COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF THE TRIAL COURT

FRANKLIN, ss.

LAND COURT
DOCKET NO.: 25 MISC 000014 (LER)

TOWN OF WENDELL,
MASSACHUSETTS,
Plaintiff

v.

ANDREA JOY CAMPBELL, ATTORNEY GENERAL FOR THE COMMONWEALTH OF MASSACHUSETTS,
Defendant

PLAINTIFF'S MOTION FOR JUDGMENT ON THE PLEADINGS

NOW COMES the Plaintiff, Town of Wendell, Massachusetts, and respectfully requests that this Honorable Court enter judgment in its favor on the pleadings, pursuant to Rule 12(c) of the Massachusetts Rules of Civil Procedure and this Court's docket entry dated March 24, 2025, and remanding this matter to the Attorney General with instructions to approve the bylaw.

In support of its Motion, the Town states as follows:

I. FACTUAL BACKGROUND[1]

1. The Plaintiff, Town of Wendell, Massachusetts (the "Town"), is a municipal corporation duly organized under the laws of the Commonwealth, with a principal

[1] "Review under G.L. c. 249, § 4, is limited to correcting 'substantial errors of law that affect material rights and are apparent on the record.'" *Gloucester v. Civ. Serv. Comm'n*, 408 Mass. 292, 296–97 (1990), quoting *Debnam v. Belmont*, 388 Mass. 632, 635 (1983). In this context, the Court "not only consider[s] allegations in the complaint, but also may take into account 'matters of public record, orders, items appearing in the record of the case, and exhibits attached to the complaint.'" *Merriam v. Demoulas Super Markets, Inc.*, 464 Mass. 721, 723 (2013), quoting *Schaer v. Brandeis Univ.*, 432 Mass. 474, 477 (2000). The Court "can also consider facts of which judicial notice may be taken.'" *Home Depot v. Kardas*, 81 Mass. App. Ct. 27, 28 (2011), quoting *Jarosz v. Palmer*, 49 Mass. App. Ct. 834, 835 (2000), 436 Mass. 526 (2002).

place of business at 9 Morse Village Road, Wendell, Massachusetts 01379. Complaint, ¶ 7.

2. The Defendant, Andrea Joy Campbell, is named solely in her capacity as Attorney General of the Commonwealth (the "Attorney General"). The Office of the Attorney General has a principal place of business at One Ashburton Place, Boston, Massachusetts 02108. Complaint, ¶ 8.
3. Article 1 of the Warrant for the Town's May 1, 2024 Special Town Meeting proposed the adoption of a general bylaw entitled "General Bylaw for the Licensing of Battery Energy Storage Systems," to be adopted "for the protection of the public health, safety, and welfare" (the "BESS Bylaw"). Complaint, ¶¶ 1, 15.
4. Voters at the Special Town Meeting voted to adopt the BESS Bylaw by a vote of 100-1 on May 1, 2024. Complaint, ¶ 23.
5. By its terms, the BESS Bylaw establishes a licensing system for Battery Energy Storage Systems ("BESS") intended to minimize the risk to the health, safety, and welfare of the community and residents in the Town and the impact on the Town's natural environment. Complaint, ¶ 2 & Exhibit A thereto. A copy of the Bylaw is attached as Exhibit 1 to this Motion.
6. The BESS Bylaw contains a detailed statement of purpose outlining the specific safety and environmental concerns that motivated the adoption of the BESS Bylaw. Complaint, ¶ 17 & Exhibit A, § A thereto (Exhibit 1 hereto).
7. The definition of "BESS" under the BESS Bylaw establishes generally that "a BESS is a stationary installation that may receive electrical energy to be stored directly from a generating facility, or from the electrical grid, or both and may dispatch energy to

the grid, or to support a residential, commercial, or industrial purpose without using the grid; or both." Complaint, ¶ 18 & Exhibit A, § B thereto (Exhibit 1 hereto).

8. The BESS Bylaw permits BESS with a power rating of less than 1 MW without any licensure requirement. It allows BESS with a power rating of 1 MW – 10 MW with a license granted in accordance with the BESS Bylaw. Due to concerns that "the risks to public health, safety, and welfare increase rapidly with the size of a BESS," the BESS Bylaw does not allow for licensure of a BESS with a power rating of greater than 10 MW. Complaint, ¶ 19 & Exhibit A, § C thereto (Exhibit 1 hereto).
9. The BESS Bylaw permits location of a BESS in any district in Town. Complaint, ¶ 20 & Exhibit A thereto (Exhibit 1 hereto).
10. The BESS Bylaw requires that any BESS must comply with all applicable local, state, and federal requirements, including but not limited to safety, construction, electrical communications, wetlands, protection, health, energy, and building requirements. Complaint, ¶ 21 & Exhibit A, § C (1) thereto (Exhibit 1 hereto).
11. Licensure of a BESS further requires detailed descriptions of the proposed BESS, various emergency plans and training for local public safety departments, as well as insurance and a financial surety in an amount sufficient to cover any potential removal and/or remediation of the BESS site. Complaint, ¶ 22 & Exhibit A, §§ D & G thereto (Exhibit 1 hereto).
12. Pursuant to M.G.L. c. 40, § 32, the BESS Bylaw was submitted for approval to the Attorney General, who subsequently denied such approval in a decision dated November 14, 2024 (the "Decision"). Complaint, ¶ 25.

II. LEGAL STANDARD

Review of the Attorney General's disapproval of a town bylaw is properly brought in the form of a certiorari action. See, e.g., *Reading v. Attorney General*, 362 Mass. 266, 269-270 (1972). Certiorari allows a court to "correct only a substantial error of law, evidenced by the record, which adversely affects a material right of the plaintiff.... In its review, the court may rectify only those errors of law which have resulted in manifest injustice to the plaintiff or which have adversely affected the real interests of the general public." *Sheriff of Plymouth Cnty. v. Plymouth Cnty. Pers. Bd.*, 440 Mass. 708, 710 (2004), quoting *Massachusetts Bay Transp. Auth. v. Auditor of Commonwealth*, 430 Mass. 783, 790 (2000).

III. ARGUMENT

The adoption of a bylaw by voters at a town meeting is entitled to a strong presumption of validity. *DiRico v. Town of Kingston*, 458 Mass. 83, 95 (2010); *Andrews v. Town of Amherst*, 68 Mass. App. Ct. 365, 369 (2007); *Durand v. IDC Bellingham, LLC*, 440 Mass. 45, 51 (2003). The Attorney General may only disapprove of a bylaw if it directly violates state substantive or procedural law. *Town of Amherst v. Attorney General*, 398 Mass. 793, 795 (1986), citing *Concord v. Attorney General*, 336 Mass. 17, 24 (1957).

"As a general proposition the cases dealing with the repugnancy or inconsistency of local regulations with State statutes have given considerable latitude to municipalities, requiring a sharp conflict between the local and State provisions before the local regulation has been held invalid." *Bloom v. Worcester*, 363 Mass. 136, 154 (1973). "The legislative intent to preclude local action must be clear." *Id.*

Throughout the process of reviewing and evaluating a municipal bylaw, "[i]t is fundamental that every presumption is to be made in favor of the validity of municipal by-laws."

Town of Amherst, supra, 398 Mass. at 795-796. Indeed, Massachusetts has "the strongest type of home rule…and municipal action is presumed to be valid." *Connors v. City of Boston*, 430 Mass. 31, 35 (internal quotations and citations omitted).

A. The Town Was Compelled to Adopt the BESS Bylaw to Address Concerns Regarding Health, Safety, and Public Welfare.

In its letter to the Attorney General in support of the BESS Bylaw, the Wendell Selectboard outlined the "grave risks" to the health and safety of the residents of Wendell that compelled the Town to adopt the BESS Bylaw. Letter from the Wendell Selectboard, Administrative Record, pp. 233-304. A copy of the letter is also attached as Exhibit 2 hereto.

In its letter, the Selectboard outlined the risks of fire, explosion, and release of toxic gasses in a "thermal runaway" event (and provided supporting documentation in the form or news reports and scientific articles) that lead to it "embracing its solemn responsibility to protect the health, safety, and welfare of Wendell citizens." Exhibit 2, pp. 1, 3. These documented catastrophic events, from around the world and across the country, coupled with the Commonwealth's failure to adopt or implement sufficient safety regulations governing such facilities, motivated the Town to adopt the licensing scheme outlined in the BESS Bylaw, which creates a licensing board "composed of representatives from multiple town boards and commissions concerned with the health, safety and welfare of Wendell residents." Exhibit 2, p. 6.

Moreover, the BESS Bylaw would require all BESS projects requiring licensure to comply with applicable standards from the National Fire Protection Association for Stationary Energy Storage Systems (NFPA 855). Exhibit 1, § (C); Exhibit 2, p. 7.

Finally, as the Selectboard noted, "especially in an under-protected small town, with a predominantly volunteer fire department and HAZMAT response one hour away," it is important

for the Town to adopt the BESS Bylaw to protect itself from the dangers posed by unregulated BESS facilities. Exhibit 2, p. 5.

Based on these concerns, the Town exercised its broad authority to adopt a general bylaw to license and regulate BESS within the Town. This general authority, long a part of the inherent power of municipalities in Massachusetts, is reflected in statutory language granting towns the power to "make such ordinances and by-laws, not repugnant to law, as they may judge most conducive to their welfare, which shall be binding upon all inhabitants thereof and all persons within their limits." G. L. c. 40, § 21. The first delineated category of such ordinances provides "[f]or directing and managing their prudential affairs, preserving peace and good order, and maintaining their internal police." *Id.*

This authority to regulate by general bylaw has long been held to be an expansive power that:

> extends to all matters which concern its internal regulation. It embraces those which affect the lives, limbs, health, comfort and welfare of all in their persons and their property. It subjects both persons and property to those restraints and burdens which are necessary in order that the general comfort and welfare may be secured. It prescribes the modes in which it is reasonable that each shall use and enjoy his own property, in order that others may be guarded in the reasonable use and enjoyment of theirs, and thus prevents a conflict of rights, by determining what uses and enjoyments by each are consistent with those to which others are entitled. *Comm. v. Bearse*, 132 Mass. 542, 546 (1882).

More simply put, "it embraces that large class of miscellaneous subjects affecting the accommodation and convenience of the inhabitants." *North Reading v. Drinkwater*, 309 Mass. 200, 202 (1941). Pursuant to this authority, the Town – through its town meeting – voted 100-1 to adopt the BESS Bylaw to protect itself from the dangers posed by unregulated BESS.

B. It was Error for the Attorney General to Disapprove the BESS Bylaw for Failing to Procedurally Comply with G.L. c. 40A, § 5.

In the Decision, the Attorney General disapproves of the BESS Bylaw because it "regulates the use of land and therefore should have been adopted as a zoning by-law (rather than a general by-law) ..." Complaint, Exhibit B, p.1. A copy of the Decision is attached as Exhibit 3 to this Motion. The reasoning supporting this decision was flawed, based on an incorrect reading of the applicable case law and the conflation of BESS facilities with solar facilities.

While "the line dividing matters a town can regulate only through zoning ordinances and those it may regulate through general ordinances is not always clear," the Supreme Judicial Court has explicitly held that all ordinances or bylaws that regulate land use are not necessarily zoning in nature. *Lovequist v. Conservation Comm'n of the Town of Dennis*, 379 Mass. 7, 12 (1979); *Spenlinhauer v. Town of Barnstable*, 80 Mass. App. Ct. 134, 138 (2011).

1. The BESS Bylaw Is General in Nature and Its Impact on Land Use Is Secondary to Its Primary Purpose.

Instead, a reviewing court must consider the "nature and effect" of the bylaw, including its primary purpose, as well as the current and historical existence of zoning governing the subject matter in the municipality. See, generally, *Rayco Investment Corp. v. Bd. of Selectmen of Raynham*, 368 Mass. 385, 390-394 (1975); *Lovequist*, *supra*, 379 Mass. at 11-14; *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 137-142. When read together, *Rayco*, *Lovequist*, and *Spenlinhauer* paint a clearer picture of exactly where the dividing line should be drawn – and strongly support the conclusion that the BESS Bylaw here is general in nature.

In considering the nature and effect of the bylaw, the courts in *Rayco* and *Spenlinhauer* specifically noted the bylaws' explicit focus on zoning and the lack of any evidence of concern for health or safety in the bylaws at issue (capping mobile home parks in town (*Rayco*) and

restricting overnight parking (*Spenlinhauer*)). *Rayco*, *supra*, 368 Mass. 385, 391-392; *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 139-142. The Court in *Lovequist*, meanwhile, repeatedly noted the bylaw's "stated purpose of protecting the local foreshore and wetlands." *Lovequist*, *supra*, 379 Mass. at 12-13.

Here, the BESS Bylaw is replete with language emphasizing the health and safety concerns that motivated the drafting and adoption of the BESS Bylaw by the Town and town meeting. See, e.g., Exhibit 1, § A (Purpose) (Bylaw's purpose is "...protecting the health, safety, and welfare of residents of Wendell and its natural and built environments."). Indeed, in addition to the repeated statements throughout the BESS Bylaw, other than prohibiting BESS facilities that exceed 10MW[2] due to their inherent risk, every aspect of the BESS Bylaw is focused on licensing requirements for such projects – the vast majority of which are solely related to valid and legitimate health and safety risks. It is exactly the kind of bylaw that was allowed by the Court in *Lovequist*. *Lovequist*, *supra*, 379 Mass. at 13 (The bylaw "does not prohibit or permit any particular listed uses of land or the construction of buildings or the location of businesses or residences in a comprehensive fashion. On its face it does not deny or invite permission to build any structure. It does not regulate density. Instead, it specifies that permission be obtained from the commission based on the factual circumstances surrounding individual applications.") (Emphasis added).

Where the impact on land use "follows only from its dominant purpose," a bylaw is general in nature. *Id.* Similarly, "municipal regulations that simply overlap with what may be the province of a local zoning authority" do not need to the satisfy the requirements of G.L. c. 40A,

[2] Note that the BESS Bylaw has a severability provision. Exhibit 1, §I. As the Court noted in *Spenlinhauer*, where only a part of a bylaw fails to comply with G.L. c. 40A, §5, the remaining provisions can survive. *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 139 n. 9. Thus, even if the Court determines that the ban on BESS over 10MW is improper, the remaining provisions of the BESS Bylaw should be approved.

§ 5 and may be adopted as general bylaws. *Id.* at 14. This case involves just such a situation of regulatory overlap where the primary goal of the BESS Bylaw is to establish licensing requirements for BESS facilities in an effort to protect the public health, safety, and welfare. Any resulting impact on land use is secondary and incidental, which is entirely proper in the context of a general bylaw. See, *Valley Green Grow, Inc. v. Town of Charlton*, 27 LCR 99, 104, 2019 WL 1087930, *8 (Mass. Land Ct., Mar. 7, 2019) (Foster, J.) ("A general bylaw can only treat the subject matter of a zoning bylaw through regulations that supplement the terms of the zoning bylaw, through, for example, setting the terms of particular uses on individual applications through a factual process."), citing *Lovequist*, *supra*, 379 Mass. at 13-14. A copy of this decision is attached as Exhibit 4 hereto.

The purpose and goal of the BESS Bylaw here can easily be distinguished from those in *Rayco* and *Spenlinhauer*. In *Rayco*, the Court noted that the bylaw in question did not touch on any of the typical health and safety concerns governed by board of health regulations for mobile homes and, in fact, simply consisted of a single sentence capping the number of mobile home parks in town. *Rayco*, *supra*, 368 Mass. at 386, 39-391. Similarly, in *Spenlinhauer*, the Court noted repeatedly that the bylaw at issue governing overnight, off-street parking had not been "linked… to any public health issue." *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 140-142 ("…it is difficult to conjure a menace to public health that arises as the sun sets over unoccupied vehicles parked on the grounds of the house where their owners reside.").

2. The Town Does Not Have a Comprehensive Zoning Bylaw Governing BESS, Nor Has It Had Such a Zoning Bylaw in The Past.

The other consideration for courts determining whether a general bylaw improperly addresses aspects of zoning and land use is the existence of a "comprehensive" zoning bylaw covering the same issue or subject matter in the town already. *Rayco*, *supra*, 368 Mass. at 393;

Lovequist, *supra*, 379 Mass. at 14; *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 142. In *Rayco*, despite the fact that the town had characterized its one sentence cap on mobile home parks as a general bylaw, the Court noted that there was a pre-existing "trailer bylaw" in the town's zoning bylaw that "purported to cover this subject in a comprehensive fashion..." *Rayco*, *supra*, 368 Mass. at 393. In *Spenlinhauer*, the Court also noted that the town's general bylaw that was subject to the challenge was enacted in a standalone fashion despite the presence of "a comprehensive bylaw regulating parking in the town." *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 142.

In *Lovequist*, meanwhile, the Court noted that "no evidence ha[d] been introduced that there is or ever has been a comprehensive zoning by-law governing the wetland activities proposed by the plaintiffs." *Lovequist*, *supra*, 379 Mass. at 14.

In the Decision disapproving of the BESS Bylaw, the Attorney General appears to treat BESS facilities as solar energy facilities in an effort to support its contention that the Town has a "comprehensive zoning bylaw" on the subject, as well as relying on a prior, unsuccessful effort by the Town to regulate BESS through a zoning bylaw. Exhibit 3, pp. 8-9.

Historically, the Town's zoning bylaws made no reference to BESS or any similar battery storage systems – either in its solar bylaws or elsewhere. See, e.g., a copy of the Town's solar bylaw in effect through 2022, contained in the Administrative Record at pp. 178 *et seq.* and attached hereto as Exhibit 5 to this motion, which makes no mention of battery storage in any way. As referenced in the Decision, the Town amended its solar bylaw in 2022 to include passing references to battery storage components in the context of solar facilities, as well as a prohibition on standalone BESS. Exhibit 3, p. 9. While the Attorney General disapproved of the prohibition on standalone BESS (and language relating to herbicides and pesticides, not relevant to this

discussion), the remainder of that new solar bylaw was approved. *Id.* A copy of the Town's solar bylaw in effect since 2023, referenced in the Administrative Record at pp 200-208, is attached hereto as Exhibit 6 ("New Solar Bylaw").

First, the New Solar Bylaw can hardly be considered a "comprehensive" zoning bylaw with respect to BESS. While it certainly provides comprehensive coverage with respect to solar issues, the sparse, tangential references to BESS can hardly meet the "comprehensive" standard set by all three prior court decisions on the topic. *Rayco*, *supra*, 368 Mass. at 393; *Lovequist*, *supra*, 379 Mass. at 14; *Spenlinhauer*, *supra*, 80 Mass. App. Ct. at 142.

Moreover, the subject matter of the BESS Bylaw at issue here is not solar facilities, but BESS. The New Solar Bylaw, to the extent it addresses BESS at all, is only in passing and only in the context of BESS that are accessory to solar facilities. Exhibit 6, § B (Definitions). The larger issue of regulation, licensure, and oversight of BESS was not addressed by the New Solar Bylaw nor has it been covered by any prior bylaw, general or zoning, until the BESS Bylaw was passed. Similarly, the BESS Bylaw only references solar energy – tangentially – in one location, requiring that any BESS "shall comply with all local bylaws and regulations, including but not limited to the Town of Wendell's Wetlands Protection Bylaw. Board of Health Regulations, and Solar Energy Bylaw." Exhibit 1, § C (1).

While the Town's New Solar Bylaw regulates certain kinds of BESS in connection with solar facilities and projects, the BESS Bylaw at issue here imposes exactly the type of licensing scheme on all BESS that the Court has approved in the past, regardless of its connection to a solar facility or project. *Lovequist*, *supra*, 379 Mass. at 13. These are permissible "municipal regulations that simply overlap with what may be the province of a local zoning authority." *Id.* at 14.

In short, the Town adopted the BESS Bylaw in an effort to protect the Town's health, safety, and welfare from the undisputable risks that accompany BESS, especially in a small, rural, financially distressed community. The BESS Bylaw is clearly not a zoning bylaw in nature nor effect and any impact it may have on land use is secondary to the dominant purpose of safeguarding health and safety of the residents. Moreover, the Town has not historically regulated BESS in any way, and any recent efforts to incorporate BESS into the New Solar Bylaw have not risen close to the "comprehensive" regulation required to compel the Town to incorporate any further regulation into that existing scheme.

For these reasons, it was error for the Attorney General to disapprove of the BESS Bylaw for failure to comply with the procedural requirements of G.L. c. 40A, § 5.

C. It was Error for the Attorney General to Disapprove of the BESS Bylaw Based on the Protections Contained in G.L. c. 40A, § 3 Regarding Solar Energy Systems.

The Attorney General further disapproves of the BESS Bylaw in the Decision by arguing that it violates the protections afforded to solar energy facilities under G. L. c. 40A, § 3 ("Section 3"). Exhibit 3, pp. 11-13. Again, this result is reached by treating all BESS as solar energy facilities, a conclusion that cannot be sustained by the facts or the law. Moreover, the protections afforded by Section 3 are not limitless, and the BESS Bylaw plainly operates in the clear statutory exception provided by the legislature where such regulation is "necessary to protect the public health, safety or welfare." G. L. c. 40A, § 3.

The applicable language from Section 3 states, in its entirety, that "No zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare." *Id.*

While BESS could be used to "facilitate the collection of solar energy," the plain meaning of the term and the explicit language of the BESS Bylaw do not limit BESS to those instances. Exhibit 1, § B (Definitions). Even the statutory language relied upon by the Attorney General in the Decision does not define "energy storage systems" to those relating to solar energy. Exhibit 3, p. 12, citing G. L. c. 164, § 1.[3] Instead, an "energy storage system" essentially includes any technology that is capable of absorbing energy, storing it for a period of time and thereafter dispatching it. The source of energy is not relevant to the definition, and a BESS could just as easily store energy produced via fossil fuels, such as coal, as it could store solar energy.[4]

The BESS Bylaw does not, on its face, regulate solar energy systems in any way. As we know, however, case law interpreting Section 3 has long acknowledged that regulations that do not directly regulate solar energy facilities (or other uses protected by Section 3) may still be impermissible as applied to solar energy systems in specific cases. See, e.g., *Trace Lane II Realty, LLC v. City of Waltham*, 489 Mass. 775 (2022) ("*Tracer Lane*").

In *Tracer Lane*, the Court held that Waltham's refusal to allow construction of an access road to a solar energy facility located in Lexington, based on the prohibition of commercial uses in the residential zone where the road was to be located, was an impermissible regulation under Section 3. *Id.* at 781-782. Based in part on this decision, the Attorney General disapproved the BESS Bylaw in its entirety.

[3] Note that the definitions provided in G. L. c. 164, § 1 are, by its own language, applicable only to the provisions of that Chapter.

[4] The BESS Bylaw defines BESS as "An Energy Storage System that uses rechargeable batteries, which harness reversible electrochemical processes to store electrical energy using any battery chemistry, including lithium ion, lithium iron phosphate, and many others; a BESS is a stationary installation that may receive electrical energy to be stored directly from a generating facility, or from the electrical grid, or both and may dispatch energy to the grid, or to support a residential, commercial, or industrial purpose without using the grid; or both." Exhibit 1, § B.

Waltham's refusal to allow construction of the access road in *Tracer Lane* was based on its location in a residential zone. *Id.* at 777. Notably for the issue before this Court, the Court in *Tracer Lane* did not strike down the entire zoning map or invalidate the prohibition on commercial access roads (or uses) in the residential zone. Instead, the Court affirmed the Land Court decision declaring that the prohibition on constructing the access road in this case was improper under Section 3. *Id.* at 777, 782.[5] In essence, the Court in *Tracer Lane* held that the otherwise-permissible regulation prohibiting industrial access roads in a residential zone was a violation of Section 3 only as applied to the solar project at issue.

As the Attorney General notes in the Decision, if the BESS Bylaw were adopted as a zoning bylaw, "and then used to deny a BESS, or otherwise applied in ways that make it impracticable or uneconomical to build solar energy systems and related structures (including BESS), such applications may run a serious risk of violating [Section 3]." Exhibit 2, p. 12 n. 8 (emphasis added). Despite the conditional language about a hypothetical applicant who may face circumstances that impede a solar energy project in some potential future unknown situation, the Attorney General disapproved of the BESS Bylaw in its entirety.

Notwithstanding the hypothetical conflict set forth in the Decision, the BESS Bylaw could also provide essential safety protection for the Town in many other instances having no connection with solar energy in any way. See, e.g., AGO decision in Case #10690, approving a zoning bylaw prohibiting BESS that are not located at the site of a permitted large scale solar installation. A copy of that decision is attached as Exhibit 7 hereto. Just as "the Attorney General is not free to make a distinction which the Legislature has not made," they similarly cannot

[5] The Court also held that Waltham's prohibition on solar energy facilities in all but 1-2 percent of the City was a violation of Section 3, but that aspect of the decision is not relevant to the issue at hand. *Tracer Lane*, 489 Mass. at 781-782.

ignore a distinction that the Legislature plainly has made – that the protections of Section 3 are limited to solar energy facilities, not structures or uses that could conceivably be used in connection with solar energy facilities. *Town of Amherst*, *supra*, 398 Mass. at 795. "It is for the Legislature, not the executive branch, to determine legislative policy." *Id.* (citations omitted).

As noted above, Section 3 does not prohibit any regulation of solar energy systems. Instead, it prohibits "unreasonable regulat[ion]" of solar projects, and further allows for regulation "where necessary to protect the public health, safety or welfare." G. L. c. 40A, § 3. As the Court noted in *Tracer Lane*, "[t]hat statutory language [relating to solar energy systems] provides municipalities with more flexibility than statutory protections for land use for education, religion, and child care, which allow only for reasonable regulations on such matters as bulk and height. *Tracer Lane*, *supra*, 489 Mass. at 780, citing G. L. c. 40A, § 3, ¶¶ 2 & 3.

The Town's adoption of the BESS Bylaw was based on legitimate concerns relating to the risks BESS could pose "to the health, safety and welfare of the Wendell community." Exhibit 1, § A (Purpose). See also, *Cogliano v. Planning Bd. of Norton*, 105 Mass. App. Ct. 1116, *3-5 (unpublished decision 2025) and *NextSun Energy LLC vs. Fernandes*, 31 LCR 323, 327-328, 2023 WL 3317259, *7-8 (Mass. Land Ct., May 9, 2023) (Foster, J.) for discussion of fire risks and "thermal runaway" in connection with BESS facilities. A copy of the *NextSun Energy* decision is attached as Exhibit 8 hereto.

These concerns (along with documentation regarding the risks associated with BESS, the lack of sufficient state oversight, and the specific difficulties facing the Town, which has limited resources for public safety and operates a predominantly volunteer fire department) were further provided to the Attorney General by numerous parties while the Bylaw was under review. See, e.g., Exhibit 2, Letter from the Wendell Selectboard. These health and safety concerns are not

only exactly the type of threats that warranted the adoption of the BESS Bylaw as a general bylaw, but also exactly the kind of health and safety regulations that the Legislature reserved for municipalities to continue to adopt under Section 3. Indeed, the requirements imposed by the BESS Bylaw through the licensing process are all carefully tailored and directly address the specific risks presented by BESS in rural communities and are very similar to the conditions imposed by the Town's solar bylaws.

For these reasons, it was an error for the Attorney General to disapprove of the entire BESS Bylaw based on a perceived or anticipated risk of the potential improper application to a specific, hypothetical applicant in the future. Moreover, the plain language of Section 3 clearly empowers the Town to adopt the BESS Bylaw as "necessary to protect the public health, safety or welfare" from the legitimate concerns facing the Town.

IV. CONCLUSION

The Town, faced with very real concerns about legitimate risks created by BESS, analyzed those risks and adopted a general bylaw to ensure that all BESS would go through a rigorous licensing process to ensure that the Town was reasonably protected and prepared for those risks. Believing that these risks were primarily to the health, safety, and welfare of the community, the Town adopted the BESS Bylaw as a general bylaw and made it applicable to all BESS, regardless of the source of energy being collected and stored. As the Selectboard noted in its letter to the Attorney General, "[i]nherently dangerous industries, such as those involving nuclear energy, deadly pathogens, lethal chemicals, or high explosives, have long required specific regulations to address the particular risks they entail." Exhibit 2, p. 5.

Despite these careful and deliberate considerations by the Town, the Attorney General disapproved of the BESS Bylaw – in its entirety – based on (1) an incidental impact on land use

that was secondary in nature to the BESS Bylaw's primary purpose and (2) the potential conflict between the BESS Bylaw and a future, hypothetical solar project that could conceivably be negatively impacted by the BESS Bylaw's licensing requirements. Neither of these arguments is remotely sufficient to meet the Attorney General's burden to overcome the "strong presumption of validity" of a municipal bylaw. See, *DiRico v. Town of Kingston*, 458 Mass. 83, 95 (2010); *Andrews v. Town of Amherst*, 68 Mass. App. Ct. 365, 369 (2007); *Durand v. IDC Bellingham, LLC*, 440 Mass. 45, 51 (2003).[6]

The BESS Bylaw is the end result of a lengthy and reasoned deliberative process and a vote of 100-1 at town meeting to approve the BESS Bylaw, as it reflects the very real concerns of the residents of Wendell and the troubling absence of State oversight into the safety issues created by BESS. Despite this, the Decision ignores or misinterprets the plain language of the applicable statutes to disapprove the BESS Bylaw. Regardless of the motivations, "[t]he Attorney General must be faithful to the words of the statute as written, and an event or contingency for which no provision has been made does not justify judicial or Attorney General legislation." *Town of Amherst*, *supra*, 398 Mass. 1t 798-799 (quotations, citations, and brackets omitted).

As the Supreme Judicial Court has noted, "[i]t is fundamental that every presumption is to be made in favor of the validity of municipal by-laws." *Id.* at 795-96. The facts, the law, and the administrative record make clear that disapproval of the BESS Bylaw as error and the Town is entitled to judgment as a matter of law with an order remanding this matter to the Attorney General with instructions to approve the BESS Bylaw.

[6] "The only reasons [a court] may consider in examining the validity of the Attorney General's disapproval of a by-law are those included in [the] letter of disapproval." *Town of Amherst*, *supra*, 398 Mass. at 799, citing *Concord*, *supra*, 336 Mass. at 21.

The Plaintiff,
Town of Wendell, Massachusetts,
By Its Attorneys,

Date: May 14, 2025

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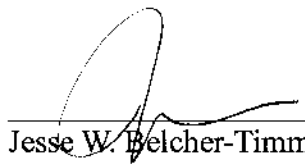
CERTIFICATE OF SERVICE

I, Jesse W. Belcher-Timme, hereby certify that on the 14th day of May, 2025, I caused a copy of the foregoing Plaintiff's Motion for Judgment on the Pleadings to be served on the following counsel of record via email:

Meredith G. Fierro, Esq.
Meredith.G.Fierro@mass.gov



Jesse W. Belcher-Timme, Esq.

EXHIBIT
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TOWN WARRANT

Commonwealth of Massachusetts

FRANKLIN, ss.

To the Constable of the Town of Wendell in the County of Franklin,
Greetings,

In the name of the Commonwealth of Massachusetts, you are hereby directed to notify and warn the inhabitants of said Town, qualified to vote in elections and in Town affairs, at the Town Hall in said Town on **Wednesday, May 1, 2024 at 7 pm**, then and there to act on the following articles:

ARTICLE 1: To see if the Town will vote to adopt a General Bylaw regarding Battery Energy Storage Systems, for protection of the public health, safety, and welfare.

The proposed amendment follows on page 2 of this warrant and the Town may vote to amend its existing Bylaws as outlined above or take any other action related thereto.

The article was submitted by petition of 111 registered voters of the Town of Wendell.

General Bylaw for the Licensing of Battery Energy Storage Systems

SECTION A. PURPOSE

This article adds a new general bylaw for the Town of Wendell dealing with the licensing of Battery Energy Storage Systems (BESS), including those powered by lithium-ion batteries, for the purpose of protecting the health, safety and welfare of residents of Wendell and its natural and built environment. According to the National Fire Protection Association (NFPA) "While these batteries can provide an effective and efficient source of power, the likelihood of them overheating, catching on fire, and even leading to explosions increases when they are damaged or improperly used, charged, or stored." The industry has been observing more field failures that resulted in fires and explosions. Lithium-ion batteries contain flammable electrolytes, which can create unique hazards when the battery cell becomes compromised and enters thermal runaway. The Massachusetts Dept. of Public Utilities has acknowledged that with these batteries "a zero-risk performance standard is unattainable." By responsibly regulating and managing the hazards associated with this energy technology, we seek to minimize the risks to the health safety and welfare of the Wendell community.

Pursuant to the Report of the Climate Forestry Committee recommendations for climate-oriented forests management guidelines, "every acre of forest lost to conversion represents a loss of stored carbon to the atmosphere as well as a loss of future carbon sequestration." This bylaw limits unnecessary forest land conversion and clear-cutting, reducing the loss of all other forest benefits, and promotes the reuse of already developed sites for battery energy storage systems. It helps keeps "forests as forests." The bylaw adds new definitions for energy storage systems and BESS. It requires no licensing for battery installations within a power rating less than 1MW. Larger applications with a power rating greater than 1 MW and no more than 10 MW would require licensing approval, based on findings that their emergency operation plan, hazard mitigation analysis, evacuation plan and other emergency response plan documents are "sufficient in content and detail to protect the public health, safety, convenience, and welfare." Projects with a power rating greater than 10 MW will not be licensed. Projects would have to meet all Wendell bylaws and regulations, the NFPA standards, state building code, and meet insurance and financial surety requirements, liability insurance, and cost of decommissioning.

Section B. DEFINITIONS

For the purposes of this general bylaw, the following definitions shall apply:

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

"Battery Energy Storage System (BESS):" An Energy Storage System that uses rechargeable batteries, which harness reversible electrochemical processes to store electrical energy using any battery chemistry, including lithium ion, lithium iron phosphate, and many others; a BESS is a stationary installation that may receive electrical energy to be stored directly from a generating facility, or from the electrical grid, or both and may dispatch energy to the grid, or to support a residential, commercial, or industrial purpose without using the grid, or both. A Battery Energy Storage System shall include the rechargeable batteries themselves and any related equipment or structures; said equipment shall include, but is not limited to, battery modules, inverters, transformers, and wiring, switches or any other equipment needed to receive or dispatch energy, as well as equipment to support temperature, fire suppression or status monitoring and associated alarms; and said structures shall include, but are not limited to, equipment enclosures, supporting slabs or foundations, access roads, fences, gates, and structures that support storm-water management, such as culverts, dams, or catchment basins, as well as any structures that serve to mitigate noise.

"Licensing Board:" the Selectboard of Wendell shall be designated as voting members of the Licensing Board, which shall be convened for the purpose of reviewing all applications submitted for a Battery Energy Storage System License. The voting members of the Licensing Board shall act as the granting authority for Battery Energy Storage System Licenses. The voting members of the Licensing Board shall also consist of the following additional appointees: one member appointed by the Conservation Commission; one member appointed by the Board of Health; one member appointed by the Planning Board; one member appointed by the Zoning Board of Appeals; one member appointed by the Energy Committee; one member appointed by the Municipal Light Board; one member appointed from the Finance Committee. The Select Board shall designate one individual to oversee and coordinate the application review process of the Licensing Board as defined in this bylaw. The Licensing Board is empowered to approve, reject, or amend and approve any application for a Battery Energy Storage System License. Licensing approval shall require a two-thirds vote of the voting members of the Licensing Board. Decisions by the Licensing Board shall be based on the Licensing requirements contained in Section D of this bylaw, and the Licensing Findings contained in Section E of this bylaw.

Section C. BASIC REQUIREMENTS BY BESS SIZE

Inasmuch as the risks to public health, safety, and welfare increase rapidly with the size of a BESS, applications to construct and operate such systems shall be subject to increasing scrutiny according to size as follows:

1. The construction and operation of all BESS installations regardless of power rating or storage capacity shall comply with all applicable local, state, and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements; all such BESS shall comply with all local bylaws and regulations, including but not limited to the Town of Wendell's Wetlands Protection Bylaw, Board of Health Regulations, and Solar Energy Bylaw. All BESS buildings and fixtures forming part thereof shall be constructed in accordance with all required building codes, including the Massachusetts State Building Code; the Wendell Building Inspector shall review all plans or designs for the installation of a BESS facility and certify that the final installation conforms to all required building codes. In addition, all

BESS shall meet the standards of the National Fire Protection Association (NFPA) for the Installation of Stationary Energy Storage Systems in effect at the time of construction.

2. In addition to the preceding requirements, any BESS with a power rating greater than 1 MW and no more than 10 MW shall require license approval by the Wendell Licensing Board as issued by said board only if the requirements of Sections D and E of this bylaw are fully satisfied. No such license is required for a BESS with a power rating of less than 1 MW. No BESS with a power rating greater than 10 MW shall be licensed.

3. To the maximum extent feasible, all new BESS shall be located on previously-developed commercial industrial sites, landfills, repurposed building pads or roadways. Construction on undeveloped land of any kind shall be minimized to the extent possible, but in no case shall exceed 25% of the total gross square footage of the proposed site. Total site square footage per applicant shall not exceed five acres.

4. To minimize forest land conversion, any BESS project defined in this bylaw shall not include clear-cutting of forest land in excess of one-half (.5) of an acre.

Section D: LICENSING REQUIREMENTS

1. Any application for a License to construct or operate a BESS shall include the following:
a. Name of the applicant.
b. Address of the applicant.
c. Location of the proposed BESS storage equipment.
d. Power rating and storage capacity of the proposed BESS equipment.
e. The applicant shall provide a training plan, approved by the Town Fire Chief, for all specialized training required to respond to any emergency incident involving the BESS equipment. Said plan shall provide for training on an annual basis.
f. The applicant shall provide an Emergency Operations Plan (EOP) as required by the applicable National Fire Protection Association (NFPA) standards in effect at the time of construction.
g. The applicant shall provide a Hazard Mitigation Analysis (HMA) as required by the applicable NFPA standards in effect at the time of construction.
h. The applicant shall provide a description of battery components and specific chemical and physical makeup and composition.
i. The applicant shall prepare an air dispersion model and analysis to determine the extent and effects of a thermal runaway event affecting at least 50% of the battery cells proposed for use as part of the BESS equipment.
j. The applicant shall prepare an analysis to determine the extent and effects of a thermal runaway event affecting at least 50% of the BESS cells proposed for use as part of the BESS equipment.
k. The applicant shall prepare an analysis of the manpower and equipment needs for an emergency response to a thermal runaway event affecting at least 50% of the BESS cells proposed for use as part of the BESS storage equipment.
l. The applicant shall provide such other analyses as may be requested by the Town, including but not limited to the Town Fire Department, related to the public health, safety, convenience, or welfare and the operation of the proposed BESS equipment.

2. Any application for a License to construct and operate a BESS shall include an EOP which provides the following information in addition to that required to meet NFPA standards:

a. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.
b. Procedures for inspection and testing of associated alarms, interlocks, and controls.
c. Procedures to be followed in response to notifications from the battery energy storage management system, when provided, that could signify potentially dangerous conditions, including shutting down equipment, summoning service and repair personnel, and providing agreed upon notification to fire department personnel for potentially hazardous conditions in the event of a system failure.
d. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions. Procedures can include sounding the alarm, notifying the fire department, evacuating personnel, de-energizing equipment, and controlling and extinguishing the fire.
e. Procedures for dealing with battery energy storage system equipment damaged in a fire or other emergency event, including maintaining contact information for personnel qualified to safely remove damaged battery.
f. Identification of all hazards associated with the potential for fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions related to the BESS equipment.
g. Determination of the effective response force (manpower) and necessary equipment to respond to each of the hazards so identified, and a comparison of the Town's actual response force and existing equipment to the effective response force and necessary equipment to identify gaps or deficiencies.
h. Creation of an emergency evacuation plan tailored to the Town and each of the hazards so identified.
i. Creation of an emergency response guide with specific protocols and procedures for Town emergency responders for each of the hazards so identified and the necessary manpower and equipment for each response scenario.
j. Other procedures or information as determined necessary by the Licensing Board to provide for the safety of occupants, neighboring properties, and emergency responders.

SECTION E. REQUIRED LICENSING FINDINGS

No license to construct and operate a BESS shall be issued unless the Licensing Board finds that:

1. The EOP, HMA, evacuation plan, and other emergency response documents are sufficient in content and detail to protect the public health, safety, convenience, and welfare.

2. The manpower, equipment, and other resources available to the Town's emergency responders are sufficient to respond to a potential hazard or emergency response scenario associated with the proposed BESS equipment.

3. The applicant has adequately and completely identified all hazards associated with the operation of the BESS system equipment in the location proposed.

4. The BESS equipment will be in a location that avoids or minimizes risk, and will not cause undue or excess risk, to the public health, safety, convenience, and welfare.

5. The potential hazards associated with the BESS equipment in the particular location proposed can be appropriately managed and minimized.

6. There are no other considerations that would result in operation of the BESS system equipment in the particular location creating an undue or unacceptable risk to the public health, safety, convenience, and welfare, and the project to the greatest extent feasible has avoided or minimized adverse impacts to the health, safety, convenience and welfare of the town of Wendell.

SECTION F. LICENSING BOARD USE OF INDEPENDENT CONSULTANTS

1.When reviewing or commenting upon any application which proposes battery energy storage systems between 1 MW, not to exceed 10 MW, the Licensing Board, may seek the services of an independent consultant to conduct a professional review and advise the Boards on technical aspects of the applicant's proposal required by this general bylaw, including engineering, environmental preservation, traffic, public safety, convenience and welfare. All reasonable expenses incurred by the Boards for such reviews shall be paid for by the applicant. The Boards shall notify the applicant in writing of the estimated costs for the reviews.

2. Review fees shall be paid by the applicant within 10 days of receipt of the notification. The review fees shall be held by the Town Treasurer in a separate account. The Licensing Board may request additional funds if needed to cover the cost of outside review in the same manner as above. Failure by the applicant to make timely payments shall be adequate reason to deny the application.

3. The selection of an independent consultant may be appealed by the applicant to the Select Board. Such appeals are limited to claims that the consultant selected has a conflict of interest or does not possess the minimum required qualifications. The minimum qualifications consist of either an educational degree in the field at issue or a related field, or three or more years of practice in the field at issue or a related field. Any required time limits for action upon an application by the Licensing Board shall be extended by the duration of the administrative appeal. In the event that no decision is made by the Select Board within one month following the filing of the appeal, the selection made by the Licensing Board shall stand.

SECTION G. INSURANCE & FINANCIAL SURETY

Any applicant for a License to construct and operate a BESS shall also provide the following:

1. Proof of liability insurance in an amount $100 Million to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of any BESS facility including coverage for fires, explosions and flooding events.

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

SECTION H. ENFORCEMENT OF THE BYLAW

The Licensing Board shall have the authority to enforce the provisions of this bylaw through the issuance of cease-and-desist orders, criminal court actions, or civil court actions. As an alternative to criminal prosecution in a specific case, the Licensing Board may issue a citation under the noncriminal disposition procedure pursuant to M.G.L. c.40, §21D.

SECTION I: SEVERABILITY & CONFLICTS

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

ARTICLE 2: To transact any other legal business that may come before said meeting, or take any action thereon.

And you are directed to serve this Warrant by posting up attested copies thereof at the Wendell Town Office Building, **14 days** at least prior to the time of holding said meeting.

Hereof fail not, and make due return of this Warrant with your doings thereon, to the Town Clerk, at the time and place of meeting, as aforesaid.

Given under our hands this 16th day of April in the year two thousand and twenty-four.

_____ { **SELECTBOARD**

_____ { **OF**

_____ { **WENDELL**

A true copy. Attest: _____, Constable

July 19, 2024

Via Electronic Mail – margaret.hurley@mass.gov

Margaret J. Hurley, Esq.
Assistant Attorney General
Chief, Central Massachusetts Division
Director, Municipal Law Unit
Massachusetts Attorney General's Office
10 Mechanic Street, Suite 301
Worcester, MA 01608

Re: Wendell Annual Town Meeting of May 1, 2024 / Warrant Article #1

Dear Ms. Hurley:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

VII. Severability & Conflicts

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

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

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

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

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

Sincerely yours,

Wendell Selectboard

Laurie DiDonato, Chair

Gillian Budine

Paul Doud

LITHIUM-ION BATTERY DOCUMENTATION


See page 35 (Lithium battery warehouse goes up in flames, by Vivian Song, 18 February 2024. A warehouse in France storing lithium batteries caught fire on Saturday, amid growing fears over their safety.)

Presented here are articles in the following categories:

Peer-reviewed Scientific

Lithium Battery Safety References

Here are a few articles from peer-reviewed science journals that may be of some help. Fires, explosions, and toxic pollution are well-recognized risks of lithium-ion batteries in the scientific Literature.

https://doi.org/10.1016/j.jechem.2020.10.017

Chen, Y., Kang, Y., et al. 2021. **A review of lithium-ion battery safety concerns: The issues, strategies, and testing strategies.** Journal of Energy Chemistry 59: 83-99.

From the abstract: "Lithium-ion batteries (LIBs) ... are widely used … but frequent fires and explosions limit their further and more widespread applications. This review summarizes aspects of LIB safety and discusses the related issues, strategies, and testing standards."

Larson, E., Andersson, P., Blomqvis, P., and Mellander, B.-E. 2017. **Toxic fluoride gas emissions from lithium ion battery fires.** Scientific Reports 7: 10018. DOI: 10.1038/s41598017-09784-z

https://www.nature.com/articles/s41598-017-09784-z
From the abstract: "Lithium-ion battery fires generate intense heat and considerable amounts of gas and smoke. Although the emission toxic gases can be a larger threat than the heat, the knowledge of such emissions is limited. This paper presents quantitative measurements of heat release and fluoride gas emissions during battery fires for seven different types of commercial lithium-ion batteries. … Fluoride gas emission can pose a serious toxic threat and the results are crucial findings for risk assessment and management, especially for large Li-ion battery packs."

Liu, K., Liu, Y., et al. 2018. **Materials for lithium-ion battery safety**. Science Advances 4: eaas9820.
https://www.science.org/doi/10.1126/sciadv.aas9820
From the abstract: "Lithium-ion batteries (LIBs) are considered to be one of the most important energy storage technologies. As the energy density of batteries increases, battery safety becomes even more critical if the energy is released unintentionally. Accidents related to fires and explosions of LIBs occur frequently worldwide. Some have caused serious threats to human life and health and have led to numerous product recalls by manufacturers. These incidents are reminders that safety is a prerequisite for batteries, and serious issues need to be resolved before the future application of high-energy battery systems. This Review aims to summarize the fundamentals of the origins of LIB safety issues … "

Other articles may be found at:
https://www.sciencedirect.com/topics/chemistry/thermal-runaway

February 2023

Jens Conzen, Sunil Lakshmipathy, Anil Kapahi, Stefan Kraft, Matthew DiDomizio.
Journal of Loss Prevention in the Process Industries
Volume 81, February 2023, 104932.
Lithium ion battery energy storage systems (BESS) hazards
https://www.sciencedirect.com/science/article/abs/pii/S095042302200208X?via%3Dihub
https://doi.org/10.1016/j.jlp.2022.104932

From the abstract:
As the number of installed systems is increasing, the industry has also been observing more field failures that resulted in fires and explosions. Lithium-ion batteries contain

flammable electrolytes, which can create unique hazards when the battery cell becomes compromised and enters thermal runaway. The initiating event is frequently a short circuit which may be a result of overcharging, overheating, or mechanical abuse. During the exothermic reaction process (i.e., thermal runaway), large amounts of flammable and potentially toxic battery gas will be generated. The released gas largely contains hydrogen, which is highly flammable under a wide range of conditions. This may create an explosive atmosphere in the battery room or storage container. As a result, a number of the recent incidents resulted in significant consequences highlighting the difficulties on how to safely deal with the hazard. This paper identifies fire and explosion hazards that exist in commercial/industrial BESS applications and presents mitigation measures. Common threats, barriers, and consequences are conceptually shown and how they would be identified in a hazard mitigation analysis (HMA). Mitigation measures that can be implemented to reduce the risk of a fire or an explosion are discussed. The presented information is intended to provide practical information to professionals and authorities in this fairly new industry to assure that prevention and mitigation strategies can be effectively implemented and that the regulatory requirement of the HMA can be met.
May 20, 2024

BESS Failure Event Database (EPRI)

About the BESS Failure Incident Database

The BESS Failure Incident Database[1] was initiated in 2021 as part of a wider suite of BESS safety research after the concentration of lithium ion BESS fires in South Korea and the Surprise, AZ, incident in the US. The database was created to inform energy storage industry stakeholders and the public on BESS failures.

Tracking information about systems that have experienced an incident, including age, manufacturer, chemistry, and application, could inform R&D actions taken by the industry to improve storage safety. The focus of the database is on incidents that had a wider public health and safety impact, rather than on operational failures. Some helpful definitions follow:

- BESS: A stationary energy storage system using battery technology. The focus of the database is on lithium ion technologies, but other battery technology failure incidents are included.
- Failure incident: An occurrence caused by a BESS system or component failure which resulted in increased safety risk. For lithium ion BESS, this is typically a thermal risk such as fire or explosion.
- Utility-scale: This refers to systems and projects that are interconnected to the grid.

- C&I: This includes systems and projects that are behind-the-meter installations. Residential system failures are not currently tracked. Note that the Stationary Energy Storage Failure Incidents table tracks both utility-scale and C&I system failures.

https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database shows 25 entries. This database was formerly known as the BESS Failure Event Database. It has been renamed to the BESS Failure Incident Database to align with language used by the emergency response community.

December 3, 2021

Battery Energy Storage Hazards and Failure Modes (National Fire Protection Agency)
Battery Energy Storage Hazards and Failure Modes (National Fire Protection Agency)
By Brian O'Connor 03-Dec-2021
https://www.nfpa.org/news-blogs-and-articles/blogs/2021/12/03/battery-energy-storage-hazards-and-failure-modes

From the abstract: There are a lot of benefits that energy storage systems (ESS) can provide, but along with those benefits come some hazards that need to be considered. This blog will talk about a handful of hazards that are unique to energy storage systems as well as the failure modes that can lead to those hazards. ...focus on the lithium-ion family of battery energy storage systems.
HAZARDS
As with most electrical equipment there are common hazards that need to be addressed as part of operation and maintenance such as a potential for electrical shock and arc flash. These should always be accounted for when working in and around energy storage systems. More information on how to work with electrical equipment safely can be found in NFPA 70E, Standard for Electrical Safety in the Workplace.
Thermal Runaway – Thermal runaway is the uncontrollable self-heating of a battery cell. It begins when the heat generated within a battery exceeds the amount of heat that can be dissipated to its surroundings. The initial overheated cell then generates flammable and toxic gasses and can reach a heat high enough to ignite those gasses. This phenomenon can cascade to adjacent cells and progress through the ESS, thus the term "runaway".
Off Gassing – The gasses that are released from battery energy storage systems are highly flammable and toxic. The type of gas released depends on the battery chemistry involved but typically includes gasses such as: carbon monoxide, carbon dioxide, hydrogen, methane, ethane, and other hydrocarbons. If the gas is able to reach its

lower explosive limit before finding an ignition source then there is the potential for an explosion. An example of this occurred in Surprise, Arizona back in 2019.

Stranded Energy – Standard energy is the term used for when a battery has no safe way of discharging its stored energy. This commonly occurs after an ESS fire has been extinguished and the battery terminals have been damaged. This is a shock hazard to those working with the damaged ESS since it still contains an unknown amount of electrical energy. Stranded energy can also lead to reignition of a fire within minutes, hours, or even days after the initial event.

FAILURE MODES

There are several ways in which batteries can fail, often resulting in fires, explosions and/or the release of toxic gasses.

Thermal Abuse – Energy storage systems have a set range of temperatures in which they are designed to operate, which is usually provided by the manufacturer. If operating outside an acceptable temperature range, the ESS may not work as intended, may result in premature aging of the battery, and can even cause a complete failure that can lead to fire and explosions. Thermal abuse is caused by external sources, it is the result of contact with burning or overheated adjacent cells, elevated temperatures, or exposure to other external heat sources associated with both storage of the cells or the environment in which the ESS is installed.

Electrical Abuse – Electrical abuse takes place when a battery is overcharged, charged too rapidly, or externally short-circuited. This can also occur if the battery is discharged too rapidly or if the battery is over discharged below its specified end voltage. Electrical abuse can lead to an inoperable ESS, overheating, fire, and explosion.

Mechanical Abuse – Mechanical abuse occurs if the battery is physically compromised when the battery is crushed, dropped, penetrated, or otherwise distorted to failure by mechanical force.

Internal Faults – Internal faults can result from inadequate design, the use of low-quality materials, or deficiencies in the manufacturing process. It might be worth noting that the failure rate for lithium-ion cells is said to be on the order of one in a million.

Environmental Impacts – Environmental impacts can lead to battery failure. This can be the result of ambient temperature extremes, seismic activity, floods, ingress of debris or corrosive mists such as dust (deserts) or salt fog (marine locations), or rodent damage to wiring. Some locations subjected to rapid temperature variations such as in the mountains can experience dewing leading to damage within the ESS located outdoors if not well-controlled.

While there are numerous applications and advantages to using battery energy storage systems it is important to keep in mind that there are hazards associated with these installations. Understanding the hazards and what leads to those hazards is just the first step in protecting against them. Strategies to mitigate these hazards and failure modes can be found in NFPA 855, Standard for the installation of Energy Storage Systems.

NFPA also has a number of other energy storage system resources including the following:

- Fact sheet on ESS
- PV and ESS training
- ESS resource page
- Blog on residential ESS

February 16, 2024

Fire service leaders testify before Congress about Li-ion battery hazards
The U.S. fire administrator, FDNY chief fire marshal, IAFC president and FSRI executive director detailed lithium-ion battery dangers facing firefighters and the general public.

February 16, 2024 07:17 PM • Michael Kirby

The U.S. fire administrator, FDNY chief fire marshal, IAFC president and FSRI executive director provided testimony on Thursday to members of the House Homeland Security Subcommittee on Emergency Management and Technology on the dangers posed by lithium-ion batteries.

The hearing – "Examining Fire Hazards: Lithium-Ion Batteries and Other Threats to Fire Safety" – was led by Subcommittee Chairman Anthony D'Esposito (D-N.Y.), who stated that in 2023, the FDNY responded to 268 such battery fires, which caused 150 injuries and 18 deaths.

U.S. Fire Administrator Dr. Lori Moore-Merrell reminded the subcommittee that these batteries are now found in common, everyday devices – items such as cell phones, computers, e-bikes, e-scooters and, of course, electric vehicles.

"Fire risk from these devices occurs when an ordinarily stable electromechanical system is destabilized and the batteries become damaged, used, stored or charged incorrectly," Moore-Merrell explained, adding this alarming statistic: "In fires where these devices are involved, there is often only 15 seconds from the first sign of smoke to thermal runaway and explosion, with windows blown out and fire burning in homes, apartments and businesses."

Underscoring the fast-moving nature of these fires, FDNY Chief Fire Marshal Daniel Flynn added that many of the deadliest fires in New York City have been caused by e-devices being kept in residential homes and apartments.

IAFC President John Butler highlighted the unpredictable nature of these fires given their rapid and intense heat release in volatility. Stressing situational awareness, Butler said incident commanders should consider a new tactical decision-making paradigm when they learn such batteries are present. He cited not just products but the batteries' shipment and charging components as hazards.

Further, Butler said, officers should encourage simulation-based scenarios in regular training and investment in developing tailored firefighting tactics. Calling the National Fire Incident Reporting System "antiquated," he said it must be replaced by the National Emergency Response Information System: "As the nation deals with an increase in lithium-ion battery fires, we need to be able to track and better understand their occurrences."

In a call for enhanced training and protective measures, Stephen Kerber, executive director of UL's Fire Safety Research Institute (FSRI), told subcommittee members that first responders face predictable exposure to toxic gases but also the risk of battery explosions. Kerber supports uniform safety standards for making and transporting these batteries in addition to investment in more research and development of safer battery technologies alongside innovative firefighting techniques and equipment.

Moore-Merrell suggested public education and outreach efforts to raise awareness about the fire risks associated with the batteries and promote safe handling and disposal. Given the prevalence of these batteries, Butler said that kind of campaign is timely.

With regard to EV fires, Moore-Merrell noted, "We still don't know what we don't know, and [EVs require] a lot of water, a lot of resources for a protracted amount of time." She stated that incidents are currently being tracked either as hazardous materials or electrical fires while a new cloud-based system that can handle videos and photos directly from scenes nears rollout this year.

Flynn added: "Electrification technology is exciting, and there is no shortage of innovators striving to find better solutions. However, it is essential that we implement new technology in concert with an appropriate focus on public safety."

February 16, 2024

Lithium-Ion Battery hazards bring Fire Service Leaders to Testify Before Congress

Fire service leaders testify before Congress about Li-ion battery hazards
Lithium-ion battery fires
February 16, 2024 07:17 PM Michael Kirby

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https://www.firerescue1.com/lithium-ion-battery-fires/fire-service-leaders-testify-before-congress-about-lithium-ion-battery-hazards

Journal of Loss Prevention in the Process Industries
Volume 72, September 2021, 104560
Lithium-ion energy storage battery explosion incidents
Abstract, Sept. 2021
Utility-scale lithium-ion energy storage batteries are being installed at an accelerating rate in many parts of the world. Some of these batteries have experienced troubling fires and explosions. There have been two types of explosions; flammable gas explosions due to gases generated in battery thermal runaways, and electrical arc explosions leading to structural failure of battery electrical enclosures. The thermal runaway gas explosion scenarios, which can be initiated by various electrical faults, can be either prompt ignitions soon after a large flammable gas mixture is formed, or delayed ignitions associated with late entry of air and/or loss of gaseous fire suppression agent. The electrical explosions have entailed inadequate electrical protection to prevent high energy arcs within electrical boxes vulnerable to arc induced high pressures and thermal loads. Estimates of both deflagration pressures and arc explosion pressures are described along with their incident implications.

Thermal runaway gas explosion incidents

Various recent papers, for example Guo et al. (2018) and Li et al. (2019), describe how any one of several fault conditions, including electrical faults, overcharging, and particulate/moisture contamination, can lead to an escalated temperature in one lithium-ion cell, causing deterioration and eventual failure of the cell separator, with subsequent electrolyte decomposition and elevated vapor pressure. This leads to a thermochemical runaway venting in the cell that can then propagate to many

Arc flash explosion incidents

Several lithium-ion battery energy storage system incidents involved electrical faults producing an arc flash explosion. The arc flash in these incidents occurred within some type of electrical enclosure that could not withstand the thermal and pressure loads generated by the arc flash. One example of an electrical enclosure that is designed to withstand a limited/controlled arc flash is a DC contactor. Each rack in the ESS enclosure is usually equipped with at least one high-voltage DC

Conclusions

Several large-scale lithium-ion energy storage battery fire incidents have involved explosions. The large explosion incidents, in which battery system enclosures are damaged, are due to the deflagration of accumulated flammable gases generated during cell thermal runaways within one or more modules. Smaller explosions are often due to energetic arc flashes within modules or rack electrical protection enclosures. These smaller explosions can either initiate or exacerbate energy storage system

https://www.sciencedirect.com/science/article/abs/pii/S0950423021001686

Journal of Power Sources

Volume 446, 15 January 2020, 227257

Explosion hazards from lithium-ion battery vent gasJanuary 15, 2020

Abstract: Lithium-ion battery technology is rapidly being adopted in transportation applications and energy storage industries. Safety concerns, in particular, fire and explosion hazards, are threatening widespread adoption. In some failure events, lithium-ion cells can undergo thermal runaway, which can result in the release of flammable gases that pose fire and explosion hazards for the compartment housing the cells. However, there is little available information characterizing the flammability properties of the gases released after cell thermal runaway. In this paper, analytical and modeling methods to estimate explosion characteristics, such as lower flammability limit, laminar flame speed, and maximum over-pressure are evaluated for use in quantifying the effect of cell chemistry, state-of-charge and other parameters on the overall explosion hazard potential for confined cells.

Introduction

Fires and explosions from thermal runaway of lithium-ion batteries have been observed in consumer products, e-mobility vehicles, electric vehicles, and energy storage applications [1,2]. Large fire and explosion events have also occurred involving large

scale energy storage systems. In 2017, a containerized lithium-ion battery ESS burned at a utility plant near Brussels, Belgium. The Li-BESS in Belgium was equipped with fire detection and suppression equipment which failed to extinguish the fire [3]. In 2018, a cement plant in Jecheon, North Chungcheong Province of Korea experienced over $3 million in damage due to a Li-BESS fire. This was the 15th reported Li-BESS fire in Korea in 2018 [4]. In 2017, an explosion of a train car in Houston, Texas was attributed to lithium-ion batteries being transported to a recycling facility. The explosion was so violent that windows broke on buildings 500 feet away [5,6]. In April 2019, a 2 MW ESS system at a solar facility in Surprise, AZ exploded, resulting in 8 firefighters being injured [7]. In all these incidents, cell thermal runaway conditions produced a flammable atmosphere in a compartment or container that either resulted in a fire and/or an explosion.

Lithium-ion cell failures can result from a variety of sources including manufacturing defects, thermal abuse, electrical abuse, and mechanical damage. In some instances, these failures can lead to internal reactions, causing the cell to undergo thermal runaway. In a thermal runaway event, a series of exothermic reactions increases the cell temperature, resulting in internal generation of gases. These gases build within the cell and can ultimately lead to rupture of the cell and release of the gases. The gas mixture generated and released is flammable, consisting of various mixtures of hydrogen, carbon-monoxide, carbon-dioxide and various hydrocarbons including methane and propane. Ignition of these gases can result in fire or explosion scenarios like the ones discussed previously that pose a significant risk to surrounding life and property.

Lithium-ion battery use is rapidly expanding for energy storage in residential, commercial, industrial and transportation markets. In these applications, batteries several orders of magnitude larger than those in consumer products are required. Li-BESS designed for the residential and electric grid applications can be as large as tens of kilowatt-hours and megawatt-hours, respectively. In the design of these systems, engineers must balance criteria for performance, cost, size, weight, and safety. Achieving a high level of safety is especially important in applications in densely populated environments, such as indoor Li-BESS installations, where a thermal-runaway event is more likely to lead to high losses. While performance measures are generally well characterized for battery designers, safety aspects are not as well-defined. Safety guidelines and requirements for lithium-ion batteries required for applications such as energy storage are slowly emerging in current and proposed codes and standards. For example, requirements for Li-BESS installed in buildings have been added to NFPA (National Fire Protection Association) 1 Chapter 52 [8]. Additionally, an ESS specific standard, NFPA 855 [9], is currently under development. However, codes and standards specifically for lithium-ion battery systems are still evolving, and many of these codes and standards require performance-based analysis to ensure life safety.

https://www.sciencedirect.com/science/article/abs/pii/S0378775319312509

February 2024

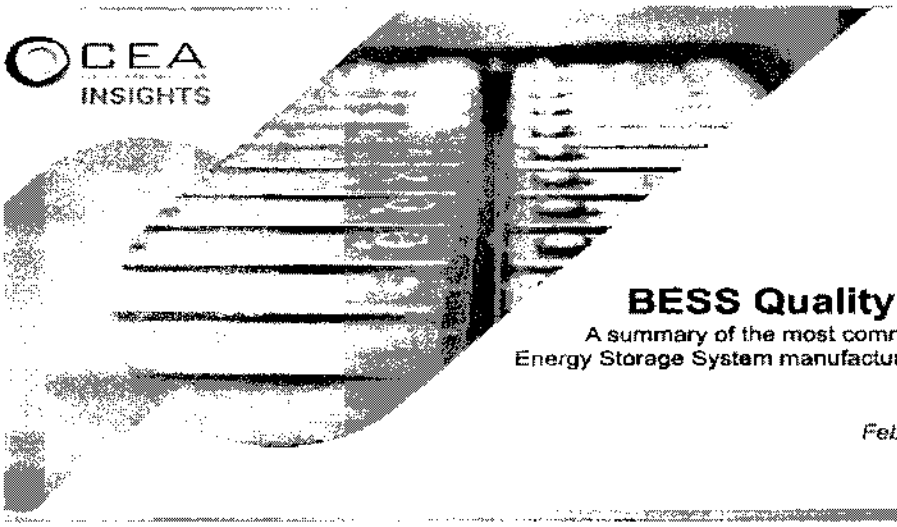
Clean Energy Associates

BESS QUALITY RISKS

https://info.cea3.com/hubfs/CEA%20BESS%20Quality%20Risks%20Report.pdf

"The past several years have shown that thermal runaway poses a significant risk to the energy storage industry."

CEA INSIGHTS



BESS Quality Risks

A summary of the most common Battery Energy Storage System manufacturing defects

February 2024

The Past Several Years Have Shown That Thermal Runaway Poses a Significant Risk to the Energy Storage Industry

Data collected from CEA's factory quality inspections of BESS systems has found that these risks still exist:

26% of inspected energy storage systems had quality issues related to the fire detection and suppression system.

18% of inspected systems had quality issues related to the thermal management system.

The following report highlights the safety issues above as well as a host of other quality concerns.

CEA Has Conducted Factory Quality Audits On Over 30 GWh of Lithium-ion Energy Storage Projects

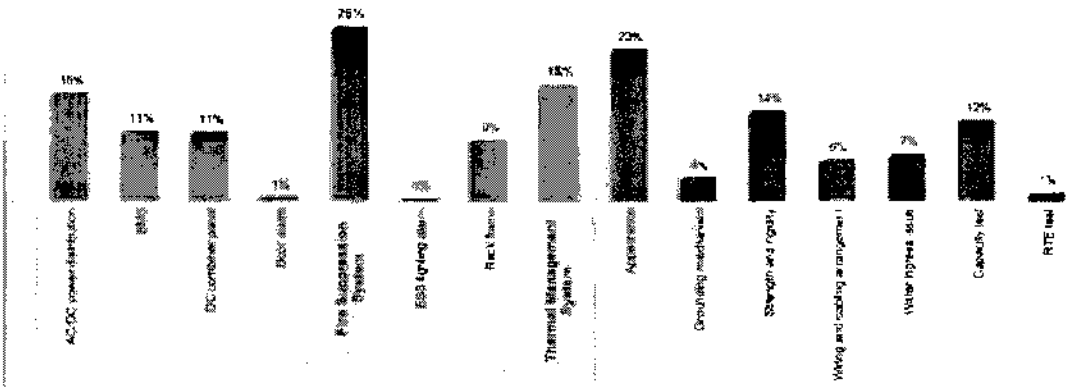
- 320+ inspections in 52+ Battery Energy Storage System (BESS) factories
- 64% of tier 1* BESS cell manufacturers audited worldwide
- 1300+ total manufacturing issues identified

System-Level

26% of BESS units that CEA inspected had defects in the Fire Suppression System, while 18% of units had Thermal Management System defects.

Fire suppression and thermal management systems are critical for functional safety, and defects in these systems can lead to increased risk of fire.

Frequency of system-level BESS defects over total inspected units

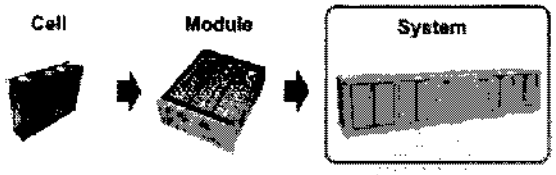


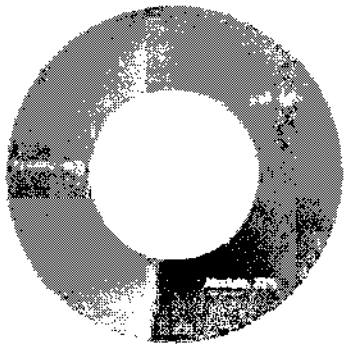
Distribution of Total Findings

With so much industry attention focused on cell selection, system integration should not be overlooked as a potential source of problems. **System-level defects accounted for nearly 50% of our QA findings.**

The large number of system-level issues is mainly caused by the following two contributors:

- The BESS integration process is highly manual and labor-intensive, with less stringent quality control procedures.
- Systems are very complex and are vulnerable to underlying problems originating from defects in upstream components that were not caught during earlier quality checks.





Distribution of all BESS Findings

Legal

September 29, 2022

DIRECT PREFILED TESTIMONY OF JOHN HINCKLEY, Q.E.P. EFSB 21-02
https://drive.google.com/file/d/1eVRqOuXbruvWlunvDZTx0PqPKn96641m/view?usp=drive_link
In the Energy Facilities Siting Board (EFSB) case 21-02 (Cranberry Point) a Qualified Energy professional testified: "There are five major risks posed by lithium-ion battery failures. They are electric shock, arc flash, fire, explosion, and the by-product from off-gassing. During failure, a lithium-ion battery may emit tens to hundreds of liters of gas, and larger failures may emit thousands of liters of gas...Lithium-ion batteries release flammable and toxic chemicals when subjected to electrical or physical damage, including fire. Chemical release can also pose an inhalation hazard." The consultant concluded: "1) the risk of a thermal runaway event is not zero; (2) a thermal runaway event brings with it the risk of a fire and the release of air pollutants; such an event could release air pollutants at levels that workers and emergency responders at the Facility would need to wear SCBA equipment."

September 29, 2022

The Commonwealth of Massachusetts Energy Facilities Siting Board, EFSB 21-02
DIRECT PREFILED TESTIMONY OF MILOSH T. PUCHOVSKY
https://drive.google.com/file/d/1nZKM1EI6ZKR-GwTHpoZAnNc6UIDuP2Bc/view?usp=sharing
In the EFSB 21-02, a Professor of Fire protection Engineering testified: "Lithium-ion batteries' primary hazard is that there is a potential risk of thermal runaway resulting in fire or explosion. Once started, lithium-ion battery fires have proven difficult to extinguish and are known to produce dangerous gasses. The National Fire Protection Association ("NFPA") ESS Safety Fact Sheet identifies thermal runaway, stranded energy, toxic and flammable gas generation and deep-seated fires as key hazards associated with ESS installations...First, it is hazardous to first responders and others who perform firefighting and related emergency response services at such a BESS installation. Second, the lingering, stranded energy can also cause reignition of the fire hours or even days after an initial fire or explosion. In other words, even when a BESS fire is contained and extinguished, it can unexpectedly reignite at a later time because of that stranded energy."

July 28, 2023

New York's Inter-Agency Fire Safety Working Group

https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group

Inter-Agency Fire Safety Working Group

On July 28, 2023, Governor Kathy Hochul announced the creation of an Inter-Agency Fire Safety Working Group to ensure the safety and security of energy storage systems across the state, following fire incidents at facilities in Jefferson, Orange, and Suffolk Counties and directed the Division of Homeland Security and Emergency Services (DHSES), Office of Fire Prevention and Control (OFPC), New York State Energy Research and Development Authority (NYSERDA), New York State Department of Environmental Conservation (DEC), Department of Public Service (DPS), and the Department of State (DOS) to lead the Working Group to independently examine energy storage facility fires and safety standards.

The Working Group will gather information from incidents and advice from experts to help prevent fires and ensure emergency responders have the necessary training and information to prepare and deploy resources in the event of a fire.

Additionally, the Working Group has been collaborating with national labs and other nation-leading subject matter experts to review all existing codes and testing procedures pertinent to the development and electrification of battery energy storage systems.

The primary focus areas of the working group include:

1 Conduct an Incident Analysis for East Hampton, Warwick, and Chaumont incidents inclusive of:

a. Examining testing for contaminants and report out a summary of findings (complete, December 2023)

b. Reviewing emergency response actions and data (in progress)

c. Accessing and examining Root Cause Analysis (in progress)

d. Compile all preliminary Working Group findings, data, and other relevant materials and send to National Labs to review (in progress)

2 Conduct a full review of today's Codes, Standards, and Regulations and provide a summary of recommendations. (draft complete, January 2024)

3 Conduct field assessments of in-service commercial energy storage projects and revise NYSERDA inspection checklist with lessons learned. (in progress)

4 Create a final report that summarizes all the findings and recommendations of the Working Group. The findings and resulting recommendations will establish New York as a national and international leader in fire safety and stationary energy storage systems. (in progress)

JULY 28, 2023

Albany, NY

Governor Hochul Convenes Inter-Agency Fire Safety Working Group Following Fires in Jefferson, Orange, and Suffolk Counties

https://www.governor.ny.gov/news/governor-hochul-convenes-inter-agency-fire-safety-working-group-following-fires-jefferson

Governor Kathy Hochul today announced the creation of a new Inter-Agency Fire Safety Working Group to ensure the safety and security of energy storage systems across the state, following fire incidents at facilities in Jefferson, Orange, and Suffolk Counties this summer. State agencies will begin immediate inspections of energy storage sites, and the Working Group will help prevent fires and ensure emergency responders have the necessary training and information to prepare and deploy resources in the event of a fire.

"Following multiple fire safety incidents across New York, I've directed State agencies to immediately form the Inter-Agency Fire Safety Working Group to mobilize the personnel and resources necessary to keep New Yorkers safe," Governor Hochul said. "The Working Group will collaborate with first responders and local leaders to identify best practices, address potential risks to public safety, and ensure energy storage sites across New York are safe and effective."

The New York State Division of Homeland Security and Emergency Services' Office of Fire Prevention and Control (OFPC) staff and the Department of Environmental Conservation's (DEC) Emergency Response Unit responded to the Jefferson County incident on Thursday and supported emergency response partners with performing precautionary air monitoring tests in the surrounding area of the fire. OFPC is deploying additional personnel to Jefferson County today to assist local fire officials in their investigation into what initially caused the fire. The Division's Office of Emergency Management (OEM) and DEC continue to monitor the situation and are prepared to provide additional support on the ground in Jefferson County. An additional investigation is underway in Orange County from fires earlier this month.

While fires at energy storage facilities are exceedingly rare, Governor Hochul has directed the Division of Homeland Security and Emergency Services (DHSES) Office of Fire Prevention and Control, New York State Energy Research and Development Authority (NYSERDA), New York State Department of Environmental Conservation, Department of Public Service (DPS), and the Department of State (DOS) to lead the Working Group to independently examine energy storage facility fires and safety

standards. The Group will leverage nationally renowned experts and national laboratories in energy storage root cause and emergency response analyses to independently assess and identify common causes, air monitoring results or other community impacts, and other factors involved with energy storage fires.

The Working Group will thoroughly investigate the recent energy storage fires in New York and will conduct a comprehensive fire safety review, including emergency response analysis, of energy storage projects that experienced thermal runaway events across New York. Findings will include a list of recommendations for stationary energy storage equipment and installations. The Working Group would review energy storage system operations and operators as they: examine the condition of their batteries to verify operation within design parameters; remedy any deficiencies identified; verify operation of on-site fire suppression; and confirm fire suppression plans with local fire departments, among other best practices.

The findings and resulting recommendations will also be shared with the New York City Fire Department, National Fire Protection Association, International Code Council, the New York State Fire Prevention and Building Code Council, and Underwriters Laboratories, establishing New York as a national and international leader in fire safety and stationary energy storage systems.

Energy storage facilities play a critical role in the state's efforts to reduce the emissions that contribute to climate change and help the state achieve its ambitious climate goals under the Climate Leadership and Community Protection Act.

Department of Environmental Conservation Commissioner Basil Seggos said, "DEC applauds Governor Hochul for prioritizing New Yorkers' safety and ensuring the growth of this critical industry is advancing in a manner that is protective of our communities and the environment. DEC stands ready to work with our partners to analyze current practices and find ways to improve operations at energy storage facilities to set the gold standard for safe and responsible clean energy future."

New York State Energy Research and Development Authority President and CEO Doreen M. Harris said, "The safety of our communities is paramount, and State officials are immediately commencing a multi-pronged initiative to address these concerns today with the formation of an Inter-Agency Working Group to focus on the strategic and safe deployment of energy storage across New York coupled with on-site inspections of energy storage facilities. NYSERDA looks forward to expanding our collaboration with other state agencies, local officials, host communities and first responders, as well as

national laboratories and partners, to identify recommendations that can assist the State and industry in standardizing best practices."

Department of Public Service CEO Rory M. Christian said, "The Department will work to ensure safety comes first as we continue to see more and more batteries going into service. We will join the effort to do root cause analysis and follow-up with recommendations on what needs to change to mitigate the occurrence and impact of such events in the future."

Division of Homeland Security and Emergency Services Commissioner Jackie Bray said, "Keeping New Yorkers safe is our number one job, and our team quickly responded to the fire in Jefferson County conducting air monitoring to ensure nearby residents were not in immediate danger. We remain on the ground to address this fire and assist the investigation. These sites are essential to securing our climate future and Governor Hochul is taking action to ensure they are operated safely. We are working with our agency partners on long-term solutions to mitigate future energy-related fires throughout the state."

New York State Fire Administrator James Cable said, "The State Office of Fire Prevention and Control continues work alongside our local counterparts in Jefferson County to make sure residents are safe. While we work to assist investigations into recent fires, we are partnering with other agencies throughout the state to prevent these incidents from causing harm to New Yorkers."

New York State Secretary of State Robert J. Rodriguez said, "The safety of our community is priority one for the State and we are working with our partners in government to ensure that energy storage facilities are safely maintained across the state. The Department of State stands ready to assist and support Governor Hochul's Inter-Agency Working Group that will inspect energy storage sites in New York and make sure our communities are safe and served.

January 2024

NEW YORK INTER AGENCY FIRE SAFETY WORKING GROUP

https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/Energy-Storage/Draft-New-York-State-Inter-Agency-Fire-Safety-Working-Group-Fire-Code-Recommendations.docx

FIRE CODE RECOMMENDATIONS

1. FCNYS 1206.8 PEER REVIEW

Require industry-funded independent peer reviews for all projects.

Local AHJs often lack the resources or expertise to understand and interpret critical BESS permitting documents, particularly the UL 9540A report, which contains product-level test data on which to base important siting decisions and requirements. This gap in AHJ expertise has led to incomplete or inadequate applications in which the requirements of FCNYS 1206 are not sufficiently met.

"Peer reviews" by experts in the field can assist local AHJs in their review and understanding of BESS permit applications and their compliance with existing Fire Code requirements. Currently, FCNYS 1206.8 Peer Review empowers local AHJs to require that BESS developers pay for an independent peer review of the developer's permit application. However, despite the benefits, peer reviews are rarely utilized.

As such, the WG recommends that peer reviews be required for all BESS installations exceeding energy capacity thresholds per FCNYS Table 1206.1 to ensure proper compliance and oversight for upcoming projects.

When identifying potential candidates qualified to conduct peer reviews, the use of third-party entities or insurers should be considered in order to provide a level of independence and transparency. Further, NYSERDA or another qualified entity could issue a rolling Request for Qualifications solicitation for firms qualified to conduct BESS peer reviews to establish a list of peer reviewers that BESS project developers can utilize.

2. FCNYS 1206.13.3 EXPLOSION CONTROL

Expand the requirement for explosion control to include BESS cabinets in addition to rooms, areas, and walk-in units. Additionally, provide design requirements or language for what constitutes a "passable" system.

A primary concern associated with lithium-ion BESS is the potential for explosion or deflagration due to accumulation of flammable off-gases within a confined space, such as a battery enclosure. Currently, FCNYS 1206.13.3 requires that explosion control be provided for lithium-ion BESS in rooms, areas, or walk-in energy storage units, and is therefore not required for non-enterable BESS units, also referred to as "cabinets". As such, the WG recommends that the requirement for explosion control is expanded to include BESS cabinets in addition to rooms, areas, and walk-in units.

The current code also does not include design requirements for what constitutes a "passable" explosion control system, which should be established in the next installment of the FCNYS. Currently, NFPA 855, and FDNY 3 RCNY 608-01 require that an explosion control system be provided in accordance with one of the following:

§ Explosion prevention in accordance with NFPA 69 Standard on Explosion Prevention Systems.

§ Deflagration vent panels in accordance with NFPA 68 Standard on Explosion Protection by Deflagration Venting.

Additionally, alternative explosion control systems currently exist, and language in the next edition of FCNYS should also include flexibility for other potential solutions outside of NFPA 69 and NFPA 68.

Current code also does not require that any substantiating documentation be provided to AHJs to demonstrate the effectiveness of the explosion control system to either mitigate against the impact of an explosion or prevent an explosion from occurring altogether (e.g., Computational Fluid Dynamics (CFD) analysis, sizing calculations, or physical testing of the explosion control system). This gap has been addressed in NFPA 855 and APS Appendix W and similar language is recommended for updates to the FCNYS.

The 2023 NFPA 855 also includes language which requires testing of deflagration mitigation measures when designed into BESS cabinets (9.1.5.1.4), with validation of the effectiveness of the system demonstrated through fire and explosion testing and engineering evaluation.

Additional language relating to explosion control systems is currently provided in 2023 NFPA 855, Arizona Public Service (APS) Appendix W, and FDNY 3 RCNY 608-01(h)(4) and should be consulted in developing the explosion requirements in the next edition of FCNYS.

Referenced Codes / Standards:

§ 2023 NFPA 855: 9.6.5.6 Explosion Control, 9.1.5 Fire and Explosion Testing, A.9.6.5.6, A.9.6.5.6.3, A.9.6.5.6.4

§ APS Appendix W: 2 Applicable Standards and Codes, 4 System Design/Layout, 6 Fire and Explosion Detection, Alarm, Control, and Suppression/Protection, 7 Modeling, 13 Documentation

§ FDNY 3 RCNY 608-01: (h)(4) Explosion Mitigation

3. FCNYS 1206.7.1 FIRE MITIGATION PERSONNEL

Require that qualified personnel are available for dispatch within 15 minutes and able to arrive on scene within four hours to provide support to local emergency responders. In the event of a BESS fire, it is critical that qualified personnel or representatives of the site owner/operator with knowledge of the BESS installation can be deployed on-site to support local emergency responders. Section 1207.1.8.1 of the upcoming 2024 IFC

requires that, where in the opinion of the fire code official it is essential that trained personnel be on-site, these personnel be dispatched within 15 minutes. The WG recommends that this is required for all projects–not only where deemed essential by the fire code official–and that these fire mitigation personnel are able to arrive on scene within four hours to provide expert guidance to local first responders. Additionally, the WG recommends that these personnel be familiar (e.g., successfully completed ICS-100, ICS-200, and IS-700B training courses) to effectively coordinate with local public emergency services during an event.

One way to address this recommendation may be to adopt a certification program similar to FDNY's B28 Certificate of Fitness. Exploring other approaches beyond code changes (e.g. legislation) may also help address these concerns effectively.

The WG also recommends that the Fire Code require a qualified person knowledgeable about the project and associated hazards be immediately available via phone. Additional information on this recommendation is in the "Systems Monitoring" recommendation below.

Referenced Codes / Standards:

§ 2023 NFPA 855: 9.6.6 Remediation Measures, C.1.1 Emergency Responder Pre-incident Planning

§ 2024 IFC: 1207.1.8.1 Fire Mitigation Personnel

§ FDNY 3 RCNY 608-01: (c)(5) Supervision, (i)(4) Technical Assistance, (i)(5) Emergency Management

4. FCNYS 1206.11.8 SIGNAGE

Extend safety signage requirements beyond the BESS unit itself to include perimeter fences or security barriers and include a map of the site, BESS enclosures, and associated equipment.

These signs should clearly display 24-hour emergency contact information and relevant hazard warnings, ensuring improved safety and clear communication for emergency responders and the public. All relevant hazard warnings indicated on signage or maps should identify and display isolation distances response personnel should maintain from BESS involved in fire or where there may be a risk of explosion or deflagration. It is critical that this information be accessible outside the project fence line for the health and safety of first responders.

a) The WG recommends the FCNYS directly include signage requirements and/or applicable NEC references for grid-interactive BESS operating in parallel with other power generating sources. The FCNYS requires compliance with all applicable NEC signage requirements, which can involve multiple different sections depending on the system design. Section 1207.4.8 of the 2024 IFC addresses signage for multiple energy systems.

b) Update the Fire Code to require clear and apparent identification of explosion control panels. This measure will help ensure that first responders can easily recognize

and stay clear of the respective hazard zones, reducing the risk of accidents and facilitating a more efficient and secure emergency response. Section 911.4.1 of the 2024 IFC addresses signage for deflagration venting, though this language may need to be expanded to include other methods of explosion control in addition to deflagration.

5. FCNYS 1206.9.2.1 SYSTEMS MONITORING

Update the Fire Code to ensure that Battery Management System (BMS) data is monitored by a 24/7 staffed Network Operations Center (NOC). Critical failure notifications should be immediately communicated to the site owner/operator to take corrective actions as necessary.

The WG recommends that the Fire Code require that Battery Management System (BMS) data be monitored 24/7 by a Network Operations Center (NOC) / Remote Operations Center (ROC), staffed by trained personnel with working knowledge of the BESS and sites under their purview. Additionally, the WG recommends that NOC/ROC staff be immediately available to relay relevant data to the local fire department to help guide emergency response if requested.

The NOC could fulfill the recommendation that a qualified person be available for immediate phone consultation found in the last paragraph of the Fire Mitigation Personnel recommendation section.

The NOC providing 24/7 remote monitoring of the BMS or Energy Storage Management System (ESMS) should have the ability to immediately relay alarm notifications indicative of a thermal runaway or other battery failure event to the system owner, O&M company, or other associated parties. Additional information and language for reference is available in 2023 NFPA 855 and FDNY 3 RCNY 608-01.

Referenced Codes / Standards:

§ 2023 NFPA 855: A.4.3.2.1.4(3)

§ FDNY 3 RCNY 608-01: (g)(2) Remote Monitoring, (i)(1) Remote Monitoring of Battery Management System and Reporting, (i)(3) Remote Monitoring at Constantly Attended On-Site Location

6. FCNYS 1206.11.9 SECURITY OF INSTALLATIONS

Update the Fire Code to incorporate requirements for closed-circuit television (CCTV) systems, specifying their intended use as both a continuous monitoring tool and a post-event analysis resource.

This update would be specific to New York, as it is not currently incorporated into NFPA 855 or the 2024 IFC. The WG has learned that CCTV systems can play a critical role in incident analysis, in addition to providing potentially useful real time monitoring capabilities, and therefore the WG recommends including a requirement for CCTV. Access to CCTV footage should be available to emergency responders during an incident in addition to being provided to the AHJ to assist with post-incident investigation.

7. FCNYS 1206.2 APPLICABILITY

Remove the Fire Code exemption for BESS projects owned or operated by electrical utilities

to ensure that all projects comply with the Fire Code.

The removal of this exemption can address concerns relating to access to critical information and jurisdictional authority, promoting safety and accountability. The suggested code revision should

be carried out in collaboration with relevant stakeholders to assess the extent of code enforcement authority for public utility projects, maintaining safety standards even in cases involving electric utilities. This recommendation aligns with the proposed language of section 1201.1 in the 2024 International Fire Code (IFC) and should be considered for inclusion, ensuring a consistent and thorough regulatory framework for all energy systems in the state.

Proposed Recommendations for Fire Code Additions

1. EMERGENCY RESPONSE PLANS and REGULAR FIRE DEPARTMENT TRAINING

Include a requirement for an Emergency Response Plan (ERP) and annual local first responder training for every BESS installation.

The WG strongly recommends that a site-specific Emergency Response Plan (ERP) be required in the Fire Code update to ensure that every BESS facility is equipped with a comprehensive strategy

for addressing potential emergencies 24 hours a day. While existing standards such as fire safety plans in FCNYS Section 403 and 2023 NFPA 855 Section 4.3.2.1 address emergency operations for facility personnel, these standards are not specifically written for first responders. As such, there should be a requirement for emergency response protocols specifically addressing the needs of first responders in the event of a fire, like 2023 NFPA 855 Appendix G.11.2. Appendix G.11.2 is supplemental information rather than a direct part of standard itself. The code should remove any ambiguity around the NFPA requirements and require that system owner/operators provide emergency response plans directed toward first responders and annual site-specific trainings to local fire departments.

This requirement should specify that the ERP must be accessible on-site and shared with the local fire department. Different fire departments may have specific requirements or conditions for presentation of ERPs (e.g., type of lockbox, etc.); therefore, the WG recommends that the FCNYS grant the AHJ the flexibility to determine the most suitable presentation of the ERP based on local fire department needs. This ERP should be developed in consultation with the local fire department to ensure it is in alignment with their operating procedures, capabilities, resources, etc. In all cases, a copy of the ERP must be maintained on-site outside the fence line of the project.

The WG also recommends requiring site-specific training to be provided for local fire departments to familiarize them with the project, hazards associated with BESS, and procedures outlined in the ERP. The WG recommends that annual trainings be provided to address potential turnover in fire department personnel, and that a log of training records be maintained. The AHJ would play a key role in overseeing and regulating the implementation of this requirement, ensuring that BESS installations are well-prepared for emergencies and that all response team members are adequately trained.

Referenced Codes / Standards:

§ 2023 NFPA 855: 4.3.2.1 Emergency Operations Plan, G.11.2 Emergency Responder Pre-incident and Emergency Operation Planning

§ 2020 FCNYS: 403 Emergency Preparedness Requirements

2. CENTRAL STATION MONITORING OF BESS FACILITIES

Include a Fire Code requirement for monitoring of fire detection systems by a central station service alarm system to ensure timely, proper notification to the local fire department in the event of a fire alarm.

The WG recommends that this requirement specify that the central monitoring station must comply with relevant requirements in NFPA 72. The code should also define criteria for triggering alarms and notifying first responders, ensuring that only critical incidents prompt a response from emergency services. The NOC should be available to assist in determining which incidents are critical enough to warrant a response from emergency services. Clarity in the definition and role of central station monitoring in BESS installations is essential to establish consistent and effective practices across different jurisdictions and facility types. The WG recommends referencing the language in section 1207.5.4 of the 2024 IFC.

Referenced Codes / Standards:

§ 2024 IFC: 1207.5.4 Fire detection

§ FDNY 3 RCNY 608-01: (i)(2) Central Station Monitoring of Fire Protection System

§ NFPA 72 Fire Alarm & Signaling Systems

3. FIRE STOPS, BARRIERS, or FIRE BREAKS

Mandate the installation of fire stops for all BESS enclosure penetrations to prevent the propagation of fires from one BESS unit to another through these pathways.

While this specific topic is currently not addressed in the 2024 IFC or NFPA 855, incorporating fire stops or barriers can be effective in limiting fire spread in various facilities. To ensure effectiveness of

this requirement, the WG recommends that the code update should include guidance on the installation and performance standards of these fire breaks or barriers to ensure there is no propagation of fire across BESS enclosures.

4. PERIODIC SPECIAL INSPECTIONS

Introduce a new provision in the Fire Code mandating industry-funded special inspections for BESS installations to ensure thorough safety and compliance.

The WG recommends requiring special inspections at a regular cadence. The FCNYS should specify a comprehensive scope of inspection criteria, including aspects such as verifying emergency response contacts, system layouts, signage, and other critical components relevant to BESS safety. The frequency of these special inspections should be established to correspond with the specific needs and risks associated with BESS installations. These inspections should be conducted by specialized, third-party experts who possess the necessary expertise in BESS systems.

5. CURRENT PERCEIVED EXEMPTIONS FOR BESS CABINETS

Include "cabinets" in all Fire Code requirements that pertain to rooms, areas, or walk-in units, except for fire suppression requirements, as they may be inappropriate for cabinets.

The 2020 FCNYS outlines requirements for outdoor BESS in §1206.15 and Table 1206.15 (Outdoor ESS Installations), including general requirements within §1206.11 (General Installation Requirements). However, the existing language of certain sections initially only appears to be applicable for indoor and outdoor walk-in BESS, as they do not directly address outdoor non-enterable, or cabinet, BESS–contradicting with Table 1206.15–causing uncertainty for the appropriate application and ensuing enforcement of requirements.

Although the Fire Code does state that "the most restrictive [requirement] shall govern" where there are conflicts between sections, the WG recommends removing any ambiguity of cabinet ESS applicability for the following requirements:

§ §1206.6 Large-scale Fire Test
§ §1206.11.9 Security of Installations
§ §1206.12.2 Maximum Allowable Quantities of ESS (MAQ)
§ §1206.12.4 Fire Detection

This can be accomplished by including "cabinet BESS units" directly into the identified sections, [while ensuring language can be carried over / aligns with the model 2024 IFC (during the NY code update process)] as can be seen below with recommended clarifications (in bold) within the existing 2020 FCNYS language:

The FCNYS defines an energy storage system cabinet as a cabinet containing components of the energy storage system that is included in the UL 9540 listing for the system. Personnel are not able to enter the cabinet, other than reaching inside to access components for maintenance purposes. Historically, cabinets were not directly addressed by several important regulations in the FCNYS. Upon incorporating energy storage system cabinets in existing requirements, it will be important to be clear that requirements apply to rooms, areas, walk-in units, or cabinets, eliminating misinterpretations that would result in redundant requirements (e.g., fire detection requirement in both the room and energy storage system cabinet).

Implementing the recommendations in the previous two sections will help to maintain New York's status as a national and global leader in energy storage fire safety. After

months of lengthy discussion and document review among the WG participants, these concrete suggestions are recommended to the New York State Code Council.

Additional Considerations

1. ROOT CAUSE ANALYSIS

The WG concluded that the Fire Code may not be the appropriate place to require a Root Cause Analysis (RCA).

The WG identified a need to create a hard requirement for Original Equipment Manufacturers (OEMs) to disclose RCAs to relevant local and state authorities for analysis and evaluation with the intent of promoting continuous improvement of energy storage system fire safety. The WG concluded that the FCNYS may not be the appropriate mechanism to grant government access to RCAs resulting from past or future fires associated with a particular energy storage system product, as OEMs are not directly subject to Fire Code requirements unless they are also acting as project developers. To address potential gaps and establish a clear framework for this requirement, the following suggestions

should be considered:

a) Define the scope of the requirement to include faults that result in a fire or necessitate a response from first responders, making it clear that not all faults require an RCA.

b) Standardize the format of the RCA submission by creating a template that includes specific information, such as manufacturer and model numbers of components, system schematics, maintenance logs, operational data leading up to the incident, battery monitoring system logs, and details about fire suppression systems.

c) Set a deadline for providing the RCA information to the relevant authorities, specifying that it should be delivered within a defined number of days after the incident.

d) Offer flexibility in the choice of RCA methods and analysis entities but endorse a list of pre-qualified firms or methods to ensure consistency and reliability in the analysis.

e) Emphasize transparency in the process to facilitate effective communication between local authorities, operators, and OEMs. Transparency is essential for building trust and ensuring that all parties have access to the same data for a comprehensive understanding of the incident.

f) Consider the inclusion of a requirement for peer review of the RCA to ensure the accuracy and credibility of the analysis.

2. WATER SUPPLY

The WG recommends establishing guidance for water supply, including whether water is appropriate for different technologies, in an emergency response to a BESS fire and determining if more specific requirements are necessary.

Given the challenges associated with fully extinguishing BESS fires and the variability in system capacity and design, the code should consider the intended purpose of the water supply, whether it is for cooling, smoke control, preventing fire spread, or other

scenarios. Referencing Chapter 5 of the code and standards like NFPA 1142 may provide a starting point for establishing water supply guidance and requirements. The code should aim to define the specific conditions and scenarios where water supply is necessary and outline the minimum flow rates and water storage requirements, taking into account factors like distance from the water source and the capacity of fire departments for shuttle operations. This information should be detailed and explicit, acknowledging the complexities of BESS facilities and the unique challenges they pose for firefighting. Further discussions should be held by the code council, potentially including relevant subject matter experts, to ensure comprehensive guidelines for water supply in BESS facilities, including exceptions for systems to which water should not be applied in the event of fire.

Referenced Codes / Standards:

§ 2022 NFPA 1142: Standard on Water Supplies for Suburban and Rural Firefighting

§ 2023 NFPA 855: G.11.2 Emergency Responder Pre-incident and Emergency Operation Planning

3. TRANSFORMERS CONTAINING HIGHLY FLAMMABLE MATERIALS

Recommend that the Code Council have further discussions around clearance distances of oil-insulated transformers from BESS.

The WG notes that propagation of fire or heat flux from a BESS fire may pose great risk to non-dry-type (e.g., oil-insulated) transformers, which may exacerbate the impact of a BESS failure incident. FCNYS 1206.15.3 states that energy storage systems located outdoors shall be separated by a minimum of 10 feet from exposures such as lot lines, public ways, and buildings, as well as "other exposure hazards", which oil-insulated transformers could fall under. However, it is not clear that this interpretation has been enforced by AHJs. The corresponding section of 2023 NFPA 855 (9.5.2.6.1), however, notes that BESS are separated by 10 feet from "other exposures not associated with electrical grid infrastructure", implying that this does not need to apply for transformers. The WG recommends that the Code Council hold further discussions around clearance distance requirements be pursued to determine if clearance distance requirements should be explicitly enforced

for oil-insulated transformers in upcoming code. This discussion should include a review of potential updates to standards and requirements.

Referenced Codes / Standards:

§ 2024 IFC: 1207.8.3 Clearance to Exposures

§ 2023 NFPA 855: 9.5.2.6.1 Clearance to Exposures

§ FDNY 3 RCNY 608-01: (g)(1)(C) Separation Distances

§ FM Global Property Loss Prevention Data Sheets: 5-4 Transformers

CONCLUSION

After months of careful deliberation and a consensus-based process, the WG intends to submit the recommendations in this document to the Code Council for consideration in

the next code installment. The Working Group seeks comments from interested stakeholders on these proposed recommendations for incorporation into the final submission to the Code Council. While the most critical issues identified by the WG could be addressed by better enforcement and adherence to the existing code, the recommendations in this memo have been identified as ways to further improve the regulatory framework for BESS in New York.

February 6, 2024

More Links to New York resources from Draft Fire Code Recommendations Report

On February 6, 2024, NYSERDA requested public comment [PDF] from subject matter experts and interested stakeholders to evaluate and provide feedback on a draft Fire Code Recommendations Report [doc] produced by the Working Group.
The draft recommendations were also discussed at a public webinar on February 15, 2024. View the webinar recording to learn more about the working group's recommendations. Comments were due on Tuesday, March 5, 2024. The Code Council plans to release the updated recommendations for public comment again in June 2024 through the "Rule in Development" process for the Fire Code of New York State.
Any questions should be directed in writing to BESScodeupdates@nyserda.ny.gov.
Press Releases to Date:

- July 28, 2023: Governor Hochul Convenes Inter-Agency Fire Safety Working Group Following Fires in Jefferson, Orange, & Suffolk Counties
- December 21, 2023: Initial Findings Released From Inter-Agency Fire Safety Working Group On Emergency Response
- February 6, 2024: Governor Hochul Releases Initial Recommendations From Inter-Agency Fire Safety Working Group

Other Energy Storage and Safety Resources:

- Energy Storage Program: Learn about the different types of energy storage and how integrating storage in the electric grid will allow clean energy to be available when and where it is most needed.
- Energy Storage Innovation: Research and investment are driving innovation in energy storage technology and product development.
- Guidebooks, Resources, and Training for Local Governments: Access information, tools, and step-by-step instructions to support local governments managing battery energy storage system development in their communities.
- Lithium-Ion Battery Awareness Training : OFPC has made a course available on the DHSES E-Learning Management System for all first responders.

February 6, 2024

Initial Recommendations Released from Inter-Agency Fire Safety Working Group

https://www.nyserda.ny.gov/About/Newsroom/2023-Announcements/2023-12-21-Governor-Hochul-Announces-Results-of-Fire-Safety-Working-Group
Working Group Outlines Recommended Enhanced Safety Standards for Battery Energy Storage Systems
February 6, 2024 (excerpts)
Governor Kathy Hochul today released initial recommendations from the Inter-Agency Fire Safety Working Group, outlining enhanced safety standards for battery energy storage systems. The draft recommendations include potential updates to the Fire Code of New York State as well as a list of additional opportunities for defining and implementing best practices. If adopted, the changes will codify enhanced safety standards and continue to position New York as a national leader in responsible and reliable battery energy storage development.
"The battery energy storage industry is enabling communities across New York to transition to a clean energy future, and it is critical that we have the comprehensive safety standards in place," Governor Hochul said. "Adopting the Working Group's recommendations will ensure New York's clean energy transition is done safely and responsibly."
The 15 draft recommendations announced today are proposed by the Working Group, with guidance from nation leading subject matter experts, after completing a thorough examination of the existing Fire Code of New York State (FCNYS) and other energy storage fire safety standards. They address preventative and responsive measures as well as best practices, and include proposed requirements related to peer review of project permit application packages, emergency response planning, and local fire department training, among others. The recommendations identify ways to further improve the regulatory framework for BESS in New York, are intended to apply to lithium-ion BESS exceeding 600 kilowatt-hours (kWh).
The recommendations were developed with a focus on outdoor systems, BESS in dedicated use buildings, and other grid-scale battery energy storage systems. They will be considered by the New York State Code Council (Code Council) for inclusion in the next edition of the FCNYS to help improve deployment of safety standards in the State and potentially across the country. Interested stakeholders are encouraged to submit comments on these draft recommendations to the Working Group for incorporation into the final recommendations to be submitted to the Code Council for consideration.

FIRES, EXPLOSIONS AND OTHER SAFETY ISSUES

Battery Thermal Runaway Risk & Prevention
By MoviTHERM
https://movitherm.com/blog/battery-thermal-runaway-risk-prevention/

The Risk of Battery Thermal Runaway and How to Prevent It
Battery thermal runaway is becoming a huge liability to companies that store and handle battery products. In recent years, battery storage, charging, and recycling centers have experienced increased fire activity caused by lithium ion battery thermal runaway.
One solution to reducing the risk of a battery fire are infrared cameras. Infrared fire detection systems monitor large areas and are able to detect heat releasing from battery packs or single batteries. Infrared cameras are the only device that are able to detect early signs of fire formation.
Risk of Thermal Runaway
Thermal runaway occurs in lithium ion batteries. Manufacturing defects or external misuse like overcharging, overheating, puncturing, or being crushed can lead to thermal runaway in lithium ion batteries. Thermal runaway occurs when the temperature of the li-ion battery reaches a critical state.
Lithium-Ion Battery Thermal Runaway Initiation Events
Internal causes of spontaneous ignition include coating defects at the electrode surface, contamination particles, and poor welds. Typically, these defects cause electrical shorts during operation that generate heat.
External causes include:

- Electrical abuse from overcharging.
- Mechanical abuse via crushing or puncture.
- Thermal abuse from exposure to high temperature environments.

External initiating events are related to each other. For example, mechanical abuse from a puncture of the battery cell causes a short circuit, which is electrical abuse. The electrical abuse creates heating, which increases the lithium ion cell temperature, causing thermal abuse, which can trigger thermal runaway.

Emerging Hazards of Battery Energy Storage System Fires

Grant Number: EMW-2016-FP-00833
Principle Investigator: Ofodike Ezekoye Ph.D., P.E.
University of Texas at Austin

In April 2019, an unexpected explosion of batteries on fire in an Arizona energy storage facility injured eight firefighters. More than a year before that fire, FEMA awarded a Fire Prevention

and Safety (FP&S), Research and Development (R&D) grant to the University of Texas at Austin to address firefighter concerns about safety when responding to fires in battery energy storage systems of all sizes. Professor O.A. ('DK') Ezekoye is working with other engineers, firefighters, and industry partners to develop a better understanding of the magnitude of the fire hazards.

There has been a dramatic increase in the use of battery energy storage systems (BESS) in the United States. These systems are used in residential, commercial, and utility scale applications. Most of these systems consist of multiple lithium-ion battery cells. A single battery cell (7 x 5 x 2 inches) can store 350 Whr of energy. Unfortunately, these lithium cells can experience thermal runaway which causes them to release very hot flammable, toxic gases. In large storage systems, failure of one lithium cell can cascade to include hundreds of individual cells. The hot flammable gases can result in an explosion, or a very difficult to extinguish fire.

Although the fire service routinely responds to explosive scenarios, such as those associated with natural gas leaks, standard operating procedures do not exist for scenarios like a battery energy storage system for which there is no way to cut off the gas supply. The fire service is unaware and inexperienced with the fire and explosion hazards of BESS.

The FP&S R&D study started with a laboratory test in which a single cell failed in one commercial storage module containing a total of 14 cells. In one of the early tests, when a single cell failed, smoke and gases were released that ignited and burned intensely for 12 seconds. Toxic smoke and gases filled the test space.

The research team has subsequently connected small-scale battery failure test results to large scale fire and explosion consequences associated with these systems. Through this research, one of the biggest lessons learned for the fire service is that the utilities and commercial entities that own large battery systems are equally unfamiliar with the potential fire hazards. As well, there remain many questions about the toxicity of the battery vent gas.

From 2014 to 2018, residential BESS installations have increased by 200% annually. Further research into residential BESS hazards is essential as BESS hazards could eventually become a regular part of dwelling fires.

According to Professor Ezekoye, the results of this study will lead to wider awareness of the BESS hazards, a greater understanding of the underlying fire behavior of these systems, and eventually the development of safe standard operating guidelines and procedures for firefighters.

Link: www.UTFireResearch.com

Data Center Fire Triggers Lithium Ion Battery Doubts for South Korea

https://www.datacenterknowledge.com/business/data-center-fire-triggers-lithium-ion-battery-doubts-for-south-korea#

South Korea's major data center fire was said to be triggered by lithium ion battery failure. With the country being a major producer of these batteries, their economy faces even more uncertainty.

Bloomberg) -- A major data center fire in South Korea that knocked out a wide range of key digital services for days — snarling banking, ride-sharing and online deliveries — is reigniting safety concerns in a nation that's a key global supplier of lithium-ion cells used in electric vehicles.

Even with SK C&C, the operator of the data center, still investigating the cause of the fire, the incident has stoked a new bout of concerns over battery safety. That's important for the electric car sector, given three South Korea-based companies — LG Energy Solution Ltd., SK On Co. and Samsung SDI Co. — rank among the top tier of global battery suppliers.

"Safety concerns are re-emerging over lithium-ion batteries, and the government needs to step in to prevent similar accidents from happening because once things go wrong with batteries, the impact is often unbearably significant," said Lee Hoguen, a professor of automotive engineering at Daeduk University.

June 24, 2024

Blaze at South Korea lithium battery plant kills 22 workers

https://www.reuters.com/world/asia-pacific/about-20-bodies-found-after-fire-south-korea-battery-plant-yonhap-reports-2024-06-24/

By Daewoung Kim, Hongji Kim and Hyunsu Yim
June 24, 20241:07 PM EDT

HWASEONG, South Korea, June 24 (Reuters) - A lithium battery factory in South Korea was set on fire after multiple batteries exploded on Monday, killing 22 workers, most of them Chinese nationals, fire officials said.

The fire and a series of explosions ripped through the factory run by primary battery manufacturer Aricell in Hwaseong, an industrial cluster southwest of the capital Seoul. The victims likely succumbed to extremely toxic gas within seconds of the blaze getting out of control, the officials said. It was unclear what caused the explosions and the fire was largely extinguished in about six hours.

Eighteen Chinese workers, two South Koreans and one Laotian were among the dead. The nationality of the other deceased worker was yet to be confirmed, Kim Jin-young,

an official at the Hwaseong fire service, told reporters, citing information from company officials.
The blaze was first reported at 10:31 a.m. (0131 GMT) after a series of battery cells exploded inside a warehouse of 35,000 batteries, Kim said.

A Reuters journalist saw firefighters moving up to six bodies out of the factory. Due to the intensity of the blaze, rescuers were finding it difficult to identify the dead, Kim said.
Two people were being treated for major burns, officials at the scene said.
Live TV footage showed firefighters spraying the damaged steel and concrete building. Parts of the upper level had collapsed, and large chunks of the building looked like they had been blown out into the street by explosions.
Aerial footage showed massive white smoke clouds billowing from the structure and explosions rolling through the building.
Gyeonggi province fire official Cho Sun-ho said most of the foreign workers killed were temporary hires, likely unfamiliar with the structure of the building. Smoke and the fire blaze spread within 15 seconds and the victims likely succumbed after taking one or two breaths, he said.
HIGHLY FLAMMABLE
Kim Jae-ho, Fire and Disaster Prevention professor at Daejeon University, said the fire had probably spread too quickly for workers to escape.
"Battery materials such as nickel are easily flammable," he said. "So often, there is not enough time to respond, compared to a fire caused by other materials."
South Korea's President Yoon Suk Yeol visited the scene of the accident later on Monday. Interior Minister Lee Sang-min called on local authorities to take steps to prevent any hazardous chemicals from contaminating the surrounding area.
Established in 2020, South Korea-based Aricell makes lithium primary batteries for sensors and radio communication devices. It has 48 employees, according to its latest regulatory filing and its Linkedin profile.
Battery production involves the use of highly toxic materials.
"The fact that there were so many casualties when this was on only the second floor is because of the toxic materials and not so much because of burns," said Park Chul-wan at Seojeong University.
South Korea is home to major producers of lithium-ion batteries that power electric vehicles (EVs) and to one of the world's biggest automakers, Hyundai Motor, and its affiliate Kia which are making a push to shift away from internal combustion cars to EVs.
Two years ago, South Korea brought in legislation to punish the executives of a company in the event of a fatal accident with possible jail terms after the country saw dozens of workers killed in industrial accidents each year.
Reporting by Hyonhee Shin, Ju-min Park, Joyce Lee, Heekyong Yang and Cynthia Kim, writing by Jack Kim; Editing by Miral Fahmy, Angus MacSwan and Susan Fenton.

Fire at Lithium Battery Plant in South Korea Kills 22

https://www.nytimes.com/2024/06/24/world/asia/lithium-battery-fire-south-korea.html?smid=em-share

It took only 15 seconds for the floor to be filled with smoke and flames, said a senior fire official, Jo Seon-ho, during a news briefing Monday. After trying in vain to put out the blaze with fire extinguishers, he said, the workers rushed to an area of the floor where there was no exit.

Fires can occur in lithium batteries when the inside layers are compressed, causing a short circuit. The layers can become compressed by a sudden impact, such as during a vehicle collision, or by gradual swelling of the batteries through regular use.

Lithium is a metal that can store large amounts of energy in a small space, which is why it is attractive as a battery material. But that also means there is much energy available to turn into heat and even flames in case of a short circuit. Lithium battery fires have been a growing problem in the United States and elsewhere, and fires are an industry-wide concern for battery manufacturers.

Data Center Fire Triggers Lithium Ion Battery Doubts for South Korea

https://www.datacenterknowledge.com/business/data-center-fire-triggers-lithium-ion-battery-doubts-for-south-korea#

Oct 24,2022

South Korea's major data center fire was said to be triggered by lithium ion battery failure. With the country being a major producer of these batteries, their economy faces even more uncertainty.

Bloomberg) -- A major data center fire in South Korea that knocked out a wide range of key digital services for days — snarling banking, ride-sharing and online deliveries — is reigniting safety concerns in a nation that's a key global supplier of lithium-ion cells used in electric vehicles.

Even with SK C&C, the operator of the data center, still investigating the cause of the fire, the incident has stoked a new bout of concerns over battery safety. That's important for the electric car sector, given three South Korea-based companies — LG Energy Solution Ltd., SK On Co. and Samsung SDI Co. — rank among the top tier of global battery suppliers.

"Safety concerns are re-emerging over lithium-ion batteries, and the government needs to step in to prevent similar accidents from happening because once things go wrong with batteries, the impact is often unbearably significant," said Lee Hoguen, a professor of automotive engineering at Daeduk University.

February 18, 2024

French Lithium Battery Warehouse Explodes In Terrifying Toxic Fireball
https://stopthesethings.com/2024/03/07/french-lithium-battery-warehouse-explodes-in-terrifying-toxic-fireball/

Self-immolating lithium-ion batteries spewing toxic smoke is just another part of our grand wind and solar transition.

And it's not just those in service providing deadly pyrotechnic displays (see above the giant Tesla that burned for days in Victoria). Those past their use by dates are also giving thrilling thermal displays, as they turn their bevy of heavy metals and rare earths into impossible-to-control fires (they can't be extinguished) and threaten the lives of neighbours for miles around. This time, the incendiary action is in France.

February 18, 2024

Lithium battery warehouse goes up in flames
By Vivian Song
18 February 2024

A warehouse in France storing lithium batteries caught fire on Saturday, amid growing fears over their safety.

The fire on Saturday afternoon occurred at a storehouse in the southern town of Viviez, in Aveyron, where 900 tons of lithium batteries were waiting to be recycled.

Authorities ordered residents to stay indoors and keep their windows closed as thick smoke billowed over the town. No injuries or deaths were reported and the cause of the fire has yet to be established.

Lithium batteries, found in electric scooters and vacuum cleaners, are known to spontaneously combust if they overheat or become damaged. Their dangers have raised concerns in countries where e-bikes have been promoted as a climate-friendly mode of transportation.

Questions raised
Jean-Louis Denoit, the mayor of Viviez, called Saturday's fire "shocking" and told

French news channel BFMTV: "Behind all this, there is indeed reason to ask questions about the function of electric vehicles and lithium batteries."

It took 70 firefighters to put the fire under control, after which air quality tests were conducted and the lockdown order lifted.

France has moved to promote cycling since the pandemic, with e-bikes becoming hugely popular in cities like Paris. However irresponsible behaviour and a rising number of accidents has led to criticism around their use, and how to store their batteries safely.

In the UK, a proposal to build one of Europe's largest battery storage facilities near the village of Granborough, in Buckinghamshire, was met with fierce opposition by locals who have expressed environmental and safety concerns.

The plan, by the energy company Statera, calls for a 500 MW battery energy storage system that would span 26 acres of land.

Responding to the plans, the Claydon Solar Action Group wrote on social media: "Unacceptable risks of fire, explosion, air and water pollution, a major accident waiting to happen just 500 metres away from residential properties."
https://www.telegraph.co.uk/world-news/2024/02/18/lithium-battery-warehouse-flames-recycle-plant/

May 30, 2024

Journal of Energy Storage Volume 88, 30 May 2024, 111532
https://www.sciencedirect.com/science/article/abs/pii/S2352152X24011174

Insights into extreme thermal runaway scenarios of lithium-ion batteries fire and explosion: A critical review

Abstract: The safety issues of lithium-ion batteries (LIBs) caused by thermal runaway (TR) have been a worldwide hot topic in the current research as their large-scale application in the fields of transportation and energy storage. Under abusive conditions, LIBs are susceptible to severe TR incidents, such as rupture, fire and explosion, posing significant risks to safety and property. This study aims to interpret extreme TR hazards of LIBs throughout the entire evolution process by reviewing manifestation forms, evolution mechanisms, assessment parameters and modeling methods. Additionally, the corresponding state-of-the-art countermeasures for TR hazards were analyzed. Then this review discussed the challenges and prospects for future research, focusing

on intrinsic research of TR, TR hazards modeling and the safety measures. Further, a multi-field, multi-dimensional and multi-physics modeling framework was developed to fully describe extreme TR scenarios. This study provides a comprehensive understanding of TR scenarios and reveals the evolution mechanism between different hazard forms. Insights from this review serve as scientific guidance for the design of next-generation battery safety systems, towards addressing thermal safety issues of LIBs from a new interdisciplinary perspective.

May 29, 2024

Otay Mesa battery facility fire could take weeks to put out entirely
California | filed May 29, 2024
Credit: Kasia Gregorczyk, May 22, 2024 | fox5sandiego.com

A stubborn fire at a battery storage site in Otay Mesa is burning for a sixth day. Fire officials are preparing for it to potentially take weeks to put out.
"We're not sure. We're preparing for the worst and making plans to be here for a long time, two to four weeks and will reevaluate then," said Captain Brent Pascua with Cal Fire San Diego.
The fire began last Wednesday at the Gateway Energy Storage facility and flare-ups over the weekend put evacuations warnings for the surrounding area back in place. Pascua said things began to reignite Friday night.
"You have to put water on it to keep the fire confined, but that water damages the batteries also allowing them to arc starting another fire. We're just trying to keep the public safe and keep the fire contained to the building," he said.
The chain reaction can happen when a lithium-ion battery creates heat faster than it can dissipate. That rapid increase of temperature can then turn to fire.
Cal Fire reports there is now major damage to the building, including the roof.
"Here in the middle of nowhere and it's still dangerous. The facility being proposed in La Mesa is in a highly concentrated urban area," said La Mesa Vice Mayor Laura Lothian.
The fire has captured the attention of North County residents opposing the Seguro battery storage site and now those living in La Mesa where another battery facility is in the works.
"Hasty to say the least to be building these things without thinking it all the way through," Lothian said.
According to the Murray Project website, the La Mesa project would use lithium iron phosphate batteries, a reportedly safer option that is emissions free and non-toxic.

In Otay Mesa, officials continue to monitor the air quality and the water runoff to make sure it's safe for crews to be near. Fire crews are focusing on keeping the fire from spreading to any of the neighboring buildings which also house batteries.
The company operating the Gateway site, Rev Renewables, declined an interview, but said it is continuing to work with fire officials.

Alternatives

May 30, 2024

Startup debuts first full-scale plant for batteries that could replace lithium-ion — with cheaper materials, faster production times, and more safety

"The electrification of our economy is dependent on the development and production of new, innovative energy storage solutions."

By Talia Resnick
"The electrification of our economy is dependent on the development and production of new, innovative energy storage solutions."
Lithium-ion batteries are facing new competition with another type of electric battery ready to hit the market. As reported by Bloomberg, sodium-ion batteries are in production and have the potential to be cheaper and safer than lithium-ion batteries.
Lithium-ion batteries have been used for years now, powering our smartphones, electric cars, and more. However, lithium-ion batteries have some downsides. These include cobalt mining, which often happens at the expense of child labor; the lack of abundance of lithium; and its fire risk, as per the Bloomberg report.
Sodium-ion batteries, though they don't have the same energy density as lithium-ion batteries, offer large-scale electric products a cheaper and safer electric option. Natron Energy, a United States-based tech company, unveiled its sodium-ion battery plant in April. It was partially funded by a $20 million federal grant, as reported on its website.
Natron is not the only sodium-ion battery plant popping up. Companies in China and Sweden are also putting money into pushing out sodium-ion batteries to be used as soon as possible, Bloomberg reported.
Read in The Cool Down: https://apple.news/AcdT5ZfRzQ8Owe-OruUlgVw

June 2024

New Energy Storage Systems From Thin (Compressed) Air Can Compete With Li-Ion Batteries

Compressed air energy storage systems were practically non-existent just a few years ago. Now energy planners are beginning to take notice, attracted by the ability of compressed air to provide the kind of scaled-up, long duration storage capacity needed for a global economy saturated with wind and solar energy. The sticky wicket is cost, but a new analysis indicates that issue has already begun to fade from view.

https://cleantechnica.com/2024/06/03/new-energy-storage-systems-from-thin-compressed-air-can-compete-with-li-ion-batteries/

June 4, 2024

Lithium-Ion's Grip on Storage Faces Wave of Novel Technologies

By Evelina Stoikou, Energy Storage, BloombergNEF

The domination of lithium-ion batteries in energy storage may soon be challenged by a group of novel technologies aimed at storing energy for very long hours. BloombergNEF's inaugural Long-Duration Energy Storage Cost Survey shows that while most of these technologies are still early stage and costly, some already achieve lower costs than lithium-ion for longer durations.

The need for long-duration energy storage or LDES is rising, as renewable energy generation grows. This increases the need for storing energy for longer periods of time to address intermittency. Thermal energy storage and compressed air storage are the least expensive LDES technologies, at $232 per kilowatt-hour and $293 per kWh of capex, respectively, data from the survey shows. For comparison, lithium-ion systems had an average capex of $304/kWh for four-hour duration systems in 2023.

https://about.bnef.com/blog/lithium-ions-grip-on-storage-faces-wave-of-novel-technologies/

Communications

GREENFIELD RECORDER COLUMN
November 11, 2023
Assault and batteries in Wendell

On April 19, 2019, a HAZMAT team was called to an energy facility in Surprise, Arizona. A large metal container was leaking milky white smoke. It was a 2-megawatt

battery energy storage system (BESS). According to one account by the National Fire Protection Association, "Hundreds of the system's lithium-ion battery cells had experienced a catastrophic failure and were in a dangerous state known as thermal runaway."

When the HAZMAT team opened the container door, "a sudden explosion rocked the facility, a jet of flame extended 75 feet outward and 20 feet vertically. " The explosion force blew the HAZMAT captain 70 feet from the container door. A fire engineer was thrown violently 30 feet. Two nearby firefighters were knocked unconscious, their breathing apparatus and helmets ripped away. The captain and fire engineer suffered traumatic brain injuries, and thermal and chemical burns.

The massive explosion "confirmed for some a long-simmering fear: that the fire service and safety community are unprepared to deal with this burgeoning technology ... battery incidents are so challenging for first responders," the fire protection association article concluded. There were 28 BESS fires in South Korea between 2017 and 2019. According to the industry publication pv magazine, "The Korean government changed storage policies from unusually strong support to zero support [citing] a deterioration in the profitability of the batteries which acted as an obstacle to industrial growth, along with the fire risk." In December of 2020, Borrego Solar Systems of Lowell sought support from the Wendell Planning Board to apply to the state Department of Public Utilities for a zoning exemption order from all Wendell zoning rules. Borrego wanted to construct a 105-megawatt battery system on Wendell Depot Road, using lithium-ion batteries in above-ground enclosures on a 51-acre lot of which 11.1 acres of the wooded site would be clearcut.

The site would have an 8-foot-high security fence and a 25-foot-high sound barrier wall. It has no solar panels, and generates no solar energy. The batteries are charged by electricity from the grid, which is transmitted back during times of peak demand to "Eastern zone centers." In 2022, ECP, a New Jersey investor, acquired Borrego's development arm, and created New Leaf Energy, which in turn, created Wendell Energy Storage 1 LLC suggesting other facilities will follow.

The Wendell Planning Board voted to support Borrego in April 2021, but four weeks later sent a letter to Borrego saying: "The Planning Board does not possess the

expertise to evaluate the potential impact of a battery project" on a "critical natural habitat" on the property.

The Planning Board also notified the DPU that its support letter was "premature," and rescinded "any specific or perceived support of this project." The board said the project had too much impervious area, and told Borrego: "Members of our community are upset at the thought that the Planning Board would diminish our local control."

Wendell Town Meeting voted in 2021 to impose a moratorium on BESS, but the amendment was never received at the state attorney general's office, and had no lawful effect. Wendell's Conservation Commission denied the New Leaf application based on noise impacts on the 50-foot conservation zone.

Town Meeting voted in 2022 to amend its zoning to prohibit standalone battery energy storage facilities" — but the AG ruled that the ordinance violates a state law that prohibits unreasonable regulation of "structures that facilitate the collection of solar energy"— except to protect public health, safety and welfare.

"No Nukes" author and activist Anna Gyorgy, a Wendell resident, listed citizen concerns: deforestation; destruction and disturbance of critical wildlife and wetland habitats; noise, light and chemical pollution; preference for conservation to reduce peak demand; and environmental problems with lithium extraction and waste. "Like the Northfield Mountain Pump Storage project, New Leaf's big battery center doesn't produce or store renewable energy. It's a 'buy cheap, sell dear' scheme to store and resell dirty energy, sacrificing forests and fish for corporate profits," Gyorgy wrote.

The DPU has not scheduled a public comment hearing yet on the Wendell project. The town will have a window of four weeks to decide if it wants to be an intervenor, which allows it to participate in evidentiary proceedings, and to appeal the final decision.

Borrego told Wendell it's "committed to addressing concerns of town officials," yet it seeks total exemptions from all local zoning. But Wendell, population 921, is not equipped to respond to a thermal runaway.

This project has an operating life of only 20 years. Batteries degrade, the storage system will be decommissioned and removed. The curse of living in a rural landscape like Wendell is having to endure unreasonable corporate development assaults.

Al Norman's Pushback column appears in the Recorder every third Wednesday of the month. He is an author and activist who lives in Greenfield. The group No Assaultin' Battery can be reached at: NABWendell@crocker.com.

AL NORMAN

PUSHBACK

Counsel to report on battery bylaw
Public comment session on storage facilities scheduled for Monday
By DOMENIC POLI
Greenfield Recorder, March 23,2034
Staff Writer
WENDELL — The Selectboard is waiting to hear from town counsel before taking a stance on a potential bylaw submitted by a citizens group opposing a 105-megawatt battery storage facility proposed for the center of town.
Selectboard members say they have not received input from Kopelman & Paige regarding the bylaw that No Assault & Batteries (NAB) wants adopted to define various terms and designate the Selectboard as voting members of a Licensing Board, which would convene to review applications submitted for a battery energy storage system license. Selectboard Chair Laurie DiDonato said at a meeting Wednesday that she would reach out to town counsel again.
A bylaw must be approved by voters at a Town Meeting. NAB member Nina Keller, who attended Wednesday's meeting virtually, mentioned that hearing from a lawyer "sometimes takes longer than anticipated." She also said NAB members are strongly considering proposing two bylaws — one endorsed by town counsel and one that has not been filtered by a lawyer — on a Town Meeting warrant, as the town of Carver is doing.

Under the proposed bylaw, the Licensing Board's voting members would act as the granting authority for licenses. This board would also have one member each appointed from the Conservation Commission, Board of Health, Planning Board, Zoning Board of Appeals, Energy Committee, Municipal Light Board and Finance Committee. The Selectboard would designate one person to oversee and coordinate the Licensing Board's application review process.

The proposed bylaw also lists various definitions, licensing requirements and safety regulations. A battery energy storage system, or BESS, would be defined as "an energy storage system that uses rechargeable batteries, which harness reversible electrochemical processes to store electrical energy using any battery chemistry, including lithium ion, lithium iron phosphate and many others." A BESS is a stationary installation that may receive electrical energy to be stored directly from a generating facility, or from the electrical grid, or both. It must include rechargeable batteries and any related equipment or structures.

The bylaw also would require any applicant to have proof of $100 million in liability insurance to cover loss or damage to people and structures caused by the use or failure of any BESS facility. This would include coverage for fires, explosions and flooding events.

New Leaf Energy's intent is to construct an industrial-size, lithium-ion battery storage project at 68 Wendell Depot Road.

"This project is just so inappropriate, even if it worked and wasn't incredibly dangerous," NAB member Anna Gyorgy said at a previous meeting.

Due to the noise disruption to wildlife, the Wendell Conservation Commission refused to permit the project, which has been in development since 2020. However, in January 2023, New Leaf applied to the state Department of Public Utilities for a permit to proceed. According to New Leaf Energy's project website, it is sited adjacent to existing electrical infrastructure and is an optimal location for new energy infrastructure.

In response to this proposal, the Wendell Board of Health is working to draft regulations concerning utility-scale battery energy storage systems and wants the public's input. Chair Barbara Craddock said it is important to hear what residents want, though any regulation must be within the health board's authority.

According to a statement from the board, thermal runaway fires and the potential release of toxic chemicals from utility-scale BESScould harm the local drinking water supply, air quality and the physical safety of Wendell residents. The town has no municipal water system, relies entirely on local aquifers for drinking water, and has limited emergency response capacity to handle large-scale battery fires or the release of hazardous chemicals.

"The problem is, our town has had experience with contamination before," Craddock said, referring to the issue of forever chemicals in Swift River School's drinking water

and a former landfill on Mormon Hollow Road. "Basically, we want to protect our air and water."

According to the board's statement, state law gives local boards of health the authority to enact reasonable regulations to protect public health, safety and welfare that expand upon existing state or local statutes. The Wendell board will consider requiring annual operating permits, periodic inspections, environmental monitoring and other conditions for utility-scale BESS.

"As a physician, I am particularly concerned about the potential human health hazards posed by large-scale lithium battery storage facilities," said Wendell Board of Health member James Frank. "While my family and I are committed to personal efforts to reduce our carbon footprint in addressing the threats of climate change, we do not feel it should be done at the risk of compromising the well-being of residents of this small rural community."

The public is invited to provide input by emailing boardofhealth@wendellmass.us.

A public input session is scheduled during the board's March 25 meeting at 5:30 p.m. This will be a hybrid meeting, held in-person and via Zoom. Those wishing to speak during the public input session should email the board to register ahead of time. Information on how to join the meeting can be found on the board's web page at tinyurl.com/yc33wvch and posted at the town office building at 9 Morse Village Road.

Reach Domenic Poli at: dpoli@recorder.com or [redacted]

GREENFIELD RECORDER COLUMN

March 29, 2024

Canadian power play abetted by state aims

Our rural Franklin County landscape has attracted large energy companies — from Tenneco in the 1970s to FirstLight today — seeking to own our woods and rivers to make electric power. Each of these corporations has greenwashed their mission. FirstLight says it owns "hundreds of miles of shoreline along some of the most beautiful rivers and lakes in North America," including major power facilities in Franklin County. FirstLight was created in 2006 by a New Jersey investment firm, Energy Capital Partners (ECP), which sold it to a North American subsidiary of the French GDF Suez in 2008, which sold it to the Canadian Public Sector Pension Investment Board (PSP) in 2016. PSP invests the savings of public pensioners in Canada. Their pension funds are underwriting plans like the lithium-ion battery energy storage system (BESS) being fought in Wendell. FirstLight has created a strategic partnership with a company called New Leaf to develop battery projects.

New Leaf created the Wendell Energy Storage 1 LLC and filed a petition with the Massachusetts Department of Public Utilities to override all local zoning laws to build a huge, 105 megawatt lithium ion BESS on 11 acres of mostly woodlot in Wendell. New

Leaf was created in 2022 by ECP, the same company that created FirstLight 16 years earlier.

First Light acquired 15 power plants of mostly hydro generating capacity, including the 1,168 megawatt Northfield Mountain pump hydro storage facility. FirstLight wants to "accelerate the decarbonization of the electric grid," and last month, FirstLight acquired 10 hydropower stations in Canada.

PSP, another Canadian investor, was founded in 1999, and is one of Canada's largest pension investment managers. It invests funds from the Canadian Forces, and the Royal Mounted Police and the Reserve Force. FirstLight (PSP owned) has entered into an agreement with New Leaf (ECP owned), to build a battery storage project in Preston, Connecticut, but its only one-sixth (17 megawatts) the size of the Wendell battery project. FirstLight and PSP are the Canadian power players.

Massachusetts government is also twisting arms for battery projects. Seven months ago, Gov. Maura Healey created a temporary Commission on Energy Infrastructure Siting and Permitting to clear-cut local zoning, seen as the "major obstacle" facing energy developers. The commission is mandated to build energy infrastructure "in a responsible manner, which is protective of natural and working lands ... while ensuring that communities have adequate input into the siting and permitting processes."

At two listening sessions in early March, the commission heard residents across the state criticize the siting commission as a power grab by the state to sweep local communities aside. Activists said local zoning is the "adequate input" they need, but the governor's plan treats municipalities as a problem, not a partner.

I presented the commission with the following siting reforms: 1. Eliminate "protected" status for PV and battery storage to make them adhere to local zoning bylaws.

2. Create an "intervention fund" so local communities can challenge an energy siting decision before state regulators. The cost of legal and technical experts can easily exceed $100,000.

3. Promulgate enhanced fire safety code regulations like ones being vetted in New York State: industry-funded independent peer reviews for all projects; creating BESS design requirements for what constitutes a "passable" system; requiring qualified emergency fire responders to support local fire departments; prohibiting BESS from being sited on forestland.

The federal government is developing "virtual power plants" — aggregated rooftop solar/home storage batteries to collect and store energy for sale back to the grid instead of industrial utility-scale batteries. We should require new and existing private commercial and industrial buildings to have a rooftop- or ground-mounted PV installation — or demonstrate why such PV is not-feasible.

Wendell residents are not seeking "complete prohibition" of stand-alone battery storage, just putting a size limit on utility-scale projects. Towns like Wendell, Carver and

Shutesbury are pushing back on unstable lithium-ion technology. They want enhanced energy conservation first, not just chasing higher and higher "peak power" capacity.
Legislation on Beacon Hill would stop Canadian investors from overpowering local zoning by removing solar panels/battery storage projects from "protected" zoning status.
Call the State House switchboard at 617-722-2000. Tell your state representative and state senator: "Energy siting and permitting should be a local power. Pass S. 1319 and H. 2082 to make local zoning a powerful form of home rule."
No Assault & Batteries continues to work with the Wendell Selectboard to ensure that energy permitting brings "power to the people" in a safe, responsible way.
Al Norman's Pushback column appears twice monthly in the Recorder. He is a member of the group No Assault & Batteries.

AL NORMAN

WENDELL
Voters to decide battery storage bylaw
Article comes in response to proposed 105-megawatt battery storage facility
By DOMENIC POLI
GREENFIELD RECORDER, April 30, 2024
Staff Writer
WENDELL — Residents will convene at Town Hall on Wednesday to have their voices heard on a proposed bylaw brought by citizens to regulate battery energy storage systems.
A Special Town Meeting is slated to begin at 7 p.m., with two articles on the warrant — one pertaining to battery energy and the other having to do with "any other legal business that may come," before the meeting adjourns.
The main article was crafted by members of No Assault & Batteries, a local citizens' committee formed in opposition to the 105 megawatt battery storage facility that Lowell-based New Leaf Energy has proposed for 68 Wendell Depot Road. Adoption of the article would add a general bylaw to deal with the licensing of battery energy storage systems, including those powered by lithium-ion batteries. Members of the committee fear the project is unsafe and not suited for a town of Wendell's size. They hope adoption of the bylaw will stop the proposed project.
"This is something that has been worked on, really, since January. And it's gone through changes because we want to make sure that it focuses on the key topics of health and

safety," No Assault & Batteries member Anna Gyorgy said, noting that this is not a zoning bylaw. "We have learned not just the danger of storing lithium, but the inappropriate nature of siting battery storage separate from production and on this scale. It's just way too big."

Gyorgy has said the proposed project would disturb 50 acres of forest and clearcut 11.1 acres to install 25-foot walls and constant air conditioning to protect 786 lithium ion batteries. One of the proposed bylaw's regulations would require that the clearcutting of forest be limited to less than a half-acre.

Another requirement would be a 5 acre limit for any battery energy storage system, and construction on undeveloped land must be minimized to the extent possible.

The bylaw would designate the Selectboard as voting members of a Licensing Board, which would convene to review applications submitted for a battery energy storage system license. The Licensing Board's voting members would act as the granting authority for licenses. The board would have one member appointed from the Conservation Commission, Board of Health, Planning Board, Zoning Board of Appeals, Energy Committee, Municipal Light Board and Finance Committee. The Selectboard would designate one person to oversee and coordinate the Licensing Board's application review process.

Wendell's vote comes just days after voters at the Sunderland and Shutesbury Annual Town Meetings approved their own battery storage bylaws.

Wendell's proposed bylaw was reviewed by Kopelman & Paige, Wendell's legal counsel, and according to Gyorgy, was returned with numerous corrections on it. Nevertheless, No Assault & Batteries members decided to move forward with the version submitted by a petition of 111 registered voters.

"It's long, six pages," she said. "We are going to present it Wednesday night in a way that is digestible and clear."

No Assault & Batteries member Nina Keller said she contacted the town's Police Department, Fire Department, Selectboard, Planning Board and Board of Health to ensure their members knew about the proposed bylaw and to get input on it.

"I have a few major concerns," she said. "One I call a moral imperative."

Keller said she is worried about the waste that will be produced and possibly sent to other countries. She mentioned the cargo ship that crashed into the Francis Scott Key Bridge in Baltimore, killing at least four people, was carrying corrosive chemicals, lithium-ion batteries and other materials to Sri Lanka. Keller also is fearful of destruction of natural habitat and the potential for massive fires. According to the National Fire Protection Association, lithium-ion battery fires occur for a variety of reasons, such as physical damage, electrical damage, exposure to extreme temperatures and product defects.

Citing all the passion and emotions this issue can generate, Keller said she hopes the Special Town Meeting remains respectful.

"There's enough war in this world without hating our neighbors who disagree with us," she said.
The proposed bylaw's text can be viewed at: tinyurl.com/ Wendell Bylaw.
Reach Domenic Poli at: dpoli@recorder.com or [redacted]

GREENFIELD RECORDER COLUMN MAY 1, 2024
Your home's power plant could save our energy grid
Tonight, voters in Wendell will act on a new general bylaw regarding licensing requirements for battery energy storage systems. Last Saturday, Shutesbury voters adopted a very similar bylaw. By voting "yes" on this bylaw, Wendell residents will generate a powerful message to both energy companies who are pushing for industrial-scale projects and faster permitting, and to the governor and state officials who view small, home rule governments as "barriers to responsible clean energy infrastructure development." Two governors, the state Legislature, and the Supreme Judicial Court are all promoting one path for how to achieve clean energy goals. In 1985, the Legislature passed a law granting solar facilities "protection" from local zoning bylaws. In 2018, Gov. Charlie Baker signed a law establishing a 1,000 megawatt-hour energy storage target by the end of 2025.
In 2020, the Executive Office of Energy and Environmental Affairs created a "2050 Decarbonization Roadmap" saying the amount of solar power needed by 2050 "exceeds the full technical potential in the Commonwealth for rooftop solar."
In 2022, the Supreme Judicial Court ruled that "large scale systems are key to promoting solar energy." In 2023, Gov. Maura Healey signed an executive order creating a commission to "accelerate siting and permitting of clean energy infrastructure ... to swiftly remove barriers" to the development of clean energy projects.
"The clean energy transition can't wait," Healey said. "We're going to need a lot of new infrastructure, and we're going to need it fast," added Lt. Gov. Kim Driscoll.
These state policies reinforce the mantra that the only way for Massachusetts to decarbonize is to build large, and build fast. By promoting "expedited permitting," the governor has left local communities no permitting power. It is these very communities which could play a significant role in meeting the state's energy goals. You don't hear public officials talking about "Virtual Power Plants" (VPP), but you will.
According to the MIT Technology Review, "A virtual power plant is a system of distributed energy resources — like rooftop solar, electric vehicle chargers, smart water heaters — that work together to balance energy supply and demand. A VPP is a way of 'stitching together ' a portfolio of small resources, while reducing the energy system's carbon footprint. The 'virtual' network has no central physical facility."
Conventional power plants have no way to communicate with distributed energy resources — the end users — like the home with rooftop solar, a Powerwall battery in

the basement, and an EV charger. Grid operators shave peak demand by controlling networks of smart thermostats that pre-cool homes on days before peak surges occur. Wi-Fi, Bluetooth, and cellular services can coordinate hundreds of thousands of distributed devices, increasing grid reliability.

Green Mountain Power, the Vermont utility company, has operated a VPP for seven years. Customers can lease two Tesla Powerwall batteries for 10 years at half the retail cost. Green Mountain Power gets a source of stored power it can draw from during peak demand. Customers can enroll in a "Bring Your Own Device" program, selling a level of their battery capacity for cash.

Four thousand customers and 18 megawatts of energy storage from small batteries are enrolled in the program. The utility saved $3 million in energy peaks in 2020 due to VPP. Eversource also has a ConnectedSolutions program that rewards customers for allowing the company "to use the energy stored in their battery at times of high demand."

In a New Yorker article six months ago, environmentalist Bill McKibbon quoted the federal Department of Energy as predicting VPPs could be handling 20% of peak power demand across the country by 2030, at a cost 40% to 60% below current plants. Customers could save 20% on their bills.

"With the advent of the Internet, every person became a potential content producer, " McKibbon writes, "and was connected laterally to everyone else. Now the electric grid is belatedly starting to follow that model, with millions of homes and businesses becoming energy suppliers and storage nodes."

Urban expropriation of our rural resources is not new. In 1938, four towns were flooded to send water to eastern Massachusetts. In 1972, the Northfield Mountain pumped storage plant opened to meet peak power needs of the metro grid. In 1974, the proposed twin nukes in Montague, and in 2014, the Kinder Morgan gas pipeline used our county as an energy passthrough.

The battery system on Wendell forestland will ship its power to greater Boston. Dispossession by government/corporate fiat is a "barrier" to our energy future. A house-to-house infrastructure of thousands of end users is local power that "can't wait."

Al Norman's Pushback column appears twice per month in the Recorder.

Green Mountain Power, the Vermont utility company, has operated a VPP for seven years. Customers can lease two Tesla Powerwall batteries for 10 years at half the retail cost. Green Mountain Power gets a source of stored power it can draw from during peak demand.

AL NORMAN, PUSHBACK

WENDELL
Battery storage bylaw approved
Only one vote in opposition to article proposed by No Assault & Batteries
By DOMENIC POLI
Greenfield Recorder, May 3, 2024
Staff Writer
WENDELL — Town Hall was packed Wednesday night with 102 registered voters eager to have their voices heard on a bylaw regulating battery energy storage systems, which was overwhelmingly approved.
The Special Town Meeting warrant article was proposed by No Assault & Batteries, a local citizens' committee formed in opposition to the 105-megawatt battery storage facility that Lowellbased New Leaf Energy has proposed for 68 Wendell Depot Road.
Wednesday's vote adds a general bylaw to deal with the licensing of battery energy storage systems, including those powered by lithium-ion batteries. Members of No Assault & Batteries hope adoption of the bylaw will stop the New Leaf Energy project.
The only approved amendment — adopted unanimously — altered some language pertaining to license approval without affecting the specified requirements. Any battery energy storage system with a power rating greater than 1 megawatt and no more than 10 megawatts will require approval from the Wendell Licensing Board, which will be made up of Selectboard members as well as one member appointed from the Conservation Commission, Board of Health, Planning Board, Zoning Board of Appeals, Energy Committee, Municipal Light Board and Finance Committee. The bylaw also states that no battery energy storage proposal greater than 10 megawatts will be licensed.
Members of No Assault & Batteries started the Special Town Meeting by explaining different aspects of the proposed bylaw and their opposition to the potential project.
Nina Keller joked that the Licensing Board will be made up of "the bigwigs in our town."
Debbie Lynangale explained members of the citizens' committee believe the proposed project — including its size — is unsafe and not suited for a town like Wendell.
"We, as a group, encourage ... solar installations," she said, adding that the proposed 105 megawatt battery energy storage system is simply much too large.
Christopher Queen mentioned recent lithium ion fires in Arizona and Long Island.
Due to the noise disruption to wildlife, the Wendell Conservation Commission has refused to permit the project. In January 2023,however, New Leaf Energy applied to the state Department of Public Utilities for a permit to proceed.
Bill Stubblefield, who holds a doctorate in biology from Harvard University, spoke passionately about the dangers of lithium-ion batteries and his opposition to this small town getting bullied by a corporation.

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"This is a steamroller that's coming after us," he said, generating roaring applause. "This is our town. This is our land. This is our future."
Myron Becker stressed the importance of being in contact with public servants serving the town at the state level, and Selectboard Chair Laurie DiDonato said that has not been a problem.
Residents rejected Edward Hines' proposed amendment to add the words "current and future projects" to the language. One woman stood up to say she felt that addition was unnecessary.
Finance Committee member Thomas Richardson, who sat at the front of the room with the Selectboard, Moderator Kathleen Nolan and fellow Finance Committee member Al MacIntyre, said he felt it was unwise to adopt a bylaw that is aimed at one particular project. He said energy technology will improve greatly within a handful of years and the town might then decide it wants a battery energy storage system. He said the bylaw, as written, could hamper the town's ability to ever allow the project. He was the only person to vote against the bylaw.
No Assault & Batteries member Anna Gyorgy previously said New Leaf Energy 's proposed project would disturb 50 acres of forest and clear-cut 11.1 acres to install 25-foot walls and constant air conditioning to protect 786 lithium ion batteries. One of the bylaw 's regulations requires that the clear-cutting of forest land be limited to less than a half-acre.Reach Domenic Poli at: dpoli@recorder.com [redacted]

JUNE 23, 6:05 pm

From: Al Norman
To: Senator Jo Comerford

MUNICIPAL AGGREGATION
AMENDMENT BACKGROUND:

Dear Senator Comerford,

I am forwarding to you an amendment to the Senate UPGRADING THE GRID bill, which I believe should be part of any "clean energy revolution" you have advocated.

This amendment could appropriately be called "the local power amendment," because it advances the role of the 168 Municipal Aggregators—including many of the towns in your District.

This amendment was written by Paul Fenn, who was a senate energy committee staffer in 1997 when he helped write chapter 164 section 134 on municipal load aggregation programs.

Yes, I know the window for amendments is closed. Yes, I know the Senate is in a big hurry to get this energy bill passed. But this amendment should be read, and acted upon, because it treats cities and towns as part of the solution, rather than as part of the permit problem.

I hope we can open a window of opportunity at some point to give "Municipal Power" to actually help create a clean energy future that is not dominated solely by investor owned utilities. 45 years ago I spoke with the founder of the Massachusetts Municipal Wholesale Electric Company (MMWEC) , signed into law by Governor Mike Dukakis, which was based in Holyoke. I became a strong believer in "municipal power" as a viable alternative to the private corporations that propose projects like the Wendell energy storage mega battery and the Northfield mountain pump storage peak plant. We need a clean energy revolution.

Paul Fenn has provided a short background to the amendment, followed by the text of the amendment, and finally the existing statute that deals with municipal load aggregation.

I hope you will share this amendment with Senate leadership, and keep the windows to the future open long enough to accept projects that truly "give power to the people."

My sincere thanks for your work,

Al Norman

[redacted]

MUNICIPAL AGGREGATION
AMENDMENT BACKGROUND:

This amendment expands the state's Municipal Aggregator law chapter which has been adopted by 168 communities since its inception in 1997. Under Chapter 164, s.134, cities and towns which are Municipal Aggregators, are "authorized to aggregate the electrical load of interested electricity consumers within its boundaries."

Municipalities over the years have been disempowered as energy facility permitting entities, but they can be empowered to take positive action to reduce the need for new grid resources.

This local power is achieved in two ways, (1) by developing Distributed Energy Resources (DERs)— like solar plus battery storage in residential homes, commercial buildings locally—and (2) by making these buildings more efficient.

Both of these sections add new language at the end of sections 134a and 134 b of Chapter 164.

The first part of this amendment expedites "interconnect permits" for customers of Municipal Aggregators that install DERs designed not to "export" power onto the grid. These DERs in homes and buildings will use the energy onsite, in order to reduce grid demand. Currently, such systems are subject to the same process, costs, and delays imposed on systems that do require the grid to accommodate their exports, and which do impose costs on all ratepayers. This amendment would exempt DERs in Municipal Aggregators that don't need to export, and set up an expedited approval process, so that Municipal Aggregators are finally able to develop non-grid alternatives to industrial m-scale solar, megabatteries and transmission lines. Utilities would no longer use their bureaucratic "interconnect permit" approval processes to delay and discourage DER projects by customers of a Municipal Aggregation program.

The second part of this amendment would set a minimum timeline for the DPU to approve petitions by Municipal Aggregators to administer energy efficiency funds paid by their residents and businesses. Current law, the Municipal Aggregation Law, enables Municipal Aggregators to administer a pro rata share of these funds, and one was in fact allowed to do so (The Cape Light Compact) —but the DPU has ignored the petitions of municipalities since then in spite of the law - for years at a time. This section merely adds minimum DPU approval time and a rejection appeal procedure so that the DPU can no longer violate state law.

THE PROPOSED AMENDMENT

1. Chapter 164 of the General Laws is hereby further amended by adding at the end of Section 134(a) the following new language:
Municipalities authorizing Municipal Aggregations, known as Community Choice Aggregation programs, shall receive special accommodation and support from investor-owned utilities and the Department of Public Utilities (DPU) for the purpose of building renewable Distributed Energy Resources..

The DPU's support shall consist of providing access to ratepayer energy efficiency funds and access to non-exporting interconnect permits.

The DPU shall require the utilities, within three months of the signing of this law, to create a non-export interconnect permit tariff for customers of a Municipal Aggregation within three subsequent months. The investor-owned utility shall provide a customer of a Municipal Aggregation with a non-export interconnect permit within three months of receiving the application for the permit, shall not charge a fee for the permit, and shall not require studies or otherwise charge or delay issuance of the permit to a customer of a Municipal Aggregation whose municipal government is seeking to build renewable Distributed Energy Resources, or enable its residents and businesses who are enrolled in its Municipal Aggregation program, within its jurisdictional boundaries.

2. Chapter 164 of the General Laws is hereby further amended by adding at the end of Section 134(b) the following new language:
The DPU shall approve or reject, within three months the petition of a municipality to administer a pro rata share of the Massachusetts Public Benefit Funds for Energy Efficiency paid by their residents, businesses and municipal accounts under Section 134. (b). Failure to approve or reject after three months shall constitute approval. Rejection shall state the specific provisions of the municipality's application that do not comply with state policy, but shall not place conditions on the use of the funds, or the design of municipal energy efficiency programs, provided that they are spent only on energy efficiency and conservation measures. Furthermore, municipal governments with approved petitions, as a Municipal Aggregator, to administer these energy efficiency funds shall be provided a pro rata share of those funds within one year of approval.
EXISTING STATUTE ON LOAD AGGREGATION PROGRAMS, CHAPTER 164

Section 134: Load aggregation programs

Section 134. (a) Any municipality or any group of municipalities acting together within the commonwealth is hereby authorized to aggregate the electrical load of interested electricity consumers within its boundaries; provided, however, that such municipality or group of municipalities shall not aggregate electrical load if such are served by an existing municipal lighting plant. Such municipality or group of municipalities may group retail electricity customers to solicit bids, broker, and contract for electric power and energy services for such customers. Such municipality or group of municipalities may enter into agreements for services to facilitate the sale and purchase of electric energy and other related services including renewable energy credits, which may be considered contracts for energy or energy-related services under clause (33) of subsection (b) of section 1 of chapter 30B. Such service agreements may be entered into by a single city, town, county, or by a group of cities, towns, or counties.

A municipality or group of municipalities which aggregates its electrical load and operates pursuant to the provisions of this section shall not be considered a utility engaging in the wholesale purchase and resale of electric power. Providing electric power or energy services to aggregated customers within a municipality or group of municipalities shall not be considered a wholesale utility transaction. The provision of aggregated electric power and energy services as authorized by this section shall be regulated by any applicable laws or regulations which govern aggregated electric power and energy services in competitive markets.

A town may initiate a process to aggregate electrical load upon authorization by a majority vote of town meeting or town council. A city may initiate a process to authorize aggregation by a majority vote of the city council, with the approval of the mayor, or the city manager in a Plan D or Plan E city. Two or more municipalities may as a group initiate a process jointly to authorize aggregation by a majority vote of each particular municipality as herein required.

Upon an affirmative vote to initiate said process, a municipality or group of municipalities establishing load aggregation pursuant to this section shall, in consultation with the department of energy resources, pursuant to section 6 of chapter 25A, develop a plan, for review by its citizens, detailing the process and consequences of aggregation. Any municipal load aggregation plan established pursuant to this section shall provide for universal access, reliability, and equitable treatment of all classes of customers and shall meet any requirements established by law or the department concerning aggregated service. Said plan shall be filed with the department, for its final review and approval, and shall include, without limitation, an organizational structure of the program, its operations, and its funding; rate setting and other costs to participants; the methods for entering and terminating agreements with other entities; the rights and responsibilities of program participants; and termination of the program. Prior to its decision, the department shall conduct a public hearing.

Participation by any retail customer in a municipal or group aggregation program shall be voluntary. If such aggregated entity is not fully operational on the retail access date, any ratepayer to be automatically enrolled therein shall receive basic service unless affirmatively electing not to do so. Within 30 days of the date the aggregated entity is fully operational, such ratepayers shall be transferred to the aggregated entity according to an opt-out provision herein. Following adoption of aggregation through the votes specified above, such program shall allow any retail customer to opt-out and choose any supplier or provider such retail customer wishes. Once enrolled in the aggregated entity, any ratepayer choosing to opt-out within 180 days shall do so without penalty and shall be entitled to receive basic service as if he was originally enrolled therein. After the initial automatic enrollment of customers upon the establishment of a load aggregation

program in accordance with this subsection, the subsequent enrollment of new customers or accounts in the service territory of the aggregator shall be governed by the terms for enrollment set forth in the aggregator's plan; provided, however, that the terms are consistent with the requirements established by the department. Nothing in this section shall be construed as authorizing any city or town or any municipal retail load aggregator to restrict the ability of retail electric customers to obtain or receive service from any authorized provider thereof.

It shall be the duty of the aggregated entity to fully inform participating ratepayers in advance of automatic enrollment that they are to be automatically enrolled and that they have the right to opt-out of the aggregated entity without penalty. In addition, such disclosure shall prominently state all charges to be made and shall include full disclosure of the basic service rate, how to access it, and the fact that it is available to them without penalty. The department of energy resources shall furnish, without charge, to any citizen a list of all other supply options available to them in a meaningful format that shall enable comparison of price and product. To facilitate the automatic enrollment and ratepayer notification, the electric distribution company shall provide to each municipality the name and mailing addresses of all electric accounts within the municipality that are not otherwise receiving generation service from a competitive supplier; provided, however, that any customer may request that their name, mailing address and account number not be shared with the municipality.

(b) A municipality or group of municipalities establishing a load aggregation program pursuant to subsection (a) may, by a vote of its town meeting or legislative body, whichever is applicable, adopt an energy plan which shall define the manner in which the municipality or municipalities may implement demand side management programs and renewable energy programs that are consistent with any state energy conservation goals developed pursuant to chapter 25A or chapter 164. After adoption of the energy plan by such town meeting or other legislative body, the city or town clerk shall submit the plan to the department to certify that it is consistent with any such state energy conservation goals. If the plan is certified by the department, the municipality or group of municipalities may apply to the Massachusetts clean energy technology center for monies from the Massachusetts Renewable Energy Trust Fund, established pursuant to section 9 of chapter 23J, and receive, and if approved, expend moneys from the demand side management system benefit charges or line charges in an amount not to exceed that contributed by retail customers within said municipality or group municipalities. This will not prevent said municipality or municipalities from applying to the Massachusetts clean energy technology center for additional funds. If the department determines that the energy plan is not consistent with any such state-wide goals, it shall inform the municipality or group of municipalities within six months by written notice the reasons why it is not consistent with any such state-wide goals. The

municipality or group of municipalities may re-apply at any time with an amended version of the energy plan.

The municipality or group of municipalities shall not be prohibited from proposing for certification an energy plan which is more specific, detailed, or comprehensive or which covers additional subject areas than any such state-wide conservation goals. This subsection shall not prohibit a municipality or group of municipalities from considering, adopting, enforcing, or in any other way administering an energy plan which does not comply with any such state-wide conservation goals so long as it does not violate the laws of the commonwealth.

The municipality or group of municipalities shall, within two years of approval of its plan or such further time as the department may allow, provide written notice to the department that its plan is implemented. The department may revoke certification of the energy plan if the municipality or group of municipalities fails to substantially implement the plan or if it is determined by independent audit that the funds were misspent within the time allowed under this subsection.

Many thanks to those who worked on this compilation of resources: Al Norman, Laurel Facey, J. William Stubblefield, and Gwyn Peterdi, members of No Assault & Batteries, as well as the many who brought articles to our attention.

July 1, 2024

THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL
CENTRAL MASSACHUSETTS DIVISION
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November 14, 2024

Anna Wetherby, Town Clerk
Town of Wendell
P.O. Box 41
Wendell, MA 01379

Re: Wendell Special Town Meeting of May 1, 2024 -- Case # 11380
Warrant Article # 1 (General)

Dear Ms. Wetherby:

Article 1 - Because Article 1 is a by-law that regulates the use of land and therefore should have been adopted as a zoning by-law (rather than a general by-law), we must disapprove it because it conflicts with G.L. c. 40A, § 5. By-laws that regulate the use of land, buildings and structures must comply with the Zoning Act, G.L. c. 40A ("Zoning Act"), including the Zoning Act's zoning protections given to certain uses and structures (G.L. c. 40A, § 3) and the Zoning Act's procedural requirements for adoption or amendment of zoning by-laws (G.L. c. 40A, § 5). Spenlinhauer v. Town of Barnstable, 80 Mass. App. Ct. 134, 137-38 (2010).

This decision briefly describes the by-law and the Zoning Act; discusses the Attorney General's standard of review of town by-laws under G.L. c. 40, § 32; and then explains why, governed as we are by that standard, we must disapprove the by-law adopted under Article 1 because it conflicts with the Zoning Act.[1]

I. Summary of Article 1

Under Article 1, a citizen-petitioned article,[2] the Town voted to amend the general by-laws to add a new "General Bylaw for the Licensing of Battery Energy Storage Systems." Article 1 states that it is adopted for the purpose of "dealing with the licensing of Battery Energy Storage Systems (BESS)…for the purpose of protecting the health, safety and welfare of residents of Wendell and its natural built environment." Section A, "Purpose." The by-law states that there

[1] During the course of our review, we received correspondence from a Wendell resident and the Town of Leverett Selectboard urging our approval of the by-law and from legal counsel for a battery energy storage developer urging our disapproval of the by-law. We appreciate these communications as they have aided our review and highlight the important issues implicated by the by-law.

[2] The Warrant provides that Article 1 was "submitted by petition of 111 registered voters of the Town of Wendell."

are fire risks associated with BESS and that by "responsibly regulating and managing the hazards associated with this energy technology, we seek to minimize the risk to the health safety and welfare of the Wendell Community." Id. The by-law further aims to "limit[ ] unnecessary forest land conversion and clear-cutting, reducing the loss of all other forest benefits, and promoting the reuse of already developed sites for" BESS. Id.

The by-law categorizes the licensing requirements for BESS into three tiers as follows: (1) a BESS with a power rating of less than 1MW does not require a license; (2) a BESS with a power rating greater than 1MW and no more than 10MW requires "licensing approval, based on findings that their emergency operation plan; hazard mitigation analysis, evacuation plan and other emergency response plan documents are 'sufficient in content and detail to protect the public health, safety, convenience, and welfare'"; and (3) a BESS with a power rating greater than 10MW will not receive a license (and therefore appears to be prohibited). Id. The by-law does not distinguish in any way between a BESS associated with a solar installation and a BESS as a principal use. In order to receive a license, the BESS must comply with the licensing by-law, all other Wendell by-laws and regulations, the National Fire Protection Association (NFPA) standards, and the State Building Code, as well as "meet insurance and financial surety requirements, liability insurance, and cost of decommissioning." Id.

Section B, "Definitions," defines terms used in the by-law including "energy storage system," "battery energy storage system (BESS)," and "Licensing Board." The by-law provides that the Licensing Board shall be comprised of the following members: (1) the Selectboard; (2) one member appointed by the Conservation Committee; (3) one member appointed by the Board of Health; (4) one member appointed by the Planning Board; (5) one member appointed by the Zoning Board of Appeals; (6) one member appointed by the Energy Committee; (7) one member appointed by the Municipal Light Board; and (8) one member appointed by the Finance Committee. Id.

The by-law provides that the Licensing Board "is empowered to approve, reject, or amend and approve any application for a Battery Energy Storage System License" and further requires that "[l]icensing approval shall require a two-thirds vote of the voting members of the Licensing Board."[3] Section B. Decisions of the Licensing Board "shall be based on the Licensing requirements contained in Section D...and the Licensing Findings contained in Section E...." Id.

Section C, "Basic Requirements by BESS Size," provides that because the risks to public health, safety, and welfare "rapidly increase with the size of a BESS, applications to construct and operate such systems shall be subject to increasing scrutiny according to size." The by-law applies to the "construction and operation of all BESS installations" and requires compliance with: (1) all local, state and federal requirements, including all applicable safety, construction, electrical and communications requirements; (2) the Town's Wetlands Protection Bylaw; (3) Board of Health regulations; (4) the Solar Energy Bylaw; (5) building codes including the

[3] The Licensing Board is made up of seven appointed members plus the three-member Selectboard for a total of 10 members. A two-thirds vote of the Licensing Board would therefore require seven votes.

State Building Code;[4] and (6) NFPA standards for installation of "Stationary Energy Storage Systems." Id. The by-law also requires that the Building Inspector "shall review all plans or designs for the installation of a BESS facility and certify that the final installation conforms to all required building codes." Id.

Section C further provides (in bold text in the original, omitted here), that "No license approval shall be granted by the licensing board unless the requirements of Section D and E of this bylaw are fully satisfied." Section C also provides that "[n]o BESS with a power rating greater than 10MW shall be licensed." Id. Moreover, Sections C (3) and (4) require:

> 3. To the maximum extent feasible, all new BESS shall be located on previously-developed commercial industrial sites, landfills, repurposed building pads or roadways. Construction on undeveloped land of any kind shall be minimized to the extent possible, but in no case shall exceed 25% of the total gross square footage of the proposed site. Total site square footage per applicant shall not exceed five acres.
>
> 4. To minimize forest land conversion, any BESS project defined in this bylaw shall not include clear-cutting of forest land in excess of one-half (.5) of an acre.

Section D, "Licensing Requirements," specifies the information that must be included in an application "for a License to construct or operate a BESS" including, but not limited to: (1) the location of the proposed BESS storage equipment; (2) the power rating and storage capacity of the proposed BESS equipment; (3) a training plan, approved by the Town Fire Chief, "for all specialized training required to respond to an emergency incident involving the BESS equipment" including a plan for "training on an annual basis"; (4) an emergency operation plan (EOP) as required by the NFPA standards; (5) a hazard mitigation analysis; (6) an air dispersion model and analysis to determine "the extent and effects of a thermal runaway event affecting at last 50% of the battery cells proposed for use as part of the BESS equipment"; and (7) an analysis of the "manpower and equipment" need for an emergency response to a thermal runaway event.

Section D also details the information that must be included in the required EOP including, but not limited to: (1) procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions; (2) procedures for inspection and testing of alarms, interlocks and controls; (3) emergency procedures; (4) identification of all hazards

[4] It is not clear what Article 1 means by "building codes including the State Building Code" as the only Building Code in Massachusetts is the State Building Code ("Code"), 780 CMR § 1.00, *et. seq.* The Code is authorized by G.L. c. 143, § 93 wherein the Legislature abolished all local building codes, established the state Board of Building Regulations and Standards ("BBRS"), and charged the BBRS with adopting and regularly updating the Code. Id. § 94(a), (c,) (h). A town by-law that seeks to address a subject regulated by the Code is preempted where G.L. c. 143, § 95 directs the BBRS, in promulgating the Code, to pursue "uniform standards." St. George Greek Orthodox Cathedral of Western Massachusetts, Inc. v. Fire Dep't of Springfield, 462 Mass. 120 (2012).

associated with fire, explosion, or release of liquids or vapors; and (5) any "[o]ther procedures or information determined necessary by the Licensing Board."

Section E, "Required Licensing Findings," provides that "[n]o license to construct and operate a BESS shall be issued unless the Licensing Board" makes certain findings, including but not limited to finding that: (1) the emergency operations plan, hazard mitigation analysis, evacuation plan and other emergency response documents "are sufficient in content and detail to protect the public health, safety, convenience and welfare"; (2) the manpower, equipment and other resources of the Town are sufficient to respond to a potential hazard or emergency response scenario associated with the proposed BESS equipment; (3) the applicant has adequately and completely identified all hazards associated with the operation of the BESS system equipment in the location proposed; (4) the potential hazards associated with the BESS equipment "can be appropriately managed and minimized"; and (5) "[t]here are no other considerations that would result in operation of the BESS system equipment in the particular location creating an undue or unacceptable risk to the public health, safety, convenience, and welfare, and the project to the greatest extent feasible has avoided or minimized adverse impacts to the health, safety, convenience and welfare of the town of Wendell."

Section F authorizes the Licensing Board to seek the services of an independent consultant to "conduct a professional review and advise the Boards on technical aspects of the applicant's proposal...including engineering, environmental preservation, traffic, public safety, convenience and welfare." Section G requires an applicant "for a License to construct and operate a BESS" to also provide proof of liability insurance "in an amount $100 Million to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of any BESS facility including coverage for fires, explosions and flooding events." Section G also requires a cash escrow or other form of financial surety to be deposited by the applicant for a license to "cover the cost of removal, recycling, and disposal of the installation and remediation and/or restoration of the site in the event the Town must remove the installation and remediate and/or restore the site to its natural preexisting condition." Section G further requires the applicant for a license to submit a decommissioning plan and requires that the surety "in its full amount shall be presented to the Licensing Board prior to the commencement of construction."

Lastly, Section H authorizes the Licensing Board to enforce the by-law and Section I contains a severability and conflicts clause, including that "[i]f any provision of this bylaw [is] found to be in conflict with the provisions of other town bylaws, the provision of this bylaw shall supersede the other bylaws."

II. The Attorney General's Standard of Review and Constraints on the Town's Police Power

A. Standard of Review of General By-laws

Our review of Article 1 is governed by G.L. c. 40, § 32. The Attorney General is authorized to disapprove a by-law that conflicts with state law or the constitution. See Amherst v. Attorney General, 398 Mass. 793, 795-96 (1986) (requiring inconsistency with state law or the constitution for the Attorney General to disapprove a by-law). The Attorney General does not

review the policy arguments for or against the enactment of a by-law. Id. at 798-99 ("Neither we nor the Attorney General may comment on the wisdom of the town's by-law."). Instead, when reviewing by-laws for consistency with the Constitution or laws of the Commonwealth, the Attorney General's standard of review is equivalent to that of a court. Amherst, 398 Mass. at 795 ("The Attorney General is guided in the exercise of his limited power of disapproval by the same principles that guide us.").

Because the adoption of a by-law by the voters at Town Meeting is both the exercise of the Town's police power and a legislative act, the vote carries a "strong presumption of validity." Durand v. IDC Bellingham, 440 Mass. 45, 51 (2003). However, a "municipality has no power to adopt a by-law that is "inconsistent with the constitution or laws enacted by the [Legislature]." Home Rule Amendment, Mass. Const. amend. art. 2, § 6. Therefore, a town's general police power "cannot be exercised in a manner which frustrates the purpose or implementation of a general or special law enacted by the Legislature." Rayco Inv. Corp. v. Selectmen of Raynham, 368 Mass. 385, 394 (1975) (quoting Board of Appeals of Hanover v. Housing Appeals Comm., 363 Mass. 339, 360 (1973)).

B. General By-laws Versus Zoning By-Laws

Zoning by-laws are those "by-laws, adopted by ...towns to regulate the use of land, buildings and structures to the full extent of the independent constitutional powers of ...towns to protect the health, safety and general welfare of their present and future inhabitants." G.L. c. 40A, § 1A. "The zoning power is, of course, merely one category of the more general police power, concerned specifically with the regulation of land use." Rayco, 368 Mass. at 392 n. 4. By-laws that regulate the use of land, buildings and structures must comply with the Zoning Act, G.L. c. 40A, including the Zoning Act's limitations on the subject matter of zoning by-laws (G.L. c. 40A, § 3) and the Zoning Act's procedural requirements for adoption or amendment of zoning by-laws (G.L. c. 40A, § 5). See Spenlinhauer, 80 Mass. App. Ct. at 137-38.

The distinction between a general by-law and a zoning by-law is an important one. "[V]alid zoning measures can be implemented only by following the procedures spelled out in G.L. c. 40A," Spenlinhauer, 80 Mass. App. Ct. at 137. The Zoning Act's procedural requirements for adoption or amendment of zoning by-laws are substantial, and include the following requirements: (1) prior to the adoption or amendment of a zoning by-law, the planning board must hold a public hearing, after giving due notice, and provide a report with recommendations to Town Meeting; (2) notice of the planning board hearing must also be provided to the Executive Office of Housing and Livable Communities (previously called the Department of Housing and Community Development), the regional planning agency, the Planning Boards of all abutting cities and towns, and all non-resident property owners (who have filed a request with the Clerk for notice); (3) any motion to adopt or amend a zoning by-law must be approved by a two-thirds vote of Town Meeting (except for certain housing related provisions not applicable here that can be adopted by majority vote); and (4) if a proposed adoption or amendment fails to pass at Town Meeting, it cannot be revisited within two years (with one exception). See G.L. c. 40A, § 5.

In addition to the procedural requirements for adoption (or amendment) of a zoning by-law, "changes in zoning [by-laws] protect some prior existing uses, see G.L. c. 40A, § 6, but general [by-laws] typically do not." Spenlinhauer, 80 Mass. App. Ct. at 137-38. Because of the procedural protections required for adoption (or amendment) of zoning by-laws, "[t]he distinction between zoning and other regulations is not an empty formality[.]" Id. at 137. When a town adopts a land use by-law as a general by-law rather than as a zoning by-law, these procedural safeguards are frustrated. Id. at 137-39 (ordinance limiting overnight off-street parking invalid exercise of general police power). See also Rayco, 368 Mass. at 393-94 (by-law limiting number of trailer park licenses invalid because town failed to adopt it as a zoning by-law).

III. Because Article 1 Seeks to Regulate the Use of Land, It Must be Adopted as a Zoning Article

A. Applicable Law

We have considered whether Article 1 regulates the use of land, building and structures, such that it must comply with the Zoning Act, G.L. c. 40A, § 5. We conclude that it does regulate the use of land, buildings, and structures and therefore must be adopted as a zoning by-law. We are guided in this determination by what courts have considered when deciding whether "the nature and effect of the [by-law] is that of an exercise of the zoning power." Rayco, 368 Mass. at 392-93. Factors the courts consider include: whether the by-law is within the town's zoning power and has the town historically regulated the subject at hand in its zoning by-law? Id. ("There seems little doubt that the [general] by-law could be viewed as within the scope of the town's zoning power...[and] prior to the adoption of the [general] by-law the town's zoning by-law dealt specifically with the subject of trailer parks."); and whether the by-law "prohibit[s] or permit[s] any particular listed uses of land or the construction of buildings or the location of buildings or residences in a comprehensive fashion," or instead, require[s] that "permission be obtained...based on factual circumstances surrounding individual applications." Lovequist, 379 Mass. at 13 (wetlands protection by-law, involving individual application process, not required to be adopted as a zoning by-law). See also Spenlinhauer, 80 Mass. App. Ct. at 141-42 ("The bylaw does not simply focus on individual applications for activities in which a landowner wishes to engage but instead regulates parking on all land in single-family residence zones" and thus should have been adopted under procedures for zoning by-laws).

In determining whether the Article 1's adoption as a general by-law was proper, we also consider (as would a court): whether the by-law's provisions "deny or invite permission to build any structure"? Lovequist, 379 Mass. at 13; whether the by-law seeks to manage the "typical concerns usually reflected in the zoning process" such as "air pollution, noise, demands for sewers and other municipal services or the character of the community and compatibility of nearby land uses" Id.; and whether the by-law's impact on land use is secondary to its dominant purpose of protection of some other general concern, such as the protection of wetlands values (as in Lovequist), the regulation of earth removal, (Glacier Sand & Stone Co. v. Board of Appeals of Westwood, 362 Mass. 239 (1972)), or the regulation of signs (American Sign and Indicator Corp. v. Town of Framingham, 9 Mass. App. Ct. 66, 68-69 (1980), all of which can be accomplished through either general or zoning by-laws.

In ruling that a trailer park general by-law manifested the "nature and effect" of a zoning by-law, the Rayco court found it "significant" that prior to the by-law at issue, the town had previously dealt with the issue of trailer parks in its zoning by-law rather than its general by-laws, and had done so comprehensively. Rayco, 368 Mass. at 393 ("It is evident that this portion of the zoning by-law purported to cover this subject in a comprehensive fashion...."). Similarly, the Town of Barnstable had thoroughly regulated off-street parking "at almost any conceivable location" through its zoning by-laws before adopting the general by-law which Spenlinhauer challenged. Spenlinhauer, 80 Mass. App. Ct. at 139-40 ("The bylaw as a whole...clearly evinces the town's historical reliance on the zoning by-law to deal with parking."). In Lovequist, by contrast, there was no evidence "that there is or ever has been a comprehensive zoning by-law governing the wetland activities proposed by the plaintiffs." Lovequist, 379 Mass. at 14.

Within this framework, we analyze the amendments adopted under Article 1.

B. Article 1 Regulates the Use of Land

Although captioned as a "licensing" by-law, Article 1 establishes requirements and performance standards for the "construction and operation" of BESS. These requirements are wide-ranging and include, but are not limited to:

1. prohibiting BESS over 10MW (Section A);

2. regulating and managing "the hazards" associated with BESS so as to minimize the risks to the health, safety and welfare of the Wendell community (Section A);

3. requiring the construction and operation of a BESS to be in compliance with numerous requirements including those related to safety, construction, electrical and communication requirements (Section B);

4. requiring plans and designs for the installation of a BESS to be reviewed and certified by the Building Inspector (Section B);

5. regulating where a BESS can be sited including prohibiting a BESS on a site over five acres and prohibiting a BESS from being constructed on a site where more than 25% of the site is comprised of undeveloped land (Section C);

6. imposing clear-cutting requirements and prohibiting a BESS from clear-cutting more than one-half acre of forest land (Section C);

7. requiring an emergency operations plan, a hazard mitigation analysis, an air dispersion model, an analysis to determine the extent and effect of thermal runaway and an analysis of the Town's manpower and equipment for an emergency response (Section D);

8. identifying all hazards associated with the BESS and determination of the effective response manpower and equipment necessary to respond (Section D); and

9. requiring "such other analyses as may be requested by the Town (Section D) as well as any "[o]ther procedures or information as determined necessary by the Licensing Board" necessary to "provide for the safety of occupant, neighboring properties and emergency responders." (Section D)

The proposed by-law seeks to regulate and manage "typical concerns usually reflected in the zoning process." Lovequist, 379 Mass. at 13. As detailed above, the by-law imposes extensive regulations including prohibiting BESS over 10MW in size; prohibiting BESS on parcels over 5 acres or on parcels with more than 25% undeveloped land; imposing requirements related to clear-cutting of trees including a prohibition against clear cutting over one-half acre of forest land; and requiring an analysis and plans to minimize fire and other hazards associated with the use.

In addition, the by-law seeks to provide a method to "deny or invite permission to build any structure." Lovequist, 379 Mass. at 13. The by-law requires that, before a BESS may be constructed or operated, the Licensing Board must first grant a license and must make specific findings under Sections D and E of the by-law. In the absence of the Licensing Board making such findings and granting a license, a BESS will not be allowed to be *constructed* or operated. This land use permit-granting authority is a emblematic exercise of the Town's zoning power.

Further, Article 1's purpose section, Section A, mirrors many of the purposes of the Town's zoning by-law regulating solar with or without accessory battery energy storage facilities. The proposed general by-law's purpose is to "protect[ ] the health, safety and welfare of residents of Wendell and its natural and building environment" by adding a new bylaw "dealing with the licensing of" BESS. Section A. In addition, Section A's articulated purpose includes "responsibly regulating and managing the hazards associated with this energy technology…to minimize the risks to health safety and welfare of the Wendell community" as well as "limit[ing] unnecessary forest land conversion and clear-cutting, reducing the loss of all other forest benefits, and promot[ing] the reuse of already developed sites for battery energy storage systems." Section A.

These purposes and requirements are "typical of the concerns usually reflected in the zoning process." Lovequist, 379 Mass. at 13-14. Indeed, the Town's existing zoning by-law, Article XIV, regulating ground-mounted solar installations with or without accessory battery energy storage facilities includes as its purpose "establish[ing] a procedure to find a balance between renewable energy generation and natural and cultural resource protection that serves both our social and environmental responsibilities and protects public health and safety." Moreover, the Town's existing zoning by-laws as a whole include as their purpose "promot[ing] the health, safety and welfare of the inhabitants of Wendell in accordance with The Zoning Act, Chapter 40A, Massachusetts General Laws; to… regulate land uses that have an impact on the Town's natural physical and fiscal capabilities,… to maintain and encourage agricultural and other resource based activities; to preserve wildlife habitat; to protect water quality and supply;

to encourage appropriate use of the land; to ensure adequate provision of municipal services consistent with controlled growth of the population; to reduce hazards;... to encourage energy efficiency;... and to preserve the ecology and rural nature of the town." Wendell Zoning By-laws, Article I, "Purpose and District Designation." The preservation of "unique natural, ecological or other values" is a classic exercise of zoning power. Johnson v. Town of Edgartown, 425 Mass. 117, 119 (1997) (upholding Town's three-acre minimum lot requirement for residential uses in a certain district in order to protect the public health, water, water supply and water resources). These shared purposes of the new Article 1 and the Town's existing zoning by-laws weigh in favor of the conclusion that Article 1 demonstrates "the nature and effect" of a zoning by-law. Rayco, 368 Mass. at 392-93.

We have also considered whether the Town has previously regulated BESS through a zoning by-law. As the court in Spenlinhauer noted, one factor in determining whether a particular topic should be regulated by way of a zoning by-law, rather than a general by-law, is how the town has historically regulated the topic. Id. at 140 ("The bylaw as a whole, then, clearly evinces the town's historical reliance on the zoning bylaw to deal with parking."). See also Rayco, 368 Mass. 385 (1975) (holding that a trailer park regulation should have been adopted as a zoning by-law rather than a general by-law, in part because the town's zoning by-law had previously dealt specifically with trailer parks). Here, Wendell has historically regulated BESS (and solar uses that include BESS) by way of a zoning by-law (see AGO decision in Case # 10721 disapproving zoning by-law prohibition on principal use BESS and approving remainder of zoning by-law regulating BESS accessory to solar uses, Article 30 from the June 4, 2022 Annual Town Meeting).[5] Article XIV of the Town's zoning by-laws regulates the construction and operation of BESS. The existing zoning by-laws comprehensively regulate the size of the solar use with our without battery storage (Article XIV (C)); whether such use is as of right or requires a special permit and site plan review (id.); water provision at the site including fire protection measures (Article XIV (E)(2a)(vii)); the requirement to submit a hazard mitigation and hazardous materials plan (Article XIV (E)(2c)(i); and forest removal limitation requirements for solar with or without accessory battery storage (Article XIV (F)(1)).

Further, as detailed above, the licensing by-law imposes extensive regulations typical of zoning including prohibiting BESS over 10MW in size; prohibiting BESS on parcels over 5 acres or on parcels with more than 25% undeveloped land; imposing requirements related to clear-cutting of trees including a prohibition against clear cutting over one-half acre of forest land; and requiring an analysis and plans to minimize fire and other hazards associated with the use. Moreover, the licensing by-law requires the construction and operation of *all BESS*, including BESS accessory to or in connection with a solar use, to receive a license from the Licensing Board. However, we note that the general by-law's BESS licensing provisions conflict in certain respects with the Town's zoning by-laws governing solar with or without accessory BESS. For example, the general licensing by-law prohibits all BESS from "clear-cutting of forest land in excess of one-half (.5) of an acre." Section C (4). This conflicts with the Town's existing zoning by-law, Article XIV (F)(1), "Site Design and Performance Standards and Restrictions; Environmental impacts," that allows up to 1 acre of forest removal at a solar installation with or without accessory battery storage, as follows: "Forest removal shall be limited to a maximum cumulative total of 1 acre to prevent erosion, protect water and air quality and to provide climate

[5] A copy of this decision can be accessed at: www.mass.gov/ago/munilaw (decision lookup).

benefits to the public health and welfare." Therefore, the Town's zoning by-law allows forest removal up to one acre, but the licensing by-law will require disapproval of a licensing application if the forest removal exceeds one-half acre.

By way of another example, the general licensing by-law prohibits any BESS over 5 acres in size. Section C (3) ("[t]otal site square footage per applicant shall not exceed five acres."). However, the Town's zoning by-law, Article XIV, Sections B and C, allow "very large-scale ground-mounted solar electric generating installation" with accessory BESS in the Solar Overlay District that "occupy... over 5 acres of land and up to 10 acres of land." Therefore, a BESS use allowed under the Town's zoning by-laws would be prohibited under the Town's general licensing by-law. A general by-law may not be effective to change earlier zoning by-law provisions governing a particular subject matter where, as here, the procedural requirements of Chapter 40A, the Zoning Act, have not been observed. See Rayco, 368 Mass. at 394 (concluding that by-law limiting trailer-park operator licenses was insufficient to amend town's previous zoning by-law regulating such parks where record did not demonstrate that license limitation had been enacted in accordance with the procedural requirements of Chapter 40A); see also Valley Green Grow, Inc. v. Town of Charlton, 2019 WL 1087930, at *1 (Mass. Land Ct. Mar. 7, 2019) (declaring invalid a general by-law prohibiting all commercial marijuana uses enacted by special town meeting several months after town had enacted zoning to govern these uses at its annual town meeting).

In addition, the general by-law does not merely supplement the regulation of a use already governed by the zoning by-laws. Rather, the general by-law seeks to impose extensive regulations, including prohibitions on BESS over a certain size or certain acreage, despite the use being otherwise allowed under the zoning by-laws. Where a town has enacted comprehensive zoning by-laws governing a particular use or activity within its borders, amendments to that regulation must occur within the zoning framework. Id. at 10 ("Having permitted marijuana use through its zoning bylaw, Charlton could only change or bar that use by amending the zoning bylaw. It could not do what it did here -- bar the previously allowed zoning use by Warrant Article 2, a general bylaw.").

For these reasons, the general by-law proposed under Article 1 demonstrates "the nature and effect" of an exercise of zoning power, without complying with any of the procedural safeguards required by the Zoning Act, G.L. c. 40A, § 5. See Hancock Village I, LLC v. Town of Brookline, 2019 WL 4189357 (Mass. Land Ct. Sept. 4, 2019), citing Rayco, 368 Mass. at 385, ("A municipality cannot utilize its general police power to enact a bylaw which is, at its essence, a zoning regulation, if it does not resort to G. L. c. 40A; doing so would frustrate the purpose and implementation of the statute.")). Because the Town did not comply with G.L. c. 40A, § 5, we must disapprove the proposed by-law.[6]

[6] We note that during the course of our review, we received correspondence from a Town resident and author of Article 1 who asserts that the "[w]e acknowledge that two sections of the bylaw meet the standards for land use and zoning...," and further states that "[t]he Dover Amendment does not apply to general town by-laws." Letter dated June 30, 2024 from Gloria Kegeles to AAG Hurley, pgs. 1 and 4.

IV. The Town Cannot Circumvent the Protections of G.L. c. 40A, § 3 for a Protected Use by Adopting the By-law as a General By-law

Solar energy facilities and related structures, such as BESS, are a use protected under G.L. c. 40A, § 3. By extensively regulating this protected use as a general by-law, the Town would impermissibly circumvent the protections of G.L. c. 40A, § 3. We disapprove Article 1 on this basis as well, as explained below.

Solar energy facilities and related structures have been protected under G.L. c. 40A, § 3 for almost 40 years, since 1985 when the Legislature passed a statute codifying "the policy of the commonwealth to encourage the use of solar energy." St. 1985, c. 637, §§ 7, 8. Id. § 2. Section 3's solar provision grants zoning protections to solar energy systems and the building of structures that facilitate the collection of solar energy as follows:

> No zoning . . . bylaw shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare.

In adopting Section 3, the Legislature determined that certain land uses are so important to the public good that the Legislature has found it necessary "to take away" some measure of municipalities' "power to limit the use of land" within their borders. Attorney General v. Dover, 327 Mass. 601, 604 (1950) (discussing predecessor to G.L. c. 40A, § 3); see Cnty. Comm'rs of Bristol v. Conservation Comm'n of Dartmouth, 380 Mass. 706, 713 (1980) (noting that Zoning Act as a whole, and G.L. c. 40A, § 3, specifically, aim to ensure that zoning "facilitate[s] the provision of public requirements"). To that end, the provisions of Section 3 "strike a balance between preventing local discrimination against" a set of enumerated land uses while "honoring legitimate municipal concerns that typically find expression in local zoning laws." Trustees of Tufts Coll. v. City of Medford, 415 Mass. 753, 757 (1993). Over the years, the Legislature has added to the list of protected uses, employing different language—and in some cases different methods—to limit municipal discretion to restrict those uses.

In codifying solar energy and related structures as a protected use under Section 3, the Legislature determined that "neighborhood hostility" or contrary local "preferences" should not dictate whether solar energy systems and related structures are constructed in sufficient quantity to meet the public need. See Newbury Junior Coll. v. Brookline, 19 Mass. App. Ct. 197, 205, 207-08 (1985) (discussing educational-use provision of Section 3); see also Petrucci v. Bd. of Appeals, 45 Mass. App. Ct. 818, 822 (1998) (explaining, in context of childcare provision, that Legislature's "manifest intent" when establishing Section 3 protected use is "to broaden ... opportunities for establishing" that use). Indeed, the fundamental purpose of Section 3 is to "facilitate the provision of public requirements" that may be locally disfavored. Cty. Comm'rs of Bristol, 380 Mass. at 713.

The Supreme Judicial Court reaffirmed this principle in Tracer Lane II Realty, LLC v. City of Waltham, 489 Mass. 775 (2022). In ruling that Section 3's protections required Waltham to allow an access road to be built in a residential district for linkage to a solar project in

Lexington, the Court explicitly noted that "large-scale systems, not ancillary to any residential or commercial use, are key to promoting solar energy in the Commonwealth." Id. at 782 (citing Executive Office of Energy and Environmental Affairs, Massachusetts 2050 Decarbonization Roadmap, at 4, 59 n.43 (Dec. 2020) ("the amount of solar power needed by 2050 exceeds the full technical potential in the Commonwealth for rooftop solar, indicating that substantial deployment of ground-mounted solar is needed under any circumstance in order to achieve [n]et [z]ero [greenhouse gas emissions by 2050]")). The Court explained that whether a by-law facially violates Section 3's prohibition against unreasonable regulation of solar systems and related structures will turn in part on whether the by-law promotes rather than restricts this legislative goal. Id. at 781. While municipalities do have some "flexibility" to reasonably limit where certain forms of solar energy may be sited, the validity of any restriction ultimately entails "balanc[ing] the interest that the . . . bylaw advances" against "the impact on the protected [solar] use." Id. at 781-82.

By statute, ESS qualify as "solar energy systems" and "structures that facilitate the collection of solar energy" and are protected by G.L. c. 40A, § 3. General Laws Chapter 164, Section 1, defines "energy storage system" as "a commercially available technology that is capable of absorbing energy, storing it for a period of time and thereafter dispatching the energy."[7] See also NextSun Energy LLC v. Fernandes, No. 19 MISC 000230 (RBF), 2023 WL 3317259, at *14 (Mass. Land Ct. May 9, 2023), amended, No. 19 MISC 000230 (RBF), 2023 WL 4156740 (Mass. Land Ct. June 23, 2023), judgment entered, No. 19 MISC 000230 (RBF), 2023 WL 4145901 (Mass. Land Ct. June 23, 2023) (finding that battery energy storage system is entitled to Section 3 solar protections).

Solar uses, including BESS, are a use protected under G.L. c. 40A, § 3. The Town's general licensing by-law attempts to impose extensive regulations on the construction and operation of BESS, including a complete prohibition under the general by-laws of any BESS over 10MW, or sited on over 5 acres, or which removes more than ½ acre of forest land. Certain requirements could potentially be an unreasonable regulation in violation of Section 3's zoning protections, even if they were properly adopted as a zoning by-law.[8] Therefore, the prohibitions,

[7] The development of energy storage systems is critical to the promotion of solar and other clean energy uses. On August 9, 2018, An Act to Advance Clean Energy, Chapter 227 of the Acts of 2018 ("Clean Energy Act"), was signed into law by Governor Baker. Section 20 of the Clean Energy Act established a 1,000 MWh energy storage target to be achieved by December 31, 2025. The Clean Energy Act also required DOER to set targets for electric companies to procure energy dispatched from battery energy storage systems. https://www.mass.gov/info-details/esi-goals-storage-target (last visited November 12, 2024).

[8] However, as part of this decision, we make no determination as to whether the amendments would be found consistent with the G.L. c. 40A, § 3 protections afforded to solar energy systems and related structures such as BESS, had the amendments been adopted in accordance with G.L. c. 40A, § 5 as a zoning by-law rather than under Article 1 as a general by-law. We note, however, that the provisions of Article 1 contain extensive siting and operational requirements. Thus, if these extensive provisions were adopted as a zoning by-law and then used to deny a BESS, or are otherwise applied in ways that make it impracticable or uneconomical to build solar energy systems and related structures (including BESS), such applications may run a serious risk of violating G.L. c. 40A, § 3. See Tracer Lane II, 489 Mass. at 781 (Waltham's prohibition on solar energy systems in all but one to two percent of its land area violates

limitations and requirements on the construction and operation of BESS, through a general by-law would impermissibly circumvent the G.L. c. 40A, § 3 protections afforded to BESS uses. For this additional reason, and because the by-law regulates the use of land, buildings and structures for BESS, without complying with the Zoning Act, G.L. c. 40A, including G.L. c. 40A, § 3's limitations on the subject matter of zoning by-laws, we disapprove Article 1.

V. Conclusion.

The general by-law proposed under Article 1 demonstrates the "the nature and effect" of an exercise of zoning power. See Rayco, 368 Mass. at 392-93. Before imposing the zoning-like requirements found in the proposed by-law, the Town must comply with the procedural safeguards found in the Zoning Act, G.L. c. 40A, § 5. Because the Town did not comply with G.L. c. 40A, § 5, we must disapprove the proposed by-law. In addition, because the by-law would impermissibly circumvent the G.L. c. 40A, § 3 protections afforded to solar energy facilities and related structures such as BESS, without complying with the Zoning Act, G.L. c. 40A, including G.L. c. 40A, § 3's limitations on the subject matter of zoning by-laws, we disapprove Article 1.

Note: Pursuant to G.L. c. 40, § 32, neither general nor zoning by-laws take effect unless the Town has first satisfied the posting/publishing requirements of that statute.

Very truly yours,

ANDREA JOY CAMPBELL
ATTORNEY GENERAL
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cc: Town Counsel David J. Doneski

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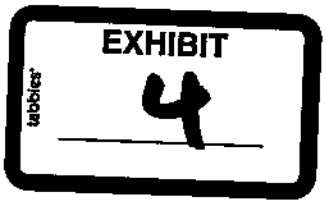
the solar energy provisions of G.L. c. 40A, § 3); see also PLH LLC v. Town of Ware, No. 18 MISC 000648 (GHP), 2019 WL 7201712, at *3 (Mass. Land Ct. Dec. 24, 2019), aff'd, 102 Mass. App. Ct. 1103 (2022) ("the review of the municipality conducted under the bylaw's special permit provisions must be limited and narrowly applied in a way that is not unreasonable, is not designed or employed to prohibit the use or the operation of the protected use, and exists where necessary to protect the health, safety or welfare."). Therefore, should the Town wish to revisit the requirements proposed under Article 1 as a zoning by-law amendment at a future Town Meeting, we encourage the Town to consult with Town Counsel to ensure that any proposed zoning by-law is consistent with G.L. c. 40A, § 3.



Valley Green Grow, Inc. v. Town of Charlton

Massachusetts Land Court

March 7, 2019, Decided

MISCELLANEOUS CASE NO. 18 MISC 000483 (RBF)

Reporter
27 LCR 99 *; 2019 Mass. LCR LEXIS 29 **; 2019 WL 1087930

VALLEY GREEN GROW, INC., CHARLTON ORCHARDS GROUP, LLC, NATHAN R. BENJAMIN, JR., and CATHERINE L. BENJAMIN v. TOWN OF CHARLTON and JOHN P. McGRATH, DEBORAH B. NOBLE, KAREN A. SPIEWAK, DAVID M. SINGER, JOSEPH J. SZAFAROWICZ, as are Members of the Board of Selectmen of the Town of Charlton GERARD F. RUSSELL, Defendant-Intervenor

Subsequent History: Summary judgment granted by *Valley Green Grow, Inc. v. Town of Charlton, 2019 Mass. LCR LEXIS 157 (Aug. 14, 2019)*

Affirmed by *Valley Green Grow, Inc. v. Charlton, 99 Mass. App. Ct. 670, 2021 Mass. App. LEXIS 65 (June 9, 2021)*

Syllabus

Having previously chosen to regulate nonmedical cannabis uses through its zoning power, the Town of Charlton could not then attempt to regulate such uses through the adoption of a general bylaw. In so ruling, Justice Robert B. Foster invalidated a 2018 warrant article voted by Charlton purporting to ban all non-medical cannabis uses within the Town, an amendment that targeted a proposed 1 million sq. ft. indoor marijuana growing and processing facility at the site of a former farm.

Counsel: Michael J Duffy, Esq., Appears for Catherine L. Benjamin, Nathan R. Benjamin, Jr., Charlton Orchards Group, LLC, and Valley Green Grow, Inc.

Jonathan Silverstein, Esq., Appears for Town of Charlton, John P. McGrath, Deborah B. Noble, David M. Singer, Karen A. Spiewak, and Joseph J. Szafarowicz, Members of the Charlton Board of Selectmen.

Francis B. Fennessey, Esq., Appears for Gerard F. Russell.

Additional Attorneys (Amicus).

Michael Pill, Esq.

Judges: [**1] Robert B. Foster, Justice.

Opinion by: Robert B. Foster

Opinion

[*99] **MEMORANDUM AND ORDER ALLOWING PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT**

INTRODUCTION

On November 4, 2016, the voters of the Commonwealth voted YES to Question 4, authorizing the legalization, regulation and taxation of recreational cannabis in the Commonwealth of Massachusetts. Among those voting YES were a majority of the voters of the Town of Charlton (Town). After the ensuing enactment of G.L. c. 94G, regulating recreational marijuana in Massachusetts, the plaintiff Valley Green Grow, Inc. (VGG) entered an agreement with plaintiffs Charlton Orchard Groups, LLC (COG) and Nathan R. Benjamin, Jr. and Catherine Benjamin to purchase their farm in Charlton. VGG wants to build a 1,000,000 square foot indoor marijuana

growing and processing facility on the property, consisting of 860,000 square feet of greenhouses, a 130,000 square foot post-harvest processing facility, and 10,000 square foot cogeneration facility. VGG approached the Town in the spring of 2018, filed a preliminary subdivision plan, and began negotiations for a development agreement and a host community agreement. At its May 2018 annual town meeting, the Town adopted by a two-thirds vote Warrant Article 27, amending the Charlton Zoning [**2] Bylaw (zoning bylaw) to allow certain recreational marijuana uses in the agricultural, community business, industrial and business enterprise park use districts by special permit. A group of citizens including intervenor Gerard F. Russell and other neighbors of the property, unhappy with the [*100] zoning amendment, brought two warrant articles to a special town meeting in August 2018. Warrant Article 1 sought to rescind the previously adopted amendment to the zoning bylaw that allowed marijuana uses. Warrant Article 2 sought to adopt a general bylaw to ban all non-medical cannabis uses within the Town. While a majority voted for Warrant Article 1, it failed to obtain the two-thirds majority necessary for an amendment to the zoning bylaw. Warrant Article 2 passed by a majority vote.

The plaintiffs now seek a declaration under *G.L. c. 240, § 14A*, and *G.L. c. 231A, §§ 1 et seq.*, that Warrant Article 2 is invalid, and have brought a motion for summary judgment. As set forth below, the motion is allowed. Because Warrant Article 2 was an improper attempt by the Town to exercise its zoning power through a general bylaw by regulating a use already regulated in its zoning bylaw, it is invalid and of no force and effect.[1]

PROCEDURAL HISTORY

On September 21, 2018, VGG filed its complaint, naming as defendants the Town and John P. McGrath, Deborah B. Noble, [**3] Karen A. Spiewak, David M. Singer, and Joseph J. Szafarowicz as Members of the Board of Selectmen of the Town of Charlton (collectively, the Board). On October 9, 2018, Gerard F. Russell filed his Motion to Intervene as a Defendant, and on October 15, 2018, his Amended Brief and Affidavit in support of his Motion to Intervene. On October 30, 2018, Russell filed his Amended Answer of Gerard F. Russell, and on October 31, 2018, the Town and the Board filed their Answer. On November 5, 2018, VGG filed its Opposition to Gerard Russell's Motion to Intervene.

The court held the case management conference on November 6, 2018, where it took the Motion to Intervene under advisement and advised VGG to amend its complaint to add necessary plaintiffs. On November 8, 2018, the court issued its Order Allowing Motion of Gerard F. Russell to Intervene as a Defendant, and VGG filed its Assented-To Motion for Leave to File First Amended Complaint to add as plaintiffs COG and the Benjamins. The court allowed the motion that same day and deemed the First Amended Complaint (Complaint or Compl.) filed. On November 19, 2018, Russell filed his Answer to Plaintiffs' Amended Complaint and Cross-Complaint, bringing [**4] a cross-complaint against the Town (Russell Ans.). On

[1] The court acknowledges the amicus briefs of Michael Pill; of Mark Albano, Denis Arruda, Holly Arruda, Thomas K. Bailey, Donna Beers, Charlene Emeo Belsito, Mark Belsito, Karen Bodamer, Scott Bodamer, Christine Breault, Richard Breault, Jane Carbonneau, Kathleen Cristadoro, Ann Faille, Rob Faille, William Foster, Merilee Fowler, Howard Galusha, Patricia Gordo, Stephanie Hanyes, Anne M. Hassel, Carol Hassel, Don C. Hayward, Heidi Heilman, Michele Henault, Josephine S. Hensley, Lester Hensley, Theresa Hoggins, Corinne Hogseth, Kent Howard, Moira Jacobs, Chris Kelly, Julie Kelly, Stephen Koronis, Brett Kustigian, Kristin Kustigian, Helen Labosier, Jesse LeBlanc, Ann Marie Locwin, Eric Locwin, Frank S. Locwin, Morgan Long, Brooke Lowe, Carla Lowe, Monique Manna, Denise MacFarlane, Patrick MacFarlane, Jill Martin, Marjorie McGuire, Roger Morgan, Christina Mullen, Cathleen Nikosey, Milissa Obara, John M. O'Halloran, Laurie Palepu, Antoinette D. Parvis, Lisa Pearson, Donna M. Peters, Karen Randall, Lori Robinson, Amy Ronshausen, Sue Rusche, Margaret M. Russell, Christine Saucier, Tim Saucier, Julie Schauer, Sally Schindel, George Seaver, Michael Shaw, Karen Sherman, Armando Sodano, Moira Starks, Maribeth Trembley, Tom Vega, Ann Washburn, Ed Wood, David Woodacre, Kathleen Woodacre, David Wolkowicz, Peter Wright, Tanya Wright, Alicia Zelenko, Andrey Zelenko, and Nataliya Zelenko; and of Cape Cod Grow Lab, LLC, Nature's Alternative, Inc., and The Haven Center, Inc.

December 17, 2018, the Town filed its Answer to Intervenor's Cross-Claim. Plaintiffs' Motion for Leave to Intervene as Defendants in Intervenor Gerard Russell's Cross Claim Under *G.L. c. 240 Sec. 14A* Against the Town of Charlton was filed on February 1, 2019, and allowed without hearing on February 5, 2019.

On November 16, 2018, VGG, COG, and the Benjamins (plaintiffs) filed Plaintiffs' Motion for Summary Judgment (Summary Judgment Motion), Memorandum of Law in Support of Plaintiffs' Motion for Summary Judgment, Plaintiffs' Statement of Undisputed Material Facts in Support of Their Motion for Summary Judgment (Pl. SOF), their Appendix of Exhibits in Support of Plaintiffs' Motion for Summary Judgment (Pl. Exh.), and the Affidavit of Jeffrey Goldstein in Support of Plaintiffs' Motion for Summary Judgment (Goldstein Aff.).

On December 18, 2018, Russell filed (1) Defendant Gerard F. Russell's Opposition to Plaintiffs' Motion for Summary Judgment, (2) the Affidavit of Defendant Gerard F. Russell (Russell Aff.), (3), Notice to Attorney General Pursuant to *G.L. c. 231A, § 8* and *Mass.R.Civ.P. 24(d)*, (4) Russell's Document Appendix (Russell App.), (5) Defendant Russell's Response to Plaintiffs' Statement [**5] of Undisputed Material Facts in Support of His Opposition to Plaintiffs' Motion for Summary Judgment (Russell SOF Resp.), and (6) Defendant Russell's Statement of Undisputed Material Facts In Support of His Opposition to Plaintiffs' Motion for Summary Judgment (Russell SOF).

On December 10, 2018, Michael Pill's Motion for Leave to (1) File Amicus Curiae Brief and (2) Participate in Hearing on Plaintiffs' Summary Judgment was allowed in part and denied in part, allowing the filing of an amicus brief but denying leave to participate in the hearing, and attorney Pill's amicus brief was accepted for filing. On December 27, 2018, New Jersey attorney David G. Evans was admitted *pro hac vice* on the motion of attorney Pill, his motion to file an amicus brief was allowed, and his amicus brief on behalf of his clients was accepted for filing. The Motion of Benjamin E. Zehnder, Esq. for Leave to File an Amicus Curiae Brief in Support of Plaintiffs Motion for Summary Judgment was allowed on December 27, 2018, and his amicus brief on behalf of his clients was accepted for filing.

On January 2, 2019, the plaintiffs filed (1) Plaintiffs' Reply to Defendant Russell's Opposition to Plaintiffs' Motion [**6] for Summary Judgment, (2) Plaintiffs' Response to Defendant Russell's Statement of Material Facts (Pl. SOF Resp.), and (3) Plaintiffs' Response to Brief of Amicus Curiae Michael Pill. On January 4, 2019, the court heard the Summary Judgment Motion, and took it under advisement. This Memorandum and Order follows.

SUMMARY JUDGMENT STANDARD

Generally, summary judgment may be entered if the "pleadings, depositions, answers to interrogatories, and responses to requests [*101] for admission . . . together with the affidavits . . . show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." *Mass. R. Civ. P. 56(c)*. In viewing the factual record presented as part of the motion, the court is to draw "all logically permissible inferences" from the facts in favor of the non-moving party. *Willitts v. Roman Catholic Archbishop of Boston, 411 Mass. 202, 203, 581 N.E.2d 475 (1991)*. "Summary judgment is appropriate when, 'viewing the evidence in the light most favorable to the nonmoving party, all material facts have been established and the moving party is entitled to a judgment as a matter of law.'" *Regis College v. Town of Weston, 462 Mass. 280, 284, 968 N.E.2d 347 (2012)*, quoting *Augat, Inc. v. Liberty Mut. Ins. Co., 410 Mass. 117, 120, 571 N.E.2d 357 (1991)*.

UNDISPUTED FACTS

The following facts are undisputed.

1. VGG is a Massachusetts corporation with a principal place of business at 1600 Osgood [**7]

Street, North Andover, Massachusetts. Pl. SOF ¶ 1; Russell SOF Resp. ¶ 1.

2. COG is a Massachusetts company and record owner in fee of property at 44 Old Worcester Road, Charlton (COG property). Pl. SOF ¶ 2; Russell SOF Resp. ¶ 2; Pl. Exhs. 2-4.

3. The Benjamins are individuals and record title owners in fee of property located at 7 L Turner Road, Charlton (Benjamin property). Pl. SOF ¶¶ 3-4; Russell SOF Resp. ¶¶ 3-4; Pl. Exhs. 3-4. The COG property and the Benjamin property are hereinafter referred to as the "site."

4. On November 4, 2016, the citizens of Charlton voted YES to Question 4, authorizing the legalization, regulation and taxation of recreational cannabis in the Commonwealth of Massachusetts. Pl. SOF ¶ 5; Russell SOF Resp. ¶ 5; Pl. Exh. 5.

5. On or about March 9, 2018, VGG entered into an offer and subsequently a purchase and sale agreement with COG and the Benjamins for the acquisition and development of the site. The site was formerly operated by COG as a family-owned farm and winery. Goldstein Aff. ¶ 3.[2]

6. VGG proposed to develop the site to house a state of the art indoor cannabis cultivation facility, for the cultivation, manufacturing and processing of medical and recreational [**8] use cannabis (the project). VGG's Site Plan application for the project consists of three (3) major components totally approximately one million (1,000,000) square feet of new buildings:

a. 860,000 square foot Closed Greenhouse (6 "modules") and supporting functions;

b. 130,000 square foot Post-Harvest Processing Facility and supporting functions; and

c. 10,000 square foot Enclosed Cogeneration Facility (~18 MW) and supporting equipment.

Pl. SOF ¶ 7; Russell SOF Resp. ¶ 7; Russell Exhs. 8, 9.

7. In March 2018, VGG sought an advisory determination from Curtis Meskus, the Town's zoning enforcement officer and building inspector, addressing whether VGG's proposed project would be permitted as of right in the Town agricultural zoning district. Opponents to the Project have argued that cannabis uses cannot be approved as agricultural uses. Pl. SOF ¶ 8; Russell SOF Resp. ¶ 8; Pl. Exh. 6.

8. Mr. Meskus responded in a March 20, 2018, email, in an opinion that was "advisory only," that the project "would be allowed as of right." Pl. Exh. 6.

9. On April 25, 2018, recognizing that the Town was contemplating adopting a zoning bylaw to authorize and regulate recreational cannabis uses within the Town, [**9] VGG engaged a civil engineer and filed a preliminary subdivision plan for approval. VGG's subdivision plan submission triggered a zoning freeze for the Property, pursuant to *G.L. 40A, § 6*. Pl. SOF ¶ 11; Russell SOF Resp. ¶ 11.

10. At that time, § 200-3.2.B of the Charlton Zoning Bylaw (zoning bylaw) did not explicitly list "marijuana" as part of any principal use. It did provide that "[i]ndoor commercial horticulture/ floriculture establishments (e.g., greenhouses)" are permitted as of right in every zoning district. Russell App. Exh. 2.

11. During the spring of 2018, VGG negotiated with Robin Craver, Town Manager for the Town of Charlton, with respect to a Development Agreement and Host Community Agreement for the project and related activities. Pl. SOF ¶ 12; Russell SOF Resp. ¶ 12.

12. At its May 15, 2018 public meeting, the Board of Selectmen voted to approve the proposed Development Agreement and Host Community Agreement with VGG. Pl. Exh. 8.

13. At its annual town meeting on May 21, 2018,

[2] In his response to the Plaintiffs' Statement of Undisputed Material Facts, Russell denied this statement, referring to exhibit 10 in Russell's Document Appendix. Exhibit 10 does not support the denial or state any evidence that would dispute this fact.

the Town adopted by more than a two-thirds vote Warrant Article 27, amending the zoning bylaw to allow certain recreational marijuana uses in the agricultural, community business, industrial and business enterprise park use districts [**10] by special permit (Warrant Article 27). Pl. SOF ¶ 14; Russell SOF Resp. ¶ 14; Pl. Exh. 9.

14. After the VGG Development Agreement and Host Community Agreement were approved by the Board of Selectmen, a group of abutters objected to the manner in which the meeting agenda items were noticed, claiming that it was not clearly identified on the agenda for the hearing at which it was approved. Certain residents filed complaints challenging the zoning amendment process and actions of Town officials. Pl. SOF ¶ 15; Russell' SOF Resp. ¶ 15; Pl. Exh. 10.

15. As a result, the Board of Selectmen suspended any further action on the VGG Development and Host Community Agreements, rescheduled a public hearing, and asked VGG to attend the public [*102] meeting to describe the Project and answer questions of the public. VGG agreed to do so and attended a public meeting held on May 29, 2018, at which more than 400 residents and officials were in attendance. Pl. SOF ¶ 16; Russell SOF Resp. ¶ 16; Pl. Exh. 10; Goldstein Aff. at ¶¶ 10 and 11.

16. At its June 19, 2018 public meeting, the Board of Selectmen voted to reaffirm and ratify its prior vote in favor the Development Agreement and Host Community Agreement. Pl. App. Exh. 10. [**11]

17. At a special town meeting held on August 1, 2018, citizens of Charlton (including Russell and other abutters to the site) advanced two warrant articles: (1) Warrant Article 1, seeking to rescind the previously adopted zoning bylaw amendment, Warrant Article 27; and (2) Warrant Article 2, seeking to adopt a general bylaw to ban all non-medical cannabis uses within the Town. Warrant Article 1 failed to obtain the necessary two-thirds majority vote and therefore failed. Warrant Article 2 passed by a majority vote. Pl. SOF ¶ 18; Russell SOF Resp. ¶ 18; Pl. Exh. 11.

18. Warrant Article 2 states as follows:

> Citizen Petition-Prohibition of Non-Medical Marijuana-General Bylaw. To see if the Town will vote to amend the Town's General Bylaw by adding a new Chapter and Section that would provide as follows, and further to amend the Table of Contents to add said Chapter and Section.
>
> **Chapter 157 Marijuana**
>
> **Section 157-3 Marijuana Establishments**
>
> Consistent with *G.L. c.94G, § 3(a)(2)*, all types of non-medical "marijuana establishments" as defined in *G.L. c.94G, §1*, including marijuana cultivators, independent testing laboratory, marijuana product manufacturers, marijuana retailers or any other types of licensed marijuana-related businesses, shall be prohibited within the Town.
>
> Or take any action relative thereto.

Pl. Exh. 11.

19. At its regular [**12] Board meeting on August 28, 2018, the Board of Selectmen voted to put Warrant Article 2 on the ballot at the Annual Town Meeting election in May 2019. Pl. SOF ¶ 21; Russell SOF Resp. ¶ 21; Pl. Exh. 13.

20. On September 13, 2018, the Office of the Attorney General issued a letter approving the zoning bylaw amendments Charlton adopted under Warrant Article 27, with the exception of limited language. In the letter, the Attorney General disapproved of certain text added to the Warrant Article during town meeting, which would prohibit marijuana establishments from storing or holding money during non-business hours, reasoning that such language posed an unreasonable and impracticable business risk to operators. Pl. SOF ¶ 24; Russell SOF Resp. ¶ 24; Pl. Exh. 16.

21. The Attorney General's letter also reviewed correspondence from Attorney Francis Fennessey

(representing certain of the abutters) urging disapproval of Warrant Article 27 in its entirety on claims of supposed corruption in the zoning amendment process, misleading statements at town meeting, and violation of the uniformity provision of *G.L. c. 40A, § 4*. The Attorney General's Office found in its review that none of the arguments advanced "furnishe[d] a basis for disapproval of the by-law...." The Attorney [**13] General's Office determined that the Town's vote had a "legitimate planning purpose" and was not "Arbitrary and unreasonable, or substantially unrelated to the public health, safety morals, or general welfare," but was rather a "classic exercise of the Town's zoning powers" Pl. SOF ¶ 25; Russell SOF Resp. ¶ 25; Pl. Exh. 16.

22. On September 13, 2018, the Attorney General's Office issued a letter approving the Town's proposed Warrant Article 2, imposing the general by-law ban, with the proviso that the by-law will not have effect until it is submitted for approval at a municipal election as required under chapter 94G. Pl. Exh. 17; Pl. SOF ¶ 26; Russell SOF Resp. ¶ 26.

23. The Attorney General concluded that "[t]he statute governing the Attorney General's by-law review does not authorize a disapproval based upon a by-law's alleged conflict with other bylaws of the town. *See G.L. ch. 40, § 32*." Pl. SOF ¶ 29; Russell SOF Resp. ¶ 29; Pl. Exh. 17.

24. In accordance with the terms and conditions of the Development Agreement and Host Community Agreement, VGG must make a $500,000.00 deposit 30 days after the issuance of the Host Community Agreement. The Host Community Agreement was issued on August 14, 2018 and, therefore, the [**14] $500,000.00 payment would have been due on September 13, 2018. Pl. SOF ¶ 35; Russell SOF Resp. ¶ 35; Goldstein Aff. at ¶ 16.

25. By letter dated September 11, 2018, VGG wrote to the Town advising it of VGG's intention to file this action and requesting the Town to extend the date by which the $500,000 payment must be paid until such time as this court provides guidance on the legal issues presented herein. Pl. SOF ¶ 36; Russell SOF Resp. ¶ 36; Pl. Exh. 18.

26. The Town agreed to extend the due date of such payment pending the outcome of this action. Pl. SOF ¶ 37; Russell SOF Resp. ¶ 37; Goldstein Aff. ¶ 16.

27. At the October 15, 2018, special town meeting, Warrant Article 11 was advanced, seeking to amend the portions of the zoning bylaw enacted in Warrant Article 27 by striking marijuana establishments as special permit uses in the A, CB, and BEP districts, leaving them as special permit uses only in the IG district. Although the record does not reflect this, the parties report that Warrant Article 11 passed by a two-thirds majority vote. Russell Exh. ¶ 7.

DISCUSSION

The Complaint has two counts. Count I is a petition for judicial determination of the validity of Warrant Article 2, brought pursuant to *G.L. c. 240, § 14A*. Count II seeks a declaratory judgment, [**15] pursuant to *G.L. c. 231A, § 1, et seq.*, that Warrant Article 2 is invalid. Both counts and the Summary Judgment Motion present the same issue: Was Warrant Article 2 an attempted annulment of the [*103] zoning bylaw, as amended by Warrant Article 27, and therefore invalid because it was enacted as a general bylaw pursuant to *G.L. c. 40, § 21*, and not as a zoning bylaw following the process required under *G.L. c. 40A, § 5*? Or, rather, was Warrant Article 2 a valid exercise of the Town's police power and authority under *G.L. c. 94G, § 3(a)*, to regulate recreational marijuana use, merely supplementing the zoning bylaw as amended by Warrant Article 27?

G.L. c. 240, §14A and G.L. c. 231A. The first question is whether Counts I and II state valid claims under their respective statutes, *G.L. c. 240, § 14A*, and *G.L. c. 231A, § 1, et seq.* *Section 14A* provides:

> The owner of a freehold estate in possession in

> land may bring a petition in the land court against a city or town wherein such land is situated, which shall not be open to objection on the ground that a mere judgment, order or decree is sought, for determination as to the validity of a municipal ordinance, by-law or regulation, passed or adopted under the provisions of chapter forty A or under any special law relating to zoning, so called, which purports to restrict or limit the present or future use, enjoyment, improvement or development of such land, . . . or for determination [**16] of the extent to which any such municipal ordinance, by-law or regulation affects a proposed use, enjoyment, improvement or development of such land.

G.L. c. 240, § 14A. The Land Court has exclusive jurisdiction over actions brought under *§ 14A*. *Id.*; *G.L. c. 185, § 1*(j 1/2).

It is undisputed that COG and the Benjamins are the respective owners in possession of the COG and Turner properties, which together constitute the site that is the subject of this action. It is further undisputed that they are seeking a determination as to the validity of Warrant Article 2 as it affects the use of the site for the project. It is a more difficult question as to whether COG and the Benjamins seek a determination as to the validity of a zoning bylaw. Warrant Article 2 is explicitly not a zoning bylaw; it was enacted as a general bylaw. It would therefore seem that Count 1 does not seek to "resolve doubts relating to by-law restrictions or the requirements of a *zoning* ordinance." *Whitinsville Retirement Soc'y, Inc. v. Northbridge, 394 Mass. 757, 762-763, 477 N.E.2d 407 (1985)* (emphasis supplied). To dismiss Count I on this ground, however, would decide the very issue that Count I seeks to resolve: whether Warrant Article 2 acted, in effect, as a zoning bylaw amendment, and is invalid because it was not enacted pursuant to *G.L. c. 40A, § 5*. The court sees little distinction between determining [**17] the validity of a bylaw enacted under c. 40A and the validity of a bylaw that the plaintiffs claim should have been enacted under c. 40A. COG and the Benjamins have stated a claim under *§ 14A* in Count I.

VGG, COG, and the Benjamins have also stated a claim for a declaratory judgment in Count II. Under the familiar standard, "the land court . . . within [its] . . . jurisdiction[], may on appropriate proceedings make binding declarations of right, duty, status and other legal relations sought thereby . . . in any case in which an actual controversy has arisen and is specifically set forth in the pleadings." *G.L. c. 231A, § 1*. For the same reasons that COG and the Benjamins have stated a claim under *§14A*, the declaration sought by the plaintiffs—that Warrant Article 2 invalidly interferes with the zoning bylaw as amended by Warrant Article 27—is within the jurisdiction of the Land Court. "A landowner who seeks to challenge the validity of a zoning by-law where there is an actual controversy may bring a proceeding in the Land Court under G.L. c. 231A or under *G.L. c. 240, § 14A*." *Mantoni v. Board of Appeals of Harwich, 34 Mass. App. Ct. 273, 275, 609 N.E.2d 502 (1993)*; *Gamache v. Town of Acushnet, 14 Mass. App. Ct. 215, 222-223, 438 N.E.2d 82 (1982)*.

VGG, COG, and the Benjamins have also demonstrated that an actual controversy has arisen between them, on the one hand, and the Town and Russell on the other, regarding whether VGG will be able [**18] to undertake the project on the site, or whether Warrant Article 2 bars the project. "The requirement that there be an 'actual controversy' should be construed liberally." *Peterborough Oil Co. v. Department of Envtl. Protection, 474 Mass. 443, 445, 50 N.E.3d 827 (2016)*, citing *Gay & Lesbian Advocates & Defenders v. Attorney Gen., 436 Mass. 132, 134, 763 N.E.2d 38 (2002)*. A declaratory judgment may be sought to interpret the validity of a municipal bylaw. *G.L. c. 231A, § 2*; *St. George Greek Orthodox Cathedral of W. Mass., Inc. v. Fire Dep't of Springfield, 462 Mass. 120, 124, 967 N.E.2d 127 (2012)*. It is not necessary that a violation of a bylaw have already occurred for there to be an actual controversy as to the validity of the bylaw. See *G.L. c. 231A, § 1* (declaratory

judgment action may be brought "before or after a breach or violation . . . has occurred"). Rather, an actual controversy exists if the plaintiff alleges and shows that enforcement of the challenged bylaw "has caused, or will cause, injury to the plaintiff." *Entergy Nuclear Generation Co. v. Department of Envtl. Protection, 459 Mass. 319, 324, 944 N.E.2d 1027 (2011)*. Warrant Article 2, if valid, would bar VGG from undertaking the project. This is a sufficient demonstration of injury to VGG resulting from the bylaw. Russell's argument that there is not yet any actual controversy because VGG has not yet made a formal application rings hollow given that Russell was one of the sponsors of Warrant Article 2 and sought to intervene in this case to ensure that the validity of Warrant Article 2 was fully defended. Further, the deadline by which VGG is obligated pay $500,000 to the Town under the Development Agreement and Host Community [**19] Agreement has been extended pending the outcome of this action and VGG's rights and obligations under those agreements are, to some extent, implicated by the resolution of this controversy.

Analysis. The court turns now to the question raised by the plaintiffs. The interplay of zoning and general bylaws and the circumstances under which a general bylaw impermissibly intrudes upon a subject regulated by a zoning bylaw are addressed in three major cases: *Rayco Inv. Corp. v. Board of Selectmen of Raynham, 368 Mass. 385, 331 N.E.2d 910 (1975)* (*Rayco*); *Lovequist v. Conservation Comm'n of Dennis, 379 Mass. 7, 393 N.E.2d 858 (1979)*; and *Spenlinhauer v. Town of Barnstable, 80 Mass. App. Ct. 134, 951 N.E.2d 967 (2011)*.

In *Rayco*, the Supreme Judicial Court (SJC) considered the validity of a bylaw of the Town of Raynham which purported to restrict the number of trailer parks in the town. *Rayco, 368 Mass. at 386-387*. The bylaw provided that "[t]he maximum number of outstanding trailer park licenses issued under *G.L. Chapter 140*, shall not exceed at any time the number of said licenses issued by [*104] the Board of Health, and in conformity with applicable Zoning By-Laws, as of October 1, 1971." *Id. at 386*. In the Superior Court the plaintiff sought a declaration under G.L. c. 231A of the effect of the bylaw on the plaintiff's right to operate a mobile home park on property in the town. *Id.* The record before the SJC did not indicate whether the disputed bylaw was enacted pursuant to the procedures for a zoning [**20] bylaw or a general bylaw and the court considered its applicability under both circumstances. *Id. at 388*. The Court, for reasons not relevant here, found that the plaintiff was not subject to the bylaw if it was enacted as a zoning bylaw and moved on to the bylaw's applicability to the plaintiff's proposed use of its land as a general bylaw. *Id. at 388-390*.

The Court concluded "that the nature and effect of the 1971 bylaw is that of an exercise of the zoning power," which, if not enacted through the statutory requirements of G.L. c. 40A, has no effect on the "existing zoning regulations." *Id. at 392, 394*. The Court's conclusion was based on "the fact that similar by-laws have been adopted in the past by municipalities as zoning by-laws," and also "that prior to the adoption of the 1971 by-law the town's *zoning* by-law dealt specifically with the subject of trailer parks." *Id. at 392-393*. The Court noted that a "further consideration which leads us to this conclusion is that were we to adopt the defendant's theory [that the by-law was a proper exercise of the town's general police power] the assorted protections contained in the Zoning Enabling Act could in many cases be circumvented, thereby defeating the purposes of the statute." *Id.*

Subsequently [**21] in *Lovequist*, the SJC considered whether the wetland protection by-law of the Town of Dennis was "void under the Home Rule Amendment because it is inconsistent with both the *Zoning Enabling Act, c. 40A*, and the Commonwealth's *Wetlands Protection Act*." *Lovequist, 379 Mass. at 11*. The town's wetland protection by-law, article 15, provided, in part, that:

> The Conservation Commission is empowered to deny permission for any removal, dredging, filling, or altering of subject lands within the

> town if, in its judgment, such denial is necessary to preserve environmental quality of either or both the subject lands and contiguous lands. Due consideration shall be given to possible effects of the proposal on all values to be protected under this by-law and to any demonstrated hardship on the petitioner by reason of a denial, as brought forth at the public hearing.

Id. at 9 n.3. The *Lovequist* court stated that "[w]e do not consider all ordinances or by-laws that regulate land use to be zoning laws, and we do not view art. 15 to be a zoning enactment." *Id. at 12*. The court concluded that "[i]n its present form, and particularly as applied in this case, art. 15 is comparable to an earth removal enactment, a kind of general by-law expressly permitted by statute." [**22] *Id. at 13*. The court further stated that "we should be reluctant to classify the instant by-law as a zoning measure for the reason that art. 15 manifests neither the purpose nor the effects of a zoning regulation." *Id.* The court explained that the "Dennis by-law does not prohibit or permit any particular uses of land or the construction of buildings or the location of businesses or residences in a comprehensive fashion. On its face it does not deny or invite permission to build any structure. It does not regulate density. Instead, it specifies that permission be obtained from the commission based on factual circumstances surrounding individual applications." *Id.*

The SJC distinguished the facts in *Lovequist* from those in *Rayco* stating that in "the case presently before us, no evidence has been introduced that there is or ever has been a comprehensive zoning by-law governing the wetland activities proposed by the plaintiffs. *Rayco*, moreover, nowhere suggests that municipal regulations that simply overlap with what may be the province of a local zoning authority are to be treated as zoning enactments which must be promulgated in accordance with the requirements of G.L. c. 40A." *Id. at 14*.

More recently in *Spenlinhauer [**23]* , the Appeals Court considered a "Comprehensive Occupancy" ordinance of the Town of Barnstable which, in part, "limit[s] the number of motor vehicles that may be parked overnight, offstreet and in the open outside a single-family dwelling to two motor vehicles for the first bedroom...and one motor vehicle per bedroom thereafter." *Spenlinhauer, 80 Mass. App. Ct. at 135* (internal quotations omitted). The Appeals Court concluded that "[a]pplication of the analysis contained in *Rayco*[] leads us to conclude that at least the parking component of the challenged ordinance is a matter for regulation through the town's zoning power, not through its use of a general ordinance." *Id. at 139*. This conclusion was based on the fact that "before adopting the ordinance, the town regulated off-street parking through its zoning bylaws," *id. at 140*, and further that discussion of the parking provisions of the ordinance at the meetings on the adoption of the ordinance centered "on the impact that dense parking had on the character and quality of the town's neighborhoods, precisely the target at which the town's zoning ordinance is so thoroughly and comprehensively aimed." *Id. at 141*. The court stated that "[a] gainst that backdrop, the town's attempt to use its general [**24] ordinance power to regulate off-street parking undercuts 'the assorted protections contained in' c. 40A, in the process frustrating the purposes for which c. 40A was enacted." *Id. at 141*, quoting *Rayco, 368 Mass. at 393-394*.

The *Spenlinhauer* court distinguished the instant facts from *Lovequist*, stating that unlike the wetlands bylaw at issue in *Lovequist*,

> [h]ere, by contrast, there is a comprehensive bylaw regulating parking in the town. The subject of parking has not been committed by statute or regulation to another town board or agency. The bylaw does not simply focus on individual applications for activities in which a landowner wishes to engage but instead regulates parking on all land in single-family residence zones. Finally, although the town claims that the ordinance was enacted as a

> health measure pursuant to the town's general police power, there is on this record no nexus between public health and overnight off-street parking. Indeed, it is difficult to conjure a menace to public health that arises as the sun sets over unoccupied vehicles parked on the grounds of the house where their owners reside.

Id. at 142.

Rayco, *Lovequist*, and *Spenlinhauer*, read together, provide the principles for analyzing when a general bylaw impermissibly [**25] in-trudes [*105] on a subject that is or should be regulated by the zoning bylaw. The first step is to examine the subject matter of the challenged general bylaw. A general bylaw may only regulate a subject if there is no history in the municipality of the subject being treated under zoning. *Spenlinhauer, 80 Mass. App. Ct. at 139-140*. If the municipality has a history of regulating that subject matter through its zoning bylaw, then it can only be further regulated through the zoning bylaw, not through a general municipal bylaw. *Id.* A general bylaw can only treat the subject matter of a zoning bylaw through regulations that supplement the terms of the zoning bylaw, through, for example, setting the terms of particular uses on individual applications through a licensing process. *Lovequist, 379 Mass. at 13-14*. The general bylaw may not, however, contradict or restrict the use that is controlled by the zoning bylaw. *Id.*; *Spenlinhauer, 80 Mass. App. Ct. at 142*.

The reason for this is that zoning bylaws have different, stricter requirements for enactment than general bylaws. See *Rayco, 368 Mass. at 394*. A zoning bylaw must be reviewed by the planning board in a public hearing and then reported on by the board, and, crucially, may only be enacted by a two-thirds vote of town meeting. *G.L. c. 40A, § 5*. General bylaws have no such requirements—they [**26] may be enacted by a majority vote. See Pl. Exh. 11; *G.L. c. 40, § 21*. Moreover, even if enacted, a zoning bylaw change does not apply to pre-existing nonconforming structures or uses or to land for which a preliminary subdivision plan has been filed. *G.L. c. 40A, § 6*. General bylaws, on the other hand, are not subject to such a "zoning freeze." See *Spenlinhauer, 80 Mass. App. Ct. at 137-138*. If a municipality were to use a general bylaw to change or override a zoning bylaw, it would avoid these limits on its power to enact zoning bylaws and the scope of those bylaws. *Rayco, 368 Mass. at 393*.

General Laws c. 94G, § 3(a), does not change these principles. *Section 3(a)* allows cities and towns to "adopt ordinances and bylaws that impose reasonable safeguards on the operation of marijuana establishments." *Id.* Specifically, municipalities may enact bylaws that "govern the time, place and manner of marijuana establishment operations," *id.* at *§3(a)(1)*, "limit the number of marijuana establishments in the city or town," *id.* at *§ 3(a)(2)*, "restrict the licensed cultivation, processing and manufacturing of marijuana that is a public nuisance," *id.* at *§ 3(a)(3)*, regulate signs, *id.* at *§ 3(a)(4)*, and establish civil penalties for violations, *id.* at *§ 3(a)(5)*. Nothing in *§ 3(a)* requires that these bylaws be enacted either as zoning or general bylaws; the municipality has the option [**27] of using either regulatory regime. Therefore, once a municipality chooses to regulate recreational marijuana use under its *§ 3(a)* authority by way of a zoning bylaw, it is subject to the rule of *Rayco* and *Spenlinhauer* that it may only change that regulation by amending the zoning bylaw, not by using a general bylaw to change what is allowed under the zoning bylaw. *Spenlinhauer, 80 Mass. App. Ct. at 139-140*. A general bylaw may only provide supplemental regulation of the marijuana use allowed under the zoning bylaw.

Here, Charlton chose to regulate recreational marijuana use in the Town through its zoning bylaw. It enacted Warrant Article 27, which amended the zoning bylaw to provide that certain recreational marijuana uses are allowed in the agricultural, community business, industrial and business enterprise park use districts by special permit. Given the relative newness of G.L. c. 94G, added by St. 2016, c. 334, § 5, Warrant Article 27

is the kind of "history" of regulating marijuana use by zoning that is contemplated in *Rayco* and *Spenlinhauer*. See *Rayco, 368 Mass. at 393* (before enactment of general bylaw, zoning bylaw had dealt specifically with the subject of trailer parks); *Spenlinhauer, 80 Mass. App. Ct. at 139-140* (before general bylaw enacted, zoning bylaw contained chapter of detailed parking regulations). Faced with the question [**28] put before it under c. 94G of how to regulate recreational marijuana use, the Town could have chosen to adopt a general bylaw. Instead, it chose to enact a zoning bylaw amendment, Warrant Article 27, which regulated recreational marijuana use through the traditional mechanisms of zoning, namely use districts and special permits. Having permitted marijuana use through its zoning bylaw, Charlton could only change or bar that use by amending the zoning bylaw. It could not do what it did here—bar the previously allowed zoning use by Warrant Article 2, a general bylaw.

Indeed, the circumstances of the enactment of Warrant Article 2 demonstrate why it was improper. At the August 1, 2018, special town meeting, Russell and the other citizen proponents advanced two warrant articles: (1) Warrant Article 1, seeking to rescind the previously adopted zoning bylaw, Warrant Article 27; and (2) Warrant Article 2, seeking to adopt a general bylaw to ban all non-medical cannabis uses within the Town. Warrant Article 1 and Warrant Article 2 had the identical purpose: to bar the recreational marijuana use allowed by special permit under Warrant Article 27. Warrant Article 1 got a majority vote but failed to obtain the necessary two-thirds majority vote and therefore failed. Warrant Article 2 passed by a majority vote. In effect, town meeting evaded the strict [**29] two-thirds vote requirement of *G.L. c. 40A, § 5*, for amending a zoning bylaw by enacting a general bylaw instead. Therefore, Warrant Article 2 is invalid. It was an attempt to amend the Charlton zoning bylaw, and it did not obtain a two-thirds vote.

Russell and the amici have raised other issues. In his opposition, Russell challenges the validity of the Development Agreement and Host Community Agreement. These agreements are not the subject of the Summary Judgment Motion, and Russell has not brought a cross-motion for summary judgment. The validity of these agreements is not before the court in this motion, and the court does not address them.

Russell and two of the amici have also challenged the constitutionality of G.L. c. 94G. Specifically, they argue that c. 94G is barred by article VI of the United States Constitution, the *Supremacy Clause*, because federal regulation of marijuana as a controlled substance preempts state authority to enact c. 94G. The question of the constitutionality of c. 94G, at least on these grounds, is outside the subject matter jurisdiction of the Land Court. It is not a zoning issue properly brought under *G.L. c. 240, § 14A*, or *G.L. c. 40A, §§ 7* or *17*, or a question "cognizable under the general principles of equity jurisprudence where any right, title or interest in land is involved." *G.L. c. 185, §§ 1(j 1/2), 1(k)*, [**30] *1(p)*. The court [*106] declines to address this issue. See *Towermarc Canton Ltd. P'ship v. Town of Canton*, Land Ct., Misc. Case No. 13197, 1989 WL 1183021 (Oct. 26, 1989) ("Moreover, in a proceeding such as this brought under *G.L. c. 240, 14A* where the Court has subject matter jurisdiction to determine '...the validity of a municipal ordinance...' it would appear to be without subject matter jurisdiction to determine the constitutionality of *G.L. c. 40A, § 6*.").

CONCLUSION

For the foregoing reasons, the Motion for Summary Judgment is **ALLOWED**. Warrant Article 2 is beyond the scope of the Town's power and authority, and is invalid and of no force and effect. Judgment shall not enter at this time as Russell's cross-claim against the Town was not considered in the Plaintiffs' Motion for Summary Judgment. Pursuant to *Mass. R. Civ. P. 54(b)*, any party may move for entry of separate and final judgment on Counts I and II of the Complaint.

SO ORDERED

By the Court.

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EXHIBIT
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Town of Wendell

Zoning Bylaws

October 30, 2019

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of not more than $ 300 for each such violation. Each day during which a violation exists shall constitute a separate offense.

Section P. Cease and Desist

Upon notice from the building official that work on any building or structure or any operation of a personal wireless service facility is being prosecuted contrary to the provisions of this Article or in an unsafe and dangerous manner or contrary to the approved construction documents submitted in support of the Special Permit application or Special Permit, such work shall be immediately stopped. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work; and shall state the conditions under which work or use will be permitted to resume. Any person who shall continue any work in or about the Facility after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not more than $ 300 for each such violation. Each day during which a violation exists shall constitute a separate offense.

Section Q. Severability Clause

The invalidity of any section or provision of this Article shall not invalidate any other section or provision thereof.

ARTICLE XIV. SOLAR ELECTRIC INSTALLATIONS

Section A. Purpose

The purpose of this bylaw is to facilitate the creation or expansion of Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations by providing standards for the placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, minimize impacts on environmental, scenic, natural and historic resources and to provide adequate financial assurance for the eventual decommissioning of such installations.

Section B. Applicability

This Article XIV applies to the construction, operation, repair, and/or removal of Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations, and to physical modifications that materially alter the type, configuration, or size of these installations or related equipment. This Article XIV shall not apply to Small-Scale Ground-Mounted Solar Electric Installations or to building-mounted Solar Electric Installations.

Section C. General Requirements

The following requirements are common to all Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations.

1. **Compliance with Laws, Bylaws, and Regulations.**

The construction and operation of all Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part thereof shall be constructed in accordance with the Massachusetts State Building Code.

2. Building Permit and Building Inspection.

No Large-Scale Ground-Mounted Solar Electric Installation or Extra-Large-Scale Ground-Mounted Solar Electric Installation shall be constructed, installed or modified as provided in this Article XIV without first obtaining a building permit.

3. Fees

Large-scale Ground-Mounted Solar Electric Installations or Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be constructed, installed, or

modified as provided in the Article XIV without first obtaining a building permit.

4. Independent Consultants

Upon submission of an application for Site Plan Review and/or a Special Permit, the Site Plan Review Authority and the Special Permit Granting Authority are authorized to engage outside consultants to peer review the application, pursuant to G.L. c. 44, § 53G, whose services shall be paid for by the applicant.

Section D. Site Plan Review

Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall undergo Site Plan Review by the Site Plan Review Authority, in accordance with Article VI, prior to construction, installation or modification thereof, and shall further meet the requirements of this Article XIV.

1. General

All plans and maps shall be prepared, stamped and signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.

2. Required Documents

The project applicant shall provide the following documents in addition to or in coordination with those required under Section VI.

a) Site Plan. A Site Plan showing:

i. Property lines and physical features, including roads and topography, for the project site.

ii. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, fencing, screening vegetation and structures, including their height.

iii. Locations of wetlands and Priority Habitat Areas as defined by the Natural Heritage & Endangered Species Program (NHESP).

iv. Locations of floodplains or inundation areas for moderate or high hazard dams.

v. Locations of local or National Historic Districts.

vi. Water provision, including fire protection measures.

vii. Storm water drainage, including means of ultimate disposal and calculations

viii. Existing trees 10" caliper or better and existing tree/shrub masses; proposed planting, landscaping, and screening. Each individual tree does not need to be described, an area that is forested should be indicated.

ix. Identification of the site of the proposed installation by street address, if any, and the name(s) of the street(s) and way(s) nearest thereto.

x. Map and lot number(s) for the site, available from the Assessor's office.

xi. Zoning district designation(s) for the parcel(s) of land comprising the project site.

b) Blueprints. Blueprints or drawings of the installation signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts, showing:

i. The proposed layout of the system and any potential shading from nearby structures.

ii. One or three line electrical diagram detailing the Solar Electric Installation, associated components, and electrical

interconnection methods, with all Massachusetts and National Electrical Code compliant disconnects and overcurrent devices.

c) General Documentation. The following information shall also be provided:

i. A list of any hazardous materials along with their Material Safety Data Sheets (MSDSs) proposed to be located on the site in excess of household quantities and a plan to prevent their release to the environment as appropriate.

ii. Documentation of the major system components to be used, including the electric generating components, transmission systems, mounting system, inverter, etc. any MSDSs involved with these components.

iii. Name, address, and contact information for proposed system installer.

iv. Name, address, phone number and signature of the project applicant, as well as all co-applicants or property owners, if any.

v. The name, contact information and signature of any agents representing the project applicant.

vi. Certified list of abutters.

vii. Any and all presentation board(s) and/or full-sized plan(s) utilized by the applicant at meeting(s) of the Site Plan Review Authority, provided in a format no larger than 24" x 36".

viii. Owner and operator of the facility (see responsibilities/enforcement below...we need to be clear who they are and they need to be so bylaw is enforceable.

d) Site Control. The project applicant shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed Solar Electric Installation.

e) Operation and Maintenance Plan. The project applicant shall submit a plan for the operation and maintenance of the Solar Electric Installation, which shall include measures for maintaining safe access to the installation, storm water management (consistent with the Town of Wendell's Storm water Regulations as delineated in the Town's Subdivision Regulations under Design Standards) and vegetation controls, as well as general procedures for operational maintenance of the installation. The key requirements for storm water management are that storm water should not leave the site, storms should be anticipated so that storm water management structures are appropriately sized.

f) Insurance. The project applicant shall provide proof of liability insurance in an amount sufficient to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of the Solar Electric Installation.

g) Financial Surety. Applicants for Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall provide a form of surety, either through an escrow account, bond or otherwise, to cover the cost of removal in the event the Town must remove the installation and remediate the site to its natural preexisting condition, in an amount and form determined to be reasonable by the Site Plan Review Authority, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein. The project applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The

amount shall include a mechanism for calculating increased removal costs due to inflation.

h) Utility Notification. No Large-Scale Ground-Mounted Solar Electric Installation or Extra-Large-Scale Ground-Mounted Solar Electric Installation shall be constructed until evidence has been given that the utility company that operates the electrical grid where the installation is to be located has been informed of the Solar Electric Installation owner or operator's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

Section E. Conditions

In addition to those considerations specified in Section VI, Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be designed so as to:

1. **minimize visual impacts** through proper lighting, landscaping and screening of the Solar Electric Installation and appurtenant structure(s), if any;
2. **minimize environmental impacts** by avoiding land clearing and fragmentation of open space, preserving natural habitat and limiting the use of and providing for the containment of hazardous materials, and by satisfying applicable noise standards;
3. **minimize safety impacts** through compliance with applicable dimensional requirements, design of the site so as to prevent unauthorized access and development of an emergency response plan; and
4. **ensure compliance** with all applicable local, state and federal statutes, regulations, codes, bylaws, rules and standards.

Section F. Dimensional Requirements

1. **Setback Requirements.** For all Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar

Electric Installations, minimum setbacks shall be as follows. Acreage and generating capacity thresholds apply in the aggregate to new facilities and expansions of existing facilities. For expansions, the acreage and output generation of the existing facility would be added to those of the proposed expansion to determine the overall size and generating capacity. Required setback areas shall not be counted toward a facility's total acreage.

FRONT SETBACK (feet) 100

REAR YARD (feet) 100

SIDE YARD (feet) 100

PERIMETER SETBACK (feet) 100

2. **Dimensional Requirements for Appurtenant Structures.** All appurtenant structures to Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be subject to reasonable regulations concerning lot area, parking, and building coverage, as per the Wendell Zoning Bylaw. Setbacks shall be determined by Section G, 1. All such appurtenant structures, including but not limited to equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other. Whenever reasonable, structures should be screened from view by vegetation and/or joined or clustered to avoid adverse visual impacts.

3. **Height of Structures.** The height of any structure associated with Large-Scale Ground-Mounted Solar Electric Installation or Extra-Large-Scale Ground-Mounted Solar Electric Installation shall not exceed 35 feet.

4. **Design and Performance Standards**

   a) Lighting Lighting of Solar Electric Installations and appurtenant structures shall be consistent with the Wendell Zoning Bylaw, and all other applicable local, state and federal

laws. Lighting of the installation, including appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be shielded from abutting properties. All lighting shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

b) Signage. Signs on all Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall comply with Article VIII of the Wendell Zoning Bylaw. Sufficient signage shall be provided, in accordance with said Section, to identify the owner of the facility and provide a 24-hour emergency contact phone number. Solar Electric Installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the installation.

c) Utility Connections. Electrical transformers or other utility interconnections shall be constructed as required by the utility provider and may be above ground if necessary; provided, however, that reasonable efforts shall be made to place all utility connections underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider.

d) Roads. Access roads shall be constructed to minimize grading, removal of stone walls or street trees and minimize impacts to environmental or historic resources.

e) Control of Vegetation. Herbicides may not be used to control vegetation at the Solar Electric Installation. Mowing or the use of pervious pavers or geotextile materials underneath the solar array is a possible alternative.

f) Hazardous Materials. If hazardous materials are to be used or generated on site, provision shall be made for the storage thereof in accordance with all requirements of, including but not limited to the storage of hazardous materials in a building

with an impervious floor that is not adjacent to any floor drains to prevent discharge to the outdoor environment and for full containment of such materials in the event of a release. An enclosed containment area, designed to contain at least 110% of the volume of the hazardous materials used, generated or stored on the site, may be required.

g) Noise. Noise generated by Large-scale Ground-Mounted Solar Electric Installations, Extra-Large-Scale Ground-Mounted Solar Electric Installations and associated equipment and machinery shall conform to applicable state and local noise regulations, including the MassDEP's Division of Air Quality noise regulations, 310 CMR 7.10. A source of sound will be considered in violation of said regulations if the source:

i. increases the broadband sound level by more than 10 db(A) above ambient; or

ii. produces a "pure tone" condition, when an octave band center frequency sound pressure level exceeds the two (2) adjacent center frequency sound pressure levels by three (3) decibels or more. Said criteria are measured both at the property line and at the nearest inhabited residence. "Ambient" is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment hours, unless established by other means with the consent of the MassDEP.

h) Landscaping and Screening. Any fencing or other structure(s) erected to prevent unauthorized access to the Solar Electric Installation, as well as any appurtenant structures, shall be screened using landscaping or other means to minimize their visual impact.

5. Safety and Environmental Standards

a) Emergency Services. The Solar Electric Installation owner or operator shall provide a copy of the project summary,

electrical schematic, and site plan to the Fire Chief, Highway Superintendent, and Emergency Management Director. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the Solar Electric Installation shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

b) **Access.** All Large-scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be designed so as to prevent unauthorizeed access (e.g. by fencing, by locked access).

c) **Land Clearing, Soil Erosion and Habitat Impacts.** All Large-scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be designed to minimize land clearing and fragmentation of open space areas, and shall be located so as to avoid significant negative impacts on rare or protected species in the vicinity. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the Solar Electric Installation or as otherwise prescribed by applicable laws or regulations.

d) **Wetlands.** All Large-Scale Ground-Mounted Solar Electric Installations and Extra-Large-Scale Ground-Mounted Solar Electric Installations shall be located in a manner consistent with applicable state and local wetlands regulations.

6. Monitoring, Maintenance and Reporting.

a) **Solar Electric Installation Conditions.** Solar Electric Installation Conditions. The Solar Electric Installation owner or operator shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site

access shall be maintained to a level acceptable to the local Fire Chief and Emergency Management Director. The owner or operator shall be responsible for the cost of maintaining the Solar Electric Installation and any access road(s).

b) **Modifications.** All material modifications to a Solar Electric Installation made after issuance of the required building permit shall require approval by the Site Plan Review Authority and Special Permit Granting Authority, if applicable.

c) **Commissioning Report.** Prior to placement of a Solar Electric Installation into operation, the owner or operator thereof shall submit a commissioning report demonstrating that said Installation has been adequately tested and that it functioned as designed prior to start-up. The report shall be submitted to the Select Board at least thirty (30) days prior to activation of the facility.

d) **Annual Reporting.** The owner or operator of the Solar Electric Installation shall submit an annual report demonstrating and certifying compliance with the Operation and Maintenance Plan (see Section D, 2, e), the requirements of this Section XIV and the approved site plan, including but not limited to continued control of vegetation, compliance with noise standards, and adequacy of road access. The annual report shall also provide information on the maintenance completed during the course of the year and the amount of electricity generated by the facility. The report shall be submitted to the Selectboard, Planning Board, Fire Chief, Emergency Management Director, Building Inspector, Board of Health and Conservation Commission (if a wetlands permit was issued) no later than 45 days after the end of the calendar year.

7. Abandonment or Decommissioning

a) **Removal Requirements.** Any Large-Scale Ground-Mounted

Solar Electric Installation or Extra-Large-Scale Ground-Mounted Solar Electric Installations which has reached the end of its useful life or has been abandoned shall be removed. The owner or operator shall physically remove the installation no later than 150 days after the date of discontinued operations. The owner or operator shall notify the Site Plan Review Authority and Special Permit Granting Authority, if applicable, by certified mail, of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of:

i. Physical removal of all components of the Solar Electric Installation, including but not limited to structures, equipment, security barriers, and on-site transmission lines. Associated off-site utility interconnections shall also be removed if no longer needed.

ii. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.

iii. Restoration of the site to its natural preexisting condition, including stabilization or re-vegetation of the site as necessary to minimize erosion. The Site Plan Review Authority may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

b) Decommissioning by the Town. If the owner or operator of a Large-Scale Ground-Mounted Solar Electric Installation or Extra-Large-Scale Ground-Mounted Solar Electric Installation fails to remove such installation in accordance with the requirements of this Article XIV, Section G, 7 within 150 days of discontinued operations or abandonment, the Town may enter the property and physically remove the installation at the owner's expense, drawing from the escrow account or upon the bond or other financial surety provided by the

applicant pursuant to Article XIV, Section D, 2 G.

Section G. Severability Clause

The invalidity of any section or provision of the Article shall not invalidate any other section or provision thereof.

ARTICLE XV. FLOODPLAIN OVERLAY DISTRICT

Section A. Statement of Purpose

The purposes of the Floodplain Overlay District are to:

1. Ensure public safety through reducing the threats to life and personal injury.
2. Eliminate new hazards to emergency response officials.
3. Prevent the occurrence of public emergencies resulting from a reduction in water quality, contamination, and/or pollution due to flooding.
4. Avoid the loss of utility services which if damaged by flooding would disrupt or shut down the utility network and impact regions of the community beyond the site of flooding.
5. Reduce costs associated with the response and cleanup of flooding conditions.
6. Reduce damage to public and private property resulting from flooding waters.

Section B. Floodplain District Boundaries And Base Flood Elevation And Floodway Data

1. The Floodplain District is herein established as an overlay district. The Floodplain District includes all special flood hazard areas designated as Zone A on the Wendell Flood Hazard Boundary Map (FHBM) dated January 17, 1975, issued originally by the Department of Housing and Urban Development Federal Insurance Administration and currently maintained by the Federal Emergency

ARTICLE XIV. GROUND-MOUNTED SOLAR ELECTRIC GENERATING INSTALLATIONS (proposed to replace existing ARTICLE XIV)

Section A. Purpose

The purpose of this bylaw is to establish the permitting process for the creation or expansion of Ground-Mounted Solar Electric Generating Installations, with or without an Accessory Battery Energy Storage Facility, by providing standards for the placement, design, construction, operation, monitoring, modification, removal, financial surety, and decommissioning of such installations. The bylaw addresses public safety, preservation of forests and wetlands as vital carbon sinks, critical wildlife habitat to support biodiversity, protection of indigenous and other cultural features, and mitigation of impacts to environmental, scenic, cultural and historic resources. In view of the ongoing threats of climate change and biodiversity loss, Wendell recognizes the critical need to move away from fossil fuels and embrace renewable energy. The town also recognizes that our critical habitats including wetlands, prime and statewide important agricultural farmland, and forests, are essential allies in minimizing threats from climate change.

This bylaw establishes a procedure to find a balance between renewable energy generation and natural and cultural resource protection that serves both our social and environmental responsibilities and protects public health and safety. As a rural, financially distressed community, Wendell relies primarily on volunteer municipal officials. Solar electric energy generation is prioritized for previously developed areas such as on rooftops, parking lots, landfills and other degraded areas to minimize environmental impacts and to prevent erosion from the removal of forested areas. Wendell seeks to conserve its farmland and fields, wetlands and unfragmented tracts of forests that provide many ecological and public health benefits including food, protection of water and air quality, sequestration of carbon, protection from the spread of invasive species, and conservation of critical wildlife habitat to support biodiversity.

Section B. Definitions

For the purposes of this Article XIV the following definitions shall apply:

Accessory Battery Energy Storage Facility: A battery storage system that is ancillary to a Small-Scale, Medium-Scale, Large-Scale, or Very Large-Scale Ground-Mounted Solar Electric Generating Installation.
Accessory Ground-Mounted Solar Energy Installation: A solar energy installation that primarily supports on-site energy needs and that is mounted on the ground, either directly or on supports which do not constitute a building under the building code.
Battery Energy Storage Facility: a system of mechanical, electrical, chemical or electrochemical devices that charges or collects energy from the local electric grid or an electric generating facility and then discharges that energy at a later time to provide electricity to the grid or homes and businesses.
BioMap: The BioMap, which is updated periodically by the Massachusetts Division of Fisheries and Wildlife's Natural Heritage and Endangered Species Program, is designed to guide strategic biodiversity conservation in Massachusetts by focusing land protection and stewardship on the areas that are most critical for ensuring the long-term persistence of rare and other native species and their habitats, exemplary natural communities, and a diversity of ecosystems and include:
Core Habitat: identifies key areas to ensure the long-term persistence of species of conservation concern, exemplary natural communities, and intact ecosystems across the Commonwealth.
Critical Natural Landscape: identifies larger landscape areas that are better able to support ecological processes, disturbances, and wide-ranging species.
Building-Mounted Solar Energy Installation: A solar energy installation that is permanently affixed to a building, as defined by the State Building Code. This definition is inclusive of canopy structures.
Dual-use Agricultural Solar: Dual-use solar, also known as agrivoltaics, is the practice of installing solar photovoltaic panels on farmland in such a manner that primary agricultural activities (such as animal grazing and crop/vegetable production) are maintained simultaneously on that farmland.
Farmland of Statewide Importance: land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops, as determined by the

state agency or agencies. Generally, these include lands that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.
Federally Recognized Tribe's Cultural Authority (FRTCA): shall mean, for the purposes of this bylaw, a Tribal Historic Preservation Officer/Office (THPO); or a federally recognized Tribe's formally designated Cultural Authority.
Forest: an area of land spanning more than 1.25 acres with trees higher than 16.5 feet and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
Hydrogeologic study: a study by a licensed hydrogeologist to determine whether an energy generation and/or energy storage project will have a negative effect on the water quality of wetlands or drinking water in the vicinity.
Indigenous Ceremonial Stone Landscapes (CSLs): indigenous stone features on the land of sacred cultural significance that have been identified by a Tribal Historic Preservation Officer or a federally recognized Tribe's formally designated cultural authority. Ceremonial Stone Landscape Sites in the Northeast are locations of ceremonial activity that are characterized by stone assemblages of many types, some earthworks, and usually incorporate a number of natural landscape features into their design. (For further information, reference USET Resolution #2007:037)
Indigenous Cultural Resources: shall include cultural resource(s) that have been identified by a Tribal Historic Preservation Officer (THPO) or a federally recognized Tribe's formally designated cultural authority, as possessing religious and cultural significance to tribes. Said cultural resources may include but are not limited to sites, features, places, cultural landscapes, sacred places, and objects; and shall also include Indigenous Ceremonial Stone Landscapes (CSLs) (reference USET Resolution #2007:037).
Large-Scale Ground-Mounted Solar Electric Generating Installation: shall mean a ground-mounted solar electric system occupying over 1/4 acre of land with or without an accessory battery storage system occupying up to 5 acres of land.
Low Impact Development (LID): an environmentally friendly approach to land use development. It includes landscaping and design techniques that attempt to maintain the natural, pre-developed ability of a site to manage

rainfall. LID techniques capture water on site, filter it through vegetation, and let it soak into the ground.
Medium-Scale Ground-Mounted Solar Electric Generating Installation: shall mean a ground-mounted solar electric system occupying more than 1,000 square feet and up to 1/4 acre of land.
Natural Heritage & Endangered Species Program (NHESP): NHESP, which is a program of the Massachusetts Division of Fisheries and Wildlife, is responsible for the conservation and protection of hundreds of species that are not hunted, fished, trapped, or commercially harvested in the state, as well as the protection of the natural communities that make up their habitats.
Prime Agricultural Farmland: land that has the best combination of physical and chemical characteristics for economically producing sustained high yields of food, feed, forage, fiber, and oilseed crops, when treated and managed according to acceptable farming methods.
Priority Habitat: Priority Habitat areas are based on the known geographical extent of habitat for all state-listed rare species, both plants and animals, as codified under the Massachusetts Endangered Species Act (MESA). Habitat alteration within Priority Habitats may result in a 'take' of a state-listed species, and is subject to regulatory review by the Natural Heritage & Endangered Species Program.
Small-Scale Ground-Mounted Solar Electric Generating Installation: shall mean a ground-mounted solar electric system occupying up to 1,000 square feet of land.
Solar Overlay District: The Wendell Solar Overlay District (as established under Article XVII of the Zoning Bylaws) provides for Large-Scale and Very Large-Scale Ground Mounted Solar Installations without an Accessory Battery Energy Storage Facility by right with Site Plan Review on lots that are suitable for the development of solar. These include the property shown on Wendell Assessor's Map 404, Lot 28 and Map 411, Lot 24 as of the date of adoption of this Article XIV and as may hereafter be amended.
Very Large-Scale Ground-Mounted Solar Electric Generating Installation: shall mean a ground-mounted solar electric system occupying over 5 acres of land and up to 10 acres of land, with or without an accessory battery storage system.

Section C. Applicability

This Article XIV applies to the construction, operation, repair, and/or removal of Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations, with or without an accessory battery storage system, and to physical modifications that materially alter the type, configuration, or size of these installations or related equipment. Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations must also comply with all the requirements of the Massachusetts Wetlands Protection Act and Wendell's Wetlands Protection Bylaw administered by the Wendell Conservation Commission. Such installations also require a building permit, and must comply with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements and other provisions of the Zoning Bylaws, such as setback requirements. This Article XIV shall not apply to Small-Scale or Medium-Scale Ground-Mounted Solar Electric Generating Installations or to Building-Mounted Solar Energy Installations.

1. All Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installation applicants shall, prior to site preparation, file a Request for Determination of Applicability of the Massachusetts Wetlands Protection Act (WPA) with Wendell's Conservation Commission to determine whether a proposed installation would comply with the WPA and Wendell's Wetlands Protection Bylaw.

2. Small-Scale Solar electric generating installations that are roof mounted or under 1,000 square feet are allowed by right and require a Building Permit;

3. Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations in the Solar Overlay District without an Accessory Battery Energy Storage Facility are allowed by right but require Site Plan Review. Large-Scale and Very Large-Scale Ground- Mounted Solar Electric Generating Installations in the Solar Overlay District with an Accessory Battery Energy Storage Facility require Site Plan Review and a Special Permit;

4. Site Plan Review is required for any Medium-Scale Ground-Mounted Solar Electric Generating Installation;

5. Site Plan Review and a Special Permit are required for any Large-Scale Ground-Mounted Solar Electric Generating Installations outside the

Solar Overlay District on one or more adjacent parcels in common ownership, including those separated by a roadway;
6. A Battery Energy Storage Facility that is accessory to a Small-Scale Ground-Mounted Solar Electric Generating Installation and is utilized in connection with a primary permitted use is allowed in all zoning districts by right, with a Building Permit;
7. Any Accessory Battery Energy Storage Facility for a Medium-Scale, Large-Scale or Very Large-Scale Ground-Mounted Solar Electric Generating Installation shall be sized to accommodate only the electricity generated on the site and shall require Site Plan Review and a Special Permit and a safety review approval from the Town's fire officials; and

8. Very Large-Scale Ground-Mounted Solar Electric Generating Installations are only allowed in the Solar Overlay District.

Section D. Requirements

The following requirements are common to all Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations.
1. Compliance with Laws, Bylaws, and Regulations.

The construction and operation of all Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming a part thereof shall be constructed in accordance with the Massachusetts State Building Code. All accessory Battery Energy Storage Facilities must meet the standards put forth in the National Fire Protection Association's NFPA 855 Standard for the Installation of Stationary Energy Storage Systems, 2020 Edition (NFPA 855), as amended and updated, and comply with the State Fire Code 527 CMR 1.00, the State Electrical Code 527 CMR 12.00, and the State Building Code 780 CMR.

Installations shall not go into operation until all local, state and federal requirements have been met and all required approvals issued.
2. Building Permit and Building Inspection.

No Ground-Mounted Solar Electric Generating Installation shall be constructed, installed or modified as provided in this Article XIV without first obtaining a building permit and payment of the required fee.
3. Independent Consultants

Upon submission of an application for Site Plan Review and/or a Special Permit, the Site Plan Review Authority and/or the Special Permit Granting Authority are authorized to engage outside consultants and legal counsel to peer review the application and to provide expert advice on topics including but not limited to stormwater management, fire suppression, hazard mitigation, decommissioning, and financial surety measures, pursuant to G.L. c. 44, § 53G, whose services shall be paid for by the applicant.

Section E. SUBMITTAL REQUIREMENTS

Ground-Mounted Solar Electric Generating Installations requiring a Special Permit and/or Site Plan Review shall also be subject to all the requirements of Article VI Special Permits, Use Regulations and Site Plan Review and shall further meet the requirements of this Article XIV.
1. General

All plans and maps shall be prepared, stamped and signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts except for the Cultural Resources Report which shall be prepared by a Federally Recognized Tribe's Cultural Authority.
2. Required Documents

The project applicant shall provide the following documents in addition to or in coordination with those required under Section VI.

2.a Site Plan. A Site Plan showing:
i. Property lines and physical features, including roads and topography, for the project site.
ii. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, fencing, screening vegetation and structures, including their height and views of the site taken from abutting properties before construction and computer generated views showing conditions after construction at 2, 5 and 10 years.
iii. Locations of wetlands as delineated by a wetlands scientist and approved by the Conservation Commission
iv. Priority Habitat Areas, Core Habitat Areas and Critical Natural Landscapes as defined by the Natural Heritage & Endangered Species Program (NHESP).
v. Locations of floodplains or inundation areas for moderate or high hazard dams.
vi. Locations of local or National Historic Districts.
vii. Water provision, including fire protection measures.
viii. Stormwater drainage, including ways that the stormwater will be managed and retained on site using Low Impact Development techniques, and calculations and engineering plans to show how stormwater runoff from the property will not be increased during or after construction or during operation of the installation. The stormwater management plan shall be consistent with the requirements of the Wetlands Protection Act and the stormwater management requirements of Wendell's Subdivision Regulations and employ measures to minimize impervious surfaces at the site.

ix. Existing trees of 10" caliper or better and existing tree/shrub masses; proposed planting, landscaping, and screening. Each individual tree does not need to be described, an area that is forested with a continuous canopy greater than 10,000 square feet should be indicated.
x. Identification of the site of the proposed installation by street address, if any, and the name(s) of the street(s) and way(s) nearest thereto.
xi. Map and lot number(s) for the site, available from the Assessor's office.
xii. Zoning district designation(s) for the parcel(s) of land comprising the project site.
xiii. Documentation by an acoustical engineer of the noise levels projected to be generated by both the construction/installation and operation of the Solar Electric Generating Installation.
xiv. A signed Interconnection Service Agreement for the proposed Solar Electric Generating Installation from the applicable utility.
xv. A report and analysis on any glare that will be produced by the solar panels and proposed mitigation, by a qualified engineer.
xvi. Proposed installation of native plants that provide habitat underneath and around the perimeter of the Ground-Mounted Solar Electric Generating Installation and measures to prevent the introduction of invasive species.

2.b Blueprints. Blueprints or drawings of the installation signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts, showing:

i. The proposed layout of the system and any potential shading from nearby structures.
ii. One or three line electrical diagram detailing the Solar Electric Generating Installation, associated components, and electrical interconnection methods, with all Massachusetts and National Electrical Code compliant disconnects and overcurrent devices.

2.c General Documentation. The following information shall also be provided:
i. A list of any hazardous materials along with their Material Safety Data Sheets (MSDSs) proposed to be located on the site in excess of household quantities that will be addressed by the Hazard Mitigation & Hazardous Materials Plan (see 2.g.). This includes MSDS sheets for the Solar Electric Generating Installation components and any Accessory Battery Energy Storage Facility, fire suppression equipment or materials, and structural elements used to construct the Installation that could produce leachate and potentially contaminate air or water or impair air or water quality.
ii. Documentation of the major system components to be used, including the electric generating components, transmission systems, mounting system, inverters, etc. and any MSDSs applicable to these components.
iii. Name, address, and contact information for proposed system installer.
iv. Name, address, phone number and signature of the project applicant, as well as all co-applicants, if any, and property owner(s).
v. The name, contact information and signature of any agents representing the project applicant.
vi. Certified list of abutters.

vii. Any and all presentation board(s) and/or full-sized plan(s) to be utilized by the applicant at meeting(s) of the Special Permit Granting Authority and/or Site Plan Review Authority, provided in a format no larger than 24" x 36".
viii. Contact information (name, address and phone number) for the proposed owner and operator of the facility (see responsibilities and enforcement below).

2.d Site Control. The project applicant shall submit documentation of rights to access and control of the project site sufficient to allow for construction and operation of the proposed Ground-Mounted Solar Electric Generating Installation.
2.e Operation and Maintenance Plan. The project applicant shall submit a plan for the operation and maintenance of the Ground-Mounted Solar Electric Generating Installation and any Accessory Battery Energy Storage Facility, which shall include measures for maintaining safe access to the installation, fire suppression, stormwater management and vegetation controls, as well as general procedures for operation and maintenance of the installation.
2.f Stormwater Management Plan. A plan for the annual inspection and maintenance of the stormwater management systems installed shall be provided. The key requirements for stormwater management are that stormwater should not leave the site. Stormwater management systems should be designed to manage 24-hour extreme precipitation events which are forecasted and stormwater management structures shall be appropriately sized to address climate change impacts. The applicant shall use NOAA 14 or its successor recommended by the Massachusetts Department of Environmental Protection (DEP) to calculate stormwater runoff for precipitation events.
2.g Hazard Mitigation & Hazardous Materials Plan. A plan for the mitigation, management and safe storage of any hazardous

materials present on site, including a list of hazardous materials and documentation of their toxicity including their potential to leach into the groundwater. Groundwater is the source for private drinking water wells in Wendell as there is no public water supply. Any proposed use of pesticides or herbicides must be submitted as part of the application. Measures to contain the release of hazardous materials in the event of fire shall be included, particularly with respect to Ground-Mounted Solar Electric Generating Installations that have an Accessory Battery Energy Storage Facility.

If hazardous materials are to be used, generated or stored on site, provision shall be made for the containment thereof in accordance with all applicable laws and regulations, and including but not limited to the storage of hazardous materials in a building with an impervious floor that is not adjacent to any floor drains to prevent discharge to the outdoor environment and for full containment of such materials in the event of a release. An enclosed containment area, designed to contain at least 110% of the volume of the hazardous materials used, generated or stored on the site, is required.

The plan shall also outline measures and materials that will be used to suppress fires and mitigate other hazards. No PFAS chemicals shall be used given the high risk of contamination to groundwater. All solar panels and associated equipment shall be selected to minimize risks to air and water quality and to protect public safety against fires, explosions, and release of hazardous materials to water or air. Materials testing to determine toxicity may be required if the suppression or mitigation materials are considered hazardous.

2.h Hydrogeologic study. A study and report by a licensed hydrogeologist of how any aspect of the installation or its operation may affect surface water quality, wetlands, subsurface water quality, and drinking water wells. Aspects to be addressed

include, but are not limited to, imported materials, hazardous materials used or stored on site, and deforestation.

2.i Insurance. The project applicant shall provide proof of liability insurance in an amount sufficient to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of the Solar Electric Generating Installation and any Accessory Battery Energy Storage Facility including coverage for fires, explosions and flooding events.

2.j Financial Surety. Applicants for Large-Scale Ground-Mounted Solar Electric Generating Installations and Very Large-Scale Ground-Mounted Solar Electric Installations shall provide for a cash escrow account or other form of surety (e.g. bond) acceptable to the Town, pursuant to M.G.L. Chapter 44, section 53G1/2 and to be provided in the event of approval of the application and which shall be held by the Town, to cover the cost of removal, recycling, and disposal of the installation and remediation and/or restoration of the site in the event the Town must remove the installation and remediate and/or restore the site to its natural preexisting condition.

The final amount and form of surety must be determined by the SPGA or the Site Plan Review Authority to be reasonable, but in no event should the amount exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein unless the SPGA or Site Plan Review Authority makes a specific, documented finding that a higher amount is required to ensure removal and compliance for the installation in question. The project applicant shall submit decommissioning plan with a fully inclusive estimate of the costs associated with removal and site restoration, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal and site restoration costs due to inflation. Said estimated cost shall not deduct the value of material recycling given the potential expense and difficulty of recycling. Said surety in its full amount shall be presented

the SPGA and/or Site Plan Review Authority and the Select Board prior to the commencement of construction. All legal documents required to enable the Town to exercise the rights and responsibilities under the plan to enter the property, decommission the installation, and physically remove the installation and restore the site to its natural condition shall be included in the decommissioning plan.

2.k Utility Notification. No Large-Scale Ground-Mounted Solar Electric Generating Installation or Very Large-Scale Ground-Mounted Solar Electric Generating Installation shall be constructed until evidence has been given to the SPGA and/or Site Plan Review Authority that the utility company that operates the electrical grid where the installation is proposed to be located has been informed of the installation owner's or operator's intent to construct, and the applicant has provided a signed copy of the interconnection agreement with the utility company to the SPGA and/or Site Plan Review Authority and the Select Board. Off-grid installations shall be exempt from this requirement.

2.l Landscape Plan. The project applicant shall submit a native planting and maintenance plan. Dual-use Agricultural Solar facilities may be exempted from this provision if grazing or crops production will occur under the proposed photovoltaic array and around its perimeter. All precautions shall be taken during construction and maintenance activities to prevent the spread of invasive plant species.

2.m Cultural Resources Report. The project applicant shall submit a confidential report prepared by a FRTCA on any Indigenous Cultural Resources including Ceremonial Stone Landscapes located on the site. Any Ceremonial Stone Landscapes should be identified during one or more site visits by a Tribal Historic Preservation Officer or a Tribe's appointed cultural authority. The optimal time for site visits is early spring or late fall when snow coverage and foliage are minimal. Compensation for the Tribe's services is the responsibility of the

applicant. To protect the cultural resources, only the Town's permitting authorities, Tribal Historic Preservation Officer or Tribe's appointed cultural authority, State Historic Preservation Officer, and/or Wendell Historic Commission shall have access to the report. The location of sites identified by the FRTCA shall not be made public without the consulting Tribe's and SHPO's permission.

Section F. SITE DESIGN AND PERFORMANCE STANDARDS AND RESTRICTIONS

In addition to those considerations specified in Section VI, Large-Scale Ground-Mounted Solar Electric Generating Installations and Very Large-Scale Ground-Mounted Solar Electric Generating Installations shall address the following impacts to protect public health and safety and the environment.

1. Environmental impacts. Minimize environmental impacts to protect public health and welfare and to protect the environment by avoiding land clearing and fragmentation of open space and forested areas, preserving natural habitat, and limiting the use of and providing for the containment of hazardous materials. Forest removal shall be limited to a maximum cumulative total of 1 acre to prevent erosion, protect water and air quality and to provide climate benefits to protect public health and welfare. Installations shall be constructed in a way to minimize impervious surfaces and disruptions to trees, soil and land. Establish ground cover using native plant species to minimize soil erosion and stormwater runoff in order to prevent adverse impacts to water quality. Alternatives must be considered in

order to prevent contamination of groundwater. Placement of installations on slopes in excess of 10% is prohibited, in order to prevent erosion and protect water quality. The rendering of more than 10% of the lot or 13,000 square feet (whichever is less) as impervious, is prohibited. Use of geotextiles shall be minimized.

Grading and construction activities must be done in a manner that minimizes displacement of soil and prevents erosion, soil compaction and the introduction of invasive species. Topsoil should be retained on site. Tree stumps must be "ground" rather than removed to prevent displacement of soils. Ground-Mounted Solar Electric Generating Installations shall not be located on Prime Farmland, Farmland of Statewide Importance, or areas in active agricultural operation unless a viable Dual-use Agricultural Solar installation will be implemented.

To mitigate the risk of water contamination in case of emergency, in particular risk to drinking water supplies, a Battery Energy Storage Facility shall be sited no less than 400 feet from the nearest drinking well.

2. **Habitat Impacts**. To protect wildlife habitat and biodiversity, no Large Scale or Very Large-Scale Ground-Mounted Solar Electric Generating Installations shall be located on land protected under Article 97 of the Amendments to the Massachusetts Constitution, on land permanently protected per M.G.L. Chapter 184, sections 31-33, or on land mapped by the Natural Heritage & Endangered Species Program as Priority Habitat (regulated by the MESA), and Core Habitat and Critical Natural Landscape areas mapped by BioMap 2 or its successor. Ground-Mounted Solar Electric Generating Installations shall minimize impacts to Important Wildlife Habitat mapped by DEP and land identified as a priority for conservation by the Town's Open Space & Recreation Plan to the maximum extent feasible.

All Ground-Mounted Solar Electric Generating Installations shall be located in a manner consistent with applicable state and local wetlands regulations.

3. Public Safety Impacts & Emergency Services. Protect public safety through compliance with applicable dimensional requirements, site design to prevent unauthorized access and training of local emergency responders.

To allow year round access for emergency vehicles and responders and to prevent erosion and impairment to water quality, Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations must be located on lots that have frontage on an existing paved road. Access roads shall be constructed to minimize grading, removal of stone walls or street trees and minimize impacts to environmental or historic resources. Any fencing or other structure(s) erected to prevent unauthorized access to the Solar Electric Generating Installation, as well as any appurtenant structures, shall be screened using landscaping or other means to minimize their visual impact. Sufficient signage shall be provided, in accordance with Article VIII of Wendell's Zoning Bylaws, to identify the owner of the facility and provide a 24-hour emergency contact phone number. Solar Electric Generating Installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the installation.

The Solar Electric Generating Installation owner or operator shall provide a copy of the project summary, electrical schematic drawing, and site plan to the Town's Fire Chief, Highway Superintendent, and Emergency Management Director. Applicant shall develop an emergency response plan in coordination with local emergency services officials. All means of shutting down the Solar Electric Generating Installation and any Accessory Battery Energy Storage Facility shall be clearly marked. The owner or operator shall identify a responsible person for public

inquiries throughout the life of the installation and at least one contact for emergencies who should be available on a 24/7 basis. In addition, the operator of the installation shall provide annual training of emergency responders, upon request of the Wendell Fire Department, to respond to fires at the installation and Accessory Battery Energy Storage Facility. The operator will provide and maintain equipment and materials for the suppression of fires related to the Ground-Mounted Solar Electric Generating Installation and any Accessory Battery Energy Storage Facility in coordination with and subject to the approval of the Wendell Fire Department.

4. Compliance. The applicant and the Solar Electric Generating Installation must comply with all applicable local, state and federal statutes, regulations, codes, bylaws, rules and standards.

5. Noise impacts. Noise shall be minimized during and after construction to protect public health and welfare and minimize disruptions to wildlife habitat. Noise generated by Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations and any Accessory Battery Energy Storage Facilities, and associated equipment and machinery shall conform to applicable state and local noise regulations, including the MassDEP's Division of Air Quality noise regulations, 310 CMR 7.10. A source of sound will be considered in violation of said regulations if the source:

i. increases the broadband sound level by more than 5 db(A) above ambient; or ii. produces a "pure tone" condition, when an octave band center frequency sound pressure level exceeds the two (2) adjacent center frequency sound pressure levels by three (3) decibels or more. Said criteria are measured both at the property line and at the nearest inhabited residence. "Ambient" is defined as the background A-weighted sound

level that is exceeded 90% of the time measured during equipment hours, unless established by other means with the consent of the MassDEP.
Sound or noise levels may not exceed 30 dBA, at the boundary of the property between 7:00 p.m. and 7:00 a.m.

6. Lighting impacts. Lighting of the installation, including appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be shielded so as to prevent spillover of light to abutting properties. Lighting shall minimize energy consumption and light pollution by the use of energy efficient features and cutoff fixtures. All lighting fixtures shall be "Dark-Sky" compliant, a designation given to outdoor lighting fixtures that meet the International Dark-Sky Association's (IDA) requirements for reducing waste of ambient light.

7. Visual Impacts. Minimize visual impacts through proper lighting, landscaping and screening of the Solar Electric Generating Installation and appurtenant structure(s), if any. Glare to public ways shall be prevented and structures shall be screened from view from abutting properties and public ways unless there are wildlife benefits without screening as determined by the SPGA or Site Plan Review Authority.

8. Cultural Landscape Impacts. Protect locations of Indigenous Cultural Resources including sites of Ceremonial Stone Landscapes[1]. Such locations shall be identified based on responses to written inquiries, with a requirement to respond within 60 days, to the following parties: all federally or state recognized Tribal Historic Preservation Offices (THPO) or their designated agents (FRTCAs); the Massachusetts State Historical Preservation Officer (SHPO); tribes or associations of tribes not recognized by the federal or state government but with cultural

[1] In 2017, the Town of Wendell Select Board and Historical Commission entered into a Memorandum of Understanding with Federally recognized Tribal Historic Preservation Offices to protect and preserve Ceremonial Stone Landscapes.

or land affiliation to Wendell; and the Wendell Historical Commission.

Such written inquiries shall be sent to the parties identified above and shall contain a site plan of the project including identification of the location of the project and all proposed facilities, and a statement that permitting for the project has been applied for. Such written inquiries, accompanied by the site plan, shall request responses from the parties to identify and describe any known locations and characteristics, including photographs, of any Indigenous Cultural Resources sites that may be impacted by the facility. The applicant should allow the THPO and/or their designated agents' access to the site upon their written request. Site visits should occur as soon as practicable after the application has been submitted.

To protect the cultural resources, only the permitting authorities and project applicant shall have access to the report submitted by the THPO or their or appointed cultural authority. If the THPO or appointed cultural authority identifies one or more Indigenous Cultural Resources or Ceremonial Stone Landscapes, a meeting will be held with the applicant, the THPO or their appointed cultural authority, and Town and/or federal officials to review policies and procedures, the process of mapping the cultural resources, and possible deed restrictions. A 50-foot boundary shall be established around any identified Indigenous Cultural Resources and/or Ceremonial Stone Landscapes inside of which no work or other disturbance shall take place. A deed restriction may be requested by the SPGA or the Site Plan Review authority to protect the cultural resources identified by the THPO or SHPO. A failure of parties to respond within 60 days shall be deemed non-opposition to the application.

Section G. DIMENSIONAL REQUIREMENTS & UTILITY CONNECTIONS

1. Setback Requirements. For all Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Installations, minimum setbacks shall be as follows. Acreage and generating capacity thresholds apply in the aggregate to new facilities and expansions of existing facilities. For expansions, the acreage and output generation of the existing installation would be added to those of the proposed expansion to determine the overall size and generating capacity. Required setback areas shall not be counted toward an installations total acreage.

FRONT SETBACK (feet) 100 *(the front setback may be reduced to no less than 30 feet upon: (1) request by the applicant, if approved by the SPGA and/or Site Plan Approval Authority or (2) the determination by the SPGA and/or Site Plan Approval Authority that a reduction in the setback will provide benefits to wildlife habitat or reduce forest fragmentation without detriment to public safety or welfare)*
REAR YARD (feet) 100
SIDE YARD (feet) 100
2. Dimensional Requirements for Appurtenant Structures. All appurtenant structures to Large-Scale and Very Large-Scale Ground-Mounted Solar Electric Generating Installations shall be subject to regulations concerning lot area, parking, and building coverage, as per the Wendell Zoning Bylaws. Setbacks shall be determined by Section G. 1. All such appurtenant structures, including but not limited to equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other. Whenever reasonable, structures shall be screened from view by vegetation and/or joined or clustered to avoid adverse visual impacts.

3. Height of Structures. The height of any structure associated with a Ground-Mounted Solar Electric Generating Installation shall not exceed 20 feet.
4. Utility Connections. Electrical transformers and other utility interconnections shall be constructed as required by the utility provider and may be above ground if necessary; provided, however, that reasonable efforts shall be made to place all utility connections underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider.

Section H. MONITORING, MAINTENANCE, REPORTING & DECOMMISSIONING

1. Monitoring, Maintenance and Reporting.
i. Ground-Mounted Solar Electric Generating Installation Conditions. The Ground-Mounted Solar Electric Generating Installation owner or operator shall maintain the installation in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Management Director. The owner or operator shall be responsible for the cost of maintaining the Ground-Mounted Solar Electric Generating Installation and any access road(s).
ii. Modifications. All material modifications to a Solar Electric Generating Installation made after issuance of the required building permit shall require approval by the Site Plan Review Authority and/or Special Permit Granting Authority, as applicable.
iii. Commissioning Report. Prior to placement of a Solar Electric Generating Installation into operation, the owner or

operator thereof shall submit a commissioning report demonstrating that said installation has been adequately tested and that it functioned as designed prior to start-up. The report shall be submitted to the Select Board at least thirty (30) days prior to activation of the installation.

iv. Annual Reporting. The owner or operator of the Solar Electric Generating Installation shall submit an annual report demonstrating and certifying compliance with the Operation and Maintenance Plan, the Stormwater Management Plan, the Hazard Mitigation & Hazardous Materials Plan, the Landscape Plan, and the requirements of this Section XIV and the approved site plan, including but not limited to continued control of vegetation and stormwater, compliance with noise standards, containment of hazardous materials, and adequacy of road access. The annual report shall also provide information on the maintenance completed during the course of the year, any emergencies or malfunctions of the installation or equipment, and the amount of electricity generated by the installation. The report shall be submitted to the Select Board, Planning Board, Fire Chief, Emergency Management Director, Building Inspector, Board of Health and Conservation Commission (if a wetlands permit was issued) no later than 45 days after the end of the calendar year. The Fire Chief and Emergency Management Director shall be allowed to conduct on-site safety inspections on an annual or more frequent basis to ensure that the Ground-Mounted Solar Electric Generating Installation is being satisfactorily maintained to protect public health and safety.

2. Abandonment or Decommissioning

i. Removal Requirements. Any Large-Scale or Very Large- Scale Ground-Mounted Solar Electric Generating Installation which has reached the end of its useful life or has been abandoned shall be removed. The owner or operator shall

physically remove the installation no later than 150 days after the date of discontinued operations. The owner or operator shall notify the Site Plan Review Authority and Special Permit Granting Authority, if applicable, by certified mail, of the proposed date of discontinuance of operations and plans for removal. Decommissioning shall consist of:
a. Physical removal of all components of the Solar Electric Generating Installation, including but not limited to structures, equipment, security barriers, and on-site transmission lines. Associated off-site utility interconnections shall also be removed if no longer needed.
b. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
c. Restoration of the site to its natural preexisting condition, including stabilization or re-vegetation of the site as necessary to minimize erosion. The SPGA or Site Plan Review Authority may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

ii. Decommissioning by the Town. If the owner or operator of a Large-Scale or Very Large-Scale Ground-Mounted Solar Electric Generating Installation fails to remove such installation in accordance with the requirements of this Article XIV, within 150 days of discontinuance of operations or abandonment, the Town may enter the property and physically remove the installation at the owner's expense, drawing from the escrow account or upon the bond or other financial surety provided by the applicant pursuant to Article XIV.

Section I. Severability Clause

The invalidity of any section or provision of this Article shall not invalidate any other section or provision thereof.

MAURA HEALEY
ATTORNEY GENERAL

THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL
CENTRAL MASSACHUSETTS DIVISION
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January 4, 2023

Christine Mardirosian, Town Clerk
Town of Oakham
2 Coldbrook Road, Unit 4
Oakham, MA 01068

Re: Oakham Annual Town Meeting of June 27, 2022 -- Case # 10690
Warrant Article # 18 (Zoning)
Warrant Article # 19 (General)

Dear Ms. Mardirosian:

Article 18 – Under Article 18 the Town voted to amend its zoning by-laws to limit the capacity of Battery Energy Storage Systems (BESS) that are part of a large-scale solar installation and prohibit BESS that are not part of a large-scale solar installation. As explained below, we approve Article 18 because we cannot conclude that it presents a conflict with state law. Amherst v. Attorney General, 398 Mass. 793, 795-96 (1986) (requiring inconsistency with state law or the constitution for the Attorney General to disapprove a by-law).

In this decision, we summarize the by-law amendments adopted under Article 18 and the Attorney General's standard of review of town by-laws, and then explain why, based on our standard of review, we approve Article 18's BESS amendments. [1]

I. Summary of Article 18

Under Article 18, the Town amended several sections of its zoning by-laws regarding BESS. One change amended Section 4.4 "Prohibited Uses," to prohibit BESS not associated with large scale solar installations as follows:

> Battery Energy Storage System (BESS) not located on the site of, and specifically appurtenant to, a permitted Large Scale Solar Installation (LSSI). For the purposes of this section, Battery Energy Storage System (BESS) is defined as an non-generating energy storage system that utilizes batteries and other commercially available technology capable of drawing electric power from existing electrical infrastructure.

[1] In a decision issued on October 5, 2022, we approved Article 19 and by agreement with Town Counsel we extended our deadline for a decision on Article 18 for an additional ninety days until January 4, 2023.

storing it for a period of time and thereafter discharging electric power into the existing electrical infrastructure.

Another change amends Chapter 14, Section 6.6.13, "Design Standards," for solar installations. The amendments add new text and delete existing text in subsections 6.6.13 (D) (1) through (3) regarding fire suppression systems for BESS. The amendments also add new subsections 6.6.13 (D) (4) and (5) to limit BESS capacity to fifty percent of the solar installations capacity and to prohibit BESS not associated with a solar installation as follows:

> 4. Battery Energy Storage System (BESS) capacity shall not exceed fifty percent of the total nameplate capacity of the permitted LSSI (Large Scale Solar Installation). Example: an LSSI rated at four megawatts shall not install battery storage exceeding a total capacity of two megawatts.
>
> 5. Battery Energy Storage System (BESS) not located on the site of, and specifically appurtenant to a permitted Large Scale Solar Installation (LSS) is prohibited under Chapter XIV/Section 4.4 Prohibited Uses.

According to the Planning Board's report to Town Meeting, the by-law amendments were prompted by an industrial scale 100 megawatt BESS that was seeking to locate in the Town. The BESS application has since been withdrawn. However, the Planning Board states that it is possible that another BESS could be sited in the Town "along a three phase power line." (Town of Oakham Planning Board Report to Town Meeting May 10, 2022, p. 1).

II. Attorney General's Standard of Review of Zoning Bylaws

Our review of Article 18 is governed by G.L. c. 40, § 32. Pursuant to G.L. c. 40, § 32, the Attorney General has a "limited power of disapproval," and "[i]t is fundamental that every presumption is to be made in favor of the validity of municipal by-laws." Amherst v. Attorney General, 398 Mass. 793, 795-96, 798-99 (1986). The Attorney General does not review the policy arguments for or against the enactment. Id. at 798-99 ("Neither we nor the Attorney General may comment on the wisdom of the town's by-law.") Rather, to disapprove a by-law (or any portion thereof), the Attorney General must cite an inconsistency between the by-law and the state Constitution or laws. Id. at 796. "As a general proposition the cases dealing with the repugnancy or inconsistency of local regulations with State statutes have given considerable latitude to municipalities, requiring a sharp conflict between the local and State provisions before the local regulation has been held invalid." Bloom v. Worcester, 363 Mass. 136, 154 (1973). "The legislative intent to preclude local action must be clear." Id. at 155. Massachusetts has the "strongest type of home rule and municipal action is presumed to be valid." Connors v. City of Boston, 430 Mass. 31, 35 (1999) (internal quotations and citations omitted).

Article 18, as an amendment to the Town's zoning by-laws, must be accorded deference. W.R. Grace & Co. v. Cambridge City Council, 56 Mass. App. Ct. 559, 566 (2002) ("With respect to the exercise of their powers under the Zoning Act, we accord municipalities deference as to their legislative choices and their exercise of discretion regarding zoning orders."). When reviewing zoning by-laws for consistency with the Constitution or laws of the Commonwealth, the Attorney General's standard of review is equivalent to that of a court. "[T]he proper focus of review of a zoning enactment is whether it violates State law or constitutional provisions, is arbitrary or unreasonable, or is

substantially unrelated to the public health, safety or general welfare." Durand, 440 Mass. at 57 (2003). "If the reasonableness of a zoning bylaw is even 'fairly debatable, the judgment of the local legislative body responsible for the enactment must be sustained.'" Id. at 51 (quoting Crall, 362 Mass. at 101). However, a municipality has no power to adopt a zoning by-law that is "inconsistent with the constitution or laws enacted by the [Legislature]." Home Rule Amendment, Mass. Const. amend. art. 2, § 6.

III. Article 18's Restrictions on BESS Must be Applied Consistent with G.L. c. 40A, § 3

The Town cannot apply the by-law amendments in a way that would interfere with the protections in G.L. c. 40A, § 3.

A. Section 3 Solar Protections

Subsection D (4)'s capacity limitation applies to BESS that are part of large-scale solar installations.[2] The Town must apply subsection (D) (4) consistent with G.L. c. 40A, § 3's solar protections. Solar energy facilities and related structures have been protected under Section 3 since 1985, when the Legislature passed a statute codifying "the policy of the commonwealth to encourage the use of solar energy." St. 1985, c. 637, §§ 7, 8. Id. § 2. Section 3's solar provision grants zoning protections to solar energy systems and the building of structures that facilitate the collection of solar energy as follows:

> No zoning . . . bylaw shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare.

The Supreme Judicial Court recently reaffirmed the Section 3 solar protections in Tracer Lane II v. City of Waltham, 489 Mass. 775 (2022). In ruling that Section 3's protections required Waltham to allow an access road to be built in a residential district for linkage to a solar project in Lexington, the Court explicitly noted that "large-scale systems, not ancillary to any residential or commercial use, are key to promoting solar energy in the Commonwealth." Id. at 782 (citing Executive Office of Energy and Environmental Affairs, Massachusetts 2050 Decarbonization Roadmap, at 4, 59 n.43 (Dec. 2020) ("the amount of solar power needed by 2050 exceeds the full technical potential in the Commonwealth for rooftop solar, indicating that substantial deployment of ground-mounted solar is needed under any circumstance in order to achieve [n]et [z]ero [greenhouse gas emissions by 2050]")). The Court explained that whether a by-law facially violates Section 3's prohibition against unreasonable regulation of solar systems and related structures will turn in part on whether the by-

[2] Battery energy storage systems qualify as "structures that facilitate the collection of solar energy" under G.L. c. 40A, § 3. G.L.c. 164, § 1 defines "energy storage system" as "a commercially available technology that is capable of absorbing energy, storing it for a period of time and thereafter dispatching the energy." The development of energy storage systems is critical to the promotion of solar and other clean energy uses. On August 9, 2018, An Act to Advance Clean Energy, Chapter 227 of the Acts of 2018 ("Act"), was signed into law by Governor Baker. Section 20 of the Act established a 1,000 MWh energy storage target to be achieved by December 31, 2025. https://www.mass.gov/info-details/esi-goals-storage-target (last visited November 11, 2022).

law promotes rather than restricts this legislative goal. Id. at 781. While municipalities do have some "flexibility" to reasonably limit where certain forms of solar energy may be sited, the validity of any restriction ultimately entails "balanc[ing] the interest that the . . . bylaw advances" against "the impact on the protected [solar] use." Id. at 781-82.

Given this Office's limited review of zoning by-laws, we cannot conclude that Article 18 constitutes an unreasonable regulation of solar systems and related structures in contravention of G.L. c. 40A, § 3. It is not clear what impact the BESS capacity restriction may have on a large-scale solar installation. It is also not clear what public health, safety or welfare concerns justify the restriction, apart from the size concern articulated in the Planning Board report to Town Meeting. (Town of Oakham Planning Board Report to Town Meeting May 10, 2022, p. 1). Even though we cannot conclude, on this record, that the capacity restriction qualifies as an unreasonable regulation of solar systems and related structures, the Town must carefully apply the BESS capacity limitations to ensure that they do not prohibit, or unduly limit, the siting of a large-scale solar installation in the Town. If Article 18 is used to deny solar projects, or otherwise applied in ways that make it impracticable or uneconomical to build solar energy systems, such application would run a serious risk of violating G.L. c. 40A, § 3. The Town should consult with Town Counsel with any questions on this issue.

B. Public Service Corporations

The by-law amendments adopted under Article 18 may also implicate other Section 3 protected uses because to the extent that a BESS or an energy storage system includes a facility, the facility may qualify as a public service corporation protected under G.L. c. 40A, § 3, ¶2, as follows:

> Lands or structures used or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning…by-law if, upon petition of the corporation, the department of telecommunications and energy shall…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;…if lands or structures used or to be used by a public service corporation are located in more than one municipality such lands or structures may be exempted in particular respects from the operation of any zoning…by-law if, upon petition of the corporation, the department of telecommunications and cable or the department of public utilities shall…determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience of welfare of the public.

Section 3 allows the Department of Public Utilities (DPU) to exempt public service corporations from a Town's zoning by-laws. The Town cannot apply the by-law amendments to facilities that have received such an exemption from the DPU.

IV. Additional Comments for the Town's Consideration

A. Energy Facility Siting Board Jurisdiction

The Town must not apply the by-law amendments adopted under Article 18 in a way that interferes with the jurisdiction of the Energy Facility Siting Board (EFSB) to review any proposed large energy facilities that are within the EFSB jurisdiction. The definition of the term "Battery Energy Storage System" in subsection 4.4.4 (as quoted above on page 1) is sufficiently broad to potentially include large energy facilities under the jurisdiction of the EFSB. The EFSB is charged with ensuring that proposed energy facilities within EFSB jurisdiction will provide a "reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost." G.L. c. 164, § 69H. See generally G.L. c. 164, § 69G through § 69S and 980 CMR 1.00 through 12.00. See https://www.mass.gov/orgs/energy-facilities-siting-board, last visited Nov. 25, 2022. The Town should consult closely with Town Counsel during the by-law's application process to ensure it does not interfere with the jurisdiction of EFSB.

B. Potential Preemptive Effect of Future Amendments to State Building Code

The Town should also consult with Town Counsel regarding imminent amendments to the Building Code that may well entirely preempt municipal regulation of battery energy storage systems.

We have consulted with the Board of Building Regulations and Standards (BBRS) and Department of Licensing (DOL) regarding the state regulation of BESS. The BBRS and DOL confirmed that energy storage systems are regulated in the 2021 edition of the International Energy Conservation Code (IECC) which the BBRS is statutorily obligated to adopt. See e.g., Section CE262 AS and subsection CB103.7 of the International Energy Conservation Code (2021 ed.). General Laws Chapter 143, Section 94 (o) mandates the BBRS to update the Building Code in light of these IECC provisions by directing the BBRS:

> To adopt and fully integrate the latest International Energy Conservation Code and any more stringent amendments thereto as part of the state building code, in consultation with the department of energy resources. The energy provisions of the state building code shall be updated within 1 year of any revision to the International Energy Conservation Code.

Energy storage systems are also regulated in Section R328.1 of the 2021 edition of the International Residential Code (IRC), which the BBRS has voted will be a core component of the next edition of the Building Code.

In October 2022, the BBRS voted to approve the 10th Edition of the Building Code (780 CMR). These amendments may be viewed at https://www.mass.gov/handbook/unofficial-tenth-edition-base-code-draft-780-cmr. There are additional steps that must be taken, including a public hearing, before 780 CMR is promulgated and published. To the extent that the Building Code is so updated to reflect the IECC and IRC provisions regarding battery energy storage systems, the Building Code will preempt municipal regulation in areas covered by the updated Building Code. The Legislature has charged the BBRS – not any city or town – with determining what construction methods and materials should and should not be allowed to ensure "[u]niform standards and requirements for construction and construction materials…" G.L. c. 143, § 95 (a). "In authorizing the

development of the [C]ode, the Legislature has expressly stated its intention: to ensure '[u]niform standards and requirements for construction and construction materials." St. George, 462 Mass. at 126 (citing G.L. c. 143, § 95 (c), to invalidate Springfield ordinance that required certain type of fire protective signaling equipment where the Building Code presented four different options for such systems). Based on this express legislative goal of uniformity the St. George court found "the Legislature [had] demonstrate[d] its express intention to preempt local action." Id. at 129. As such, the Building Code occupies the field and considering the broad preemptive scope of the Building Code, the Town should ensure any future zoning by-law is not preempted by the updated Building Code provisions to be published in the near future.

V. Conclusion

We approve Article 18 because we cannot conclude that it conflicts with state law, including the protections given to solar under G.L. c. 40A, § 3. However, the Town should consult with Town Counsel to ensure that Article 18 is applied consistent with state law as discussed in this decision.

Note: Pursuant to G.L. c. 40, § 32, neither general nor zoning by-laws take effect unless the Town has first satisfied the posting/publishing requirements of that statute. Once this statutory duty is fulfilled, (1) general by-laws and amendments take effect on the date these posting and publishing requirements are satisfied unless a later effective date is prescribed in the by-law, and (2) zoning by-laws and amendments are deemed to have taken effect from the date they were approved by the Town Meeting, unless a later effective date is prescribed in the by-law.

Very truly yours,
MAURA HEALEY
ATTORNEY GENERAL
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By: Kelli E. Gunagan
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cc: Town Counsel Lauren F. Goldberg

Nextsun Energy LLC v. Fernandes

Massachusetts Land Court

May 9, 2023, Decided

19 MISC 000230, 19 MISC 000564

Reporter

31 LCR 323 *; 2023 Mass. LCR LEXIS 63 **; 2023 WL 3317259

NEXTSUN ENERGY LLC and FAIRLAND FARM, LLC v. JOSEPH FERNANDES, STEPHEN J. JURCZYK, STEVEN HORNSBY, FRANK N. DURANT, JULIE OAKLEY, OREN SIGAL, and TIMOTHY GRIFFIN as they are the MEMBERS OF THE TOWN OF NORTON PLANNING BOARD; and THE TOWN OF NORTON;JOSEPH D. COGLIANO, JR., Individually and as Trustee of the Joseph D. Cogliano Realty Trust and the Eleanor E. Cogliano Realty Trust, KELLY GALLAGHER and CHARLES GALLAGHER, MARIANNE JOHNSON and JOEL P. JOHNSON v. STEVEN HORNSBY, TIMOTHY GRIFFIN, JULIE OAKLEY, JOSEPH FERNANDES, KEVIN O'NEIL, SCOTT BICHAN, OREN SIGAL, as they are MEMBERS OF THE TOWN OF NORTON PLANNING BOARD; THE TOWN OF NORTON; and NEXTSUN ENERGY, LLC

Prior History: *Nextsun Energy LLC v. Fernandes, 2021 Mass. LCR LEXIS 14, 2021 WL 669059 (Feb. 16, 2021)*

Syllabus

Justice Robert B. Foster found that neighbors to a 3.9 megawatt solar project on a 23-acre site in Norton had standing based on their concerns with fire suppression and groundwater contamination but not on their speculative anxiety over potential noise. The decision affirms the floodplain special permit granted for the project but remands the project permitting back to the Planning Board to revise vague conditions relating to noise and an unnecessary requirement that security for future decommissioning be provided with cash rather than bonding. Justice Foster found that the site plan permit as issued properly addressed the requirements set forth in the zoning bylaws for such a project, and also affirmed a condition requiring the project proponent to provide and pay for annual testing of the abutter's private wells.

Counsel: Charles Nelson Le Ray, Esq., Kate Moran Carter, Esq., Michael Jimison McDermott, Esq., Natasha K. Winter, Esq., for NextSun Energy LLC (19 MISC 000230).

Eliot T. Brais, Esq., for Fairland Farm, LLC (19 MISC 000230).

Amy Elizabeth Kwesell, Esq., KP Law, PC, for Joseph Fernandes, Stephen J. Jurczyk, Steven Hornsby, Frank N. Durant, Julie Oakley, Oren Sigal, and Timothy Griffin, Members of the Town of Norton Planning Board and the Town of Norton (19 MISC 000230).

Paul W. Needham, Esq., Needham & Johnson, for Joseph D. Cogliano, Jr. Individually and as Trustee of the Joseph D. Cogliano Realty Trust and the Eleanor E. Cogliano Realty Trust, Kelly Gallagher, Charles Gallagher, Marianne Johnson, and Joel P. Johnson (19 MISC 000564).

Amy Elizabeth Kwesell, Esq., KP Law, PC, Joseph Fernandes, Steven Hornsby, Julie Oakley, Kevin O'Neil, Scott Bichan, Oren Sigal, and Timothy Griffin, Members of the Town of Norton Planning Board and the Town of Norton (19 MISC 000564).

Kate Moran Carter, Esq., Natasha K. Winter, Esq., Michael Jimison McDermott, Esq., Dain, Torpy, Le Ray, for NextSun Energy, LLC (19 MISC 000564).

Judges: [**1] Robert B. Foster, Justice.

Opinion by: Robert B. Foster

Opinion

[*323] **DECISION**

INTRODUCTION

NextSun Energy LLC (NextSun) seeks to build 3.9 megawatt direct current solar project on approximately 23.3 acres of upland cranberry bogs owned by Fairland Farm, LLC, in the town of Norton, Massachusetts. The town amended its zoning bylaw to allow projects such as this as of right, subject only to site plan review. The project site is also located in the flood plain overlay district under the zoning bylaw, requiring a flood plain special permit. NextSun obtained site plan approval from the Norton Planning Board, but appealed some of the conditions of that approval, in case no. 19 MISC 000230. Neighbors of the project site, referred to as the individual residents, also appealed the site plan approval, in case no. 19 MISC 000564, and challenged the rezoning as well. NextSun also appealed the planning board's denial of the flood plain special permit. In a summary judgment order, the rezoning was upheld and the denial of the flood plain special permit annulled. The planning board issued a flood plain special permit, and the individual residents were allowed to amend their complaint to include an appeal of that special permit. [**2]

All the appeals were tried to me. As set forth below, I find that (a) the individual residents are aggrieved persons under the meaning of *G.L. c. 40A, § 17*, based on the risk of fire from the storage batteries and of contamination to wells; (b) the site plan decision satisfies the requirements of the zoning bylaw and has sufficient conditions to address these risks; (c) the site plan conditions concerning noise and the deposit of funds must be remanded to the planning board, but the condition requiring well testing is affirmed; and (c) the flood plain special permit was properly issued and is supported by the evidence, and will be affirmed.

PROCEDURAL HISTORY

NextSun and Fairland Farm, LLC (together, NextSun) filed the Complaint in case no. 19 MISC 000230 on May 10, 2019 (the 230 action). The Answer of the Town of Norton and the members of the Town of Norton Planning Board (Board) was filed on May 30, 2019. The Assented-to Motion to Amend Complaint was allowed and the Amended Complaint deemed filed on June 27, 2019. On July 1, 2019, the court issued the Order of Remand, remanding the 230 action to the Board, staying the 230 action, and retaining jurisdiction. The Complaint After Remand Under *c. 240, § 14A* and *G.L. c. 40A, § 17* (230 [**3] Complaint) was filed on November 19, 2019. The 230 Complaint has two counts: Count I is a claim under *G.L. c. 240, § 14A*, and Count II is an appeal under *G.L. c. 40A, § 17*, of two decisions of the Board filed with the Norton Town Clerk on October 31, 2019. The two decisions of the Board at issue in the 230 Complaint were a decision approving the amended project site plan with conditions (the site plan remand decision) and a decision denying the amended application for a floodplain overlay district special permit (the 2019 floodplain special permit remand decision).

Also on November 19, 2019, the Verified Complaint in case no. 19 MISC 000564 was filed, appealing the site plan remand decision under *G.L. c. 40A, § 17* (the 564 action). NextSun Energy LLC's Answer and Affirmative Defenses to the Verified Complaint in the 564 action was filed on December 20, 2019. The Answer of the Town was filed in the 230 action on December 13, 2019.

The case management conference in the cases above, along with companion case 19 MISC 000322 (the 322 action), was held on January 6, 2020. The claims of Jessica E. Sherman and Ryan P. Sherman in all cases were dismissed without prejudice, leaving as plaintiffs in the 564 action

Joseph D. Cogliano, Jr., individually [**4] and as trustee of the Joseph D. Cogliano Realty Trust and the Eleanor E. Cogliano Realty Trust, Kelly Gallagher and Charles [*324] Gallagher, and Marianne Johnson and Joel P. Johnson (the individual residents). The Motion to Consolidate was denied without prejudice, and the cases were deemed treated as companion cases.

NextSun Energy LLC's and Fairland Farm, LLC's Motion for Summary Judgment (NextSun Summary Judgment Motion) was filed on May 29, 2020, and the Municipal Defendants' Partial Opposition to NextSun Energy LLC's Motion for Summary Judgment and Cross Motion for Summary Judgment (Town Summary Judgment Cross Motion) was filed on June 30, 2020. The NextSun Summary Judgment Motion, and the Town Summary Judgment Cross Motion were heard on July 17, 2020. In its Memorandum and Order on Cross-Motions for Summary Judgment entered on February 16, 2021 (summary judgment order), the court allowed in part and denied in part the NextSun Summary Judgment Motion and the Town Summary Judgment Cross Motion, and dismissed the complaint in the 322 action. As part of its Memorandum and Order, the court ordered and declared that the 2019 floodplain special permit remand decision be annulled. The Corrected [**5] Memorandum and Order was issued on February 22, 2021.

At a status conference on February 24, 2021, the Individual Residents' Motion to Intervene in the 230 action was denied. Separate and Final Judgment Pursuant to *Mass. R. Civ. P. 54(b)* entered in the 564 action on March 8, 2021. The individual residents filed Notices of Appeal on March 16, 2021, from the Land Court's Judgments of February 16, 2021, and March 8, 2021, in cases *19 MISC 000230, 19 MISC 000322*, and 19 MISC 000564 (Notices of Appeal). On March 16 and 22, 2021, the individual residents filed further notices of appeal.

On April 1, 2021, the Board's decision to grant the floodplain special permit in light of the court's February 22, 2021, order was filed with the town clerk (the 2021 floodplain special permit remand decision). On April 20, 2021, the Amended Verified Complaint was filed in the 564 action.

Plaintiffs Joseph D. Cogliano, Jr. et al's Motion to Compel Production of Documents by NextSun Energy LLC Pursuant to *MRCP 37* (Motion to Compel) was filed on April 27, 2021. Nextsun Energy LLC's Opposition to Plaintiff's Motion to Compel was filed on April 30, 2021. The Motion to Compel was heard on May 7, 2021, and was allowed in part and denied in part. The court stated that the [**6] open issues were limited to review of the 2021 floodplain special permit remand decision and site plan remand decision under *G.L. c. 40A, § 17*. On May 11, 2021, NextSun Energy LLC's Motion to Dismiss Plaintiffs' Amended Complaint and Municipal Defendants' Motion to Dismiss the Plaintiffs' Amended Complaint filed in 19 MISC 000564 (motions to dismiss) were filed. The Opposition to NextSun's and Municipal Defendants' Motion to Dismiss Plaintiff's Amended Complaint was filed on June 11, 2021. At a status conference on June 23, 2021, the motions to dismiss in the 564 action were denied. The court stated that the appeal of the 2021 floodplain special permit remand decision was limited to the actual decision and findings of that decision based on the floodplain special permit bylaw.

On July 16, 2021, the Notice of Appeal by Joseph D. Cogliano, Jr. Individually and as trustee of The Joseph D. Cogliano Realty Trust and the Eleanor E. Cogliano Realty Trust, Kelly Gallagher, Charles Gallagher, Marianne Johnson, Joel P. Johnson to the Appeals Court was filed in the 564 action. On September 20, 2021, the Appeals Court ordered that the appeals in 2021-P-0789, 2021-P-0804 and 2021-P-0806 were consolidated for briefing [**7] and decision, that 2021-P-0789 and 2021-P-0804 were closed, that all papers were to be transferred to 2021-P-0806, and that all future filings would refer only to 2021-P-0806.

The parties' Joint Pre-Trial Memorandum was filed on November 10, 2023, and a pretrial conference was held on November 16, 2021. NextSun's Omnibus Motion in Limine to Preclude Irrelevant, Prejudicial Evidence (Omnibus Motion) was filed on February 11, 2022. Plaintiffs' Opposition to Nextsun's Omnibus Motion in Limine was filed on March 3, 2022. A further Motion to Stay (Second Motion to Stay) was filed by the individual residents on March 14, 2023, and NextSun Energy, LLC's Opposition to the Individual Residents' Motion to Stay was filed on March 16, 2022. The individual residents filed a Motion for Leave to Supplement The Record With Complete Materials Referenced At Oral Argument on March 17, 2022, which was allowed the same day. The Omnibus Motion and Second Motion to Stay were heard on March 17, 2022, and the second Motion to Stay was denied. Plaintiff's Response to NextSun's Motion to Supplement the Record was filed on March 24, 2022. In the court's Memorandum and Order on NextSun Energy LLC's Omnibus Motion [**8] in Limine entered on March 25, 2022, the motion in limine with respect to the SMART Program pre-determination letter was allowed, and the motion in limine with respect to the testimony of Jacob Laskin was allowed in part and denied in part.

The Joint Status Report and Request for Court Action was filed on April 4, 2022. The second Joint Pre-Trial Memorandum was filed on April 18, 2022, and a continued pre-trial conference was held on April 19, 2022. At the continued pre-trial conference, the court decided to take no action on the Request for Court Action. NextSun's Second Omnibus Motion in Limine to Preclude Irrelevant, Prejudicial Evidence (Second Omnibus Motion) was filed on April 26, 2022. Plaintiffs' Opposition to NextSun's Second Omnibus Motion in Limine, and Plaintiffs' Offers of Proof were filed on May 2, 2022.

The court took a view on May 2, 2022. Trial was held on May 2-6 and May 10-11, 2022. The May 3, 2022, and May 4, 2022, trial sessions were held by Zoom; the other days of trial were in person. Exhibits 1-72H were marked. Chalks A-E were marked. Exhibits UUUUU, LLLLLL, ZZZZ, A, H, KK, WWWW, VVVVV, EEEEE, SSSSSS, TTTTTT were marked for identification. Exhibit UUUUUU was marked [**9] for identification in camera and was sealed. Testimony was heard from Kaitlin Kelly O'Neil, Joel Johnson, Daniel Gottuk, Peter Randazzo, Edward J. Capone, Jacob Laskin, Paul D. DiGiuseppe, Kelly Gallagher, Marianne Johnson, Paul McManus, Joseph D. Cogliano, Jr., Adam Schumaker, Stacy Minihane, Stephen Vetere, Michael Bahtiarian, Henry William Stormer, and Haskell Werlin. On May 2, 2022, the [*325] Second Omnibus Motion was heard, and was allowed in part and denied in part. NextSun also made an oral Motion to Quash, which was granted in part and denied in part. On May 3, 2022, NextSun Energy's Response to Individual Residents Trial Subpoena Dated April 29, 2022 & Identification of Withheld Documents was filed. On May 10, 2022, NextSun Energy, LLC's Motion for Required Finding Under *Mass. R. CIV. P. 50* was filed, and was denied.

On August 17, 2022, Motion for Reimbursement and Costs, Affidavit of Kate Moran Carter, Esq. in Support of Motion for Reimbursement and Costs, and Plaintiffs Opposition to NextSun's Motion for Reimbursement and Costs were filed. Municipal Defendants' Response to Plaintiff's Joseph Cogliano Et Al opposition to Nextsun's Motion for Reimbursement was filed on August 18, 2022.

On August 30, [**10] 2022, the rescript was received from the Appeals Court, in which judgments dated February 16, 2021, and March 8, 2021, and order dated February 24, 2021, denying motion to intervene, were affirmed in the case no. 21-P-806.

NextSun Energy LLC's Post Trial Brief, and Individual Resident Plaintiff's Proposed Findings of Fact, Rulings of Law, and Post-Trial Memorandum of Law were filed on November 23, 2022. The court held a Post-Trial Hearing and heard closing

arguments on November 29, 2022, and took the case under advisement. This decision follows.

FACTS

Based on the view[1] , the undisputed facts, the exhibits, the testimony at trial, and my assessment of credibility, I make the following findings of fact:

A. Background

1. Fairland Farm LLC (Fairland) owns an approximately 265-acre property with addresses at 210 Bay Road and 21 Fairlee Lane in the towns of Norton and Easton, Bristol County, Massachusetts (the Fairland property). Exh. 1; Exh. 7; Exh. 9.

2. Portions of the Fairland property have been used to cultivate cranberries. Exh. 1.

3. This case concerns a proposed 3.9 megawatt (MW) direct current (DC) solar project (the project) located on the Fairland property, on approximately 23.3 acres [**11] of the upland cranberry bogs (the project area). The project area is entirely located in the town of Norton. Exh. 1.

4. Mulberry Meadow Brook runs through the property in an approximately north - south orientation. Exh. 3; view.

5. The Fairland property also includes an agricultural reservoir. Exh. 3; view. 6. The portion of Mulberry Meadow Brook that runs through the Fairland property is generally lined with cranberry bogs. To the east of the cranberry bogs that abut Mulberry Meadow Brook lie upland cranberry bogs. Exh. 3; view.

7. Elevated berms run between the cranberry bogs and the upland cranberry bogs. Exh. 3; view.

8. Fairland Farm intends to execute a long-term lease with NextSun, a limited liability company based in Colorado that specializes in the development, financing, construction, and operation of commercial and utility scale solar photovoltaic projects. Exh. 61; Tr. VI-35-36.

9. The project plan includes approximately 10,540 tracking solar panels and a lithium-ion battery energy storage system (ESS). Exh. 1; Exh. 7, ¶ 20.

10. The ESS is to be located approximately 58.3 feet from the property line of the nearest abutting property at 200-202 Bay Road, Norton. Exh. 7, ¶ 19.

11. [**12] A portion of the ESS is located within the floodplain district. Exh. 7, ¶ 19.

12. Two decisions of the Board are at issue in this case: the site plan remand decision, filed with the Norton Town Clerk on October 31, 2019, and the 2021 floodplain special permit remand decision, filed with the Norton Town Clerk on April 1, 2021. The individual residents appeal both the approval of the site plan in the site plan remand decision, and the approval of the floodplain special permit in the 2021 floodplain special permit remand decision. NextSun appeals certain conditions on the approval of the site plan in the site plan remand decision. Exh. 7; Exh. 8.

B. Standing

13. Mr. Cogliano, individually and as trustee of the Joseph D. Cogliano Realty Trust and Eleanor E. Cogliano Realty Trust, owns and resides at 202 Bay Road, Norton, MA and is trustee of the property located at 200-202 Bay Road and adjacent parcels (the Cogliano property). Compl. ¶ 1; Exh. 31.

14. The Cogliano property abuts the Fairland property. Exh. 3; view.

15. Mr. Cogliano's home and business, Blueview

[1] A view "inevitably has the effect of evidence, and information properly acquired upon a view may properly be treated as evidence in the case." *Talmo v. Zoning Bd. of Appeals of Framingham, 93 Mass. App. Ct. 626, 629 n.5, 107 N.E.3d 1188 (2018)* (internal citations and quotations omitted); see also ***Martha's Vineyard Land Bank Comm'n v. Taylor, No. 17-P-1277, 93 Mass. App. Ct. 1116, 104 N.E.3d 684*** (unpublished decision).

Nurseries, are adjacent to the project site. Mr. Cogliano's water, including drinking water and irrigation water for Blueview Nurseries, [**13] is drawn from wells on the Cogliano property. Mr. Cogliano objects to the project because he believes that the project may result in contamination and reduction in flow rate of his wells, generate noise, decrease his property value, impact the view from his property, and impact his ability to develop his property in the future. His concerns about noise are based on his ability to hear sound from another nearby solar project. Tr. V-94, V-96-97, V-102, V-142; view.

[*326] 16. The closest wells to the project area are on the Cogliano property. The nearest project components are 500 feet away from his wells. Tr. V-24, VII-125.

17. Kelly and Charles Gallagher (the Gallaghers) own and reside at 201 Bay Road, Norton, MA (the Gallagher property) Compl. ¶ 2; Exh. 27.

18. The Gallagher property is located across Bay Road, and is near but does not share a boundary with the Fairland property. Exh. 3; Exh. 28; Tr. IV-122; view.

19. Kelly Gallagher testified that she objects to the project because she believes the project may pose a fire risk, generate noise, and decrease her property value. Her concern about noise is based on noise that she heard while walking and driving past another nearby solar project. [**14] Her concern about property value is based on her searches of other properties on real estate websites. Tr. IV-108109, 150.

20. Marianne and Joel P. Johnson (the Johnsons) own and reside at 208 Bay Road. Compl. Norton, MA (the Johnson property). Compl. ¶ 3; Exh. 29.

21. The Johnson property abuts the Fairland property. Exh. 3; Exh. 30; view.

22. Marianne Johnson testified that she objects to the project because she believes the project may result in contamination of her well, result in damage to her well from construction vibration, pose a risk of fire, generate noise, and decrease her property value. She is also concerned that fumes could be released in the event of a fire. Her concern about noise is based on noise that she can hear from her property from a nearby solar project, and noise that she heard while driving past another nearby solar project. Tr. IV-137139, IV-144, IV-146-147.

23. Joel Johnson objects to the project because he believes the project may pose a fire risk and generate noise. His concern about noise is based on noise that he heard while walking and driving past another nearby solar project. Tr. IV-94, IV-96, IV-101, IV-104-105.

*C. Approval of the Site Plan in the [**15] Site Plan Remand Decision*

24 The version of the Norton Zoning Bylaw as amended by the January 14, 2019, Warrant Article 5 amending Zoning Bylaw Article XXII constitutes the applicable zoning bylaw in this case (bylaw). The bylaw is codified as Chapter 175 of the Town of Norton General Code. Exh. 1; Exh. 2B.

25. Large-scale, ground-mounted solar photovoltaic installations (LGSIs), including the project, are an as-of-right use subject to site plan approval. Exh. 2A, § 175-22.1, 22.3.

26. The site plan approval authority for LGSIs is the Board. Exh. 2A, § 175-22.1.

27. Site plan approval for LGSIs consists of review by the Board to determine conformance with the requirements of bylaw articles XV and XXII. Exh. 2A, § 175-22.2.

28. In evaluating and rendering a site plan or special permit decision, the Board is required to consider the degree to which a proposed development meets certain objectives. The Board may require conditions or modifications to the proposed site plan to ensure the objectives are fulfilled. Exh. 2A, § 175-15.6.

29. Pursuant to section 175-15.6 of the bylaw, the Board may require conditions or modifications to a proposed site plan to ensure these objectives are fulfilled:

> § 175-15.6(A)(5) Minimize obstruction [**16] of scenic views from publicly accessible locations.
> § 175-15.6(D)(1) Use of existing woodlands or properly vegetated and maintained landscaping should be used in buffer zones to reduce visual or noise impacts on abutting properties.
> § 175-15.6(D)(2) Appropriate transition and screening shall protect against diminution of property values due to adjacent commercial construction, or a change in incompatible land uses. Exposed machinery [and] utility structures... should be screened from adjoining properties and streets.
> § 175.15.6(D)(3) Landscaping should be used to separate and screen incompatible land to prevent potential nuisances such as... noise... or the view of unsightly buildings...

Exh. 2A, § 175-15.6.

30. The site plan remand decision requires NextSun to complete a Comprehensive Emergency Response Plan to be approved by the Fire Department prior to interconnection to the grid. The plan must include specific information on how emergencies will be prevented and mitigated. Exh. 7, ¶ 31.

31. The site plan remand decision requires adequate access for fire department apparatus, and that access to the ESS will be secured and restricted but not in such a way as to hinder fire suppression from a safe distance. Furthermore, NextSun is required [**17] to provide and maintain adequate water supply for fire suppression, including making offsite improvements if required. Exh. 7, ¶¶ 32, 37, 43.

32. The site plan remand decision requires that NextSun provide a means to contain water runoff and hazardous materials from fire suppression operations. Exh. 7, ¶ 48.

33. The site plan remand decision requires that, prior to construction, NextSun "shall provide the Planning Board with an evaluation for noise impacts by conducting a sound study to measure the existing background noise" and includes specific requirements for how the sound study shall be conducted. The site plan remand decision further requires that, prior to interconnection to the grid, NextSun "shall provide the Planning Board with an evaluation for noise impacts by conducting a sound study to compare noise impacts created by the project when the equipment is operating against the background noise levels." Exh. 7, ¶¶ 18, 49.

[*327] 34. The site plan remand decision requires that NextSun install acoustic panel sound barriers around the ESS. Exh. 7, ¶ 51.

35. The site plan remand decision requires that the sound study establish that the "noise threshold shall not be perceptible above background [**18] levels at the property line" prior to interconnection to the grid. Exh. 7, ¶ 49.

36. Haskell Werlin is the director of business development, policy, and regulatory affairs at Solar Design Associates, an engineering and architecture firm focused on renewable energy. Mr. Werlin testified, and I find, that the ESS is a necessary and integral part of this LGSI, and similar systems have been incorporated into solar energy systems for decades. Tr. VIII-111-112, VIII-132, VIII-139.

37. Mr. Adam Schumaker is employed by NextSun, and is in charge of developing and implementing strategy pertaining to developing projects under the SMART program in Massachusetts. Mr. Schumaker testified, and I find, that the purpose of the ESS is to store power produced by the solar panels, and release the power to the grid during times of lower production, allowing the project to provide consistent output throughout the 24-hour day. Tr. VI-19, 49.

38. Daniel Gottuk is the vice president of research, development, testing and evaluation at Jensen Hughes. Mr. Gottuk has been involved in forensic

evaluation of a fire related to another wind farm using a lithium-ion battery energy storage system. He has also been involved [**19] with providing design input, hazard analysis, and mitigation assessments for energy storage systems. I credit his testimony. Exh. 38; Tr. II-11-14.

39. Henry Stormer is the national division manager for fire investigation for Vertex Companies, LLC, which conducts fire investigations. He has also worked as a fire marshal. He has worked on numerous solar panel and lithium-ion battery fires. On behalf of Vertex, Mr. Stormer prepared a review of the project to determine if the design and proposed construction appropriately mitigates against the risk of fire and against impacts to the surrounding area. I credit his testimony. Exh. 19; Exh 20; Tr. VIII-6-7.

40. Both Mr. Gottuk and Mr. Stormer testified that the ESS poses a risk of fire. Mr. Stormer characterizes the fire risk in either the ESS or solar panels as "very unlikely," while Mr. Gottuk characterizes the risk of fire "very reasonable." I find that a risk of fire exists in the ESS. Tr. II-49; VIII-33.

41. A fire in the ESS would occur as a result of thermal runaway. Thermal runaway fires are highly destructive, and once thermal runaway is established it can only be extinguished by being allowed to burn out. Thermal runaway fires require [**20] large amounts of water for cooling. Tr. II-17-18, VIII-67, VIII-72-75.

42. Thermal runaway can be prevented or mitigated by design features, including physical separation between battery modules, self-venting batteries, and installed smoke detectors and heat sensors that shut down the power supply to the ESS when the bat teries began to overheat before they reached the point of thermal runaway. Tr. II-18, VIII-35, VIII-37.

43. The project will include a detailed hazard mitigation report. Exh. 19; Tr. VIII-108.

44. Regardless of the degree of likelihood that the chain of events that would otherwise result in thermal runaway occur, for an actual fire to develop within the ESS, all of the safety and design features incorporated into the system would have to fail. Tr. VIII-35.

45. Mr. Stormer and Mr. Gottuk testified, and I find, that a thermal runaway fire in the ESS would release toxic gasses into the atmosphere, and could necessitate a temporary evacuation for neighbors including the individual residents. Exh. 19; Tr. II-5051, VIII-87-88.

46. Mr. Stormer and Mr. Gottuk testified, and I find, that firefighting water applied to a fire in the ESS would become contaminated with a variety of [**21] toxic compounds, including hydrofluoric acid. There is also a possibility that firefighting efforts would include application of firefighting foams that may contain additional contaminants beyond those found in the ESS. Tr. II-21, VIII-37.

47. Peter Randazzo is an environmental engineer, currently employed as vice president and hydrogeology expert for Brown and Caldwell, an environmental engineering company. He has been employed in the hydrogeology industry since 1984, and has studied hundreds of project sites with contaminated groundwater, soil, and bedrock. I credit his testimony. Exh. 37; Tr. II-124-125.

48. Mr. Randazzo prepared a diagram of the cones of influence representing the three-dimensional underground area where groundwater was drawn in by two of Mr. Cogliano's active wells. The two active wells are used for drinking water and agricultural purposes. The diagram reflects, with concentric circles, the depth and linear distance from two of Mr. Cogliano's wells where groundwater is pumped into the wells. Exh. 55; Tr. II-174.

49. Transmissivity is the ease with which groundwater flows through a geologic formation. The more permeable a formation is, the more transmissive it is. [**22] Transmissivity can be

estimated based on the yield rate of a well. The area from which the wells draw is bedrock. Mr. Randazzo testified, and I find, that the yield of the Cogliano wells indicates that the bedrock is fractured. Tr. II-131.

50. Extraction wells like Mr. Cogliano's draw in water from multiple directions, vertical and horizontal. The wells pull water in along the path of least resistance, which here is the fractures in the bedrock. Tr. II-131, 174.

51. Extraction wells draw water downward from the overburden, or soil, that lies on top of the bedrock, and laterally through the bedrock. Tr. II-170-173.

52. Mr. Randazzo calculated the cones of influence for two wells, both of which are on the Cogliano property. Exh. 55; Tr. II-135.

[*328] 53. In preparing his diagrams, Mr. Randazzo applied conservative estimates of transmissibility of water through bedrock, storage of the aquifer, and pumping rates. The concentric circles on Mr. Randazzo's diagram show the depths and lateral distances where he calculated water would be drawn into the wells. The distances and depths reflected on the diagram may not reflect the full extent of the true cone of influence for each well under real-world conditions. [**23] Mr. Randazzo testified, and I find, that under real-world conditions, the cones of influence for each well may be deeper and broader than reflected in the diagram. Exh. 55; Tr. II-135, 186-187.

54. Mr. Randazzo calculated the cones of influence for the two wells based on each well's drawdown without the other well pumping. Mr. Randazzo testified, and I find, that if multiple wells were to pump concurrently, the cones of influence for each would be more expansive in breadth and depth than reflected on Mr. Randazzo's diagram. Tr. II-135.

55. Three wells on the Cogliano property, including the two identified in Exhibit 55, are currently in active operation. Tr. V-94.

56. Mr. Randazzo testified, and I find, that there is a reasonable scientific certainty that if contaminants reached the groundwater under the ESS, the contaminants would be drawn into Mr. Cogliano's wells. Exh. 55; Tr. II-133, II-143.

57. Paul McManus is a certified Massachusetts licensed site professional and senior professional wetland specialist. I credit his testimony. Tr. V-7.

58. Mr. McManus testified, and I find, that if Mr. Cogliano's wells were to be infiltrated by contaminated water from firefighting of a thermal runaway [**24] fire in the ESS, the resulting contaminated well water would be seriously harmful to Mr. Cogliano's topsoil if used for irrigation. Tr. V-47.

59. Mr. McManus testified that based on a water quality test, Mr. Cogliano's well water quality is currently good, and current water quality approximates background, baseline levels of contaminants. Tr. V-88.

60. Under the bylaw, NextSun must provide a form of surety to cover the estimated cost of removal of the LGSI in an amount deemed reasonable by the Board, not to exceed 125% of the estimated cost of removal and compliance. Exh. 2A, § 175.22.7.

61. The site plan remand decision requires that NextSun "provide surety to provide for decommissioning in the amount of $486,529... [t]his surety shall be paid to the Town of Norton which will create an escrow account." Exh. 7, ¶ 16.

62. The site plan remand decision requires that post-construction, NextSun shall monitor water quality and quantity impacts and demonstrate that the project does not cause adverse impacts to abutters, and abutters to abutters within a 300-foot radius. This requirement applies to private well owners who agree to allow access to their private wells for monitoring. Exh. 7, ¶ [**25] 56.

D. Approval of the Floodplain Special Permit in the 2021 Floodplain Special Permit Remand Decision

63. Portions of the project are located in the floodplain overlay district under the bylaw. The floodplain overlay district is created by Article XIII of the bylaw. It includes all special flood hazard areas within the Town designated as Zone A or AE on the Bristol County Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) for the administration of the National Flood Insurance Program. Exh. 2A, §175-13.1.A.

64. Certain buildings, structures or uses within the floodplain overlay district that are allowed in the underlying district are required to obtain a floodplain special permit. The floodplain special permit granting authority is the Board. Exh. 2A, §175-13.4.C.

65. A floodplain special permit is issued subject to the following requirements:

> (1) No permit shall be issued to fill or excavate in the floodway or to build a new structure or to substantially improve an existing structure in the floodway;
>
> (2) in Zones A and AE, the proposed use, including filling or excavating, when combined with all existing uses, shall not increase the water surface elevation [**26] of the one-hundred-year flood more than zero inch at any point. This is to be so certified to the Planning Board by a registered professional engineer upon application for the special permit.

Exh. 2A, § 175-13.4.A

66. The Board made the two specific required findings in the 2021 floodplain special permit remand decision, which were that "[t] he proposal will not lead to fill or excavation in the floodway, the building of a new structure or substantially improve an existing structure in the floodway" and "[i]n Zones A and AE, the proposed use, including filling or excavating, when combined with all existing uses, does not increase the water surface elevation of the one-hundred-year flood more than zero inch at any point." Exh. 8.

67. Edward Capone is a retired floodplain specialist. During his career he worked for FEMA, the National Weather Service, and River Forecast Center, and is experienced working with flood modeling. He frequently dealt with flood elevations in bodies of water. Exh. 36; Tr. III-13-14.

68. Stacy Minihane is a professional wetland scientist employed by Beals and Thomas. Beals and Thomas, with Ms. Minihane as project manager, prepared the plans and exhibits for NextSun's [**27] floodplain special permit application. Exh. 11-15; Exh. 39; Exh. 40; Exh. 45; Tr. VI-131-132.

69. In preparing the plans to support NextSun's application for a floodplain special permit, Beals and Thomas calculated the 100-year floodplain using their own calculation of the base flood elevation. Beals and Thomas performed a topographic survey and mapped the property, then separately completed a floodplain study to map the 100-year floodplain on the property. Tr. VI-136, VII-68.

[*329] 70. The 100-year floodplain mapped by Beals and Thomas covers significantly more area than the FEMA-designated floodplain. NextSun submitted their floodplain special permit application based on the Beals and Thomas calculated floodplain. Exh. 12; Tr. VI-161, VII-23, VII-48.

71. FEMA Zones A and AE are shown outlined in pink and the Beals and Thomas 100-year floodplain is shown outlined in blue on the plan marked as Chalk D, titled "100-Year Base Flood Elevation Updated Sketch Number 002 Scale: 1" = 200' Date: 4/26/2022 B+T Drawing No. 300402D003B B+T Project No. 3004.02" (floodplain plan), a copy of which is attached to this decision as Exhibit A.

72. There is no regulatory floodway designated for Mulberry Meadow [**28] Brook. Tr. III-82-83.

73. Section 175-13.1.B of the bylaw states:

> In Zones A and AE, along watercourses that

have not had a regulatory floodway designated, the best available federal, state, local, or other floodway data shall be used to prohibit encroachments in floodways which could result in any increase in flood levels within the community during the occurrence of the base flood discharge.

74. Section 175-13.3 of the bylaw includes the following definition:

Structure: "[f]or floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home."

75. Section 175-9.2 of the bylaw includes the following definitions:

Excavate: To dig into and remove earth.

Grading: Alteration to land surfaces by excavation or filling.

76. Ms. Minihane testified that the majority of the project components are located outside of the floodplain overlay district. The components that are within the floodplain overlay district are far from Mulberry Meadow Brook. Between Mulberry Meadow Brook and the project area lie cranberry bogs that are a minimum of 150 feet wide and an elevated dike road. The ESS is located beyond upland cranberry bogs in an elevated area. Exh. [**29] 8; Tr. VI-163-164, 166.

77. Ms. Minihane testified that "the floodway is a subset of a floodplain [district]." I credit her testimony and find that no part of the floodway falls outside of the floodplain overlay district, and, in fact, that the floodway covers an area smaller than the floodplain. Tr. VI-162.

78. Conversely, Mr. Capone testified that because of the bylaw prohibition on any increase in floodplain elevation, the edge of the floodplain overlay district constitutes the edge of the regulatory floodway. I do not credit this testimony. Tr. III-51-52.

79. Mr. Capone testified that the entire project is within the floodplain overlay district because the project falls within the Beals and Thomas calculated 100-year floodplain. I do not credit this testimony. Tr. III-53.

80. Mr. Capone testified that if "FEMA were to look at the Beals and Thomas map... they would make a determination and upgrade their map... they would change the Zone A to the whole project." I do not credit this testimony. Tr. III-51.

81. Ms. Minihane, on the other hand, testified that "...the floodplain district is coincident with FEMA mapped Zone A," and that "the floodplain overlay district is smaller than the [**30] 100-year floodplain Beals and Thomas mapped." I credit her testimony. Tr. VI-158.

82. The Board evaluated the entire project as if it were within the floodplain overlay district, because it falls within the Beals and Thomas calculated 100-year floodplain, without making a finding that the Beals and Thomas calculated 100-year floodplain constitutes the floodplain overlay district. Exh. 8; Exh. 12; Tr. VI-161.

83. The bylaw defines the floodplain overlay district as "all special flood hazard areas within the Town of Norton designated as Zone A or AE on the [map] issued by... FEMA for the administration of the National Flood Insurance Program." Exh. 2A, §175-13.1; Exh. 39.

84. Although the regulatory floodway for Mulberry Meadow Brook has not been designated, based on the topography of the project area and the distance of the limited project components that are within the floodplain overlay district from Mulberry Meadow Brook, I credit Ms. Minihane's testimony and infer and find that no project components are located within the floodway. Exh. 3; Exh. 12; view.

85. Installation of posts to support the solar panels and utility poles would result in displacement of some soil or earth, which [**31] could raise the base flood elevation. Tr. VII-45.

86. Beals and Thomas estimated that the project will displace approximately 1,250 cubic feet of flood storage volume, and the project plan calls for 3,500 cubic feet of compensatory storage. The project plan does not call for any increase in base flood elevation. The compensatory storage will consist of regrading the edge of the bog to make space for additional flood water. The plan does not call for removal of any material from the property or diversion of water. Exh. 4; Tr. VI-110-111, VI-135, VI-137, VI-157, VII-21, VII-77-78.

87. The proposed area where regrading will take place is outside of the floodplain overlay district, and consequently outside of the floodway. Exh. 3; Exh. 12.

DISCUSSION

There are four issues in this case. First, I must determine whether the individual residents have standing to challenge the Board's decisions. Second, I must determine whether the Board's approval of the site plan in the site plan remand decision should be affirmed. Third, I must determine whether the conditions of the site [*330] plan remand decision challenged by NextSun should be affirmed. Finally, I must determine whether the Board's 2021 floodplain [**32] special permit remand decision should be affirmed. I address each issue in turn.

I. Standing of the Individual Residents

To have standing to challenge the Board's decisions, the individual residents must be "person[s] aggrieved" by the decisions. *G.L. c. 40A, § 17 (§ 17)*; *Kenner v. Zoning Bd. of Appeals of Chatham, 459 Mass. 115, 117, 944 N.E.2d 163 (2011)*; *Planning Bd. of Marshfield v. Zoning Bd. of Appeals of Pembroke, 427 Mass. 699, 701, 695 N.E.2d 650 (1998)*. Aggrievement is presumed for "parties in interest," including "abutters, owners of land directly opposite on any public... way, and abutters to the abutters within 300 feet of the [subject] property line." *G.L. c. 40A, § 11*; *81 Spooner Road, LLC v. Zoning Bd. of Appeals of Brookline, 461 Mass. 692, 700, 964 N.E.2d 318 (2012)*; *Marashlian v. Zoning Bd. of Appeals of Newburyport, 421 Mass. 719, 721, 660 N.E.2d 369 (1996)*; *Choate v. Zoning Bd. of Appeals of Mashpee, 67 Mass. App. Ct. 376, 381, 853 N.E.2d 1089 (2006)*. The presumption may be overcome where an opposing party challenges standing and produces supporting evidence or demonstrates the plaintiffs' lack of evidence. *Standerwick v. Zoning Bd. of Appeals of Andover, 447 Mass. 20, 35-36, 849 N.E.2d 197 (2006)*; see also *Kenner, 459 Mass. at 123-124*; *81 Spooner Road, LLC, 461 Mass. at 702*.

Aggrievement is determined based on "a plausible claim of a definite violation of a private right, a private property interest, or a private legal interest." *Harvard Sq. Defense Fund, Inc. v. Planning Bd. of Cambridge, 27 Mass. App. Ct. 491, 493, 540 N.E.2d 182 (1989)*. The right or interest asserted by a plaintiff claiming aggrievement must be one that G.L. c. 40A or the local zoning bylaw is intended to protect, either explicitly or implicitly. *Picard v. Zoning Bd. of Appeals of Westminster, 474 Mass. 570, 573, 52 N.E.3d 151 (2016)*; *Standerwick, 447 Mass. at 27-28*; see *Murchison v. Zoning Bd. of Appeals of Sherborn, 485 Mass. 209, 212-214, 149 N.E.3d 334 (2020)*. The aggrievement must be more than "minimal" or "slightly appreciable," and must be "special and different" from the concerns of the general community. *Murchison, 485 Mass. at 213-214*; *Standerwick, 447 Mass. at 33*; *Kenner, 459 Mass. at 118, 121-122*. A claim of aggrievement must be based on direct facts, not speculative [**33] personal opinion. *Kenner, 459 Mass. at 120*. Aesthetic harms, interference with views, and reduction of property value are usually insufficient to confer standing. See *Harvard Square Def. Fund, Inc., 27 Mass. App. Ct. at 493*.

Accepting that each of the individual residents meets the requirement to be named parties in interest,[2] there is a rebuttable presumption that they

[2] This is arguable for the Gallaghers, as they are not direct abutters.

are aggrieved within the meaning of *§ 17*. The presumption of standing may be rebutted in two ways. First, the presumption may be rebutted by the defendant demonstrating that the rights allegedly aggrieved are not interests protected by G.L. c. 40A or the local zoning bylaw. *81 Spooner Road, LLC, 461 Mass. at 702*. Second, the presumption may be rebutted by the defendant producing credible evidence to refute the presumed fact of aggrievement. *Standerwick, 447 Mass. at 34*. The individual residents claim that they are aggrieved because the project poses a risk of fire, that the project will expose them to noise, that the project will be visible from their properties, that the project will lower their property values, and that the project could contaminate their private wells. As set forth in this decision, NextSun challenged the individual residents' standing and either demonstrated that the harms were not to interests protected by c. 40A or the bylaw, or presented credible evidence [**34] to rebut each claim of aggrievement, in the form of expert testimony and documentary evidence warranting findings contrary to the presumed facts as to each claim. *81 Spooner Road, LLC, 461 Mass. at 702*; *Marinelli v. Board of Appeals of Stoughton, 440 Mass. 255, 258, 797 N.E.2d 893 (2003)*. Therefore, the presumption of standing has been rebutted.

Their presumption of aggrievement having been rebutted, the individual residents bear the burden of establishing their standing. *Barvenik v. Alderman of Newton, 33 Mass. App. Ct. 129, 597 N.E.2d 48 (1992)* (once a defendant "challenges the plaintiff's standing and offers evidence to support the challenge . . . the jurisdictional issue of standing is to be decided based on all the evidence, with no residual benefit to the plaintiff from the presumption"). Of the individual residents' claims, the risk of fire, noise exposure, and contamination of private wells constitute potential legally cognizable injuries. Each of the individual residents have standing based on fire risk, and Mr. Cogliano has standing based on potential contamination of his private wells.

The individual residents have presented sufficient evidence to support standing based on fire risk. Mr. Stormer's and Mr. Gottuk's testimony establishes that in the event of a fire in the ESS, hazardous gasses would be vented into the atmosphere that could necessitate temporary evacuation [**35] of the individual residents. I found, based on this expert testimony, that there is a risk of fire in the ESS. The evidence establishes that the risk is more than "minimal" or "slightly appreciable." See *Murchison, 485 Mass. at 213-214*. Furthermore, the individual residents face the risk of evacuation because of a fire in the ESS because of their proximity to the project area, and therefore their injury is "special and different" from the concerns of the general community. *Id. at 213-214*. Therefore, the individual residents have standing based on fire and subsequent evacuation risk.

On the well contamination claims only Mr. Cogliano has presented sufficient evidence to support his claim of aggrievement. Mr. Randazzo's analysis of the cones of influence of two of Mr. Cogliano's wells demonstrated with adequate scientific certainty that even under conservative estimates for all factors affecting the size of the cone of influence of his wells, at least two of Mr. Cogliano's wells could be contaminated by runoff from firefighting in the event of a thermal runaway fire in the ESS.

[*331] None of the individual residents presented sufficient evidence to support standing based on noise. The claims of each of the individual residents are speculative [**36] personal opinion based on their experience with noise generated by other projects. None of the individual residents presented evidence tending to show that the project would produce sound in the same manner as the other un related projects testified to at trial. The individual residents did not present expert testimony on the noise expected to be generated by the project.

However, because of their proximity to the Fairland property directly across Bay Road, I will consider them to have met the requirement.

The other alleged injuries, namely views from individual private properties and property values of individual private property owners are not legally cognizable injuries because they are not the types of interests protected by the bylaw. The bylaw does specify that one of its objectives in site plan review is to minimize obstruction of scenic views from "publicly accessible locations," but does not extend protection to views from private property. Therefore, the bylaw does not automatically confer standing on private landowners who can see a project from their private property. Additionally, although the bylaw states that in conducting site plan review the Board shall consider whether proposed developments are designed to "conserve the value of land and buildings," diminution of private property value is not an interest [**37] protected by Norton's bylaw. For private property value to constitute a protected interest when not specifically identified in the bylaw, the plaintiffs were required to "tether," or connect the alleged loss of property values to a harm that is protected by the bylaw, something none of the individual residents has done. *Standerwick, 447 Mass. at 31-32* (recognizing diminution in value as protected interest under G.L. c. 40A when tethered to another recognized interest).

In any event, the individual residents failed to offer sufficient evidence to establish a basis for their claims that the project would impair their views and diminish their property value, and instead only offered conjecture. *Murchison, 485 Mass. at 213-214*. The parties have limited views of the Fairland property from their respective parcels, and the only evidence presented by the individual residents concerning property value was purely speculative and did not establish aggrievement. The individual residents did not offer any expert testimony on this matter.

II. Board Decisions

The individual residents and NextSun both appeal the Board's site plan remand decision, and the individual residents appeal the Board's 2021 floodplain special permit remand decision. Under the bylaw, the Board is [**38] both the site plan and special permit granting authority. Nothing in the bylaw or G.L. c. 40A determines the standard of review of site plan decisions. As this case is before me under *G.L. c. 40A, § 17*, I will consider both the site plan remand decision and the 2021 floodplain special permit remand decision pursuant to the standard of review under *§ 17*. For an appeal pursuant to *G.L. c. 40A § 17*, the Board's decision cannot be disturbed unless it is based on a legally untenable ground, or is unreasonable, whimsical, capricious or arbitrary. *MacGibbon v. Bd. of Appeals of Duxbury, 356 Mass. 635, 639, 255 N.E.2d 347 (1970)*. My review of the Board's amended site plan and 2021 floodplain special permit remand decisions involves a combination of de novo and deferential analyses.

Fact finding is conducted de novo; no evidentiary weight is given to the facts the Board relied upon to reach its decisions. *Wendy's Old Fashioned Hamburgers of New York, Inc. v. Board of Appeals of Billerica, 454 Mass. 374, 381, 909 N.E.2d 1161 (2009)*. I review legal conclusions within the authority of the Board with deference; I will only disturb the Board's decisions in both instances if I find them based on legally untenable ground, or based on an unreasonable, whimsical, capricious, or arbitrary exercise of its judgment. *Id. at 381-382*. Site plan review is properly understood as "regulation of a use rather than its prohibition... contemplating primarily the imposition for [**39] the public protection of reasonable terms and conditions." *Y. D. Dugout, Inc. v. Board of Appeals of Canton, 357 Mass. 25, 31, 255 N.E.2d 732 (1970)*. The Board has discretion to impose reasonable conditions on an otherwise approved site plan, but only evidence of a problem "so intractable that it could admit of no reasonable solution" justifies outright denial of a site plan for an as-of-right use. *Prudential Ins. Co. of Am. v. Board of Appeals of Westwood, 23 Mass. App. Ct. 278, 283-284, 502 N.E.2d 137 (1986)*.

A. Approval of the Amended Site Plan in the Site Plan Remand Decision

LGSIs are an as of right use in the town of Norton. Therefore, the Board was required to approve the Amended Site Plan unless it was confronted with evidence of problems with the project without any reasonable solution. *Id.* The facts presented at trial do not support denial of the amended site plan. The Board approved the amended site plan with conditions to mitigate potential harmful impacts of the project. The Board considered the objectives required by section 175-15.6 of the bylaw and imposed conditions accordingly, which they deemed adequate to approve the amended site plan. Specifically, the Board imposed conditions to mitigate the risk of fire, noise, and visual impact.

The Board imposed comprehensive requirements to mitigate the risk of a thermal runaway fire in the ESS, including fixed automatic fire suppression systems, [**40] automatic alarms, container ventilation, and adequate fire suppression water availability. Furthermore, the Board required a means to contain water runoff and hazardous materials from fire suppression operations. Although the Board did not specify exactly what those means of containment should be, specificity is not required at this stage of the approval process. Under the conditions in the site plan remand decision, if NextSun does not provide such an adequate containment during construction, the project will be barred from interconnection with the grid. The Board further imposed several conditions to visually screen of the project, and strict conditions on noise generated by the project. Taken together, these conditions and the others included in the site plan remand decision address the objectives of the bylaw. The Board articulated their findings and evidence such that the reasons for imposing the conditions are supported by the facts. Therefore, the Board's approval of the Amended Site Plan was proper.

The individual residents contend that even if the approval of the amended site plan was proper, the ESS is accessory to the LGSI and therefore is exempt from the statutory protection [**41] from local zoning regulation afforded to LGSIs. This understanding is incorrect. The solar energy provision of *G.L. c. 40A, § 3* applies to "solar energy systems" and "structures that facilitate the collection [*332] of solar energy." Ancillary structures are considered to be part of a solar energy system under *§ 3*. *Tracer Lane II Realty, LLC v. City of Waltham, 489 Mass. 775, 779, 187 N.E.3d 1007 (2022)* (holding that an access road that facilitates a solar energy collection system's connection to the electrical grid is part of the solar energy system). Here, the ESS stores the power produced from the solar system and dispatches it to the electric grid in a stable manner, leading to consistent and reliable output from the project throughout the day regardless of the instant intensity of sunlight hitting the panel. Given the ESS's importance to the collection, storage, and distribution of solar energy to the grid, I conclude that the ESS is part of the project and falls under the as-of-right nature of the entire LGSI. See *id. at 780*.

B. Conditions in the Site Plan Remand Decision Challenged by NextSun

NextSun challenges three of the conditions included in the site plan remand decision. First, NextSun challenges conditions 18, 49, and 64, on the basis that "no perceptible noise" at the property line is an unattainable [**42] standard because perceptibility of sound is subjective. Second, NextSun challenges condition 16, which requires NextSun to deposit cash rather than a bond to secure its decommissioning obligations on the basis that it imposes an excessive financial burden. Third, NextSun challenges conditions 19 and 56, which require well water testing for wells of all abutters and abutters to abutters within a 300-foot radius, on the basis that the conditions impose an excessive financial burden on NextSun.

On the matter of the Board's conditions regulating noise at the property line, nothing precludes the Board from requiring that NextSun adhere to a

standard that the town sees fit to protect the public health, safety, or welfare. However, "perceptible" sound is not a measurable standard. It therefore runs afoul of *G.L. c. 40A, § 3*, which states, "[n]o zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare." Without further explanation about what the Board means by perceptible and how they intend to determine whether [**43] sound can be perceived, the Board's standard is unreasonable. Only condition 49 contains the standard for sound at the property line, and conditions 18 and 64 refer to condition 49 for the applicable standard. Therefore, condition 49 is remanded to the Board for reconsideration and to establish a measurable, attainable standard for noise at the property line.

On the matter of the Board's requirement relating to surety for decommissioning costs, the Board's requirement that NextSun provide surety in the amount of $486,529 is reasonable and NextSun does not dispute the amount of surety required. However, the Board's requirement that NextSun must pay that $486,529 to the town in cash to be held in an escrow account is not reasonable. Although section 175-22.7(A) of the bylaw does allow for surety to consist of an "escrow account, bond, or otherwise," under section 175-22.7(B) the bylaw further states that the Board "will work with the project proponent to develop a financial instrument... to ensure satisfactory removal of the facility and whose terms are sufficiently flexible to provide financial feasibility for the project proponent." Here, there is no evidence presented tending to show that an escrow account is superior [**44] to a bond in ensuring satisfactory removal of the project components at the end of their lifespan. Therefore, to meet the purpose of the bylaw, condition 16 must be remanded to the Board for reconsideration, to allow the surety to consist of a bond or other financial instrument deemed suitable by the Board, but which must allow adequate financial flexibility for the project to proceed.

On the conditions that make NextSun responsible for establishing baseline water quality and for annual water testing for private wells of abutters and abutters to abutters within 300 feet of the project, the Board's conditions are reasonable. The evidence at trial supports the possibility of contamination of wells in the vicinity of the project in the event of a fire in the ESS. The Board's conditions reasonably shift the responsibility for testing private wells for contaminants released from the site to NextSun. While NextSun correctly argues that the Board has not shown that the construction of the site, including placement of galvanized support posts for the solar panels, will cause any migration of contaminants into groundwater, all parties agree that lithium-ion batteries contain substances that [**45] can contaminate groundwater if released. A possibility of fire exists in the ESS, and in the event of a release of water used for fire suppression in the ESS, there is a reasonable degree of scientific certainty that contaminated water could be drawn into at least some private wells. Here, the Board has placed the highest sensitivity on ensuring that town residents can remain confident of the safety of their drinking and agricultural water, and has made that condition enforceable in its bylaw. This condition is not unreasonable and falls within the scope of the Board's authority if the Board has deemed it necessary to protect public health, safety, or welfare. Furthermore, although NextSun has alleged that the requirement will impose excessive expense, they have not presented any evidence to show the number of potential tests or the costs of such tests. As such, the conditions 19 and 56 are affirmed.

Generally, I can only impose particular conditions on the site plan in lieu of remand if I determine that "remand is futile or would postpone an inevitable result." *Wendy's, 454 Mass. at 388*. Here, the circumstances do not justify my ordering that the Board impose particular conditions in lieu of a remand to allow [**46] the Board to determine and

impose appropriate conditions. There is no record of consistent obstruction of lawful use, nor any evidence that justice and equity would not be served by remand. See *Quincy v. Planning Board of Tewksbury, 39 Mass. App. Ct. 17, 22-23, 652 N.E.2d 901 (1995)*. Therefore, the site plan remand decision is affirmed, except for conditions 16 and 49, which I remand to the Board for reconsideration consistent with this decision.

C. The 2021 Floodplain Special Permit Remand Decision

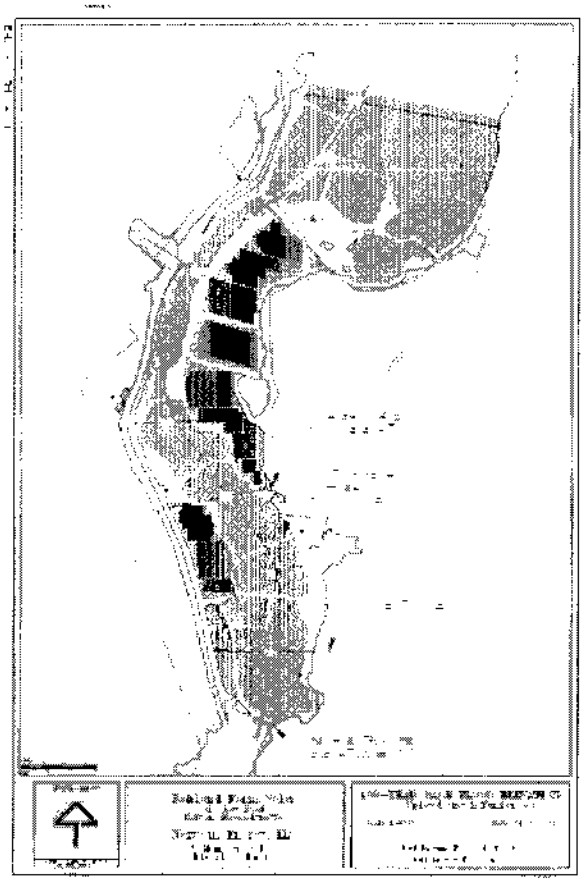
As discussed in the summary judgment order, because the project constitutes an as of right use, my review of the 2021 floodplain special permit remand decision is limited to determining whether the Board properly made the two findings required by bylaw § 175-13.4.C. First, the Board must have found that NextSun would not fill or excavate, build a new structure, or substantially improve an existing structure in the floodway. Second, the Board [*333] must have found that the project will not increase the water surface elevation of the 100-year flood by more than zero inches at any point. The Board made both of these findings, and both findings are supported by reasonable interpretations of the evidence. As a threshold matter, although there is no regulatory floodway designated for Mulberry [**47] Meadow Brook, because of the topography of the site and the distance of the project components that fall within FEMA Zone A (the floodplain district) from Mulberry Meadow Brook (shown on the floodplain plan attached to this decision as Exhibit A), I credit Ms. Minihane's testimony. I find that the floodway is a subset of the floodplain district; said another way, no part of the floodway is located outside of the floodplain district, and the floodway constitutes an area around the brook that is smaller than the floodplain. I also find that the floodplain district is coterminous with FEMA Zone A.

I find that the project does not include any plans to fill or excavate, build a new structure, or substantially improve an existing structure in the floodway. The project does not include any excavation as defined in the bylaw. The project does include regrading of the edge of a cranberry bog, which could be interpreted to constitute excavation. However, the planned area of regrading is located outside of the floodway. Additionally, the project does not include any plans to build a new structure, or substantially improve an existing structure in the floodway. Even if the ESS constitutes a "structure" [**48] under the definition in the bylaw, the ESS is located outside of the floodway.

With respect to water surface elevation, as part of its application for the floodplain special permit, NextSun submitted a certification prepared by Beals and Thomas that the flood elevation will not be increased. NextSun's plans include mitigation of lost flood storage volume by regrading the edge of a cranberry bog, to offset 1,250 cubic feet of lost volume with 3,500 cubic feet of compensatory flood storage volume. Grading incorporates both fill and excavation as defined in the bylaw section 175-9.2, but grading is not planned to take place in the floodplain overlay district. This supports the Board's finding that the project will not increase the water surface elevation of the 100-year flood by more than zero inches at any point.

As discussed, the floodplain as delineated by Beals and Thomas is more expansive and encompassed much more of the project than the floodplain shown on the FEMA map of Zone A, as shown on the floodplain plan attached to this decision as Exhibit A. Pointing to this difference, the individual residents argue that the 2021 floodplain special permit remand decision is arbitrary and capricious because [**49] the FEMA map of Zone A does not accurately represent the floodplain district. The individual residents argue that since the entire project is within the floodplain delineated by Beals and Thomas, it must be regulated as if the entire project is located within the floodplain overlay district. There is no requirement that NextSun engage FEMA to update their flood maps as a prerequisite to applying for a floodplain special permit. To the contrary, as discussed previously,

under § 175-13.1 of the bylaw, the floodplain overlay district is coterminous with the current existing FEMA Zone A or AE. The Board may reasonably rely on the definition of the floodplain in the bylaw when evaluating a floodplain special permit application, and only a few project components are located within the floodplain overlay district as defined in the bylaw. While NextSun's application for their floodplain special permit assessed the project's impact on the floodplain as delineated by Beals and Thomas, the proper review was based on the smaller FEMA floodplain. Therefore, the Board's findings and approval of the floodplain special permit are reasonable and supported by the evidence presented at trial.



CONCLUSION

For the [**50] foregoing reasons, the site plan remand decision, apart from Conditions 16 and 49, is **AFFIRMED**. Conditions 16 and 49 of the site plan remand decision are **REMANDED** to the Board for reconsideration consistent with this decision. The 2021 floodplain special permit remand decision is **AFFIRMED**. The Amended Verified Complaint in the 564 action will be dismissed with prejudice.

Judgment Accordingly.

[*334]

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