fit on this site if one followed all of the requirements of the local and State regulations? A. Yes, I did a conceptual site layout by scaling the proposed stormwater systems, changing those from direct infiltration practices to vegetated systems, which take more of a footprint, of course. And then the second thing is, you can't put a road on top of a vegetated system, whereas the subsurface systems that they are proposing, they had the road right over it. So what I did is, I looked at those two features and laid out a plan to see how many units were – how one could achieve the proposed project program. Q. And for 134 BESS containers, would you need more land area than what the applicant has under control? A. You need more land are to comply with the Town zoning by-law, again with the vegetated systems. You also would need to bring in a fair amount of fill. I don't know the exact amount, but I would say on the order of 2 to 4 feet of fill, because the other constraint is the depth to groundwater, and they're not meeting the minimum 3-foot separation. So it would be both an aerial expansion as well as vertical expansion. Q. And did you take a look at how much of a reduction would be needed in terms of the number of BESS containers if you stayed with the project site,

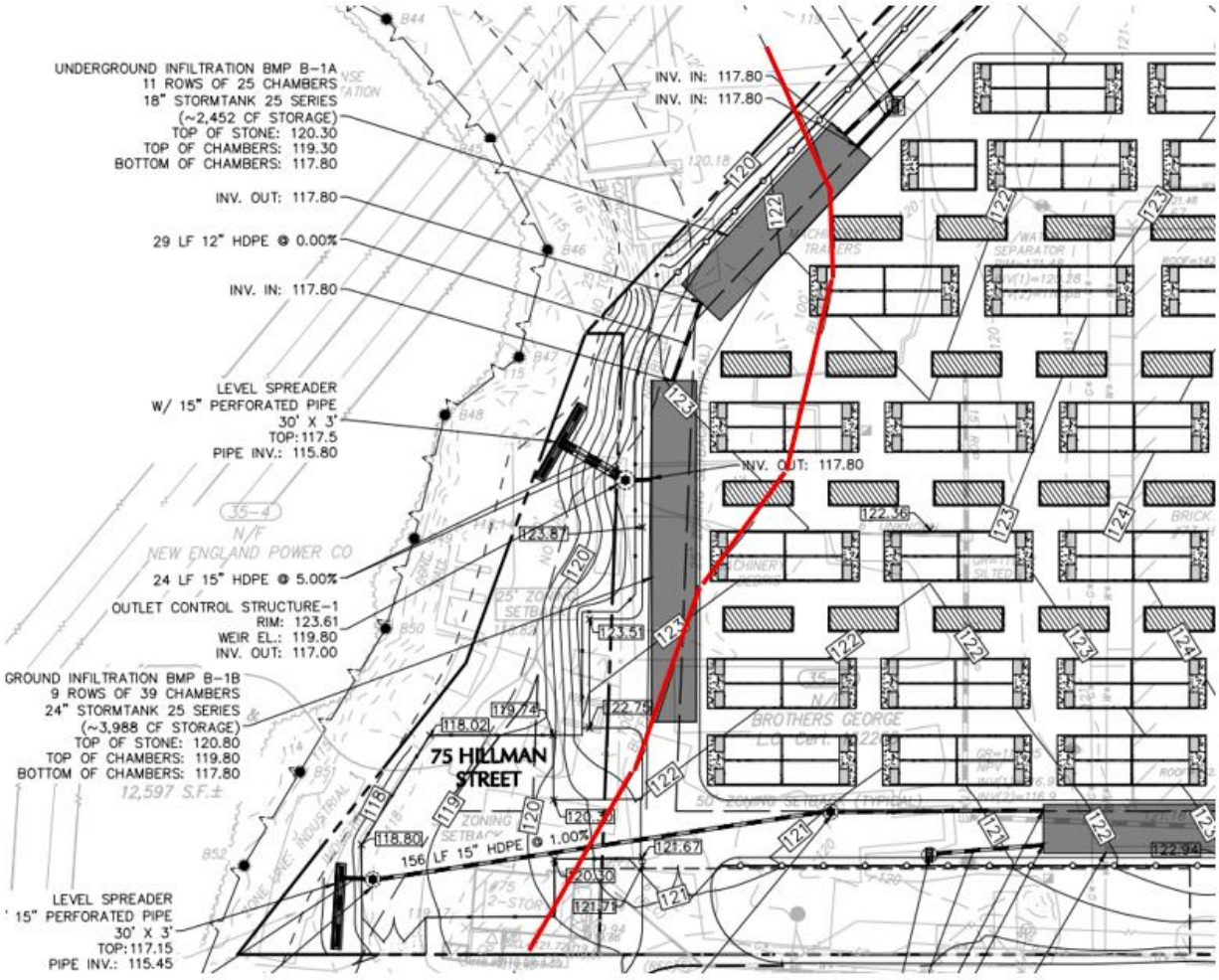
> the proposed site, but implemented the vegetated system and complied with the State regulation and the bylaw? A. Yes, I did take a look at that. Q. And do you recall what kind of reduction in the number of BESS containers would be required? A. Based upon the plan that I put together, it would be roughly 50%.
>
> Transcript, Pages 624 and 625

While there are challenges to the site from a safety perspective that prevent any BESS facility (close proximity of habitable buildings), from a stormwater management view, putting a BESS facility on the Project Site would be possible so long as the scope of the project was site appropriate. In this case, it would involve reducing the number of BESS containers and inverters, designing the plan with the Vegetated System recommended by the DEP and required by Section 5.6, and the import of sufficient fill to maintain a 3-foot separation from the seasonable high-water table.[10]

The site would also need to be designed with a full containment system so that rainwater falling during or after a thermal runaway or fire event, or firefighting wash, will be collected.

If one consults the latest version of the site plan (Exh. Attachment A Supplemental), specifically the grading and drainage plan, which is sheet CG101, one can see that the site is so tightly packed that considerable portions of two of the four proposed under-road infiltration systems are within the 100-foot buffer to the boarding vegetated wetlands ("BVW"). Parts of three BESS containers and 2 M-10 inverters are also within the BVW buffer.

[10] In Exh. D/S-SS-5 the Company was asked if there is a minimum system size to make a BESS project financially viable. The Company responded: "There is not one minimum system size; there are many variables that determine whether a project would be financially viable in the above-listed markets."



The 100' Buffer Line to the Boarding Vegetated Wetland has been shown in red highlighting.

This is likely to be unacceptable to the Tewksbury Conservation Commission, given the nature of the use and the potential dangers to the BVW.

But, while this site should not be used at all for this purpose due to safety concerns and the given proximities, the above analysis of Mr. Horsley is helpful in terms of the precedent set by the Board's decision in this case. A BESS facility can be installed in a Zone II under sufficient protections, such as those described by Mr. Horsley.

It should be noted that this is the only site plan offered by the Company before the Board. While the suggestion was made during the public hearing that the Company reduce the scope of the project, specify the Vegetated System, provide the required full containment area, call for the import of fill and reduce the number of BESS containers and inverters, the Company did not revise its plan. The Board has the authority to condition the grant of a zoning exemption. However, it should not attempt to draw a new plan for the Petitioner. The Company stuck with its stormwater management plan notwithstanding the credible evidence that the Project is too dense and offers too little in way of meaningful protection of the wetland and public drinking water.

The EFSB Staff cross examined Mr. Horsley at Transcript Page 715, asking what would be involved in complying with all applicable stormwater requirements given the site challenges:

> Q. Okay, okay. Great. What would need to happen to keep the current site plan but be compliant with the State and municipal stormwater laws and by-laws? In other words, if you were hired to say, okay, we can't expand this site, we have to stay within this footprint, but we want to try to be compliant with the State and the municipal laws, what would happen? Could it be done? A. Well, yeah. I think we talked about this before a little bit, and that is, if you built these vegetated systems, you'd need to – that's going to move the, let's call it the active area for the BESS containers in, because right now the road is on top of the stormwater system. So if we replace and enlarge the four infiltration facilities with vegetated systems that are larger and then we move the road inboard of that, it shrinks the available space, okay?

Mr. Horsley then added that fill will need to be imported in light of the shallow depth to groundwater (Transcript at Page 716).

The EFSB Staff then read part of Mr. Horsley's testimony on containment and asked several questions:

> Q. Just a couple of questions. I'm going to read two quotes from the supplemental pre-filed testimony that you've given, Mr. Horsley, on Pages 1 and 2. The first quote is as follows: The alternative layout also includes a MassDEP requirement for a containment system that could capture hazardous materials that could result from a fire and subsequent washdown to extinguish the fire. The impervious surface could contain fire-related wash water by closing a shutoff valve prior to the vegetated stormwater treatment systems, thereby allowing for a subsequent pump-out.
>
> Transcript, Page 720.

Mr. Horsley was then asked questions about the concept of containment and testified that the way to introduce containment is to change the permeable surface (crushed stone) between the BESS containers and inverters to impervious so that all water that falls on and around the containers and inverters goes into a detention basin and a valve can be shut, trapping the water before it begins to infiltrate. Transcript at Page 721 and 722.

> [Mr. Horsley] So in looking at the site plan and where these BESS containers are, it struck me that the area you'd want to do this I think is immediately around the BESS containers, because what I'm envisioning, if you have a runaway fire event and then it rains that day or the next day, you've got exposure – under the existing situation, it seems to me, materials could be washed down, infiltrated into that crushed stone and into the groundwater. So it just struck me as that would be one area you could install or retrofit or whatever the right term is – instead of the crushed stone, have some sort of liner to capture – Secondary containment. Sometimes I see this around oil tanks – right – storage tank. If it leaks, containment.
>
> Transcript, Page 724 and 725.

On redirect, Mr. Horsley was asked this question:

> Mr. Horsley, you were asked about whether the well that this Zone II protects is used by the Tewksbury Hospital for drinking water. We received information about this well in response to a discovery request. I am referring to the response of the Town to Exh. DS-T-3. That information was a report on how the well at the Tewksbury Hospital is doing, and it was issued by the manager of that public water supply system at the hospital. The well is designed – has a DEP design flow of 300,000 gallons a day, as that report indicates. And in 2024 it drew 85,000 gallons a day out of the ground and used that water at the hospital. That report does indicate that some treatment is needed, that some treatment was installed in 2024, and that other treatments were planned. I don't know if the

> Tewksbury Hospital is using that for drinking water. That report does not say so. But it is clearly an active public water supply for the Tewksbury Hospital.
>
> Transcript, Page 726.

Mr. Horsley was asked if the Zone II protections would be relaxed if in fact that hospital was not using the well water for drinking and he replied: "No, it wouldn't change it at all. It's a public water supply site. It's very hard to come by new water supply sites. MassDEP policy is to protect them as much as we can, don't let anything go." Transcript page 727.

The Company's stormwater expert, Mr. Holmes, was asked about toxins that might be dissolved in water and whether the stormwater system that the Company has designed will effectively remove such toxins.

> Q. Thank you. With this project there's some concern about toxic pollutants, and some of those react to water and become dissolved in it. Does your system remove toxic pollutants that are fully dissolved? A. My understanding of this kind of project is that the materials are not readily soluble, and in fact there is a frequently asked questions document on mass.gov that states that, for battery energy storage projects, that the materials are not, I believe it states, readily soluble in water. So I'm not sure that the question is pertinent to this kind of facility. Q. One of the toxins we've talked a lot about is hydrogen fluoride, which is very soluble in water, and it becomes a rather dangerous toxin as a fully diluted solution. If that goes into your system, I don't believe what you've prescribed will treat that as well as the natural vegetated system I just described, which is required in the bylaw for development in the groundwater protection district. A. Yeah, all I can – I can't speak to the chemistry of hydrogen fluoride. What I can say is that our design meets and exceeds the DEP's and the Town's standards for water-quality treatment. A. [RYNNE] If I could add as well: I believe the question of contaminated fire water is different than natural contaminants coming off of any sort of industrial site, whether it's suspended solids or, you know, oil from vehicles. In the event of a fire and potentially contaminated fire water runoff, that is a separate response that would take place under the emergency response plan, the spill prevention plan, as well as the Massachusetts DEP's spill response team, that would require a licensed site professional to come to the site. And the company has also committed to having environmental testing groups and response groups on standby to respond in the event of a spill. So, you know, in the case that there is contaminated fire water in the stormwater system, that would be tested both by the DEP as well as our third-party contractor and remediated as necessary.

> And so I don't know how relevant the treatment of stormwater system is in treating fire water.
>
> Transcript, Page 1342-1344.

This is perhaps the most important testimony in the record related to the question of whether or not Section 5.6 should be waived. Mr. Rynne is a Project Developer with the Company (Exh. HE-TR). He is not an expert in stormwater management, chemical engineering, or toxicology. In his testimony (above) Mr. Rynne says that if there is toxin contamination due to rainwater during or after a thermal runaway or fire event, or there is contaminated firewater, the plan will be reactive; the contaminated areas will be cleaned up afterwards. This assumes that no stormwater management system could possibly capture or treat toxins before they enter the wetlands and groundwater.

Mr. Holmes confirmed that firewater can escape the planned stormwater system:

> Q. Thank you. So you've mentioned water-quality units and subsurface chamber system. Do either the water-quality units or the subsurface chamber have a bottom, so that nothing can infiltrate out of either of them? A. [HOLMES] The water-quality units are closed systems, so that there is no exfiltration out of them. The chamber systems, as they're currently designed, do infiltrate water, yes. Q. Okay. With the water-quality units, I'm relieved to know that that has a bottom and so water is not going to go out of it. But it does have an overflow valve. Will that overflow valve be shut off so that any fire water or rain during an event will be trapped? A. [HOLMES] Yeah, I don't believe that as currently designed they have a valve that can be shut off. Q. Okay. So there's really no control in place right now to ensure that all of the fire water is collected, and you used the phrase "any remaining water can be tested." That connotes that some of the water has gotten away. Is that your understanding? A. [HOLMES] As I noted, you know, previously, water will initially go into a water-quality unit, that has no exfiltration, and then overflow goes into the chamber systems. And, you know, any water that is in those systems could be pumped out. Q. If it's remaining, it can be pumped out. A. [HOLMES] Correct.
>
> Transcript, Pages 1351 and 1352.

The Company's approach is not to contain water or other fluids that fall to the ground around the BESS containers, but to use a system that allows toxins to infiltrate directly into the groundwater and adjacent wetlands. There will be a spill response plan (expressed in the Emergency Response Plan that is a draft and does not actually contain that plan), and the Company will let the DEP spill response team come to the site to evaluate the damage and order a clean-up. This will be aided by the Company's contracted licensed site professional ("LSP"). When an LSP become involved, there has been a spill.

The Company does not propose to use the Vegetated System of stormwater management which can treat toxic contamination because it takes up too much land and the site is so tight, given the number of BESS containers it wants to install. The Company will not use a system that can actually prevent the toxic contamination; it will remediate later.

Remarkably, this approach is echoed by the Town. The Town Manager, John Curran, responded to an EFSB Staff record request RR-EFSB-17 as follows:

The request read: "Please describe when and how contaminated fire water is removed (referring to the language in the HCA that states "[Hillman] shall have a licensed environmental services company under contract to remove and properly dispose of affected runoff within the stormwater management system)."

Mr. Curran's response: "The means and methods of how Hillman would mitigate or remediate any contamination depend on the magnitude of the event. The Town would require, at a minimum, that wetlands be restored to heath standards consistent with the NFPA 855 standards – no danger to human health can be present."

There is a mismatch between the question and the response. The question was about removing and properly disposing of affected runoff from the stormwater management system, which is the promise of the cited language of the HCA. The response jumps to mitigation or remediation of contamination from the resource areas.

NFPA 855, which is referenced in Mr. Curran's response, is not a stormwater management, groundwater protection or wetlands protection standard. The fact that the Town assumes that in the event of toxin contaminated firewater the Town will require that the wetlands be restored is a tacit understanding, reflected in the above testimony of Mr. Rynne, that, given the current stormwater management design (not using the Vegetated System) nothing can be done, but to clean up after the contamination.

In most instances the runoff from fire wash or rain will infiltrate into the stone immediately surrounding the BESS units before it gets to the planned stormwater system. "Q. Chief Morris. I'm asking the witness about the considerable amount of crushed stone that's called for in the grading and drainage plan that exists between all of these containers. Isn't it quite possible that a considerable amount of water will infiltrate directly before getting to the water-quality units? A [HOLMES] Yeah, it is possible for some water to infiltrate before getting to the water-quality units. Q. Are you proposing any piping or basins underneath the crushed stone to decrease that chance? A [HOLMES] We're not. Q. So you've got crushed stone on top of earth, and water can certainly – because it is permeable, water can permeate. Is that correct? A [HOLMES] Correct. (Transcript, Page 1355).

Mr. Horsley was later asked about this statement that "some water" will infiltrate before getting to the proposed stormwater system. Mr. Horsley stated: "So I think my – what I would

suggest would be a better characterization, instead of saying some of the water would be infiltrated before it got to the water-quality, I would suggest it would be the vast majority of the water would be infiltrated – in fact would not get to the water-quality unit." Transcript at Page 1421.

Mr. Horsley pegged the percentage of rain or fire water actually getting to the planned stormwater management system at 20% and was asked if the system would trap dissolved pollutants like the toxins of concern. His testimony was as follows:

> Q. And as to the 20 percent or so that does, are water-quality units effective at removing dissolved pollutants? A. They are not. They are not. That would flow through the system and into the infiltration system and into the groundwater.
>
> Transcript at pages 1421 and 1422.

The Company has proposed and shown on their stormwater management plan a system that is somewhat standard and can filter out some pollutants like floating oils. But if Mr. Horsley is correct, not only will only 20% of rain and firewater get to the system, because of the crushed stone around the BESS containers and inverters, but because the toxins that can be released in a thermal runaway or fire can dissolve into the water, these toxins will not be contained at all, they will enter the groundwater and wetlands.

Mr. Horsley was asked: "Q. Thank you. What are the benefits of the vegetated system that you have pointed to in the zoning by-law, Section 5.6, and recommended in your submission?" His response is very informative:

> Okay. So vegetated systems – and there are a number of them that are recommended in the zoning bylaw, groundwater protection district. Because they have a root zone associated with them and organic soils associated with them, there's the opportunity for a whole range of biochemical reactions to break down a very broad range of pollutants,

> including petroleum hydrocarbons. In some cases even pesticides have been shown to be broken down to basic carbon forms, like carbon dioxide. So they're very effective at particularly the organic compounds and dissolved compounds. In my experience they are much better than in infiltrated system.
>
> Transcript, Page 1422.

Going back to where this section of the brief started, State regulations prohibit making more than 15% of a Zone II site impervious surface "**unless a system for artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality**": 310 CMR 22.21 (2) (b) 7.

Because of the possible dangers of the release of harmful toxins, as expressed in Annex G of the 2026 version of NFPA 855, the only kind of stormwater management system that will "not result in the degradation of groundwater quality" is a Vegetated System, which the Company has not been willing to consider because the Project Site is too small for the size facility they wish to install.

V. Noise

There are three types of noise generating pieces of equipment that will be installed at the proposed BESS facility: (1) 134 Hithium LX5015 BESS containers; (2) 40 EPC Power M-10 inverters with medium-voltage transformers; and (3) one 150 MVA Power Transformer (Transcript, Pages 349). There have been noise models predicting the sound pressure levels that will reach nearby homes and businesses done by two different qualified acoustic firms. One was done by Epsilon for the Company and the other by Noise Control Engineering ("NCE") for DiPalma and Sheehan (Exhibits. Attachment C Supplemental for Epsilon and SD-NC A, B and C and SD-NC (1) for NCE).

The noise generation at the facility will be considerable as is evidenced by the large sound barrier walls shown on the site plan and factored into the modeling (30 feet tall to the East and 18 feet tall to the South). Epsilon and NCE took measurements of existing background sound levels (sometimes called "ambient") at different times of the year. The ambient sound pressures used in their models differ somewhat.

The MassDEP Noise Policy ("Noise Policy") relies on measurements of the existing background levels to determine if a condition of noise pollution exists. This policy has become the basis of the modeling of possible sound pressure levels for planned projects in Massachusetts. When a model shows that a proposed new sound source will increase ambient levels by more than 10 decibels at nearby sensitive receptors, or will create a pure tone, noise pollution will exist. The EFSB has a long history of relying on and enforcing the Noise Policy (See matter of Park City Wind - EFSB 20-01 / D.P.U. 20-56/57, at page 152):

> However, in no instance has the Siting board ever granted its approval to a project known to exceed the noise levels specified in the MassDEP Noise Policy. Similarly, in this proceeding, the Siting Board treats the MassDEP Noise Policy as an upper bound of acceptable noise impacts…

Both acoustic firms used a modeling software program by DataKustic called CadnaA to predict sound pressure level extending into the community around the proposed BESS site. Epsilon provided the sound power levels ("SPL") used by both firms which is directly imported into the CadnaA model.

For the Hithium BESS containers, the manufacturer provided independent certified laboratory test results providing the sound power levels by frequency band for the containers (Transcript, Page 345). The results were signed by the testing laboratory. This was done under

an international standard known as ISO 3744. ISO stands for International Standards Organization (Transcript at Pages 336 and 337). Mr. Callahan of Epsilon testified about the use of independent laboratory test results in modeling noise:

> Q. Is it customary for manufacturers of equipment that can make noise to have an independent lab do an evaluation under this international standard? A [CALLAHAN] Sometimes this is provided. It comes in a variety of formats, particularly with this type of equipment that we're discussing. Q. In your work as an acoustical engineer, have you seen other examples of test results from a laboratory using this standard? A. [CALLAHAN] Yes.
>
> Transcript at Page 337.

At Transcript Pages 337 to 345, Mr. Callahan provided a detailed explanation of the information contained in the independent laboratory report on the Hithium BESS containers:

- What a 1.5 meter noise reduction devise is (Pages 337/338)
- Cooling unit is the main noise source (Page 339)
- Testing conditions: 5 different compressor speeds and 5 different fan speeds (Page 340)
- Diagram of where all measurements were taken (Page 340)
- Specific sound pressure levels at each octave band (Page 341)
- 1/3rd Octave Band measurements (Page 341)

Mr. Callahan was asked about the usefulness of this independent lab report:

> Q. Have you seen this type of laboratory report done by labs in other countries? A. [CALLAHAN] A. Yes. Q. So is this a confidential document? A. [CALLAHAN] Not to my knowledge. Q. So the company that is going to provide the battery storage containers for this project did not designate the independent lab analysis of sound pressures as confidential? A. [CALLAHAN] Typically, when that's done, you'll see a watermark on the document that says "confidential" or will say such on the document, and that does not appear on this document. Q. And has this document been helpful to you in doing your CadnaA models to have this level of detail that you can use and share with other parties involved in this matter? A.[CALLAHAN] Yes.
>
> Transcript, Page 346.

DiPalma and Sheehan take no issue with the sound power levels entered into the Epsilon model (and thus used by NCE) for the BESS containers. These SPLs are trustworthy, having been certified by an independent laboratory licensed to conduct ISO 3744 tests. However, the same cannot be said for the 40 M-10 inverters with medium-voltage transformers to be installed throughout the Project Site and the single 150 MVA Power Transformer. As to these pieces of equipment, actual certified sound power levels were not used or provided. These were estimated.

The Company described the M10 Inverters:

> Q. Can you tell us what the M10 inverter is? A. [RYNNE] This is Tyler. The M10 inverter takes the energy from individual BESS units, combines that energy into a medium-voltage line, that is then sent to the main power transformer, which I believe you're going to ask about next."
>
> Transcript, Pages 346 and 347

The M-10 Inverters with medium-voltage transformers are louder than the Hithium BESS containers: "So for this project we're talking about the M10 inverter, a low-noise version of that unit. They are slightly louder than the individual battery containers. So if you were to have, say, three battery containers operating simultaneously, that's about equivalent to one of the inverters." Transcript, page 1442.

Epsilon's engineer Mr. Callahan testified that for the M10 Inverter with medium-voltage transformers they had been given some data from the manufacturer for the unquieted (regular) version of the equipment, and Epsilon had to make "a calculation to turn it into a sound power level" for the quieted version:

> Q. Did you have to estimate any data? A. [CALLAHAN] We had to perform a calculation on the data they provided to turn it into a sound power level. That didn't involve stipulating; it involved plugging in the data that they provided. Q. Did they provide the data by frequency band, the octave bands, the way we saw in the independent lab report?

> A. [CALLAHAN] Not for the exact unit, but for the unquieted version of that unit, which was then used to represent the quieted unit. Q. And how did you take sound power levels by frequency bands for the unquieted unit and come up with numbers for the quieted unit? A. [CALLAHAN] So again, a common process that is done for sound studies is, you can use a representative octave-band spectrum of similar equipment and essentially applied that to the equipment you're trying to model. Q. So in terms of sound power levels by frequency, you applied what you know from other projects? Or what did you use to create the number for each frequency of the quieted unit? A. [CALLAHAN] Well, it's data from the same manufacturer of the unit, just without the low-noise kit or low-noise version of that equipment. Q. Why didn't the company give you the we'll call it spectral data, which is what I learned it is, for the quieted unit? A. [CALLAHAN] I believe it's a relatively new unit, and that data is still being collected. Q. Is that why there has been no independent laboratory tests of the unit? A. [CALLAHAN] I don't know the answer to that.
>
> Transcript, Pages 353 and 354.

Mr. Callahan did not explain what was used to create the SPL numbers for each frequency band of the quieted unit used in the modeling. Epsilon took spectral data from the unquieted unit given to them by the manufacturer and performed some kind of calculation to come up with SPL for the quieted unit, which appears to be a new product, the data for which is "still being collected". It is unclear what Mr. Callahan means by: "you can use representative octave-band spectrum of similar equipment". He did not say where these representative numbers came from or how they were calculated, or what similar equipment was analyzed.

In its model, instead of showing the Epsilon-calculated SPL numbers for the M10 inverter with medium-voltage transformers, the model simply reports these as "confidential":

Proposed Source	Broadband Sound Power Level per Unit	Sound Level per Unit (dB) by Octave Band (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
Hithium LX5015 with 1.5m Noise Reduction Kit @ 95% fan speed	84[1]	93[2]	93	91	82	79	80	75	66	65
EPC Power M10 Inverter	CONFIDENTIAL[3]	CONFIDENTIAL								
150 MVA 115 kV Power Transformer	95[4]	92	98	100	95	95	89	84	79	72

Exh. Attachment C – Supplemental, Page 23.

So for the loudest piece of equipment that will be used at the Project Site (40 of them), the M10 Inverter, sound power levels were estimated without any reference to how this was done, and those levels kept secret.

A question naturally arises as to why the numbers input into the model are confidential if they are the work product of the Company's acoustic consultant Epsilon (a calculation of some sort), not numbers provided by the manufacturer. It would not seem to be the case that the manufacturer could insist that Epsilon's work is confidential. It is therefore the Company and its acoustic engineer that are not revealing the sound power levels used to generate the projected sound pressures at adjacent sensitive receptors[11].

As to the main transformer, the Company used a 42-year-old noise guide ("EEI Guide") as an estimate rather than any kind of tested manufacturer data:

> Broadband and octave band date for power transformer calculation from Electric Power Plan Environmental Noise Guide, Edison Electric Institute, 2nd edition, 1984. Assumes National Electrical Manufacturers Association (NEMA) rating of 71 dBA.

[11] It is true that NCE by signing a non-disclosure agreement saw the Epsilon sound power levels used for the M10 inverters, but NCE has not knowledge about the source or method of arriving at those SPLs.

Exh, Attachment C – Supplemental, Page 23.

In the matter of Park City Wind (EFSB 20-01 / D.P.U. 20-56/57) the Board called the same EEI Guide "decades old" in its Final Decision:

> Here. The Company has not been able to offer specific manufacturer-provided equipment specifications to support its modeling assumptions. Instead, it has relied on decades-old reference guides and made certain subjective noise reduction adjustments that were "iterative" to achieve modeled compliance with the MassDEP Noise Policy.

Final Park City Wind Decision, Page 153

The wording of the Park City Wind Final Decision was a specific reference to the EEI Guide by the Board. The 1984 EEI Guide is no substitute for laboratory-certified sound power levels by frequency band. There is no reason that the manufacturers of the 150 MVA Power Transformer cannot have their equipment tested and provide to land use agencies accurate certified sound power levels.

The approach of the Company is similar to that used in the Park City Wind matter referenced above. Mr. Rynne testified that the Company will put into the contract with the M10 inverter supplier that the manufacturer will have to meet the limits claimed in the noise model.

> Q. Mr. Callahan, can you tell me, does the Company have a guarantee from the manufacturer who is providing the inverter with regard to the sound levels that would be emitted by the inverter? A. [RYNNE] Ryan, I can answer that, if you'd like. This is Tyler, for the Company. That' typically is something – I believe I mentioned this when we spoke about thew sound levels from the main power transformer as well. The sound levels would be something that would be part of the procurement contracts with the manufacturer. So in the contract with the inverter manufacturer the sound levels would be specified, and the inverters would have to meet that specification in order to be in compliance with them. So that's something that we typically give the specs that we need to hit to the manufacturer, and then they ensure that the equipment they give us meets those specs.

This approach is confirmation that the acoustic model offered by Epsilon is not based on reliable sound power levels. The plan is to require that the manufacturer meet the limits of the promised (in the model) sound power levels. But the record is void of any confirmation that the model is accurate; the SPLs for the loudest piece of equipment are not actually known.

Both the Espilon and NCE models show very concerning projected sound pressure levels at numerous locations, and even slight inaccuracies in sound power levels entered into the model could have dramatic negative impacts on the sensitive receptors in the area[12].

With considerable concern about the offices across the street given the projected sound pressure levels above the 10dBA DEP allowance, the Company was asked if increasing the height of the southerly sound barrier wall might help bring the project closer to compliance with the Noise Policy.

In response to RR-EFSB-20 the Company (Mr. Callahan) stated that: "Sound levels from the Project would comply with the MassDEP Noise Policy during daytime hours at the property line directly south of the project on the south site of Hillman Street if the height of the proposed southern sound barrier wall was increased to 24 feet."

However, Mr. Callahan had previously testified as follows:

> [CALLAHAN] Yes, that's one of the limits that we evaluated for this project. Another is could we make the wall, say, one foot taller and see an appreciable result. If the answer is yes, that would be a recommendation that you're going to add one more foot and this will be even quieter than what we're proposing. But that's not the case – once we get to the wall heights that we are proposing here, adding additional wall

[12] There was disagreement among the two acoustic engineering firms about what qualifies as a sensitive receptor, Epsilon taking the position that only residences qualify, while NCE considers that workers in an office are also treated as sensitive receptors. This is addressed in the Company's Exhibit Attachment C – Supplemental, at pages 36 and 37. There one finds the MassDEP Noise Pollution Policy Interpretation, which indicates that other uses besides residences quality.

> height would have an imperceptible change to the surrounding areas, unless you're talking about doubling the wall height or something really extreme."
>
> Transcript, Page 101

It is difficult to square the response to RR-EFSB-20 with the testimony on page 101.

Finally, the Epsilon model assumed a "perfect wall barrier".

> [CALLAHAN] With respect to the material of the wall, the modeling actually assumed that the wall is a perfect barrier, and what I mean by that is that no appreciable sound will pass through the barrier. And in practice that means that it has to be built in – to a robust-enough spec so that that is true. It can't be thin material. It has to be dense enough so that the sound that is propagating through it is negligible and compared to the sound that propagates over or around it.

This was part of an answer to a question posed by an EFSB Staff member, who then responded: "I see. Certainly it's not perfect; right?"

Transcript, Pages 100 and 101.

The Company offered no details or information on the construction of the sound barrier walls.

There is considerable doubt about the accuracy of the Epsilon noise model, and DiPalma and Sheehan suggest that the Company has not met its burden of establishing that the MassDEP Noise Policy will be met.

VI. Site Selection

The Company was asked (in DS-G-22):

> If the company believes that it is reasonably necessary for the convenience or welfare of the public to put the Project on the Project Site, please indicate why. In other words, why is this site or substation so special or important to the State's goals that the facility must go in this location?

After an objection by counsel that this calls for a legal conclusion, the question was answered this way: "The substation at issue has available capacity and the site is situated near the substation." In other words, as compared to other possible locations near substations or circuits, there is nothing particularly critical about the Project Site or the substation the Company wants to locate adjacent to.[13]

The Company responded: "The Project will facilitate the Commonwealth's climate goals, will facilitate the integration of renewable resources and will provide additional grid reliability and flexibility."

The same can be said of any proposed battery storage facility. If all that is needed to satisfy the standard of Chapter 40A § 3 on battery storage zoning exemptions is that the proposed project will facilitate the Commonwealth's climate goals and provide additional grid reliability and flexibility, faced with a very problematic site, the EFSB could not deny the requested zoning exemption. The parties are presently briefing a 10-session public hearing that focused quite intensely on the merits and drawbacks of this Project Site. When given the chance to articulate the particular need for the facility to be located on this site, the Company simply recited the general benefits of BESS projects, no matter the location.

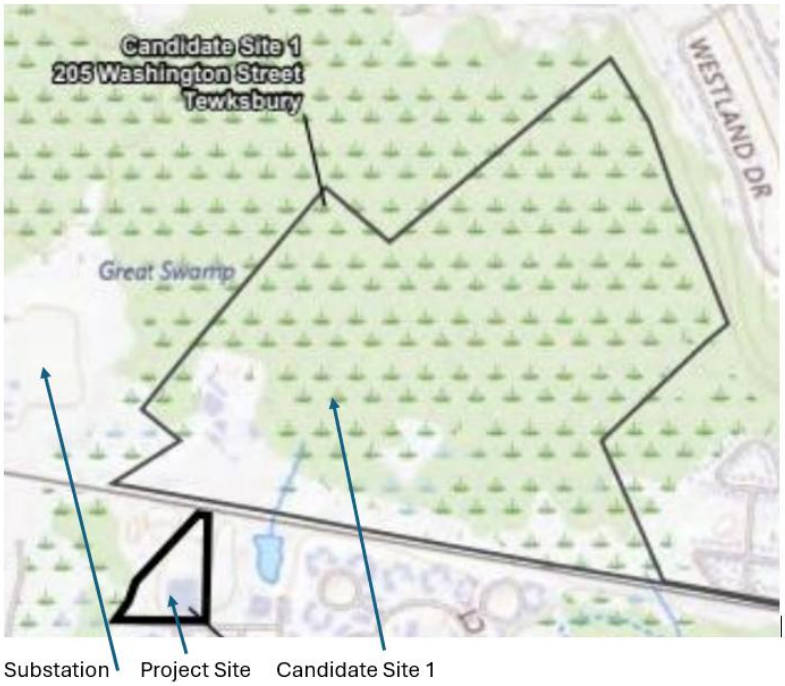
With this in mind, DiPalma and Sheehan raise questions about the alternative sites the Company analyzed and included in the Petition.

[13] With regard to location BESS facilities near circuits rather than substations, the same discovery request cited to the TAFT Energy Storage Facility in Uxbridge (with website link), which is located along a circuit line between substations; the closest abutter is 1,400 feet away (DS-G-22, Page 1). This information was not refuted in the response.

The following standard was articulated by the Company in its Petition (at page 38) with regard to the main question before the Board: "When making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Siting Board examines: (1) the present or proposed use **and any alternatives or alternative sites identified**; (2) the need for, or public benefits of, the present or proposed use; and (3) the environmental impacts or any other impacts of the present or proposed use. Cranberry Point Energy Storage, LLC, D.P.U. 22-59, at 40 (2023); Medway Grid, LLC, D.P.U. 22-18/22-19, at 34 (2023). The Siting Board then balances the interests of the general public against the local interest and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public."

Thus, the examination of alternatives or alternative sites identified is very much part of this proceeding. The Petition mentions four possible "candidate" sites: 1-4, with 4 being the Project Site.

Candidate Site 1 is nearly completely a wetland, as indicated by this snapshot from page 14 of the Petition:



The location of the substation, the Project Site and Candidate Site 1 are identified.

Site 1 was rejected: "After consideration, Candidate Site 1 was eliminated due to the following reasons: (1) the extensive amount of wetland areas mapped on the site; (2) the significant wetland impacts that would be required to gain access to the remaining available uplands on the site to construct a 125 MW BESS facility; and (3) the abundance and high density of residential development immediately adjacent to the south, east and northeast of the site's property line."

The Petition speaks further on the question of access: "There is an approximately 5-acre forested upland area on the southern portion of this parcel, immediately adjacent to an existing railroad corridor; however, this upland is not accessible from a public roadway and would

require extensive wetland impacts to gain access to construct a BESS facility on this upland area."

In reality, the proximity to residential development is not worse than the Project Site, as can be easily appreciated by looking at Page 14 of the Petition[14]. But the main focus here is the fact that this site was never a viable alternative, for the reasons given. One cannot reach the uplands by road, and the vast majority of this site is wetlands. In other words, this site could have been ruled out in about 15 minutes. Yet it was offered as one of the alternative sites, so as to make the Project Site look like a favorable alternative in comparison.

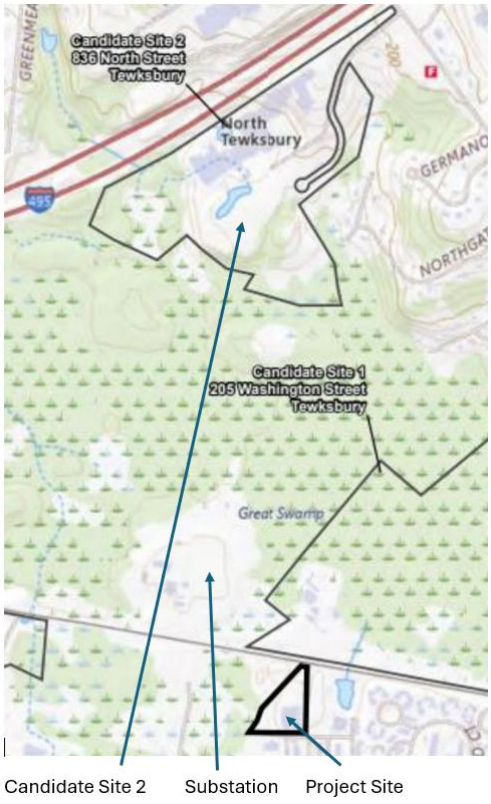
In the matter of Park City Wind (EFSB 20-01/D.P.U. 20-56/20-57) there is some helpful information on the qualification of alternative sites. In that case, an alternative site owned by Massachusetts Department of Transportation (MassDOT) was discussed. Importantly, it was clear that the site was viable as a possible location for the proposed substation: "The Company regards the MassDOT site as a good location for the Onshore Substation but inferior to the preferred site" (Final Decision, Page 44).

The preference in that case had to do with the fact that there would need to be a public procurement process for the Company to be able to purchase the site. The EFSB accepted this explanation. The key is that the alternative site was not an impossible site for the planned use –

[14] There is testimony at Transcript Pages 285 and 286 that part of the reason the Company rejected Candidate Site 1 was concern about the proximity of the location on the site where the BESS would be built to the neighborhoods of Juniper Lane, Mulberry Way and Primrose Circle, which together include about 125 single-family homes. This led to record request D/S-1. The Company responded with a plan showing the distance between the site of the proposed BESS and the closest of these homes – 1,560 feet – as shown on Exh. D/S-1 (1). So, Candidate Site 1 was rejected due to homes located 1,560 feet away, and yet, from the Project Site, the 470-unit senior housing community of Emerald Court begins at about 600 feet's distance, and the whole of that community would fit well within such 1,560 feet.

it was “a good location for the substation.” Contrast that with Candidate Site 1. It is a site that will never accommodate this planned facility, and that was clear from the start.

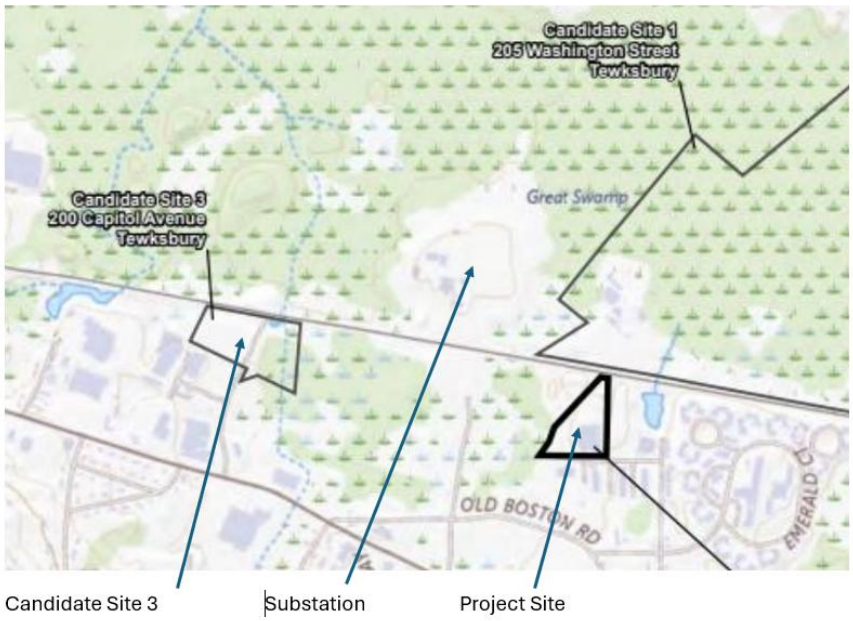
Candidate Site 2 is not more viable; it is even less. Here is a snapshot from Page 14 of the Petition:



Candidate Site 2 was rejected: “After consideration, Candidate Site 2 was eliminated mainly due to the lack of available upland area to accommodate a 125 MW BESS facility.” One can easily see that it is also a long distance from the substation, separated therefrom by the same large wetland that eliminated Candidate Site 1. The Petition indicates that *(if one could solve the distance and wetland problems)* there is not enough upland to build the project: “This available forested upland is not sufficient to construct a 125 MW BESS facility.” Agan, like Candidate

Site 1, Candidate Site 2 was never going to accommodate the Project. The buildable area is too small, and that was the case from the start. It was another imposter site. It runs afoul of the Park City Wind qualifier – candidate sites ought to be viable, even if later rejected in favor of a preferred site for good reasons.

On the other hand, Candidate Site 3 is a viable alternative site; in fact is it quite superior to the Project Site. Here is a snapshot, again from Page 14 of the Petition:



Candidate Site 3 was rejected for these reasons: "(1) any potential overhead or underground electric transmission interconnection from the site directly to the Interconnection Substation would result in extensive impacts to existing wetland resource areas located off the Project Site, and (2) a potential underground electric transmission from this site to the Interconnection Substation within public roadways would be approximately 4,000 feet in length and would be prohibitively expensive…"

In the Petition, the Company states that the proposed BESS will connect (from the Project Site) to an existing 115 kV substation designated as National Grid Substation 22 ("NG-22") (HEC-1, page 3). The proposed transmission line connecting the BESS with NG-22 will run 1,200 feet (Exh. HEC-1, page 12). For a distance of 1,025 feet the line will be underground, the remaining 175 feet overhead (Exh. HEC-1, page 12).

Connecting Candidate Site 3 to the substation directly would be about 2,000 feet instead of the 1,200 feet involved with the Project Site (Exh. EFSB-SS-6 (1). This is a difference of about 800 feet. In both cases, the railroad must be crossed (so some of the transmission line will be overhead) and part of the line will be underground and will impact some wetlands.

Candidate Site 3 is not in and is actually quite far from the Zone II and Groundwater Protections District. Importantly, there are no residences within 1,000 feet of Candidate Site 3, while with the Project Site, there are 14 single-family homes and part of a large senior housing development (Exh. EFSB-SS-8).

Being outside the Zone II and much further removed from residences puts Candidate Site 3 into a much more favorable position than the Project Site, even if the underground/overhead direct transmission connection is 800 feet longer with Candidate Site 3.

Petitioner argues for this approach:

> DiPalma/Sheehan's role as an intervenor -- and with all due respect, I believe the role of the EFSB in this proceeding -- is to determine whether this project is in the public interest and not whether the EFSB or DiPalma/Sheehan prefers another site with a longer transmission line or another site with a different interconnection point to a different substation. That is simply not what is being evaluated in this proceeding. We are proposing to interconnect one project to one substation.
>
> Transcript, Page 70.

But consideration of alternatives is important to this process as cited in the EFSB precedence above. This analysis should not to be perfunctory but real.[15]

The consideration of alternatives by the Company has been perfunctory, and it has failed to demonstrate the reasonable necessity to locate this BESS facility on the Project Site.

VII. Thirty Percent Complete Plans

In April of 2025, the Company filed the original plans for design of the proposed BESS. The date on those plans was March 26, 2025. At that time, the plans were noted as being only at the stage of 30% design. Now, nearly a year later, the plans are still only at 30% completion. DiPalma and Sheehan take the position that the Company used the low-level plan design to prevent all parties and the Board from having adequate information to conduct effective direct and cross examination during the adjudicatory proceeding.

There were a multitude of discovery requests made by DiPalma and Sheehan and the Board, to which the Company stated they could not provide an answer or the requested material due to the project being only at a 30% design. Answers to other questions were hedged, with the witness saying that their answer might change as the plans progressed. Below is a list of information requests (with exhibit numbers) met with the response that the information cannot be provided because the Project is only at 30% design:

[15] Planning Board vs. Department of Public Utilities, 420 Mass. 22 (1995): "Our review of petitions under G. L. c. 25 § 5, is limited, although not perfunctory, citing Wolf v Department of Public Utilities, 407 Mass. 363 (1990).

- Testing and Modeling Components – EFSB-S-80
- No. of cells per module and in the container, and container dimensions – D/S-S-10
- Cabinet design-pressure rating, failure pressure rating and venting design – D/S-S-11
- Free internal volume of modules and container – D/S-S-12
- Detailed CCR[16] system mechanical drawings, layouts, and control schematics – D/S-S-13
- Confirmation of separation distances between BESS units – D/S-S-29
- Complete mechanicals drawings showing all container vent paths and release locations – D/S-S-9
- Mechanical drawings and data sheets of the BESS liquid cooling system – D/S-S-14
- Confirmation of whether the unit level test configuration in the provided reports match the proposed installation – D/S-S-52
- Electrical site plan for the transmission line and interconnection – D/S-SS-31

In the Petition to Intervene filed by DiPalma and Sheehan, on October 23, 2025, they let it be known that they were hiring ioMosaic Corporation to conduct an air dispersion model. In fact, DiPalma and Sheehan attached to their petition information about ioMosaic and its planned modelling (Exhibit A to the Petition, which is Exh. SD-1 in this proceeding).

The above discovery requests we served on the Company on December 15, 2025. The Company had two weeks to provide the requested material, which would have allowed ioMosaic time to use the requested information in its modelling (which was due January 19, 2026). Instead, the responses were that the information cannot be provided because the plans are only at 30% design. The information sought would have been extremely helpful in preparing the most accurate model.

Some of the above information was finally provided (in some cases because the EFSB also sought the material) but only after the close of the public hearing, which means that there

[16] CCR stands for Combustible Concentration Reduction (CCR) system.

was no mechanism to cross-examine expert witnesses about this information, let alone use it in the modeling.

When asked if the Board would be aided if the Project plans were now at a 70% or 90% design instead of 30%, Counsel for the Company objected, stating that it is hard to make changes if the plans are already at 100%:

> I just don't know if Chief Morris is the person to answer is 30 percent – is 70 percent better than 30, is 100 better than 70, does it help the Town if they have 100 percent now, and then goes to, let's say the conservation commission and the conservation commission wants to change something? It makes it very difficult to change anything when you have a 100 percent plan. I think that's the purpose of having these plans as we move forward handling these things in phases.
>
> Transcript, Page 1293-1294.

DiPalma and Sheehan respectfully reject this contention. When the land use process is conducted at a local level, all boards expect 100% complete plans a few days prior to the public hearing (site plans, grading and drainage plans, landscaping and lighting plans, etc.). In fact, most local land use boards require an engineer's stamp on the completed plans, which the Project plans do not have. At the local level, sometimes a board might require changes to a set of plans already approved by a sister board. Yes, in those cases, it is necessary to return to the earlier board and ask to modify the approval. This is quite common in land use.

The undersigned has been a land use attorney for more than 40 years, handling hundreds of local land use hearings. He has never heard an applicant say that the plans are only partially complete become of a concern that if more complete plans were provided some other board might want to make changes. This is not reason to intentionally keep the plan set before a land use body in an incomplete form.

It is very difficult for any board, at a local or State level, to adequately evaluate project plans that are only 30% complete. But even if the EFSB accepts plans completed to only this or a similar level, this should not be a license for the applicant to continually say that materials and information sought through discovery cannot be provided. When discovery requests are made the responding party must make an earnest effort to fully meet the requests. This has not been done in this case.

This Company shortcomings in this regard were very evident when the Company was asked for cross-sections of at least the BESS container, the M-10 inverter, and the transformer. The Company's representative, Tyler Rynne, responded:

> Those are just not typical for a 30 percent design. The main purpose of the 30 percent design is to show the site plan, you know, the ability to construct the project, including stormwater and things like that. But the, you know, as-built, 100 percent construction designs have just not been produced yet, and will be produced much closer to building permits being requested.
>
> Transcript, Pages 311-312.

When asked why the Company has not been able to provide drawings of the vent configuration, Rynne stated:

> The exact configuration within the containers is still – that is something that is finalized as part of the procurement of the exact BESS containers that goes onto the site. So just like a car has minor updates between years, there's small modifications that we leave to the company or manufacturer to kind of sort out those small details, and at this time we have not procured or even started to procure the exact configurations of Hithium.
>
> Transcript, Page 1296.

A follow-up question was asked:

> Just one follow up question on that: Couldn't, having received this information request, the company have asked Hithium to provide an example from what you think would be a model you might choose that would be representative of whatever exact model you ultimately settle on, so that members of the community could see an example of where's the vent located and how does it work?

Transcript, Pages 1296-1297.

The response, by Chief Morris was disappointing but illuminating:

> [Morris] Yes, Thank you. So I'd like to emphasize that, again, as the project has not only committed to be compliant with the Commonwealth of Massachusetts fire codes, buy even above and beyond the more recent additions of NFPA 855, the rest of my answer talks about the standards that would apply to these, including NFPA 69 and NFPA 855.

Chief Morris missed the point. DiPalma and Sheehan understand that the Company has promised to comply with NFPA standards, though, as pointed out above, NFPA 855 2026 puts the Hazard Mitigation Analysis at the center of its process and the HMA in this case is insufficient. DiPalma and Sheehan were asking for a plan of one Hithium container, and the Company and its fire safety experts resisted. During the public hearing, DiPalma and Sheehan and their experts never received any specifications or cross section drawing of even a typical Hithium container. DiPalma and Sheehan and their experts wanted to see drawings of the venting system and be able to ask questions of the Company's experts about the venting, which is very critical to the preparation of an air dispersion model, and this was never provided.

The Company stands before the ERSB seeking a waiver of local zoning by-laws adopted by Tewksbury Town Meeting voters to protect the community, which By-laws do not allow this use in this zoning district. There are known potential issues related to safety of the community and the environment. It is not unreasonable for the Company to be required to provide detailed information to all parties and their experts about the kind of equipment being installed and how it works. The Company believes that it is acceptable that all of those details will be provided later, after the Board has made this critical decision on the waiver request.

The Company asks that the Board and parties accept the UL test results on specific Hithium containers, with specific modules and cells inside. These containers exist and are sold on the market. Specifications and detailed drawings can certainly be provided during this process, not afterwards. The following testimony focuses on this point:

> Q. Chief Morris, why were you not able to provide a mechanical drawing showing all cabinet vent path and release locations? A [Morris] I believe I answered that there's – we're at 30 percent site design, so the final – 30 percent is not 100 percent. Q. That these cabinets – the BESS containers already exist? A. Yes, they are a produce that exists. Q. So the Company, Hithium, in China, sells these already. A. [Morris] Yes. Q. So why would that company not be able to provide drawings of the vent configuration?
>
> Transcript, Page 1296

This question was not answered, except for Mr. Rynne jumping in to state that the exact containers have not yet been specified and the procurement process has not started (Transcript, Page 1296).

Plans kept at a low level of completion should not be used as a reason to not provide critical information, which in this case, was the excuse given throughout the process.

VIII. 123 Clinton Street

As mentioned above, even the Company's consultant, Hazard Dynamics, says that the small single-family home at 123 Clinton Street, is exposed to possible serious health effects. His report says that: "It is possible that carbon monoxide could cause serious health effects (reach AEGL-2 levels) at the nearest house" (Exh. Attachment H, Page 2). What is interesting is that in its original renderings of the project, the Company simply removed the house.

Exh. Figure 6-6. The Company showed trees instead of 123 Clinton Street.

The home was later added in new renderings:

In response to a discovery request, the Company added the home:

Exh. DS-G-1 (1) Part 1, page 2

This house is located very close to the proposed BESS facility.

IX. Permitting for a BESS

a. The Consolidated Permit

The Company will return to the EFSB for a second phase of permitting which it says will happen "upon receipt of a comprehensive zoning exemption" (Exh. D/S-P-1), the relief it seeks by the present Petition. The Company says that it plans to choose not to seek a consolidated permit ("Consolidated Permit"), as allowed by M.G.L. c. 69T ("Section 69T"), incorporated therein by the Climate Act, but rather will petition for a *certificate of environmental impact and public interest* ("Certificate") under Section 118 of the Climate Act (See Opposition to Motion for Partial Summary Decision at page 12 - "At this time, the Company intends to seek a Certificate – not a Consolidated Permit – upon the granting of a zoning exemption").

Section 69T reads:

> A consolidated permit, if issued, shall be in the form of a composite of all individual permits, approvals or authorizations that would otherwise be necessary for the construction and operation of the large clean energy infrastructure facility and that portion of the consolidated permit that relates to subject matters within the jurisdiction of a municipal, regional or state agency, authority, board, commission, office or other entity shall be enforced by said agency, authority, board, commission, office or other entity under other applicable laws of the commonwealth as if the consolidated permit had been directly granted by said agency, authority, board, commission, office or other entity.
>
> M.G.L. c. 164 § 69T, subsection (i), effective March 1, 2026 as per the Climate Act.

Rather than utilize the provisions promulgated as of March 1, 2026, including minimum standards and the Consolidated Permit process, the Company seeks a waiver of the By-laws (in this action), and will then try to avoid the new regulations by seeking a Section 118 Certificate.

The EFSB should deny the Petition for zoning exemption as to Section 5.6 and then, on the later petition to the Board, it can and should stand in for the Tewksbury Planning Board and determine if the requirements of a Section 5.6 special permit are met, per Section 69T.

This accomplishes the legislative intent of providing an efficient streamlined process that allows applicants to avoid going to numerous local and state entities for permits. The Consolidated Permit approach removes the difficulty of multiple appeals of permits issued by various boards and quickens the pace at which energy projects can be approved and implemented.

Further, the Company is not qualified to apply for the Certificate under Section 118 of the Climate Act. Thus, in returning to the Board, the Company must seek a Consolidated Permit.

b. Section 118 of the Climate Act

To use Section 118 to access the former approach (the Certificate) rather than apply under the new Section 69T for a Consolidated Permit, a petitioner must show that a serious attempt to procure local permits has failed due to denials, appeals or burdensome conditions.

In subsection (b) of Section 118 there is language that the Board should not consider the petition for a Certificate under this section of the Climate Act unless certain conditions exist. "The energy facilities siting board shall consider a petition pursuant to subsection (a) if the applicant is prevented from building the energy storage systems because:…". This is followed by a list of possible obstacles by agencies. These obstacles, (i) – (vi), read as though the

petitioner has already attempted to procure permits from local agencies and has been frustrated. The Company has not done so in this case.

This is followed by language (in subsection (c)) indicating that the energy facilities siting board "shall, upon petition, consider an application for a certificate of environmental impact and public interest if it finds that any state or local agency has imposed a burdensome condition or limitation on any license or permit." In other words, the Section 118 Certificate approach appears to be for use by petitioners who have been denied permits by State or local agencies or received them with burdensome conditions.

In the case now before the EFSB, there is no showing that a "state or local agency has imposed a burdensome condition or limitation on any license or permit." The Company has not applied to any other boards or commissions for permits. The "burdensome" requirement is a precondition of applying for the Certificate instead of a Consolidated Permit.

The Company may be planning to apply to local boards and commissions and then file a Petition for a Certificate once denied, but it lacks the time to do so. The window to use Section 118 to avoid the new regulations and the Consolidated Permit process will close before the Company qualifies to use the provision.

Section 118 (d) prescribes that the Certificate issued shall be "in the form of a composite of all individual permits".

> A certificate, if issued, shall be in the form of a composite of all individual permits, approvals or authorizations that would otherwise be necessary for the construction and operation of the energy storage system and that portion of the certificate that relates to subject matters within the jurisdiction of a state or local agency shall be enforced by said

agency under the other applicable laws of the commonwealth as if it had been directly granted by said agency.

The concept of a composite of all individual permits is one that arises within the new Section 69T as the Consolidated Permit is discussed. The EFSB enabling statutes, both before the Climate Act changes and after, do not have a separate treatment of "composite of all individual permits". Thus, where this term is used in the temporary Section 118, it lacks guidance and standards on how this is to be implemented (unless the concept is "borrowed" from Section 69T), which is not prescribed in Section 118.

When the Company returns to the Board it can and ought to apply for the Consolidated Permit in order to harmonize the otherwise existing conflict between the Board's authority to waive local zoning regulations and the need in this case for Section 5.6 to be applied under 310 CMR 22.21. Section 69T contains considerable information and standards applicable to such petitions, which are to be composites of all other permits. The Climate Act (in Section 52) inserted a specific definition of "consolidate permit" into Section 69G of the EFSB's enabling statutes.

Then Section 69T states:

(a) The energy facilities siting board may issue consolidated permit for large clean energy infrastructure facilities. No applicant shall commence construction of a large clean energy facility at a site unless an application for a consolidated permit for such facility pursuant to this section has been approved by the board and no state agency shall issue a construction permit for any such facility unless the petition to construct such facility has been approved by the board. For the purposes of this section, construction shall not include contractual obligations to purchase facilities or equipment.

One can easily see the difference between this permanent part of the EFSB enabling statutes and Section 118 of the Climate Act which is temporary in nature (and not made part of any enabling legislation).

It is clear that a consolidated permit issued by the EFSB will soon be needed for any BESS project or any other kind of large clean energy infrastructure facility. Section 69T goes on to provide essential permitting criteria (missing from the independent Section 118). This begins: "(b) The board shall establish the following criteria governing the siting and permitting of large clean energy infrastructure facilities: (i) a uniform set of baseline health, safety, environmental and other standards that apply to the issuance of a consolidated permit. This is followed by requirements for:

(ii) a common standard application…
(iii) prefiling requirements…
(iv) standards for applying site suitability criteria…
(v) standards for applying the cumulative impacts analysis standards and guidelines…
(vi) standard permit conditions…

Subsections (c) and (d) of Section 69T prescribe in detail the application requirements for a consolidated permit. The stand-alone Section 118 of the Climate Act contains none of this essential information.

The Certificate approach of Section 118 lacks real standards, processes and regulations associated therewith such as those carefully spelled out in Section 69T. The Certificate route of Section 118 of the Climate Act is deeply flawed. Neighbors to parcels on which a petitioner seeks to construct a BESS facility under a Section 118 Certificate are treated differently under

the law than those whose property is adjacent to a site where a petitioner seeks to install such a facility under the Consolidated Permit. All property owners in the areas of proposed new energy facility projects should have the same protection of a fair, open, understandable and predictable process guided by actual promulgated regulations.

Intervenors DiPalma and Sheehan are entitled to the equal protections afforded to property owners near such sites and should not be disadvantaged by a short window of time during which those protections are clouded and abridged because the legislature added to an otherwise excellent piece of legislation a provision that created an inferior permitting process for a short window of time.

c. The Company Seeks a Comprehensive Zoning Exemption

In addition to exemptions from individual zoning By-law sections, the Company seeks a Comprehensive Zoning Exemption (Petition at pages 43 and 44). In the matter of Cranberry Point Energy Storage, LLC, DPU-22-59, decided on June 30, 2023, the DPU said:

> The grant of a comprehensive exemption is based on the specifics of each case. Compared to the grant of individual zoning exemptions, which is tailored to meet the construction requirements of a particular project, the grant of a comprehensive exemption serves to nullify a municipality's zoning code in its entirety with respect to the project under review. Thus, compared to the grant of individual zoning exemptions, a comprehensive zoning exemption constitutes a broader incursion upon municipal home rule authority. **In the absence of a showing that substantial public harm may be avoided by granting a comprehensive exemption, the granting of such extraordinary relief if not justified**. (Cranberry Point at page 129, 130 – Bolding provided.)

The Company thus has a burden to show that substantial public harm will occur if the comprehensive exemption is not granted. The law that amended the EFSB enabling statutes (the Climate Act) was passed in November of 2024 and called for the adoption of new regulations by

March 1, 2026, under which BESS proposals are to be processed in the future. This is a relatively new legislative and regulatory program. It is difficult to see how substantial public harm will result if the protections of Section 5.6 are reviewed by the Board (under a Consolidated Permit) rather than waived.

The ISO NE Interconnection Queue (which is publicly available online) shows that there are applications by BESS developers seeking ISO NE permission to connect to the Grid with a total of 5,950 MW of energy storage (Exh. D/S-G-2026). In section 98 of the Climate Act, the State has set a goal of installing at least 5,000 MW of new BESS facilities by the year 2030. The projects presently in the ISO NE review pipeline as of December 2025 will fulfill 120% of the State's clean energy goal regarding energy storage. (Exh. D/S-G-22).

The Company has selected a site with a high-water table in a Zone II that protects the public drinking water of the Tewksbury Hospital. The Project Site is also located immediately adjacent to a large wetland and very close to abutting habitable buildings.

The company cites in its Opposition to the Motion the case of Town of Hopkinton v DPU, 140 N.E. 3d 953, 97 Mass. App. Ct. 1102 (1964) for the proposition that "courts have specifically upheld comprehensive zoning exemptions and noted that the agency granting the exemption has a wide range of discretion in appraising the public interest…" (Opposition page 4) In that case, the DPU found that:

> The Existing Facility is well past its design life. While the Existing Facility is operable, replacement equipment is getting more difficult to obtain, and some replacement parts may take as long as nine to twelve months to procure or reverse engineer. A loss of the facility for a prolonged period of time would have a significant detrimental impact on

> NSTAR Gas' ability to provide gas service to its customers, particularly during peak winter conditions, and this would clearly result in substantial public harm."

The above case (Hopkinton) is a strong example of establishing the danger of substantial public harm. None exists in the present case, where new energy storage technologies are being employed under a new set of regulations, which are now fully promulgated. There is no substantial public harm that will result from the Company having to comply with Section 5.6 of the Tewksbury Zoning By-law (as adjudicated by the EFSB on a Consolidated Permit application), which exists as part of an important legal regime: the protection of public drinking water supplies.

The Board can certainly waive those dimensional and use provisions of zoning bylaws that would prevent the BESS project (i.e., height, setbacks, allowed uses). Section 5.6 does not prevent the project but provides critical and required protective standards and procedures. Because Section 69T was added to the EFSB enabling legislation by the Climate Act, which allows the Board to stand in for the Tewksbury Planning Board on the Section 5.6 considerations, the EFSB itself can implement the required safe drinking water provisions during the next phase of review, which must be a Section 69T Consolidated Permit petition.

X. Conclusion

With many more BESS projects likely to be coming before the Board for either a zoning exemption or a comprehensive permit or both, and with the Board having before it in this matter air dispersion models and expert testimony on setback distances to achieve safety, the Board should consider providing guidance on this question. While each site is unique and must be evaluated in light of its particulars, a body of credible evidence is suggesting a possible

minimum separation distance between BESS facilities and nearby homes and habitable spaces. The Board should adopt a presumptive safe setback.

Siting a BESS facility in a Zone II presents considerable concerns related to protecting public drinking water supplies. Three questions arise that should be treated by the Board in its decision on the present petition:

a. The Board should indicate whether or not current State guidance documents and regulations should be interpreted as requiring full containment of rainwater and firefighting wash around BESS containers located in a Zone II.

b. The Board should rule on whether local groundwater protections, specifically called out as needed in state regulations for Zone IIs, should remain in place and not be waived, but adjudicated by the Board itself as part of a consolidated permit under Section 69T.

c. The DEP has a model zoning by-law that requires a vegetated infiltration system designed to prevent degradation of public water supplies. While only a suggested by-law, the Board ought to weigh in on the question of whether the enhanced pollution control features of such systems ought to be utilized when a BESS is proposed in a Zone II. The Vegetated System requires more land but still allows a BESS development in a Zone II, provided the best infiltration systems is used.

With regard to noise models, the Board should signal that use of acoustical engineer estimates of sound power levels is inferior to the use of manufacturer provided results of independent laboratory testing of such sound powers (which is why ISO 1377 – the international testing protocol – exists and is commonly used). In this matter, the independent lab report of sound power levels of the quieter version of the BESS containers was provided and used in the modelling (and is thus reliable), but with the louder M-10 inverters (40 proposed on this site), the sound power levels were estimated and then the levels withheld as confidential. Like the UL 9450A test results were provided for the Hithium BESS containers, such lab test results should be provided and used in the modelling of sound pressures extending into the community. The Company switched providers of the BESS containers because the Sun Grow company would not

share UL test reports. Similarly, petitioners should not specify equipment offered by manufacturers which refuse to provide the independent lab results of sound power levels (by individual octave band frequencies and broadband).

This matter presents the question of how detailed the information provided to the Siting Board ought to be, both in terms of pre-filed testimony and in responses to discovery and record requests. The Company presented a recurring default position that the specifics of the Hazard Mitigation Analysis and the Emergency Response Plan should come later after the EFSB makes its decision on the zoning exemption petition. DiPalma and Sheehan argue that the EFSB is itself an Authority Having Jurisdiction and should be provided with much more of the critical detailed analysis and plans related to safety. In addition, the Company repeatedly responded that sought information germane to the current Petition was not available as the plans are only 30% complete., The board should clarify in the decision in this case how much a petitioner can shield information with the claim that such will be provided later to other parties and not the Board, when the plans are more advanced.

The requirement that a petitioner analyze alternatives and alternative sites is in danger of becoming a hollow gesture. In this case, the petitioner chose two sites that are, and were from the start, clearly inferior – in fact not workable at all. A third rejected site is actually superior to the site selected by the Company, and inadequate reasons were given for its elimination from consideration. An uncomfortable truth is that petitioners get a property under contract and then seek out properties to hold up as poor alternatives. The Board should provide guidance on what kinds of comparisons qualify as an earnest presentation of alternatives to the project, lest this aspect of EFSB review becomes meaningless.

The Petitioner approaches this process as if the policies and goals of the State on increasing battery storage trump all. The argument distills to this: by default, in light of these high priorities, the Board must waive local zoning because this project is (de facto) reasonably necessary for the convenience or welfare of the public. But it should not be the case that until the policies and goals embodied in the Climate Act are fully implemented, all proposed BESS facilities must be free of local zoning by-laws, regardless of the inadequacies of the sites. If this were true, there would be no purpose to the required adjudicatory hearing process. The Board should make clear in this decision that, notwithstanding the virtues of battery storage and the priority this technology should be afforded, consideration of the balancing of interests is always important, with both zoning exemptions and consolidated permits.

The Petitioner has failed to present sufficient evidence of record that the balance of such interests should be in favor of the Project.

MAUREEN DIPALMA AND DENNIS SHEEHAN

By their Attorney

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