

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 18-155

April 30, 2020

Petition of NSTAR Electric Company d/b/a Eversource Energy pursuant to G.L. c. 40A, § 3 for Exemptions from the Zoning Bylaws of the Town of Oak Bluffs, Massachusetts.

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I. INTRODUCTION

A. Description of Proposed Project

On November 30, 2018, NSTAR Electric Company d/b/a Eversource Energy (“Eversource” or “Company”) filed with the Department of Public Utilities (“Department”) a petition seeking individual and comprehensive zoning exemptions (“Zoning Petition” or “Petition”) from the Town of Oak Bluffs Zoning Bylaw (“Zoning Bylaw”), pursuant to G.L. c. 40A, § 3. Eversource seeks the exemptions in connection with the Company’s proposal to construct and operate a Battery Energy Storage System (“BESS”) totaling 14.7 megawatts (“MW”) (“Project”) (Exh. EV-1, at 1). The Company stated that the Zoning Bylaw does not allow the construction and operation of public utility uses as-of-right in the Town of Oak Bluffs (“Oak Bluffs” or “Town”), and that the Project would require relief from certain dimensional provisions of the Zoning Bylaw (id. at 2). The Department docketed the Zoning Petition as D.P.U. 18-155.

The BESS would be located on the same parcel as, and to the rear of, the Company’s Oak Bluffs Service Center, 208 Edgartown-Vineyard Haven Road in Oak Bluffs on the island of Martha’s Vineyard, Massachusetts (“Project Site”) (id. at 1). Figure 1 shows the proposed Project location in relation to Edgartown-Vineyard Haven Road.

Figure 1. Aerial View of Project Site and Surroundings

Source: Exh. DPU-G-1(S1)(1) at 19.

In January 2017, as part of a base rate proceeding in D.P.U. 17-05, Eversource submitted plans to the Department for its Grid Modernization Base Commitment, which included a proposal to develop demonstration projects for energy storage in Massachusetts, generally, and on Martha's Vineyard, specifically (Exh. EV-1, at 3). The Company stated that for several reasons Martha's Vineyard is an appropriate location for a BESS. First, due in part to the cost and complexity of installing undersea conductors to Martha's Vineyard, Eversource uses on-island diesel powered generators to maintain electric reliability during peak load conditions or if one of the four undersea cables serving the island fails (*id.* at 12; Tr. 1, at 33). Additionally, the relatively high percentage of distributed energy resources ("DER") on Martha's Vineyard can cause undesirable voltage stability issues for the local distribution system, which hinders the

Company's ability to accommodate additional DER on the island (Exh. EV-1, at 17-19). The Company stated that the BESS project would decrease use of diesel-powered generators and help ensure voltage stability on Martha's Vineyard, thereby improving electric reliability (id. at 3).

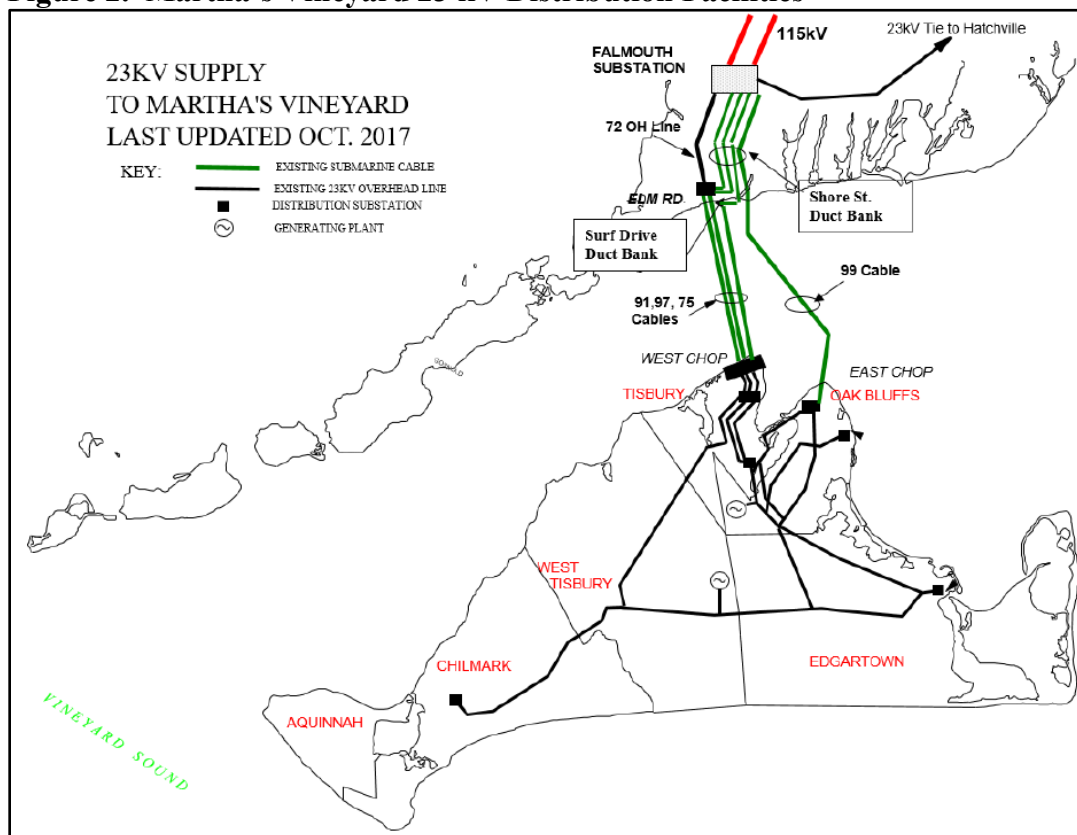
In D.P.U. 17-05, the Department found that the proposed Project on Martha's Vineyard has the potential to deliver the following benefits: (1) benefits related to the retirement of diesel generators (and associated greenhouse gas emissions); (2) data and insight into the costs of integrating distributed energy resources before and after deployment of storage; (3) reliability through improved voltage regulation; (4) contingency planning; and (5) peak load reduction. NSTAR Electric Company and Western Massachusetts Electric Company, D.P.U. 17-05, at 459-463 (2017). The Department also found that the proposed Project could serve as a non-wires alternative to defer upgrades to, or avoid construction of, an additional undersea cable. Id. at 463. In response to the Department's findings, Eversource proceeded with the planning, engineering, permitting, and development of the Project, resulting in the current Petition (Exh. EV-1, at 4).

1. Existing Distribution System

The Company stated that Martha's Vineyard has about 16,000 year-round residents, approximately 100,000 summer residents, and an additional 25,000 short-term visitors each summer (Exh. EV-1, at 12). Accordingly, electrical load increases substantially in the summer, with a historic peak electrical load of 61.5 MW (Exh. EV-1, at 23). The Company stated that Martha's Vineyard is currently served by four 23 kilovolt ("kV") submarine cables (identified as #75, #91, #97, and #99) that connect the island electrically to the Company's bulk supply substation in the Town of Falmouth ("Falmouth Substation") (id. at 13). The Company stated that Martha's Vineyard also has five on-island 2.5-MW diesel generators, which supplement the

undersea cables to support the island's distribution system (*id.* at 12).¹ The diesel generators operate to reduce loading on the submarine cables during normal summertime conditions and to address any failure of the four 23 kV submarine distribution circuits (*id.* at 12, 15). Martha's Vineyard has approximately 9.2 MW of behind-the-meter wind and solar DER (*id.* at 31). The Company maintained that the island has a high ratio of intermittent, non-dispatchable generation to load (*id.* at 28). Figure 2 presents a simplified diagram of Martha's Vineyard's distribution system.

Figure 2. Martha's Vineyard 23 kV Distribution Facilities



Source: Exh. EV-1, at 13.

¹ Eversource stated that the generators are owned by NRG Energy, Inc. and operate under contract with the Company (Exh. EV-1, at 12). During capacity-constrained conditions, the generators may also be dispatched by ISO-NE (*id.*).

The Company stated that the #91 and #97 cables have been derated from their original capabilities in order to reduce the risk of premature cable failure (Exh. EV-1, at 13). Table 1 provides details about the four cables serving the island; each cable originates at the Falmouth Substation.

Table 1: Undersea Cable Detail

Cable	Length	Voltage	Rating	Age
#91	5.1 miles	23 kV	13 MVA	31 years
#97	5.1 miles	23 kV	13 MVA	27 years
#99	6.4 miles	23 kV	17 MVA	31 years
#75	5.1 miles	23 kV	25 MVA	3 years

Source: Exh. EV-1, at table 1. Ratings for the cables #91 and 97 are the derated values.

The Company stated that in the event of a contingency on either the #91, #97, or #99 cables (an “N-1” contingency), peak load on Martha’s Vineyard can be served with dispatch of the five 2.5 MW diesel generators and remedial switching to balance loads among the remaining in-service cables (Exh. EV-1, at 14). In the event of an N-1 contingency on the #75 cable, the island’s total remaining capacity of 55.6 MVA is insufficient to meet planning criteria during peak load conditions (id. at 14, 24-25).² Eversource reported that an outage of the #75 cable could require the Company to rent and deploy additional portable diesel generators to restore all customers served by that circuit (id. at 14; Exh. DPU-N-5). The Company stated that locating and repairing a cable fault could necessitate using on-island diesel generation for a number of months (Exh. EV-1, at 14).

² The N-1 capacity limit of 55.6 MVA for Martha’s Vineyard represents the sum of the derated capacity of the remaining three undersea cables plus the five diesel generators (Exhs. EV-1, at 14; EFSB-N-13).

2. Project Construction and BESS Technology

Eversource stated that the BESS would be constructed in two phases (Exh. EV-1, at 1). Phase 1 has a proposed construction start of early 2020 and an in-service date of late 2020 (id.). When completed, Phase 1 would have a storage capacity of 4.9 MW, capable of delivering 20 megawatt-hours (“MWh”) (id. at 5). If the Company successfully demonstrates the benefits of Phase 1 and obtains the required rate approvals from the Department, construction for Phase 2 would start in mid-2022 and with an in-service date approximately one year later (id. at 4, 6-7). Phase 2 would consist of two additional 4.9 MW/32MWh batteries for a combined capacity of 14.7 MWs for both phases, capable of delivering 84 MWh (id. at 6). The Company seeks zoning exemptions for both phases in this proceeding (id. at 1).

For both phases, the Company selected lithium-ion battery technology (Exh. EV-1, at 7). Eversource explained that, in addition to lithium-ion battery cells, the completed BESS would include the following major components: a power conversion system (“PCS”)³; a control and protection system; step-up transformers; switchgear; and a heating, ventilation, and air conditioning (“HVAC”) system (id. at 1). The Company stated that BESS components, including the batteries and PCS, would be located in a new building (“BESS Building”) to be constructed at the Project Site (id. at 1-2). The BESS Building would be surrounded on three sides by a ten-foot-high acoustically treated sound wall, which would enclose the HVAC units and transformers (id. at 2, 6; Exh. DPU-NO-1). Switchgear units would be located outside of the building and also outside the sound wall (Exh. EV-3, at 7).

³ The Company explained that the PCS, also called an inverter, facilitates the charging and discharging of the DC battery by converting the battery’s DC output to AC power, and vice versa (Exh. DPU-N-1; Tr. 1, at 131).

The Company stated that when completed, each individual 4.9 MW battery unit would be connected to a different 23 kV distribution feeder (Exh. EV-1, at 5-6; Tr. 1, at 47). For Phase 1, the first 4.9 MW battery unit would be connected to the #75 circuit (Exh. EV-1, at 5). For Phase 2, the second and third 4.9 MW units would be connected to the Line #97 and Line #99 distribution feeders, respectively (id. at 6). The Project design would provide switching capability within the 23 kV system to allow each of the individual 4.9 MW battery units to be dispatched onto either of the other two distribution feeders, if additional capacity is required on that circuit (id. at 21 n.12; Tr. 1, at 48). Eversource stated that the ability to switch the BESS units among three of the island's main distribution circuits would allow the Company to react flexibly to unanticipated contingencies, thereby improving reliability (Tr. 1, at 48-49).

The Phase 1 BESS batteries and inverters would be housed in a 76-foot-wide by 100-foot-long building with a height of approximately 30 feet (Exh. EV-1, at 6). An underground duct bank and new risers installed during Phase 1 would allow the BESS to interconnect with the existing overhead distribution system along Edgartown-Vineyard Haven Road (id. at 6; Exh. DPU-C-2). The Company would construct an addition with a basement onto the BESS Building to house Phase 2 that would be approximately 76 feet wide by 90 feet long, with a consistent roof height of 30 feet (Exh. EV-1, at 6).

The Company stated that a lithium-ion BESS uses an electrochemical process to convert electrical energy to chemical energy and discharge chemical energy to electrical energy when called upon (Exh. DPU-G-10). The Company stated that lithium-ion batteries are well suited for utility scale energy storage applications because they can typically achieve a round-trip efficiency (charge/discharge cycle) of approximately 90 percent, are able to respond rapidly to

changes in electricity demand, and have a lower cost per kilowatt-hour compared to other batteries chemistries, such as vanadium re-dox flow batteries and zinc-based batteries (Exhs. EV-1, at 7, 22; DPU-PA-3(1)).

The proposed BESS would connect individual lithium-ion cells together into a module, stack modules together into a rack, and group racks into battery zones (Exhs. EV-1, at 7; DPU-G-9; Tr. 1, at 162-163). Individual battery cells would have an estimated life of 12 to 13 years; the modular configuration of the BESS would allow the Company to maintain the rated capacity of the BESS over its lifetime by replacing individual cells, as needed (Exh. EV-1, at 7).⁴

Generally, the BESS would charge when electrical demand is low and would discharge when the undersea distribution cables reach specified loading levels or during instances of peak demand (Tr. 1, at 14, 45-46). The Company estimated that Phase 1 could fully charge in approximately four hours and thirty minutes and that Phase 2 could fully charge in approximately seven hours and fifteen minutes (id. at 16-17; Exh. DPU-G-13).

For the proposed Project, the Company vetted several engineering, procurement, and construction (“EPC”) contractors capable of delivering a complete lithium-ion BESS and ultimately selected NEC Energy Solutions (Tr. 1, at 172-173; RR-DPU-12).⁵ The Company stated that EPC contractors were vetted on the basis of their competitive bids, operating history, and safety record (Exh. DPU-S-16; Tr. 1, at 171-172). The Company described the EPC contractor as an integrator, responsible for selecting individual suppliers for the various technologies, systems, and individual components including, but not limited to, the fire

⁴ The Company expects to operate the Project for at least 20 years (Tr. 2, at 307).

⁵ Throughout the proceeding, the Company also referred to its EPC as a “BESS Vendor.”

suppression system, battery management system, power conversion system, battery modules, and switchgear (Exh. DPU-G-15; Tr. 1, at 166; RR-DPU-16). The ongoing role of the EPC is further discussed in Section II.C.3.i, Public Safety.

The Company stated that the proposed BESS could serve multiple applications such as peak shaving, peak shifting, system resiliency, renewable intermittency mitigation, and ancillary services (Exh. DPU-N-9; Tr. 1, at 18). Eversource explained that, because each of the three battery units would provide less than 5 MW, the BESS would be registered with ISO-New England (“ISO-NE”) as a load reducer, rather than as a settlement-only generator (Exh. DPU-N-9; Tr. 1, at 68). The Company explained that, as a load reducer, the BESS could participate in the frequency regulation market as an alternative technology regulating resource (Exh. DPU-N-9). The Company testified that since it does not intend to register the BESS as a settlement-only generator, the Company would not directly bid the BESS into ISO-NE capacity markets; therefore, the BESS would not be dispatchable by ISO-NE (Tr. 1, at 19).

As a load reducer, Eversource would dispatch the BESS at specific times during monthly or annual peak load conditions to lower the total electrical demand for the zone in which Martha’s Vineyard is registered (Tr. 1, at 22-23; RR-DPU-22). The Company explained that because certain ISO-NE transmission and capacity expenses are allocated based on a zone’s total electrical load during a particular peak, reducing peak load also reduces that zone’s share of transmission and capacity expenses, thereby conferring cost savings to Eversource’s ratepayers (Tr. 1, at 22-23; RR-DPU-22).⁶

⁶ The Company stated that monthly peaks set the allocation of Regional Transmission Service costs for a zone, while an annual coincident peak sets the allocation of Forward Capacity Market costs in New England (RR-DPU-22).

The planning grade cost estimate (-25%/+25%) is \$15 million for Phase 1 and \$28 million for Phase 2; thus, the total Project cost is estimated to be approximately \$43 million (Exh. EV-1, at 6-7).⁷ Eversource projected that Phase 1 construction would begin in the late winter or early spring of 2020 and be complete by the end of 2020; Phase 2 construction is expected to begin in the spring or summer of 2022 and be completed by summer 2023 (id.).

B. Procedural History

Eversource filed its Petition with the Department on November 30, 2018. On February 13, 2019, the Department conducted a duly noticed public comment hearing at the Martha's Vineyard Regional High School.⁸ The Town petitioned for Intervenor status, which was granted on March 14, 2019. The Department conducted one round of discovery. On June 3, 2019, the Company and the Town submitted a Memorandum of Understanding ("MOU") with regard to the Company's proposal to construct and operate the BESS (Exh. TOB/EV-1).

The Department conducted evidentiary hearings at its offices in Boston on June 19 and 20, 2019. Testifying on behalf of Eversource were Eversource employees: Charlotte Barlow Ancel, director of clean energy strategy and development; Brian Bose, project manager; Keith L. Jones, senior planning engineer in the system planning department; and Michael Zylich, senior environmental engineer with the Company's licensing and permitting group (Tr. 1, at 5-11). The

⁷ Eversource stated that it would not construct Phase 2 until the Company gains the experience of developing Phase 1 and managing its interface with the local system nor until any additional required rate approvals are obtained from the Department (Exh. EV-1, at 4).

⁸ Some commenters at the public comment hearing expressed dissatisfaction with the Company's request to override local approvals, and some expressed concern about the safety of lithium-ion batteries, which an audience member characterized as a new technology (Public Comment Hearing Transcript at 18-24).

evidentiary record of the proceeding, in addition to the Company's Petition and accompanying exhibits, includes the Company's responses to 120 information requests and 25 record requests.

The Company filed a brief on July 12, 2019.

II. REQUEST FOR INDIVIDUAL ZONING EXEMPTIONS PURSUANT TO G.L. C. 40A, § 3

A. Standard of Review

G.L. c. 40A, § 3 provides, in relevant part, that

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

Thus, a petitioner seeking exemption from a local zoning bylaw under G.L. c. 40A, § 3 must meet three criteria. First, the petitioner must qualify as a public service corporation. NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 18-21, at 4 (2019) ("Westfield"); NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 17-147, at 6 (2019) ("K Street"); Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975) ("Save the Bay"). Second, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. Westfield at 5-6; K Street at 7-8; Boston Gas Company, D.T.E. 00-24, at 3 (2001) ("Boston Gas"). Finally, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. Westfield at 6-7; K Street at 8-9; Tennessee Gas Pipeline Company, D.T.E. 01-57, at 4 (2002) ("Tennessee Gas").

1. Public Service Corporation

In determining whether a petitioner qualifies as a "public service corporation" for the purposes of G.L. c. 40A, § 3, the Massachusetts Supreme Judicial Court ("SJC") has stated:

among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Westfield at 4; Boston Gas at 3-4; Save the Bay, 366 Mass. at 667, 680.

The Department interprets this list not as a test, but rather as guidance to ensure that the intent of G.L. c. 40A, § 3 will be realized, *i.e.*, that a present or proposed use of land or structure that is determined by the Department to be “reasonably necessary for the convenience or welfare of the public” not be foreclosed due to local opposition. See Berkshire Power Development, Inc., D.P.U. 96-104, at 30 (1997) (“Berkshire Power”); Save the Bay, 366 Mass. at 685-686.

The Department has interpreted the “pertinent considerations” as a “flexible set of criteria which allow the Department to respond to changes in the environment in which the industries it regulates operate and still provide for the public welfare.” Westfield at 4; Berkshire Power at 30; see also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59-B/95-80/95-112/96-113, at 6 (1998) (“Nextel”). The Department has determined that it is not necessary for a petitioner to demonstrate the existence of “an appropriate franchise” in order to establish public service corporation status. See Berkshire Power at 31.

2. Public Convenience or Welfare

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. Save the Bay, 366 Mass. at 680; Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974). Specifically, the Department is empowered and required to undertake “a broad and balanced consideration of all aspects of the general public interest and

welfare and not merely [make an] examination of the local and individual interests which might be affected.” New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964) (“New York Central Railroad”). When reviewing a petition for a zoning exemption under G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the applicant. Save the Bay, 366 Mass. at 685; New York Central Railroad, 347 Mass. at 592.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, 347 Mass. at 591.

Therefore, when making a determination as to whether a petitioner’s present or proposed use is reasonably necessary for the public convenience or welfare, the Department examines (1) the present or proposed use and any alternatives or alternative sites identified; (2) the need for, or public benefits of, the present or proposed use; and (3) the environmental impacts or any other impacts of the present or proposed use. The Department then balances the interests of the general public against the local interest and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public. Boston Gas at 2-6; Tennessee Gas at 5-6.

3. Exemptions Required

In determining whether exemption from a particular provision of a zoning bylaw is “required” for purposes of G.L. c. 40A, § 3, the Department looks to whether the exemption is necessary to allow construction or operation of the petitioner’s project as proposed. Westfield at 6; Tennessee Gas at 5. It is the petitioner’s burden to identify the individual zoning provisions applicable to the project and then to establish on the record that exemption from each of those provisions is required:

The Company is both in a better position to identify its needs, and has the responsibility to fully plead its own case The Department fully expects that, henceforth, all public service corporations seeking exemptions under c. 40A, § 3 will identify fully and in a timely manner all exemptions that are necessary for the corporation to proceed with its proposed activities, so that the Department is provided ample opportunity to investigate the need for the required exemptions.

New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995).

B. Public Service Corporation Status

Eversource is an electric company as defined by G.L. c. 164, § 1, and, as such, is a public service corporation. Westfield at 7; Eversource Electric Company, D.P.U. 11-80, at 7 (2012). Accordingly, the Department finds that Eversource qualifies as a public service corporation for the purposes of G.L. c. 40A, § 3.

C. Public Convenience and Welfare

1. Need for or Public Benefit of Use

a. Decreased Reliance on Diesel Generators Currently Serving Martha’s Vineyard

The Company stated that the on-island diesel generators may be operated during normal summertime high-demand conditions as well as during a contingency event (Exh. EV-1, at 3). The Company noted that, during the summertime especially, it has experienced late afternoon

cable loads that increase rapidly because of the loss of solar photovoltaic “solar PV” generation, coincident with increasing on-island power consumption towards evening (id. at 16).⁹ To reduce thermal stress on the undersea cables, the Company dispatches the diesel generators when the submarine cables reach 80 percent of their rating to ensure an adequate margin of reliability (id.; Tr. 1, at 44).¹⁰ The Company stated that, after instituting this protocol in 2018, diesel generator run hours due to cable loading increased from 137 hours in 2017 to 1,070 hours in 2018 (Exhs. EV-1, at 16; DPU-N-7). The Company also noted that, in summer 2013, two submarine cables were out of service and the on-island generators operated for 6,068 hours (Exh. DPU-N-7).

According to the Company, the BESS would provide an alternative resource to relieve cable loading, allowing system operators to control the discharge of the BESS over a selected period of time, or set a control system parameter to automatically adjust the BESS output to maintain the cables below a specified loading limit (Exh. EV-1, at 27). The Company stated that the Project would maintain and improve the reliability and resiliency of the distribution system on Martha’s Vineyard by reducing reliance on the diesel generators and replacing them with a new energy source that is able to respond rapidly to changes in electricity demand (id. at 20, 22).

⁹ The Company noted that effects of solar ramp-down during evening peak load conditions are especially pronounced for the #75 cable, which is connected to several large solar PV arrays (Exh. EV-1, at 26; Tr. 1, at 30). As solar output from these arrays begins to drop off, the Company begins to dispatch the diesel generators to keep loading on the #75 circuit at or below its allowable ratings (Exh. EV-1, at 26).

¹⁰ The Company stated that one alternative to dispatching the diesel generators to relieve loading involves a complex sequence of cascaded distribution switching to supply load by alternative paths (Exh. EV-1, at 26-27). However, the Company indicated that the cascaded switching sequence diminishes the system’s ability to handle unanticipated circuit contingencies, compared to operating the diesel generators (id. at 27).

The Company stated that, although the operation of some individual diesel units may still be required under certain extreme contingencies, implementing the BESS would greatly decrease diesel generator run hours during both normal and peak load conditions (id. at 20; Exh. DPU-N-10).

In addition to improving reliability, the Company noted that displacing energy produced by diesel generators would avoid greenhouse gas (“GHG”) emissions otherwise emitted by the diesel generators (Exh. EV-1, at 22). The Company stated that the generation mix of the New England power grid, which would charge the BESS, typically has a lower emissions profile than diesel generators (id.). Based on 2018 on-island generator run hours and historical averages, the Company estimated that Phase 1 of the BESS could reduce carbon dioxide (“CO₂”) emissions by approximately 1,481 metric tons per year, and Phase 2 could reduce an additional 2,912 metric tons of CO₂ per year (id.; RR-DPU-5).¹¹

b. Contingency Planning

The Company stated that, in accordance with its N-1 planning standard requirements set forth in SYS-PLAN 010, it plans and maintains its distribution system to reliably serve customer demand, assuming the loss of the single largest resource used to serve that demand (Exh. EV-1, at 23). According to the Company, for Martha’s Vineyard, the most serious contingency would be the loss of the #75 cable (id.). The Company explained that, due to the undersea location of the four distribution cables, a failure on any of the four cables would require

¹¹ The Company noted that decreasing GHG emissions would help advance the Commonwealth’s Global Warming Solutions Act, which requires a 25 percent reduction in statewide GHG emissions below 1990 baseline emissions levels by 2020, and at least an 80 percent reduction by 2050 (Exh. EV-1, at 22).

highly specialized repair contractors, could incur high costs, and could take weeks or months to repair (id. at 26; Exh. DPU-Z-15).

The Company reported that the Martha's Vineyard peak load has increased from 46.5 MW in 2008 to 61.5 MW in 2016 (Exh. EV-1, at 23). The island exceeded its available firm capacity 2009 to 2013, and 2016 and 2018 (RR-DPU-2(1)). In the event that a critical N-1 contingency occurs when load is greater than the island's current firm capacity limit of 55.6 MVA, the Company would have to rent, transport, and deploy portable diesel generators to restore the load at risk on the #75 circuit (Exhs. EV-1, at 14; DPU-Z-18). Eversource estimated that deploying portable generators could take one to six days, depending on conditions and the number of generators needed (RR-DPU-4; Tr. 1, at 52). The Company stated that the Project would obviate this need to rent and deploy portable generators (Exh. DPU-N-5).

Eversource reported that peak load on Martha's Vineyard is forecast to increase to 67.2 MW by 2028 (Exh. EV-1, at 23). The Company stated that without the Project's construction, there would be an immediate need to consider conventional transmission and distribution solutions to serve current and forecasted peak loads in the event of a contingency (id. at 25-26; Exh. DPU-Z-18).¹² The Company explained that the high cost of conventional transmission and distribution solutions in combination with the recent development of commercially available, utility-scale battery storage increased the feasibility of a BESS project

¹² The Company noted that, due to anticipated load growth on Martha's Vineyard, reliance upon the existing system would eventually lead to customer outages, declining system reliability, and potential damage to the system if a contingency event were to occur during peak load periods (Exh. EV-1, at 32).

(Exh. EV-1, at 27). Eversource stated that the Project would allow the Company to meet its forecasted load growth for at least a ten-year period (id. at 25-26).

c. Supporting Additional Distributed Energy Resources

The Company stated that the island has 9.2 MW of solar DER applications, including 3.2 MW of stand-alone solar PV generation, and several smaller stand-alone and behind-the-meter solar and wind installations (Exh. EV-1, at 12, 17). The Company reported that it has experienced undesirable voltage-related impacts including voltage flicker and light load voltage rise because the stand-alone solar PV installations constitute a relatively large amount of non-dispatchable, intermittent generation relative to load on Martha's Vineyard (id. at 28, 30, 34). The Company explained that voltage flicker can occur when passing clouds cause the primary voltage of the distribution feeder to change faster than voltage regulation mechanisms can compensate (Exh. DPU-N-16).¹³ Light load voltage rise can occur when the total amount of distributed generation ("DG") like solar PV on a circuit exceeds local load and voltage rises – not drops – from the substation to the end of the circuit (Exh. EV-1, at 18). The Company explained that existing voltage regulation devices are not designed to respond to variation in solar PV production instantaneously, and variable solar output can result in a high frequency of mechanical tap changes within voltage regulating equipment, causing excessive wear and tear on the electromechanical equipment (id. at 18, 29; Exh. DPU-N-16).¹⁴

¹³ Eversource noted that to prevent frequency tap changes and poor synchronization between voltage regulators, time delays of 15 to 30 seconds are set for controls of substation load tap changes and pole-mounted voltage regulators on Martha's Vineyard (Exh. DPU-N-16). Eversource indicated that voltage flicker caused by PV installations can be quite rapid – faster than its voltage regulation apparatus can accommodate (id.).

¹⁴ The Company stated that using the existing diesel generators to help regulate voltage on the distribution circuits is not feasible because it would require one or more generators to

The Company stated that maintaining power quality on the island is challenging due to the electrical length and high impedance of the 23 kV distribution feeders between the Falmouth Substation and DER points of interconnection; the Company characterized the lengths as “extreme” (Exhs. EV-1, at 18, 29; DPU-N-16; Tr. 1, at 30). The Company stated that the distribution system on the island has reached limiting thresholds for voltage flicker and light load voltage rise and, therefore, cannot accommodate additional DER resources at this time (Exh. DPU-N-16; Tr. 1, at 30).

The Company stated that, as a technology, a BESS is well suited to mitigate the impacts of distributed solar PV generation on power quality and improve solar hosting capability (Exh. EV-1, at 29). The Company indicated that the BESS inverter would be able to dynamically source or sink reactive power, making it a substantial new resource for voltage control and flicker mitigation, allowing installation of additional DG (id.).¹⁵

d. Analysis and Finding

The record shows that the Martha’s Vineyard distribution system relies on diesel generators to maintain electric reliability during certain peak load and contingency scenarios (Exh. EV-1, at 14-16). Even with the use of on-island diesel generators, an N-1 contingency on Line #75 during current peak load would result in an 8 MW capacity shortfall, necessitating portable emergency generators to restore customers on Martha’s Vineyard (id. at 14, 35).

run continuously on nearly every sunny day and would require the installation of specific voltage regulation in connection with the generators (Exh. DPU-N-15).

¹⁵ The BESS would alleviate voltage flicker by performing what the Company described as “voltage smoothing functions” to correct for the intermittency of solar output where voltage flicker is problematic (Exh. EV-1, at 30).

Repairing a fault on any of the undersea cables serving the island requires protracted and complex construction (id. at 26). To reduce thermal stress on the undersea cables, the Company dispatches the on-island diesel generators when the cables reach 80 percent of their rating (id. at 16). As a result of various contingencies, peak local loads, and cable preservation measures, Eversource dispatched the diesel generators for approximately 7,600 hours from 2013 to 2018, resulting in increased CO₂ and other emissions compared to the typical generation mix of the New England power grid (id. at 21-22; Exh. DPU-N-7).

The record shows that the proposed BESS would resolve the identified N-1 capacity shortfall and eliminate the need to use portable diesel generators during an outage of Line #75 (Exhs. EV-1, at 20; DPU-N-5; DPU-N-10). The Project would defer the otherwise immediate need for additional transmission or distribution resource from the Falmouth Substation and allow the Company to meet forecasted demand for ten years (Exh. EV-1, at 25-26). The record also shows that the BESS would provide an additional resource to relieve cable loading and reduce reliance on the diesel generators (id. at 27). In addition, the Project would have the ability to (1) mitigate adverse impacts of distributed solar PV generation on power quality on Martha's Vineyard and (2) support further integration of solar PV or other DG resources (id. at 29).

Thus, the record shows that the BESS would improve electric reliability on Martha's Vineyard and prevent carbon emissions otherwise associated with the operation of diesel generators. In addition, as part of the Company's Grid Modernization Base Commitment, the proposed BESS would provide the Company with operational experience, as well as new data and insights into the cost and efficacy of battery storage projects generally. Accordingly, the

Department finds there is a need for the Project and the construction and operation of the Project would result in public benefits.

2. Alternatives Explored

The Company considered non-wires alternatives, including DG and energy efficiency (“EE”), as well as conventional transmission and distribution alternatives to address the identified need and reliability issues (Exh. EV-1, at 31-32).¹⁶

a. Non-wires Alternatives

The Company first reviewed whether DG and solar PV resources would be effective in addressing the identified need and reliability issues (Exh. EV-1, at 33). As noted above, the Company has limited capacity to accommodate additional on-island intermittent resources due to difficulties managing voltage stability (id. at 34). The Company noted that further installation of intermittent DG on-island would exacerbate, not relieve, reliability and power quality issues (id.).

Eversource stated that, while it is committed to reducing demand through EE and demand response (“DR”) programs, these programs would not offer reductions in peak load significant enough meet the identified need or defer the Project or another alternative (Exh. EV-1, at 35-36). The Company determined that at peak loads, the loss of the #75 cable – even with full operation of the diesel generators – results in an N-1 shortfall of 8 MW (id. at 35). The Company reported that the Cape Light Compact expects the 2018 annual incremental EE reductions for all of Barnstable and Dukes Counties to be a 10.3 MW reduction, out of a forecasted peak of 563 MW

¹⁶ Eversource also presented a no-build approach. However, this approach did not address the identified reliability need under current conditions (Exh. EV-1, at 32). Further, the no-build approach would not deliver any of the benefits identified in D.P.U. 17-05 (id.).

(id. at 35; Exh. DPU-PA-10).¹⁷ Assuming a pro rata share, the Company contends that the EE reduction for Martha's Vineyard would not resolve the 8 MW deficiency (Exhs. EV-1, at 35; DPU-PA-10). The Company also asserts that Martha's Vineyard lacks the commercial and industrial loads that could yield the EE or DR potential to resolve the identified need (Exh. EV-1, at 35). Thus, the Company concluded that the non-wires alternatives evaluated could not address the identified need (id. at 36).

b. Traditional Distribution and Transmission Alternatives

The Company considered the reliability, cost, and environmental impacts of a distribution supply alternative that would include a new 8.3-mile combined land and submarine 23 kV circuit from the Falmouth Substation to Martha's Vineyard (the "Distribution Supply Alternative") (Exh. EV-1, at 36). Beginning at the Falmouth Substation, the Distribution Supply Alternative would use available space in an existing duct bank for approximately 1.8 miles before reaching the 6.1-mile submarine portion that would generally follow the path of the existing #99 feeder to landfall in Oak Bluffs (id.). Once in Oak Bluffs, the Distribution Supply Alternative would again use available space in an existing duct bank for approximately 0.4 miles to a Company-owned property in Oak Bluffs (id.). The Company stated that the Distribution Supply Alternative would be configured to pick up the majority of the load from the #99 cable and some of the load from the #75 cable (id. at 37). The Distribution Supply Alternative is estimated to cost approximately \$42 million (-25%/+50%) (id.; Exh. DPU-C-6).

¹⁷ The Cape Light Compact administers EE programs for Barnstable and Dukes Counties, including Martha's Vineyard (Exh. EV-1, at 35).

The Company stated that the Distribution Supply Alternative would protect against thermal overloads in the event of a contingency and reduce reliance on diesel generators by bringing an additional supply of electricity to the island (Exh. EV-1, at 37). A fifth distribution supply could also allow more DER interconnections because new DER applications could be isolated to the new cable (id.). However, the Company noted that a new distribution circuit would be vulnerable to the maintenance and repair challenges typical of any submarine cable (id. at 26, 37). According to the Company, the Distribution Supply Alternative, unlike the Project, would not improve voltage regulation on Martha's Vineyard, nor would it provide any peak load reduction and related cost savings to ratepayers (Tr. 1, at 75; RR-DPU-7(1)).

Eversource stated that construction of the Distribution Supply Alternative would entail impacts to submarine and wetland environments, and potentially affect historic and archeological resources, fisheries, and protected species (Exh. EV-1, at 38). Based on the likely landfall locations, environmental permit conditions could require several thousand feet of horizontal directional drilling ("HDD"), while the remainder of the submarine portion would be installed by cable-trenching or jet-plow techniques (id.). Together, the HDD operations and trenching methods could disturb approximately 100,000 square feet of the seafloor (id.). The Company stated that installation of an additional submarine cable across the Vineyard Sound would require extensive permitting and mitigation through several federal, state, and local permitting authorities (id. at 39).¹⁸ Eversource stated that the portions of the Distribution Supply

¹⁸ The Company stated that the installation of a submarine cable would likely require permitting and authorizations from the U.S. Army Corps of Engineers, Massachusetts Office of Coastal Zone Management, Massachusetts Department of Environmental Protection, Martha's Vineyard Commission, the Massachusetts Environmental Policy Act Office, and the Towns of Falmouth and Tisbury (Exh. EV-1, at 39).

Alternative on land would entail very few environmental impacts given use of existing duct banks (id. at 40). The Company concluded that, on the basis of cost, environmental impacts, permitting complexities, and operational benefits, the Distribution Supply Alternative is inferior to the proposed BESS (id. at 41).

Eversource also considered the reliability, cost, and environmental impacts of a transmission supply alternative, which would include two 115 kV submarine cables from the Falmouth Substation to a new substation on the island (“Transmission Supply Alternative”) (Exh. EV-1, at 41). The Company did not identify a location for a new substation but explained that it would require approximately 0.82 acres on Martha’s Vineyard (id.; Exh. DPU-PA-13). The Company stated that the land portion of the Transmission Supply Alternative in Falmouth would use existing duct banks, while the land portion on Martha’s Vineyard would likely be overhead (Tr. 1, at 82). The submarine portion would likely use HDD at the landfalls and jet-plowing across the sea floor (id. at 82, 84). The Company estimated that the Transmission Supply Alternative would cost approximately \$83 million (-50%/+200%) (Exhs. EV-1, at 41; DPU-C-7).

The Company indicated that the addition of two 115 kV transmission circuits would resolve the island’s capacity issues and also allow all of the diesel generators to be retired (Exh. EV-1, at 41). The Company identified environmental impacts for the submarine and landfall portions of the Transmission Supply Alternative as similar to those of the Distribution Supply Alternative; however constructing the new substation would entail, at a minimum, ongoing noise and visual impacts and possibly wetland impacts, depending on the location (Tr. 1, at 83). In addition to requiring the same permits as the Distribution Supply Alternative,

the Transmission Supply Alternative would also require approval from the Energy Facilities Siting Board pursuant to G.L. c. 164, §69J, the Department of Public Utilities pursuant to G.L. c. 164, § 72, and possibly a zoning exemption pursuant to G.L. c. 40A, § 3 (Exh. EV-1, at 41). The Company maintained that the extensive permitting and approvals required for the Transmission Supply Alternative could take several years longer than for the BESS solution (id. at 42). The Company concluded that the Transmission Supply Alternative is inferior to the proposed BESS on the basis of its significant costs, environmental impacts, and permitting complexities (id.).

c. Alternative Sites for BESS

To ensure a superior location was not overlooked, the Company evaluated seven potential BESS locations on the basis of feasibility, reliability, environmental impacts, and cost (Exh. EV-1, 42, att. 9). Besides the proposed Project Site, the Company evaluated the following other locations: (1) the Tisbury Landfill, (2) the NRG Diesel Site near the airport, (3) the Franklin Street Regulator Station, (4) the Bettlebung Substation, (5) the Vineyard Haven Substation, and (6) the Edgartown Substation (id. at 42).

The Company evaluated whether the proposed BESS could be developed at the existing, inactive Tisbury Landfill, located off of State Road in Tisbury (Exh. EV-1, att. 9, at 1). The parcel containing the Tisbury Landfill is approximately 8.6 acres and owned by the Town of Tisbury (id.). The Company stated that the Tisbury Landfill has been re-developed as an approximately three-acre parking lot associated with the Martha's Vineyard ferry service (id.). The Company claimed that securing the necessary land rights from the Town could be costly and difficult and moreover, using this site would require the relocation of the commuter parking lot (id., att. 9, at 2 to 3).

Notwithstanding the existing land use challenges of this alternative, the Company stated that use of the Tisbury Landfill would have unique environmental impacts related to potential waste re-disposal, leachate and landfill gas management, and stormwater management systems that would require extensive permitting with the Massachusetts Department of Environmental Protection (“MassDEP”) (id., att. 9, at 2). The Company also noted that the Tisbury Landfill abuts Article 97 designated conservation and recreational lands and residential properties (id.). The Company stated that the Tisbury Landfill is near a large concentration of behind-the-meter solar PV installations, and the close proximity to existing DG resource could make the BESS particularly effective with regard to voltage regulation and improving power quality (id., att. 9, at 1). However, the Company ultimately concluded that the complexities and cost of acquiring the necessary land rights, in conjunction with potential landfill related environmental impacts, make this alternative inferior to the Project Site (id., att. 9, at 3).

The Company also considered whether the proposed Project could be developed at the NRG Diesel site at the Martha’s Vineyard Airport in West Tisbury (Exh. EV-1, att. 9, at 3). The Company stated that the NRG site would have sufficient space to accommodate the BESS facility; however, securing a sublease from NRG or a lease directly from Dukes County could be a complex and time-consuming process (id.). With regard to potential environmental impacts, the Company stated that the entire airport is designated as a Priority Habitat of Rare Wildlife under the Massachusetts Department of Fisheries and Wildlife Natural Heritage and Endangered Species Program (“NHESP”) (id., att. 9, at 4). The Company stated that developing the BESS at the NRG site would require approximately 5.3 miles of conductor upgrades, which would increase project costs by an estimated \$2.3 million (id.). Due to the added costs of necessary

distribution upgrades and uncertainty about securing an appropriate lease, the Company considered the NRG Diesel Site inferior to the Project Site (id.).

The Franklin Street Regulator Station is located on the east side of Franklin Street in Vineyard Haven, occupying an approximately 0.86-acre parcel owned by Eversource (Exh. EV-1, att. 9, at 5). Currently, the site is used as a regulator station for Lines #91, 97, and 75; however, the Company stated that there is not adequate available space to accommodate the proposed BESS, which requires a contiguous footprint of approximately 0.65 acres for the building, equipment, and stormwater retention (id., att. 9, at 5, 6). Eversource maintained that it is not feasible to acquire the necessary adjacent land due to the nature and density of the surrounding land uses (id., att. 9, at 5; Tr. 1, at 87). The Company also claimed that the Franklin Street Regulator Station would be less desirable than the Project Site because it is distant from the larger solar arrays on the island, which would diminish the Project's ability to regulate voltage and improve power quality (Exh. EV-1, att. 9, at 5).

The Bettelung Substation is located on Menemsha Cross Road in Chilmark and occupies an Eversource-owned parcel that is approximately one-acre and currently used for aboveground electrical facilities associated with the Company's on-island distribution system (Exh. EV-1, att. 9, at 6). Due to the location of the substation within the parcel, the Company indicated that there is not adequate space remaining to accommodate the proposed BESS facility (id.). The Company stated that the surrounding properties are undeveloped forested parcels or small residences with predominately forested lots (id.). Although the Company did not state whether it considered procuring adjacent property to be feasible, the Company indicated that constructing the BESS facility at this site would entail a significant amount of tree clearing (id.).

With regard to reliability, the Company expects that a BESS at the Bettelbung Substation site would worsen voltage regulation and light-load rise problems due to its distant location toward the southwest corner of the island (id., att. 9, at 7). Furthermore, at this location, the BESS would only be able to regulate load on the #97 circuit and, therefore, would not fully resolve the identified reliability and need concerns (id.).

The Vineyard Haven Substation is located on Edgartown-Vineyard Haven Road in Vineyard Haven and occupies an approximately 0.25-acre parcel of Eversource-owned land (Exh. EV-1, att. 9, at 7). The Company stated that the Vineyard Haven Substation is located in a densely developed area, and it is surrounded by commercial and residential properties (id., att. 9, at 7-8). The Company maintained that, similar to the Franklin Street Regulator Station, the Vineyard Haven Substation does not have adequate space to accommodate the proposed BESS and the Company does not consider it feasible to procure adjacent properties (id., att. 9, at 8; Tr. 1, at 87). The Company also considered the Edgartown Substation, but determined that it would not be suitable due to a lack of available land to accommodate the proposed BESS (Exh. EV-1, att. 9, at 8-9; Tr. 1, at 87).

d. Analysis and Findings

The record shows that distribution and transmission solutions could meet the basic Project need to protect against thermal overloads in the event of a contingency and reduce reliance on the diesel generators; however, both solutions would be vulnerable to the challenges related to the maintenance and repair of a submarine cable (Exh. EV-1, at 37, 41). The record also shows that the distribution and transmission alternatives would entail greater environmental impacts, require extensive environmental permitting, and have extended construction schedules (id. at 38-41; Tr. 1, at 83). With respect to cost, the record shows that the

distribution alternative would have a similar cost as the Project, and the transmission alternative would be approximately twice as expensive (Exhs. DPU-C-6; DPU-C-7). Neither the distribution nor transmission alternatives would reduce the island's peak electric load and, therefore, they would not provide any cost saving to ratepayers through a reduction of ISO-NE transmission expenses (Tr. 1, at 22-23; RR-DPU-22). The record also shows that increased DER and EE on Martha's Vineyard would not resolve the identified need (Exh. EV-1, at 36). Nonetheless, Eversource should strongly encourage its customers, both existing and new, to take full advantage of available energy efficiency programs.

The record shows that the proposed BESS would be a non-wires alternative expected to either defer or avoid construction of an additional undersea cable (Exh. EV-1, at 26). Additionally, the proposed Project would provide a range of additional operational and reliability benefits in comparison with the alternative solutions (*id.* at 36-37; Tr. 1, at 78). The record also shows that the Company reviewed and evaluated a variety of potential sites for the BESS on Martha's Vineyard and the alternative sites were inferior to the Project Site (Exh. EV-1, at 43). Accordingly, the Department finds that the Company's decision to pursue the Project rather than the alternatives is reasonable.

3. Impacts of the Proposed Use

In accordance with its statutory responsibility to consider the general public interest and welfare, the Department examines the impacts associated with construction and operation of the proposed BESS to identify significant impacts that may occur during construction and operation.

The Company stated that construction for Phase 1 would include some shared infrastructure required to accommodate Phase 2, but that construction of the incremental facilities proposed for Phase 2 would not commence until the Company has the necessary rate

approvals from the Department and experience in operating Phase 1 (Exh. EV-1, at 4). All aspects of construction would, to the maximum extent practicable, adhere to the Company's Best Management Practices ("BMP") Manual for Construction and Maintenance Environmental Requirements (*id.* at 43; Tr. 1, at 114; *see* RR-DPU-8(1)).

Construction for Phase 1 would include tree clearing and grading; installation of the stormwater detention basin; construction of the BESS Building; installation of the battery modules and racks, power conversion units, underground conduit runs, transformers, switchgear, HVAC units, and switchgear; interconnecting with the #75 circuit; asphalt paving; and perimeter fencing (Exhs. EV-1, at 43; DPU-CM-1; Tr. 1, at 12). The Company stated that the primary construction access would be an existing gravel road located on adjacent property to the south of the Project Site, owned and operated by Goodale Construction (Exh. EV-1, at 53). Phase 2 construction would involve extending the BESS building, installing additional BESS facilities, and necessary distribution enhancements to interconnect the two remaining 4.9 MW battery units to the #97 and #99 circuits (*id.* at 43; Exh. DPU-CM-1; Tr. 1, at 12). Construction of each phase of the BESS is expected to last approximately one year (Exh. EV-1, at 43).

a. Land Use, Historical and Archeological Impacts

The Project Site is a 2.73-acre parcel of land, which includes a paved storage yard and parking area, as well as the 10,500 square foot Eversource Service Center building (Exh. EV-1, at 45). The site is located in a residentially zoned area of Oak Bluffs surrounded by undeveloped land, residential properties, and other light industrial uses, including the three diesel generators and an area used for the storage of soils, stone, and mulch (*id.*). The Company stated that there are no sensitive receptors within 300 feet of the proposed BESS Building, and the

closest residential structure would be 390 feet from the nearest edge of the BESS Building (Exhs. DPU-LU-1; DPU-MF-2(1)).

The Company stated that, to accommodate the layout of the complete BESS Building with the use and functions of the existing Service Center, it acquired a triangular 9,417-square foot parcel of land adjacent to the west boundary of the Service Center from the adjacent landowner, Goodale Construction (Exhs. EV-1, at 45; EV-3, at 4). The parcel is currently forested and would require tree clearing, grading, paving, and installation of fencing (Exh. EV-1, at 45). Although located in a residentially zoned area, the Company stated that the addition of the proposed BESS would be consistent with the existing land uses (id. at 45-46).

To assess the Project's potential impact to historical and archeological resources, Eversource completed a desktop review of cultural resources and conducted a file review at the Massachusetts Historical Commission ("MHC") (Exh. EV-1, at 58-59). After reviewing the available information, the Company submitted a Project Notification Form ("PNF") to the MHC (Tr. 1, at 122). The Company stated that the Project Site is located within an MHC Inventoried Area; however, the Project Site does not contain any documented archaeological sites or historic architectural resources (Exh. EV-1, at 59). The Company stated that it did not receive a response from the MHC regarding the PNF; Eversource explained that, according to regulations applicable to the PNF review process, if a response from the MHC is not received within 30 days, the project may proceed as planned (Tr. 1, at 121-123). The Company stated that, in accordance with its BMP manual, construction crews would be trained to contact Eversource management if any historical or archaeological resources are encountered during construction

(id. at 126). Based on its review, the Company contends that the Project has a low potential impact on historical and archeological resources (Exh. EV-1, at 59).

With respect to sensitive environments, the Company stated that the Project Site is not within an area designated as NHESP Estimated Habitats of Rare Wildlife or Priority Habitats of Rare Species, and is similarly not located within an area designated as an Area of Critical Environmental Concern (“ACEC”) (Exh. EV-1, at 58-59). Therefore, the Company asserts that the Project would not impact any NHESP- or ACEC-designated lands (id.).

b. Wetlands, Water, and Groundwater Resources

The Company stated that construction of the proposed Project, including the temporary use of an access road through the adjacent Goodale Construction property, would not be located within wetland resource areas or buffer zones jurisdictional to the Massachusetts Wetlands Protection Act or its associated regulations, or the Town of Oak Bluffs General Wetlands Bylaw (Exh. EV-1, at 46; Tr. 1, at 127).

The Company stated that the Project would entail approximately 31,158 square feet of new impervious surfaces, including the roof of the BESS Building (Exh. DPU-W-2). To manage stormwater runoff, the facility would have open drainage swales, a closed drainage system with standard deep sump catch basins, and a stormwater detention basin (Exhs. DPU-W-1; DPU-W-4; EV-3, at 12, 14). The Company also noted that the Project is not located in a flood zone, velocity zone, or over-wash zone according to the Federal Emergency Management Agency’s applicable Flood Insurance Rate Map (Exh. EV-1, at 59).

With regard to water resources, the Company stated that the Project would be located within (1) a Zone II Wellhead Protection Area designated by MassDEP and (2) a Water Resource Protection Overlay District (“WRPOD”) designated by the Town of Oak Bluffs Zoning

Bylaw, Section 8.2.3 (Exh. EV-1, at 46). The Company stated that the WRPOD zoning bylaw prohibits certain activities such as new underground storage tanks, chemical treatment of septic systems, and outdoor storage of road salt, fertilizers and pesticides, and would require a special permit from the Town for storage of any toxic or hazardous materials other than that associated with normal household use (id.). The Company stated that battery materials would be contained in sealed equipment inside a concrete metal building, and that none of the activities prohibited by the WRPOD are relevant to the Project (id. at 47).

Pursuant to the terms and conditions of the MOU between the Company and the Town, an environmental consultant for the Town conducted an analysis of the Project's impact on the Town's water supply (Exh. TOB/EV-1, at 6).¹⁹ The Town's consultant developed a groundwater flow model for the area between the Project and the Town's Lagoon Pond public drinking water well field, located approximately 1,500 feet north and downgradient from the site (RR-DPU-20(S1)(1) at 1-2). The purpose of the model was to (1) evaluate whether groundwater originating from the Project Site would reach the Lagoon Pond wells under various pumping conditions and (2) determine how long it could take for groundwater from the BESS site to reach the Lagoon Pond wells (RR-DPU-20(S1)(1) at 1-2). According to the model results, groundwater originating from the Project Site could reach the Lagoon Pond well field under elevated pumping conditions after a travel time of three to six years (id. at 2). To mitigate any potential risk to the Lagoon Pond wells, the environmental consultant recommended that BESS equipment located outside of the BESS Building include secondary containment (id. at 3).

¹⁹ Eversource provided funding to the Town to support environmental and technical reviews of the Project (Exh. TOB/EV-1, at 6).

With regard to hazardous materials that could pose a threat to drinking water supplies, the Company stated that materials contained within the lithium-ion battery cells and the fire suppression system would be non-toxic and non-hazardous under normal conditions and do not pose a risk to people or the surrounding environment and, furthermore, would be contained within the BESS Building (Exhs. EV-1, at 47; DPU-HW-1).²⁰ The Company noted that, similar to a plastics fire, smoke from a burning or smoldering battery unit could contain certain toxic gases (Exh. DPU-S-4(2) at 22-23, 41; Tr. 2, at 262).²¹ The Project's transformers would contain mineral oil; however, the Company indicated that mineral oil has a low toxicity and is not persistent if released into the environment (Exh. DPU-HW-1).²² The transformers would be installed on a concrete pad (Exh. EV-3, at 7).

The Company stated that it does not expect to encounter groundwater during construction (Exh. EV-1, at 47; RR-DPU-19). In the event that groundwater is encountered during excavation for the building foundations, the Company would follow construction-dewatering procedures established in the Company's BMP Manual (Exh. EV-1, at 47; RR-DPU-19). In the event of a fire, excess liquids sprayed on the building would flow through the site drainage system to the

²⁰ The Company stated that, according to Safety Data Sheets, the electrolyte polymer solution used in lithium-ion batteries would contain heavy metals, polyvinylidene fluoride; the principal ingredient in its proposed fire-suppressant (Novec 1230) is 1,1,1,2,2,3,4,4,4-nonafluoro-4(trifluoromethyl)-3-pentanone (Exh. DPU-HW-1).

²¹ Smoke from a burning or smoldering battery unit could contain the following oxidation products: methane, carbon monoxide, benzene, ethylene, hydrogen, hydrogen fluoride, hydrogen chloride, and hydrogen cyanide (Exh. DPU-S-6).

²² As a reflection of its lower risk to the environment, the MassDEP established a Reportable Quantity of twenty-five gallons for non-PCB transformer oil, as distinct from ten gallons for other oils (Exh. DPU-HW-1)

onsite detention basin, where the liquid could be pumped out by a tanker and disposed of properly (RR-DPU-19). The Company does not anticipate any impacts to groundwater during the construction or operation of the BESS – even in the unlikely event of a fire (id.; Exh. EV-1, at 47).

c. Visual

The completed BESS Building would have dimensions of 76 feet by 190 feet and a height of 30 feet, which would be approximately twelve feet taller than the existing Service Center (RR-DPU-9). The Company described the proposed architectural aesthetic of the BESS Building as “Cape-Cod style” and noted that the appearance was chosen in consultation with the Town so that it would conform to the look and feel of the surrounding community (Exh. DPU-V-1). The BESS Building would be constructed with rooftop solar panels, dormer windows, white trim, and weathered shakes (Exh. EV-1, at 49-50; see Exh. EV-1, att. 2, at 10-14). The BESS Building would be surrounded by a ten-foot high concrete sound wall, with minimal variance in shape and color to reduce visual contrast (Exh. EV-1, at 50).

To support its evaluation of visual impacts, the Company used field reconnaissance, photographs of current conditions, and simulation modeling of the proposed completed BESS Building (Exh. EV-1, at 47-48). The Company stated that the view from vehicles traveling south on the Edgartown-Vineyard Haven Road would be obscured by trees north of the Site, and vehicles traveling north could have a partial and brief view of the BESS Building (id.). East of the Project Site, six residences and one construction business are located along Elisha Lane and Windfarm Circle (id. at 49). The Company stated that deciduous trees along Edgartown-Vineyard Haven Road would block a clear view during leaf-on conditions; however, fragmented views of the facility could be visible during leaf-off conditions (id.). The Company

maintained that the visual impact would be minimal due to the ten-foot sound wall and the compatible aesthetic of the BESS Building (id.). The Company stated that the nearest abutters to the south, west, and north have an ample buffer of trees to block the proposed facility from view (id. at 48; Tr. 1, at 134).

The Company stated that the proposed BESS Building would be equipped with motion detector-activated lighting (Tr. 1, at 136). Outdoor lighting for the BESS Building would be directed downward to minimize glare onto adjacent properties (Exh. EV-1, at 68). The Company noted that the work area of the existing Service Center is continuously illuminated at night; therefore, the Company expects that the incremental impact from any lighting at the facility would be minimal (Tr. 1, at 136). Finally, the Company indicated that it would work with the Town to develop a landscaping plan (Exhs. DPU-Z-12; DPU-Z-13).²³

d. Traffic

The Company stated that construction of the BESS facility would generate traffic related to site work by craft workers and technical specialists, and material deliveries (Exh. EV-1, at 53). During construction of Phase 1 and 2, the Company expects 10 to 20 vehicles per day; off-site parking and transportation routes would be identified by contractors and discussed with the Town, as necessary (Exh. DPU-T-1). The Company noted that the Site is not located near any roads or intersections identified in the Martha's Vineyard Regional Transportation Plan as having significant traffic problems (Exh. EV-1, at 54). Construction vehicles would use an access road through the Goodale Construction property south of Project Site, which is ample for

²³ The Company indicated that the Martha's Vineyard Commission review of the Project could include guidance on landscaping (Tr. 2, at 367).

construction vehicle movement, thereby minimizing impacts to the Edgartown-Vineyard Haven Road (id. at 53-54; Exh. EV-3, at 8).²⁴ Eversource would place an anti-tracking pad at the construction entrance to minimize material that might be tracked onto Edgartown-Vineyard Haven Road (Exh. EV-1, at 54).

The Company stated that some materials, such as gravel, may be sourced on-island; however, most materials would be transported via chartered barges or on flatbed trucks using the island ferries during commercial operation (id. at 54). Material transported via barge or ferry would be delivered to the Site via main roads (id.).

The Company stated that it would prepare a Traffic Management Plan (“TMP”) for all phases of construction (Exh. TOB/EV-1, at 5). The TMP would include coordination by the Company with Town police, fire, and school officials, and the Public Works Department (id.). The TMP would also describe provisions for emergency vehicle access, lane closures, safe travel widths to maintain vehicle and pedestrian movement, lane closure durations, and traffic control signs and equipment (id.). The Company stated that it would submit the TMP to the Massachusetts Department of Transportation (“MassDOT”) as a requirement of its Highway Access Permit and to the Town as a requirement of its Grant of Location and Street Opening Permit (id.; Exh. DPU-T-2; Tr. 1, at 151). The Company indicated that the TMP requirements specified in the MOU go above and beyond the minimum requirements for a Highway Access Permit or a Street Opening Permit, since the MOU requirements are comprehensive and pertain to the entire scope of the construction (Tr. 1, at 151).

²⁴ Eversource does not anticipate the need for improvements to the existing construction access road beyond adding gravel to low or rutted areas or trimming low-hanging tree branches (Exh. DPU-CM-3).

Once in operation, permanent traffic increases to the BESS Building would be minimal and consistent with the existing maintenance activities at the Service Center (Exh. EV-1, at 54). Semi-annual maintenance of the BESS would consist of approximately one week of onsite work (id.).

e. Noise

The Company stated that its acoustic design goal for the Project was to limit noise increases to no more than three A-weighted decibels (“dBA”) above ambient sound levels, as measured at the nearest residence (Exh. EV-1, at 50-51). The acoustic design goal was selected to comply with the MassDEP regulation for noise generation (see 310 CMR 7.10) and a more restrictive industry standard (id.). The Company reported that it collected background ambient sound measurements from July 24 to July 30, 2018, and it found the minimum ambient sound level for the area to be 30 dBA, as determined from continuous and simultaneous measurements at three representative locations (id. at 51).

The Company stated that it modeled noise from the Project’s major sound-generating sources with different mitigation measures to determine how to achieve its acoustic design goal (id. at 51-52).²⁵ The Company’s iterative acoustic analysis revealed that the chillers and transformers, located outside of the BESS Building, would need to be encompassed by a three-sided, ten-foot tall, acoustically absorptive sound wall connected to the exterior of the BESS Building (id. at 52; Exh. DPU-NO-1). The inverters would need to be located within the BESS Building, inside a separate room with a high-performance acoustically absorptive wall and

²⁵ The Company stated that major sound generating sources from the completed Project include thirteen low-noise AquaSnap Chillers, twelve low-noise transformers, and eleven electrical inverters (Exh. EV-1, at 51-52; RR-DPU-10).

ceiling (Exhs. EV-1, at 52; DPU-NO-1; Tr. 1, at 131-132). Results of the acoustic model, summarized below in Table 2, indicate that the Project, with sound mitigation measures, would achieve its design goals (Exh. EV-1, at 52-53).

Table 2: Acoustic Evaluation Summary with Mitigation Measures (dBA)

Receptor/Location	Minimum Ambient	Expected Project Generated Sound Level	Combined Future Sound Level	Expected Increase Over Minimum Ambient
Deep Bottom Road East	30	22	31	1
Deep Bottom Road West	30	20	30	0
Wind Farm Circle North	30	26	31	1
Wind Farm Circle South	30	25	31	1
Northwest Residence	30	17	30	0

Source: Exh. EV-1, at 53.

The MOU addresses construction-related noise by stipulating normal work hours as Monday through Saturday, from 8:00 a.m. to 6:00 p.m., although construction crews may mobilize onsite between 7:00 a.m. and 8:00 a.m. (Exh. EOB/EV-1, at 3-4). The MOU provides that the Company can engage in certain non-noise construction within the building outside of normal construction hours (Exh. EOB/EV-1, at 3-4). Any other construction beyond normal work hours would require approval from the Town (*id.*; Exh. DPU-CM-4). The Company asserted that it would mitigate construction noise by implementing a requirement for construction equipment to maintain its manufacturer-equipped sound muffling devices (Exh. DPU-NO-4).

f. Air

The Company stated that construction of the Project may have short-term effects on local air quality because of fugitive dust generated by construction vehicles and earthworks (Exh. EV-1, at 44). The Company committed to minimizing fugitive dust emissions from construction vehicles and earthworks by (1) restricting traffic to a defined road and implementing a speed limit, (2) spraying water on exposed soil as necessary, (3) minimizing stock piling of on-site soils, and (4) rehabilitating areas of exposed soil in a timely manner (id.).

In accordance with the Massachusetts anti-idling law and regulations (G.L. c. 90, § 16A; G.L. c. 111, §§ 142A-142M; and 310 CMR 7.11), unnecessary idling for more than five minutes is prohibited (Exh. DPU-A-1). Eversource stated that it has a Company-wide idling reduction policy that would apply to all phases of Project construction and prohibits idling of Company vehicles for more than five minutes unless working under certain conditions, such as when the truck is acting as a safety warning signal (id.).

The Company stated that, during normal operations, there would be no venting or air emissions of any kind from the battery units, which are completely sealed (Tr. 1, at 161). Potential air emissions that could occur during the unlikely event of a fire are discussed under Section II.C.3.i, Public Safety.

g. Oil and Potentially Hazardous Materials

During construction, the Company stated that various oils, greases, and fuels would be used for construction equipment (Exh. DPU-HW-1). In the unlikely event that a hazardous substance is released to the environment, the Company explained that it would immediately initiate its spill response protocol and contact its spill response program (id.). Contractors on site

would be required to maintain spill response kits to facilitate a speedy response in the event that oil or potentially hazardous materials are accidentally discharged to the ground (id.).

The Company anticipates that approximately 10,700 cubic yards of excess soil from the site work for the BESS Building would need to be exported off site (Exh. DPU-CM-2).²⁶ The Company stated that it engaged a Licensed Site Professional to analyze soil at the site for potential contamination and confirmed that constituents present in the soil did not exceed any reportable concentrations listed in the Massachusetts Contingency Plan (“MCP”) (Tr. 2, at 309-310).

During the normal operation of the Project, the Company stated that the BESS would not generate any hazardous waste (id. at 301). Although individual battery cells would have an expected useful life of 12 to 13 years, the Company indicated that the Battery Management System would monitor the performance of each cell so that deficient cells would be replaced as needed (id. at 306-307; Exh. EV-1, at 7; see also Section II.C.3.i). The Company stated that the BESS vendor would be responsible for coordinating and providing end-of-life recycling and disposal for the battery modules (RR-DPU-21).

Eversource stated that at the end of the useful life of the facility, it would decommission and remove the lithium-ion batteries, the power conversion system, and step-up transformers in a safe and environmentally sound manner (Exh. TOB/EV-1, at 7). The Company indicated that certain power electronics such as transformers could possibly be reused within the Eversource system; other non-reusable BESS components would be disposed in accordance with applicable

²⁶ The Company stated that its preference would be first evaluate off-site locations on Martha’s Vineyard (Tr. 2, at 309).

requirements (Exh. TOB/EV-1, at 7; Tr. 2, at 304-305). Eversource suggested that the building itself could be repurposed for other functions (Tr. 2, at 305).

h. Magnetic Fields

The Company stated that the primary source of magnetic fields at the BESS would be associated with equipment such as transformers and distribution circuits on and near the site, and these magnetic fields decrease rapidly with distance (Exhs. EV-1, at 55, 57; DPU-MF-1). Eversource noted that the battery storage system itself would not provide any external power-frequency magnetic fields because it would be a direct current device (Exh. DPU-MF-1; Tr. 1, at 101-102). The Company modeled potential magnetic fields for seven separate existing and proposed distribution circuits on or near the site, and it calculated magnetic field levels at each location for existing conditions, after Phase 1, and after Phase 2 (Exh. EV-1, at 55-57). The Company maintained that, because the Project is intended to alleviate peak loading, it used peak loading levels as representative conditions for its model (Exh. EV-1, at 55).

According to the Company's analysis, the highest existing magnetic field level is associated with the diesel generator tap line and is estimated to be 17 milligauss ("mG") at the property line (Exh. EV-1, at 56, table 7). After completion of both Project phases, the maximum magnetic field level would be 11 mG, directly beneath the tap line that connects the Service Center Building and Phase 2 of the BESS to line #97 on Edgartown-Vineyard Haven Road (Exh. EV-1, at 57, table 7). For each location modeled, magnetic field levels would decrease to a maximum of 2.7 mG at 50 feet from the circuit centerline (Exh. EV-1, at table 7). The nearest receptor is a residential structure, approximately 50 feet from lines #75 and #97, which are located on the east side of Edgartown-Vineyard Haven Road (Exh. DPU-MF-2(1)).

Eversource noted that because the Project is intended to function as a back-up facility, operation of the BESS would be intermittent and, therefore, the annual average magnetic fields around the distribution lines would be much lower than modeled under peak loading conditions (Exh. DPU-MF-2). The Company maintained that the Project would not result in significant changes to existing magnetic field levels in the area (Exh. EV-1, at 58).

i. Public Safety

The Company stated that the BESS would be designed, constructed, and operated in a manner that will promote and maintain both public and worker safety (Exh. EV-1, at 59). The Company described several aspects of Project safety, including site access, personnel training, facility design and code compliance, fire prevention measures, and coordination with local officials (id. at 59-61; Exh. TOB/EV-1, at 4-8). Eversource stated that it prepared a fire safety plan (“Fire Safety Plan”) for the BESS that satisfies the combined requirements for the Massachusetts Tier One Construction Documents and additional information requested by the Oak Bluffs Fire Department (RR-DPU-18(S1)(1) at 8).^{27,28}

i. Site Safety

Eversource stated that site security measures, such as a seven-foot-tall chain-link perimeter fence, access gate, security cameras with remote monitoring, and facility lighting would ensure public safety by restricting site access only to authorized site personnel during construction, installation, operation, and maintenance (Exh. EV-1, at 59, 60; RR-DPU-18(S1)(1)

²⁷ The Department has received a draft Fire Safety Plan (see RR-DPU-18(S1)(1)).

²⁸ Tier One Construction Documents are required by Massachusetts for a building permit review under the Massachusetts Building Code, 780 CMR, 9th Edition, Section 901.2.1 (RR-DPU-18(S1)(1) at 8).

at 12-13; Tr. 2, at 235). The Company would post warning signs and emergency contact information signs on the perimeter fence to notify the general public and potential trespassers of the presence of high voltage equipment (Exh. EV-1, at 59-60, 66; DPU-S-13). The Company indicated that, under normal circumstances, the BESS Building would be unmanned (RR-DPU-18(S1)(1) at 4). Both the site security gate and the BESS Building would be controlled by key card access, which allows the Eversource operations control center to remotely verify personnel access and maintain records of the check-in process (Tr. 2, at 235).²⁹ Eversource noted that the site would use a lock access device for first responder vehicle access, in the event of an emergency (RR-DPU-18(S1)(1) at 12).

ii. Building Safety

The Company stated that access and egress for both the site and the BESS Building were designed in consultation with the Oak Bluffs Fire Department and a representative from the State Fire Marshal's Office (Tr. 2, at 236-237). The Company noted that the perimeter fence would have a rear gate for emergency access and that the 18-foot access way around the building was designed to accommodate the width and turning radius of a fire truck (Exh. EV-3, at 7; Tr. 1, at 89; Tr. 2, at 356-357; RR-DPU-18(S1)(1) at 2). Within the building, all areas of the battery room would have egress doors directly to the exterior of the building as well as through fire rated barriers to other areas of the building (RR-DPU-18(S1)(1) at 12). Other areas of the building would have egress doors leading to the exterior of the building without having to pass through a battery room (id.). The Company explained further that the BESS Building would be

²⁹ The Company's Dispatch Control Center is located in Plymouth, Massachusetts, and is manned 24 hours a day, seven days a week (Exh. EV-1, at 60; Tr. 2, at 246).

constructed to meet applicable fire resistance ratings for the structural frame, bearing and non-bearing walls, floors, and roofs (id. at 10).³⁰

Eversource stated that although lithium-ion batteries themselves do not require special ventilation under National Fire Protection Association (“NFPA”) 1 or NFPA 855, the Project would provide ventilation controlled by a gas detection system as part of an NFPA 69 compliant explosion prevention system (RR-DPU-18(S1)(1) at 14, 17). In the event of abnormal conditions, the gas-detection system would automatically activate exhaust fans to remove any gases (id. at 17). The flammable and toxic gas detection system would monitor hydrogen, carbon monoxide, and total hydrocarbons (id. at 15).

Eversource also underscored the importance of the building’s ventilation system in maintaining a safe internal building temperature during normal operations (Tr. 2, at 237, 240-243). The Company noted that the ventilation system was designed in consultation with the Oak Bluffs Fire Department and a representative of the State Fire Marshal’s Office (id.).

iii. Battery Management System

The Company stated that there would be multiple automated control systems in place to ensure the safe and reliable operation of the BESS (Exhs. DPU-S-6; DPU-S-11). BESS software, generally referred to as the Battery Management System (“BMS”), would continuously monitor parameters including voltage, current, and temperature, and Eversource would also employ multiple types of fault detection for individual battery racks and small groups of cells

³⁰ Applicable fire resistance requirements were taken from the International Building Code, 2015, the International Fire Code, and NFPA 855 (RR-DPU-18(S1)(1) at 8-9, 10).

(Exhs. DPU-G-9; DPU-S-6; DPU-S-11).³¹ The modular configuration of the BESS allows the BMS to immediately identify abnormal conditions (e.g., a short-circuit or overheating) and automatically take actions to prevent a hazardous condition, such as initiating alarms, reducing power to zero, or opening the affected rack latch contactors (Exh. DPU-S-6; Tr. 1, at 165). The Company stated that the BMS it would use is certified to the International Electrotechnical Commission (“IEC”) 61508 Functional Safety Standard, Safety Integrity Level 2 (Exh. DPU-S-11).

iv. Fire Alarm and Fire Suppression Systems

The Company stated that the BESS facility would be equipped with a fire alarm and fire protection system that conforms to current requirements of Massachusetts Fire Code and associated NFPA standards (Exh. EV-1, at 60). Specifically, the Company noted that the BESS fire protection system would conform to Chapter 52 of the NFPA-1 Fire Safety Code, which pertains to energy storage systems (id.; Exh. DPU-S-4; Tr. 1, at 186). To the extent possible, the Project would also comply with draft provisions of the forthcoming NFPA 855 standard for the installation of energy storage systems, which the Company expects to include guidelines for managing a fire involving lithium-ion batteries (Exh. DPU-S-4; Tr. 1, at 192-194).

The Company described the fire alarm system and fire suppression system as having multiple, redundant safety protection systems to guard against the hazard of a fire (Exhs. EV-1, at 60; DPU-S-12). The automated safety protection systems would include optical

³¹ The Company explained that the BMS, in conjunction with an existing Eversource-owned fiber optic communication line to the Dispatch Control Center, would allow for continuous, remote monitoring and control of the BESS (Exh. DPU-SS-1; Tr. 1, at 97; Tr. 2, at 246).

smoke detectors, heat detectors, siren alarms, visible strobes, building ventilation, and a primary and secondary fire suppression system (Exhs. EV-1, at 60-61; DPU-S-12). Strobes on the building exterior would indicate whether the fire alarm and fire suppression system are active (RR-DPU-18(S1)(1) at 15).

The primary fire suppression system would use a gaseous extinguishant known by the trade name Novec 1230 Fire Protection Fluid (“Novec 1230”) (Exh. DPU-S-5). The Company indicated that in the event of a smoke alarm, battery rack cooling fans would be automatically shut off, high voltage contactors would automatically open to disable all battery racks, and Novec 1230 would flood the BESS room to interrupt combustion (Exh. DPU-S-12; RR-DPU-18(S1)(1) at 15; Tr. 2, at 260).³² The Company also noted that there would be fire barriers between battery racks to help prevent a fire from spreading amongst the battery facilities (Exh. DPU-S-6)

If a fire event persists, high temperature alarms would activate the secondary fire suppression system (Exh. EV-1, at 61; Tr. 1, at 213). The secondary fire suppression system would be a water-based sprinkler system, which the Company stated would reduce the temperature of the overheated component extinguish flames (Exh. EV-1, at 61; Tr. 2, at 260-261). The Company stated that the Novec 1230 and water together have been shown to be effective in controlling lithium-ion battery thermal runaway by Underwriters Laboratory test method UL9540A (Exh. DPU-S-12).

³² The Company indicated that Novec 1230 is advantageous because it would not damage the battery cells, leaves no residue, and requires no cleanup after discharge (Exh. DPU-S-5). The Company also stated that releasing Novec 1230 into a room does not lead to an oxygen-deficient environment (Tr. 1, at 212).

i. Training, Support, and Local Coordination

Eversource would provide training to operational personnel on topics such as the BESS control systems, alarms, inspections, maintenance, and how to respond to various events at the facility (Tr. 2, at 254-255). The Company indicated that training and technical support would, in part, be provided by the BESS vendor (id. at 256). In addition, the Company and BESS vendor would provide on-going training for Oak Bluffs emergency management, police, and fire first responder personnel, as well as similar personnel from any mutual aid departments on the island (Exh. TOB/EV-1, at 6; RR-DPU-18(S1)(1) at 19-20). Training for first responders would primarily focus on operation of the BESS, the fire suppression system, fire alarm system, and other fire and life safety features of the building (RR-DPU-18(S1)(1) at 19). Training would also involve reviewing the entire Fire Protection Plan and completing a facility tour (id.).

ii. Emergency Response

In the event of a fire at the BESS Building, the Company stated that the primary goal of first responders would be to prevent the fire from spreading beyond the building (Exh. DPU-S-2). Eversource maintained that local first responders are not electrically qualified to enter the building without an escort and, therefore, would be required to conduct emergency response from the building exterior (id.; Tr. 1, at 249-250).³³ In the event of an emergency, the Company noted that an Eversource supervisor is on call at all times with a physical response time of 15 to 30 minutes (RR-DPU-18(S1)(1) at 15). The record in the case does not indicate whether the Oak Bluffs Fire Department would allow a fire at the BESS Building to burn itself

³³ In the event that life-saving operations are needed, the Company explained that emergency personnel may enter only if there are no active emergency alarms (e.g., a fire or smoke alarm) at the BESS Building (Tr. 2, at 249-250).

out in the event that the fire suppression chemicals and sprinkler-based fire suppression systems were ineffective (see RR-DPU-18(S1)(1) at 24). As previously noted, Eversource stated that toxic gases could be present in smoke from a burning or smoldering battery unit (Tr. 2, at 262; DPU-S-4(2) at 22-23, 41). Citing a battery safety report prepared for Consolidated Edison and the New York State Energy Research and Development Authority, typical firefighting turn-out gear and personal protective equipment would be sufficient for responding to most battery fires (Exh. DPU-S-4(2) at 23; Tr. 2, at 263).

At the request of the Oak Bluffs Fire Department, the Company would install a new fire hydrant near the Service Center driveway on Edgartown-Vineyard Haven Road as part of the Project (Exh. DPU-S-2). The Company reported that the local water supply system has sufficient capacity and pressure to support firefighting operations at the BESS Building (RR-DPU-16; RR-DPU-18(S1)(1) at 26).

As part of the Company's safety and emergency planning, Eversource stated that it would prepare an emergency response plan ("Emergency Response Plan") and evacuation procedures as outlined in NFPA 855 (Exh. TOB/EV-1, at 7).³⁴³⁵ The Company stated that the Emergency Response Plan would include an Emergency Response Guide containing communication protocols, and an evacuation plan, and the Emergency Response Plan would be prepared in

³⁴ Term 4.C.5 of the MOU between the Company and the Town stipulates that Eversource prepare an Emergency Response Plan and Evacuation Procedures in conjunction with the Town's Fire Consultant (Exh. TOB-EV-1, at 7). The Company has submitted to the Town a draft document titled "Eversource – Martha's Vineyard Energy Storage System (ESS) Building Fire Safety Plan" ("Fire Safety Plan"). See RR-DPU-18(S1)(1).

³⁵ The Emergency Response Plan is specific for this BESS, and differs from the Emergency Response Plans filed by Eversource pursuant to G.L. c. 164, § 85B.

conjunction with a technical safety consultant retained by the Town (id.). Eversource indicated that the Emergency Response Plan would address hazards related to a conflagration of the BESS Building, and it would consider factors such as prevailing winds, chemical composition of BESS components, smoke dispersion modeling, evacuation distances, and safe refuge or gather locations (Tr. 2, at 284-286). Eversource stated that the Emergency Response Plan and evacuation procedures would be subject to review and approval by the Town of Oak Bluffs (Exh. TOB/EV-1, at 7).

j. Analysis and Findings

i. Land Use, Historical and Archeological Resources

The Project Site is located on an Eversource-owned parcel, currently used for the Company's Oak Bluffs Service Center; the BESS Building would be located behind the Service Center (Exh. EV-1, at 45). The property is within a residentially zoned area, although no residences are in the immediate vicinity (id.). Given the existing industrial use of the Service Center and adjacent diesel generators, the BESS would be consistent with the immediately surrounding land uses (id. at 45-46). Some tree clearing would be required on the newly acquired triangle shaped parcel to accommodate new space for Service Center operations (id. at 45). Project construction is not expected to affect any archaeological sites or historic architectural resources, nor is the project expected to affect any NHESP or ACEC designated lands (id. at 59).

ii. Wetlands, Water, and Groundwater Resources

The record shows that no jurisdictional resource areas or associated buffer zones would be temporarily or permanently impacted by the Project (Exh. EV-1, at 46; Tr. 1, at 127). The Project would create approximately 31,000 square feet of new impervious surfaces; however,

potential stormwater runoff impacts would be minimized by the Project Site's drainage system and stormwater detention basin (Exh. DPU-W-2).

Although the Site is located within a Zone II Wellhead Protection Area and Water Resource Protection Overlay District, none of the WRPOD prohibited activities are anticipated for the Project and BESS components (Exh. EV-1, at 46-47). Further, equipment containing mineral oil or refrigerants would be stored on a concrete pad and lithium-ion batteries would be in sealed containers located inside the building (*id.* at 47). A groundwater model completed on behalf of the Town indicated that, if contaminated groundwater emanated from the Project Site, it could possibly migrate to adjacent public drinking water wells, although this would take several years (RR-DPU-20(S1)(1) at 2). The modeling report recommended that BESS equipment located outside of the building have secondary containment (*id.* at 3). Therefore, the Department directs the Company to install containment systems and/or curbing around the concrete pads on which equipment outside of the building is stored to protect against any accidental release of fluids from transformers, HVAC equipment, or switch gear.

iii. Visual

The record shows that views of the Project would be appreciably screened by trees and vegetation along Edgartown-Vineyard Haven Road (Exh. EV-1, at 48-49). To further minimize visual impacts of the BESS Building, Eversource consulted with the Town to select a building design that is aesthetically similar to the look and feel of the surrounding community (Exh. DPU-V-1). The record shows that potential impacts from outdoor lighting would be minimized by the using motion detector- activated lighting and directing outdoor lighting downward (Exh. EV-1, at 48-49; Tr. 1, at 136). In addition, the Company will work with the Town to develop a landscaping plan (Exhs. DPU-Z-12; DPU-Z-13).

iv. Traffic

Construction of the BESS facility would require approximately 10 to 20 vehicles per day (Exh. EV-1, at 53). Construction vehicles would enter and exit the property through an access road on the property south of the site (id.). An anti-tracking pad would be constructed at the end of the access road to minimize material that might otherwise be tracked onto Edgartown-Vineyard Haven Road (id. at 54). As a condition of its MOU with the Town, the Company would prepare a TMP for all phases of construction to minimize any potential traffic impacts (Exh. TOB/EV-1, at 5). During operations, the BESS Building would be unmanned and, therefore, operational traffic impacts would be negligible (Exh. EV-1, at 54; RR-DPU-18(S1)(1) at 4).

v. Noise

The Company provided an assessment of operational noise impacts of the proposed Project and committed mitigation measures that would limit noise increases to less than 3.0 dBA (Exh. EV-1, at 53). The record shows that noise from transformers and HVAC units located outside of the BESS building would be minimized by the use of a three-sided, ten-foot-tall acoustically treated sound wall (id. at 52; Exh. DPU-NO-1). Noise from the inverters would be minimized by locating the equipment within an acoustically treated room within the BESS Building (Exhs. EV-1, at 52; DPU-NO-1; Tr. 1, at 131-132).

As a condition of its MOU with the Town, the Company committed to normal work hours of Monday through Saturday, from 8:00 a.m. to 6:00 p.m. (Exh. EOB/EV-1, at 3-4). The MOU provides that construction crews may mobilize onsite between 7:00 a.m. and 8:00 a.m., and it states that the Company may engage in non-noise creating construction within the building outside of normal construction hours (id.). Should the Company need to extend construction

work beyond those hours and days (with the exception of emergency circumstances on a given day that necessitates work beyond such times), the Company is directed to seek written permission from the Town prior to the commencement of such work and to provide the Department with a copy of such permission.

The Company shall inform the Department and the Town in writing within 72 hours of any work that continues beyond the hours allowed by the Department. Additionally, if granted extended work hours in writing by the Town for work that continues past the hours allowed by the Town, the Company shall send a copy to the Department, within 72 hours of receipt, of any authorization for an extension of work hours issued by the Town. Furthermore, the Company shall keep a record of the dates, times, locations, and durations of all instances in which work continues beyond the hours allowed by the Department, or, if granted extended work hours in writing by the Town, work that continues past the hours allowed by the Town, and the Company shall submit such record to the Department within 90 days of Project completion.

vi. Air

During construction, the Company committed to the following measures to minimize impacts related to fugitive dust from vehicles and earthwork: (1) restricting traffic to a defined road and implementing a speed limit; (2) spraying water on exposed soil as necessary; (3) minimizing stock piling of onsite soils; (4) rehabilitating areas of exposed soil in a timely manner (Exh. EV-1, at 44). During normal operation of the BESS, there would be no air emissions of any kind from the battery units (Tr. 1, at 161). The Company's idling reduction policy would apply to all phases of Project construction and prohibits idling of Company vehicles for more than five minutes unless working under specified conditions (Exh. DPU-A-1).

vii. Oil and Potentially Hazardous Materials

The record shows that various oils, greases, and fuels would be used for construction equipment (Exh. DPU-HW-1). The hazard of a spill of any of these materials would be minimized by a requirement for contractors to maintain spill response materials, and the Company's spill response protocol (id.). Phase 1 and 2 construction would create approximately 10,700 cubic yards of excess soil; site soils were analyzed and results were not indicative of contaminated soil (Exh. DPU-CM-2). The Department directs the Company to, if possible, identify and use locations on Martha's Vineyard to reuse the soil. If it is not possible to relocate excess soil on Martha's Vineyard, the Company shall provide an explanation as to why the soil cannot be used on the island.

The record also shows that the BESS would not generate any hazardous waste (Tr. 2, at 301). Individual battery cells would have an expected useful life of 12 to 13 years, after which deficient cells would be recycled by the BESS vendor (id. at 306-307; Exh. EV-1, at 7; RR-DPU-21).

viii. Magnetic Fields

The record shows that the battery storage system itself would not provide any external power-frequency magnetic fields because it would be a direct current device (Exh. DPU-MF-1; Tr. 1, at 101-102). The primary source of magnetic fields at the BESS would be associated with the transformers and distribution circuits (Exhs. EV-1, at 55, 57; DPU-MF-1). Based on modeling data, the maximum magnetic field level at the property line would decrease from 17 to 11 mG as a result of the Project (Exh. EV-1, at 57). Because the Project is intended to be a back-up facility, operation of the BESS would be intermittent and, therefore, the annual average

magnetic fields around the distribution lines would be much lower than modeled under peak loading conditions (id. at 55).

ix. Public Safety

The record shows that the proposed Project will be designed, constructed, and operated to ensure both public and worker safety (Exh. EV-1, at 59). Physical site security will be maintained by the use of key-card access, a perimeter fence, and warning signs to alert the public to the presence of high voltage equipment (id. at 59, 66; RR-DPU-18(S1)(1) at 12-13; Tr. 2, at 235). The BESS and BESS Building would be designed in conformance with Massachusetts Fire Code and associated NFPA standards (Exh. EV-1, at 60; RR-DPU-18(S1)(1) at 14, 17). The BESS would use a BMS that allows remote monitoring and control of the BESS (Exhs. DPU-G-9; DPU-S-6; DPU-S-11). The BMS would also facilitate automated safety measures, progressively shutting off groups of batteries based on predetermined operating parameters (Exh. DPU-S-6; Tr. 1, at 165). The BESS Building would be equipped with multiple, redundant safety protection systems to minimize the hazard of a fire, including a chemical fire extinguishant and a water-based fire suppression system and alarms (Exhs. EV-1, at 60; DPU-S-12).

The record shows that the Company engaged with the Town and the State Fire Marshal's Office to work on fire safety issues and address concerns of local emergency response personnel (Tr. 2, at 237, 240-243). As part of its MOU, the Company committed to develop an Emergency Response Plan with the Town (Exh. TOB/EV-1, at 7). Additionally, the Company would provide financial support for the Town to retain a technical safety expert to review the project and support equipment and training for first responders (id. at 5-7).

Pursuant to the terms and conditions of the MOU, the Company submitted to the Department, in draft form, a Fire Safety Plan which includes emergency response details, in addition to other critical safety information. Eversource shall submit to the Office of the State Fire Marshal for review and comment the Fire Safety Plan submitted to the Department in this docket. Upon receipt of comments, feedback, or requested modifications, if any, from the Office of the State Fire Marshal, Eversource shall revise the Fire Safety Plan accordingly. Eversource shall submit the Fire Safety Plan to the Department 90 days prior to commercial operation of the Project. In addition to the Fire Safety Plan, Eversource shall submit an explanation of how comments from the Office of the State Fire Marshal were incorporated into Fire Safety Plan, where requested modifications were made in the Fire Safety Plan, and an explanation, if applicable, as to why any comments or requested modifications were not addressed. Finally, Eversource shall submit to the Department all substantive revisions to the Fire Safety Plan for five years after commercial operation of the Project.

x. Conclusion

The Department concludes that with the Project's compliance with (1) all applicable federal, state, and local laws and regulations; (2) the avoidance, minimization, and mitigation measures that Eversource has stated it will implement during Project construction and operation; and (3) the Department's conditions as discussed above and set forth below, the impacts of the Project will be minimized.

4. Conclusion on Public Convenience and Welfare

Based on the foregoing analysis of (1) need for or public benefit of use; (2) alternatives explored; and (3) impacts of the proposed use, the Department finds that the Project is necessary for the purposes alleged, the benefits of the Project to the general public exceed the local

impacts, and the Project is reasonably necessary for the convenience or welfare of the public, and is consistent with the public interest.

D. Exemptions Required

1. Individual Exemptions

The Company seeks individual exemptions as well as a comprehensive exemption from the Oak Bluffs Zoning Bylaw for both phases of the Project (Exh. EV-1, at 63, 74). According to the Company, the construction and operation of the Project is or may be construed to be inconsistent with provisions of the Zoning Bylaw (*id.* at 63). The Company maintains that the Project is seeking individual zoning exemptions in this case to (1) relieve reliance on diesel generators used on Martha's Vineyard, (2) help alleviate current and future load growth concerns associated with the current distribution system, and (3) help alleviate constraints placed on additional DER on Martha's Vineyard (*id.*).

The Company argues that relief from certain zoning requirements related to use would be necessary because Section 10.2.2(2) of the Oak Bluffs Zoning Bylaw expressly prohibits the granting of use variances by the Oak Bluffs Board of Appeals (*id.*). Although the Oak Bluffs Zoning Bylaw, Table of Use Regulations, provides that "essential services" related to utility infrastructure are allowed in all zoning district by special permit from the Planning Board, Eversource contends that the definition of essential services does not contemplate large electric infrastructure such as a BESS (Exh. DPU-Z-5).

For zoning requirements where relief by variance or special permit is available, the Company states that it prefers exemptions because of the legal uncertainty in obtaining variances and special permits and because, even if granted, variances and special permits are subject to appeal (Exh. EV-1, at 65; Company Brief at 48, 49). Furthermore, such local processes could

lead to requirements that are inconsistent with the design, construction, and operation of the Project, which is needed to address an immediate reliability need (Exh. EV-1, at 77; Company Brief at 52-53).

Table 3, below, presents (1) each of the specific provisions of the Zoning Code from which the Company seeks an exemption, (2) the relief available through the City's local zoning process, and (3) the Company's argument as to why it cannot comply with the identified zoning provisions or why the available zoning relief is inadequate.

Table 3. Requested Individual Exemptions for the BESS: Summary of Company Position

Section of the Zoning Ordinance	Local Zoning Relief Available	Why Exemption is Required: Company's Position
Principal Uses Section 3.1 and Appendix A, Table of Use Regulations	None Available	The Site is located in the Residence Three ("R3") zoning district. The Company's proposed use, a BESS, is not listed in the Table of Use Regulations. Section 3.1 states that any building or use of premises not expressly permitted is prohibited, and Section 10.2.2(2) expressly prohibits the granting of use variances by the Oak Bluffs Board of Appeals. Accordingly, an exemption is <i>per se</i> required.
One Structure Per Lot Section 4.1.1	Variance	This section establishes that only one principal structure is allowed per lot. Due to the existing Oak Bluffs Service Center, constructing the Project entails two principal buildings on the Site. To obtain a variance, the Oak Bluffs Board of Appeals would need to find that there are unique circumstances related to soil conditions, shape, or topography at the site which do not generally affect other areas of the zoning district. The Company asserts that it is difficult, if not impossible, to demonstrate unique conditions, and seeks to avoid adverse interpretations, delay, and undue expense related to securing a variance and a potential appeal of the variance.

Table 3. Requested Individual Exemptions for the BESS: Summary of Company Position

Section of the Zoning Ordinance	Local Zoning Relief Available	Why Exemption is Required: Company's Position
Minimum Side Yard Section 4.1.3 and Appendix B, Table of Dimensional Requirements and Definition of Rear Yard	Variance	This section provides a minimum side yard setback of 50 feet. Eversource claims that it cannot alter the design of the BESS Building to provide 50-foot side yards without infringing on the existing Service Center operations. The Company seeks to avoid adverse interpretations, delay, and undue expense related to securing a variance and a potential appeal of the variance.
Signs Section 5.3	Variance	This section provides design standards and guidelines for permitted signs allowed in zoning districts. The signs needed for the Project are not allowed in the R3 zoning district and are needed for public safety. The Company seeks to avoid adverse interpretations, delay, and undue expense related to securing a variance and a potential appeal of the variance.
Noise Section 5.4.2	Variance	This section prohibits uses that generate excessive and nuisance noise. Although the Project incorporates noise mitigation, the Company asserts that whether sound emitted during construction or operation is excessive or constitutes a nuisance is subjective. The Company seeks to avoid adverse interpretations, delay, and undue expense related to securing a variance and a potential appeal of the variance.

Table 3. Requested Individual Exemptions for the BESS: Summary of Company Position

Section of the Zoning Ordinance	Local Zoning Relief Available	Why Exemption is Required: Company's Position
Outdoor Lighting Section 5.4.4.1 ³⁶	Variance	This section provides that outdoor lighting shall be arranged to minimize glare and light spillage over to neighboring properties and into the night sky. The BESS Building would have motion detector activated door lights at certain entry points. The Company contends that it is uncertain whether it could comply with this section because the standard for lighting is not precise. The Company seeks to avoid adverse interpretations, delay, and undue expense related to securing a variance and a potential appeal of the variance.
Landscaping Section 5.5	Special Permit	This section sets forth certain landscaping requirements that apply to non-residential uses with the intent of, among other things, providing visual buffers, separating incompatible land uses, and preserving the character of the town. Where site plan review is required, a landscaping plan would be reviewed by the Planning Board. There are no stated landscaping criteria that would apply to the Project; therefore, the Company claims that it is impossible to ascertain its obligations for landscaping under this section. Further, the grant of a special permit for a reduction in landscaping requirements is discretionary based on a subjective finding that the reduction would not result in a "substantial detriment." The Company requests an exemption to obviate legal uncertainty in securing a special permit and eliminate the potential for adverse interpretations, delay, and undue expense related to the permitting process and appeals therefrom.

³⁶ The Company requested an exemption from 5.4.4, but that section is entitled "Miscellaneous Standards" of which only 5.4.4.1 relates to the specified exemption sought by the Company for "outdoor lighting" (Exh. EV-1, att. 1, at 36).

Table 3. Requested Individual Exemptions for the BESS: Summary of Company Position

Section of the Zoning Ordinance	Local Zoning Relief Available	Why Exemption is Required: Company's Position
Water Resources Overlay Protection District Section 8.2	None Available	The Site is located in the Water Resources Overlay Protection District ("WROPD"). The Company's proposed use of the site is not listed as a use permitted as-of-right in the WROPD. Section 10.2.2(2) expressly prohibits the granting of use variances by the Oak Bluffs Board of Appeals. ³⁷ Accordingly, an exemption is <i>per se</i> required.
Districts of Critical Planning Concern Section XVIII B	None Available	The Site is located in the Island Road District, which only permits residential, recreational, agricultural, and open space uses. The Company's proposed use of the site is not permitted in the underlying R3 zoning district, and therefore is not permitted in the Island Road District. Section 10.2.2(2) expressly prohibits the granting of use variances by the Oak Bluffs Board of Appeals. Accordingly, an exemption is <i>per se</i> required.
Site Plan Review Section 10.4	Site Plan Approval	Provisions of site plan review establish criteria for the layout, scale, appearance, safety, and environmental impacts of commercial or industrial development to ensure that such development is compatible with the existing surroundings. The BESS must conform to established utility, state, and federal standards to ensure safe and reliable operation, which in some instances may not be compatible with subjective criteria for site plan approval detailed in Section 10.4.8. Therefore, the Company submits that it requires an exemption from the site plan review process in Section 10.4.

Sources: Exhs. EV-1, at 63-74; DPU-Z-4; DPU-Z-5; DPU-Z-6; DPU-Z-9; DPU-Z-12; DPU-Z-13; DPU-Z-14; DPU-S-13; Tr. 2, at 357-358, 364-365.

³⁷ The Company claims that none of the activities prohibited within the WROPD is anticipated for the Project (Exh. EV-1, at 64).

2. Company Consultation with Local Officials and Community Outreach

The Company states that prior to filing of the Petition, it held meetings with Oak Bluffs officials to discuss the Project and the Company's intent to seek zoning relief (Exhs. EV-1, at 8-10, 76; DPU-Z-1). Beginning on February 16, 2018, the Company held meetings with Oak Bluffs officials including the Town Administrator, members of the Board of Selectmen, the Building Commissioner and local inspector, the Conservation Agent, and the Fire Chief (Exh. EV-1, at 9).³⁸ As a result of these meetings, the Company adjusted the project design to (1) include and revise the location and number of emergency egress areas with the BESS Building; (2) install a fire hydrant adjacent to the Project; and (3) develop a Fire Safety Plan for review and approval by the Town (id.). In addition, the Company stated that it has reached an agreement with the Town regarding design plans for Phases 1 and 2, including a ten-foot sound mitigation wall (id. at 9-10). The Company also noted that it conducted door-to-door outreach to property owners within 0.25 miles of the Project Site (id. at 10; Exh. DPU-G-1).

On April 2, 2019, the Company submitted a voluntary filing for site plan review with the Oak Bluffs Planning Board to receive input on the Project and enable the Planning Board to offer proposed mitigation conditions (Exhs. DPU-Z-6; DPU-G-1(S1)). On May 30, 2019, the Oak Bluffs Planning Board referred the Company's site plan filing to the Martha's Vineyard Commission for Development of a Regional Impact review (Exh. DPU-G-1(S1)). On June 3, 2019 the Company and the Town executed a comprehensive MOU, which states "upon execution

³⁸ The Company held meetings with various officials from Oak Bluffs on at least February 16, 2018; May 4, 2018; July 2, 2018; July 3, 2018; August 15, 2018; August 22, 2018; September 21, 2018; and October 24, 2018 (Exh. EV-1, at 9).

of the MOU, the Municipality agrees to support the Eversource petition at the Department ... insofar as it seeks zoning exemptions” (Exh. TOB/EV-1, at 3).

Eversource states that it will continue to work closely with the Town as the design advances to ensure that the Project is in accordance with the Town’s preferences and expectations (Exh. EV-1, at 10). Eversource asserts that because the Town is fully aware and supportive of the nature and scope of this proceeding, the granting of individual zoning exemptions and a comprehensive exemption would not be an unwarranted incursion on the Town’s home rule authority (id. at 77; Exhs. TOB/EV-1; DPU-G-1(S1)).

3. Analysis and Finding

a. Individual Exemptions

The record shows that construction of the Project would require that the Company obtain use variances from Section 3.1 (principal uses) and Appendix A, Table of Use Regulations, Section 8.2 (WROPD), and Section XVIII B (districts of critical planning concern) (Exh. EV-1, at 63). However, Section 10.2.2(2) expressly prohibits the granting of use variances by the Oak Bluffs Board of Appeals (id.). As there is no local zoning relief available to the Company, the Department finds that exemptions from the identified provisions are required within the meaning of G.L. c. 40A, § 3 (id. at 63-64).

As described above in Table 3, the record shows that construction of the Project would require the Company to obtain certain other variances (Exh. EV-1, at 71-74). The Company requests exemptions from Section 4.1.1 (one structure per lot), Section 4.1.3 (minimum side yard), Section 5.3 (signs), Section 5.4.2 (noise), and Section 5.4.4 (outdoor lighting) (id.). The Department accepts the Company’s argument that the criteria for obtaining variances are both subjective and difficult to fulfill. See G.L. c. 40A, § 10; see also, 28 Mass.Prac.Series, Real

Estate Law, § 23.26 (4th ed.). Additionally, we note that the grating of a variance may be appealed. Consequently, requiring the Company to obtain variances could, at a minimum, result in significant delay or create additional vulnerabilities to appeal. Accordingly, we find that exemptions from the identified provisions of the Oak Bluffs Zoning Bylaw that would require the Company to obtain a variance to construct and operate the Project are required within the meaning of G.L. c 40A, § 3.

With regard to noise, the Company requested an exemption from Section 5.4.2, Noise, under Environmental Performance Standards (Section 5.4) and maintains that the Department should grant the Company requested exemption for both the construction and ongoing operation of the Project (Company Brief at 50-51). However, the Company also acknowledges that its main concern is that the noise thresholds would be exceeded during the construction period, and that it can meet the MassDEP noise standard for operations, which is the standard referenced under Section 5.4.2 (Tr. 2, at 362). The Department previously has expressed its concern that granting such exemptions to well-defined environmental provisions, could prevent a city or town from exercising reasonable control over the on-going operation of a project. See e.g., NSTAR Electric Company d/b/a Eversource Energy, EFSB 17-02/D.P.U. 17-82/17-83, at 213, 218 (2019). Further, the Company itself has acknowledged that it has installed noise mitigation to limit operational noise levels to three dBA at the nearest residence (see Section II.3.C.). Accordingly, the Department is not persuaded that an exemption is necessary from Section 5.4.2 for the ongoing operation of the Project. An exemption is granted from this provision as it relates to the construction of the Project only.

Relief or reduction in requirements from Section 5.5 (landscaping) would require a special permit from the Planning Board (Exh. EV-1, at 69). We concur with the Company that, because there are no stated landscaping criteria that would apply to the project, it is difficult for the Company to ascertain its obligations under this section. Additionally, we note that the grant of a special permit is discretionary and based on subjective criteria, and if granted, a special permit is appealable. Thus, requiring the Company to obtain special permits could result in Project delay. Accordingly, we find that exemptions from the special permit requirement of Section 5.5 is required within the meaning of G.L. c. 40A, § 3.

The Oak Bluffs Zoning Bylaws would also require the Company to obtain Site Plan Approval, pursuant to Section 10.4 (Exh. EV-1, at 70-71). The Site Plan Approval process could conflict with established utility standards, to which the BESS must conform (*id.* at 71-74). Further, we note that the Company has voluntarily provided a site plan filing to the Town for its information (Exh. DPU-Z-6). Therefore, we find that an exemption from Section 10.4 is required within the meaning of G.L. c. 40A, § 3.

b. Municipal Consultation

The Department continues to favor the resolution of local issues on a local level whenever possible to reduce concern regarding any intrusion on home rule. K Street at 40; Hopkinton LNG, D.P.U. 17-114, at 70 (2018) (“Hopkinton LNG”); Russell Biomass LLC/Western Massachusetts Electric Company, EFSB 07-4/D.P.U. 07-35/07-36, at 60-65 (2009) (“Russell Biomass”). The Department believes that the most effective approach for doing so is for applicants to consult with local officials regarding their projects before seeking zoning exemptions pursuant to G.L. c. 40A, §3. K Street at 40; NSTAR Electric Company, D.P.U. 14-55/14-56, at 41 (2015) (“NSTAR Belmont”).

The record shows that the Company consulted with local officials on multiple occasions and that these meetings took place before the Company filed its Petition with the Department (Exhs. EV-1, at 8-10). During the pendency of this proceeding, the Company and the Town resolved all issues regarding the Project and the Company's request for an exemption from the Town's Zoning Bylaw (Exh. TOB/EV-1). On June 3, 2019, the Company entered into a MOU with the Town (id.). The MOU contains conditions which the Company has agreed to follow when constructing and operating the proposed battery storage project (id.). Pursuant to the MOU, the Company agreed to work cooperatively with the Town and fund various consultants for the Town to assess issues regarding safety, emergency planning, water resources and other environmental considerations (id. at 5-6). For its part, the Town agreed to support the Company's request for zoning exemptions at the Department (id. at 3). Accordingly, we find that the Company made a good faith effort to consult with municipal authorities and that the Company's communications have been consistent with the spirit and intent of Russell Biomass and the other cases cited above.

E. Conclusion on Request for Individual Zoning Exemptions

As described above, the Department finds that: (1) Eversource is a public service corporation; (2) the proposed use is reasonably necessary for the public convenience and welfare; and (3) the specifically identified zoning exemptions are required for purposes of G.L. c. 40A, § 3. Additionally, we find that the Company engaged in good faith negotiations with the Town of Oak Bluffs. Accordingly, the Department grants, with the exception of Section 5.4.2 as this section relates to the ongoing operation of the Project, the Company's request for the individual zoning exemptions listed above in Table 3, subject to the conditions set forth in this Order.

III. REQUEST FOR A COMPREHENSIVE ZONING EXEMPTION

A. Standard of Review

The Department considers requests for a comprehensive zoning exemption on a case-by-case basis. Westfield at 54; Hopkinton LNG at 73; Princeton Municipal Light Department, D.T.E./D.P.U. 06-11, at 37 (2007) (“Princeton”). The Department will not consider the number of exemptions required as a sole basis for granting a comprehensive exemption. Princeton at 37. Rather, the Department will consider a request for comprehensive zoning relief only when issuance of a comprehensive exemption would avoid substantial public harm. Westfield at 54; K Street at 41; Hopkinton LNG at 73.

B. The Company’s Position

In addition to the individual exemptions discussed above, Eversource also requests a comprehensive exemption from the Oak Bluffs Zoning Bylaw (Exh. EV-1, at 74-77; Company Brief at 56-61). In support of its request, the Company submits that there are five factors that the Department has articulated as relevant to deciding whether to grant a comprehensive exemption: (1) the project is needed for reliability; (2) the project is time sensitive; (3) there are multiple municipalities involved that could have conflicting zoning provisions that might hinder the uniform development of a large project spanning these communities; (4) the project proponent has actively engaged the communities and responsible officials to discuss the applicability of local zoning provisions and address local concerns; and (5) the communities affected by the project do not oppose the issuance of a comprehensive zoning exemption (Exh. EV-1, at 74).

Addressing the first two factors, the Company argues that the Project is needed to improve reliability by relieving reliance on diesel generators, alleviate existing and future loading on undersea distribution circuits, and relieve constraints for the expansion of DER

(Exh. EV-1, at 75). Although there is only one municipality involved, the Company maintains that it has actively engaged responsible officials to discuss the applicability of local zoning provisions, and incorporated feedback into the Project's design (*id.* at 76). Through its outreach efforts to neighbors of the Project, the Company has also actively engaged with the local community to address local concerns (*id.* at 76-77). Finally, the Company contends that it has satisfied the fifth factor because the Company and the Town entered a comprehensive MOU which states that "the Municipality agrees to support the Eversource petition at the Department ... insofar as it seeks zoning exemptions" (Exh. TOB/EV-1, at 3).³⁹

The Company maintains that a comprehensive exemption from the Department is necessary to exempt the Project from any future zoning enactment that may come into effect that would have the potential to jeopardize the Project and ensure its timely construction, particularly if a Project design change is required (Exh. EV-1, at 75). In sum, the Company maintains that a comprehensive zoning exemption from the operation of the Oak Bluffs Zoning Bylaw would ensure the timely construction of the Project, which would in turn likely benefit customers (Company Brief at 61).

C. Analysis and Findings

The grant of a comprehensive exemption is based on the specifics of each case. Compared to the grant of individual zoning exemptions, which is tailored to meet the construction requirements of a particular project, the grant of a comprehensive exemption serves to nullify a municipality's zoning code in its entirety with respect to the project under review.

³⁹ The MOU identifies the Department proceeding in this docket as including the Company's request for both individual and comprehensive zoning exemptions (Exh. TOB/EV-1, at 1).

Thus, compared to the grant of individual zoning exemptions, a comprehensive zoning exemption constitutes a broader incursion upon municipal home rule authority. In the absence of a showing that substantial public harm may be avoided by granting a comprehensive exemption, the granting of such extraordinary relief is not justified. Hopkinton LNG at 79; Eversource Electric Company, D.P.U. 15-85, at 39 (2016); Eversource Electric Company, D.P.U. 13-126/13-127, at 37 (2014).

Department and Siting Board cases that grant comprehensive exemptions typically involve reliability and time-sensitive projects. K Street at 44; NEP Cabot Taps at 45; New England Power Company d/b/a National Grid, EFSB 12-1/D.P.U. 12-46/12-47, at 136 (2014). In order to make a determination regarding substantial public harm, the Department and the Siting Board have articulated relevant factors, including, but not limited to, whether (1) the proposed project contributes to a reliable energy supply for the Commonwealth, (2) the project is time sensitive, (3) the project involves multiple municipalities that could have conflicting zoning provisions that might hinder the uniform development of a large project spanning these communities, (4) the proponent of the project has actively engaged the communities and responsible officials to discuss the applicability of local zoning provisions to the project and any local concerns, and (5) the affected communities do not oppose the issuance of the comprehensive exemption. The Department notes that this list of factors is not exhaustive and is applied on a case-by-case basis. Hopkinton LNG at 79; see also Vineyard Wind LLC, EFSB 17-05/D.P.U. 18-18/18-19, at 153 (2019). In this case, the Project does not involve more than one municipality. However, the record shows that the Project is immediately necessary for system reliability, thereby making the Project time sensitive and a proper subject for a

comprehensive zoning exemption. Moreover, the Company and the Town, as expressed through the MOU, have indicated Town support of both individual and a comprehensive zoning exemption in this case.

As noted above the Department previously has expressed its concern that granting zoning exemptions from well-defined environmental requirements could prevent a city or town from exercising reasonable control over the on-going operation of a project. Here, the Zoning Bylaws contain Section 5.4. Environmental Performance Standards, of which Section 5.4.2, Noise is discussed above, as is Section 5.4.4.1, Lighting, each of which has been granted an individual exemption. Several other provisions of the Environmental Performance Standards were not specifically addressed in the Company's individual zoning exemption requests. These provisions include Section 5.4.3, Solid Waste Storage, and Section 5.4.4, Miscellaneous Standards, which lists five discrete standards, (only one of which, Section 5.4.4.1 Outdoor Lighting, has been granted an individual exemption above). The remaining four areas: address dust, fumes, and gases (Section 5.4.4.2); visual or audible interference (Section 5.4.4.3); storage of flammable materials (Section 5.4.4.4); and storage of edible material (Section 5.4.4.5) (Exh. EV-1, att. 1). These four provisions are well defined, and relate to reasonable ongoing environmental protection. Accordingly, as discussed in Section II.D., above, these additional Sections also are granted an exemption, as they relate to the construction of the Project only.

Considering all of the factors discussed above, the Department finds Eversource's request for a comprehensive zoning exemption (with the exception of Sections 5.4.2, 5.4.3, 5.4.4.2, 5.4.4.3, 5.4.4.4, and 5.4.4.5 as these sections relate to the ongoing operation of the Project) is

warranted and necessary to avoid substantial public harm. Accordingly, the Department grants a comprehensive zoning exemption for the Project.

IV. SECTION 61 FINDINGS

The Massachusetts Environmental Policy Act (“MEPA”) provides that “[a]ny determination made by an agency of the [C]ommonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact” (“Section 61 findings”). G.L. c. 30, § 61. Pursuant to 301 CMR 11.01(4)(c), Section 61 findings are necessary when an Environmental Impact Report (“EIR”) is submitted to the Secretary of Energy and Environmental Affairs, and the findings should be based on such EIR. Where an EIR is not required, Section 61 findings are not necessary. 301 CMR 11.01(4). The Company asserted that the proposed Project does not require the filing of an ENF. In support of its assertion, the Company submitted the affidavit of Mr. Michael Zylich, a senior environmental engineer in the Company’s environmental affairs department, dated November 30, 2018, stating that the Project, as proposed, will not exceed any of the review thresholds found in 301 CMR 11.03. Accordingly, Section 61 findings are not necessary for the Project.

V. ORDER

Accordingly, after due notice, hearing, and consideration, it is hereby

ORDERED: That the petition of Eversource seeking the specific exemptions set forth in Table 3, from the operation of the Oak Bluffs Zoning Bylaw is granted, with exceptions provided herein; and it is

FURTHER ORDERED: That the petition of Eversource seeking comprehensive exemption from the operation of the Oak Bluffs Zoning Bylaw is granted, with exceptions provided herein; and it is

FURTHER ORDERED: That Eversource work cooperatively with municipal and state officials and affected property owners in Oak Bluffs to minimize any noise, visual, traffic, or other local impacts associated with the Project; and it is

FURTHER ORDERED: That Eversource install containment systems and/or curbing around the concrete pads on which equipment outside of the building is stored to protect against any accidental release of fluids from transformers, HVAC equipment, or switch gear; and it is

FURTHER ORDERED: That to help mitigate noise and construction impacts, Eversource is limited to working Monday through Saturday from 8:00 a.m. to 6:00 p.m., although construction crews may mobilize onsite between 7:00 a.m. and 8:00 a.m. Should Eversource need to extend construction work outside of the building beyond those hours and days, Eversource is directed to seek written permission from the relevant Town of Oak Bluffs authorities prior to the commencement of such work and to provide the Department with a copy of such permission. If Eversource and the Town are not able to agree on whether such extended construction hours should occur, Eversource may request prior authorization from the Department; Eversource shall provide the Town with a copy of any such request; and it is

FURTHER ORDERED: That Eversource shall, if possible, identify and use locations on Martha's Vineyard to reuse excess soil. If it is not possible to relocate excess soil on Martha's Vineyard, the Company shall provide an explanation as to why the soil cannot be used on the island; and it is

FURTHER ORDERED: That Eversource and its contractors and subcontractors shall minimize construction noise by using best construction practices; and it is

FURTHER ORDERED: That Eversource and its contractors and subcontractors comply with all applicable state and local regulations for which Eversource has not received an exemption; and it is

FURTHER ORDERED: That Eversource obtain all other governmental approvals necessary for the Project; and it is

FURTHER ORDERED: That Eversource shall submit to the Office of the State Fire Marshal for review and comment the Fire Safety Plan submitted to the Department in this docket. Upon receipt of comments, feedback, or requested modifications from the Office of the State Fire Marshal, if any, Eversource shall revise the Fire Safety Plan accordingly. Eversource shall submit the Fire Safety Plan 90 days prior to commercial operation to the Department. In addition to the Fire Safety Plan, Eversource shall submit an explanation of how comments from the Office of the State Fire Marshal were incorporated into Fire Safety Plan, where requested modifications were made in the Fire Safety Plan, and an explanation, if applicable, for why any comments or requested modifications were not addressed. Finally, Eversource shall submit to the Department all substantive changes to the Fire Safety Plan for five years; and it is

FURTHER ORDERED: That within 90 days of Project completion, Eversource shall submit a report to the Department documenting compliance with all conditions contained in this Order, noting any outstanding conditions yet to be satisfied and the expected date and status of such resolution; and it is

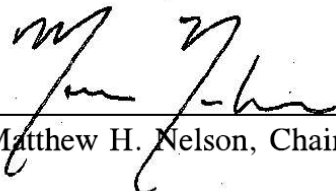
FURTHER ORDERED: That Eversource and its successors in interest shall comply with all other directives contained in the Order; and it is

FURTHER ORDERED: That Eversource or its successors in interest notify the Department of any changes other than minor variations to the Projects so that the Department may decide whether to inquire further into a particular issue; and it is

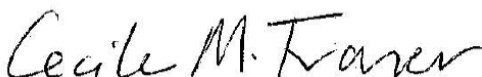
FURTHER ORDERED: That because the issues addressed in this Order relative to this Project are subject to change over time, construction of the Project must commence within three years of the date of this Order; and it is

FURTHER ORDERED: That the Secretary of the Department transmit a certified copy of this Order to the Town of Oak Bluffs, and that Eversource serve a copy of this Order on the Oak Bluffs Board of Selectmen, Town Planning Board, and Town Zoning Board of Appeals, within five business days of its issuance, and that Eversource certify to the Secretary of the Department within ten business days of its issuance that such service has been accomplished; and that said certification be served upon the Hearing Officer to this proceeding.

By Order of the Department:



Matthew H. Nelson, Chair

Robert Hayden, Commissioner

Cecile M. Fraser, Commissioner

An appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part. Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. G.L. c. 25, § 5.