

# The Commonwealth of Massachusetts

## DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 17-147

May 23, 2019

Petition of NSTAR Electric Company d/b/a Eversource Energy, pursuant to Section 6 of Chapter 665 of the Acts of 1956, for exemptions from the Department of Public Utilities from the Boston Zoning Code.

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## I. INTRODUCTION

NSTAR Electric Company d/b/a Eversource Energy (“Eversource” or the “Company”) filed a petition (“Petition”) on September 29, 2017 with the Department of Public Utilities (the “Department”) requesting individual and comprehensive zoning exemptions from the operation of the Boston Zoning Code (the “Zoning Code”) pursuant to Section 6 of Chapter 665 of the Acts of 1956. The Company has requested such exemptions in connection with its proposed modifications to an existing substation, Station #385, located at 500 East 1<sup>st</sup> Street in the City of Boston, Massachusetts (the “K Street Substation,” or “Substation”).<sup>1</sup> The Company proposes to make modifications at the Substation, as described more fully below, related to two Projects: (1) the installation of a 345 kilovolt (“kV”), 160 megavolt ampere reactive (“MVar”) voltage regulator and related equipment, along with the conversion of an existing 345 kV straight bus to a ring bus (“Voltage Regulator Project”); and (2) the construction of a new perimeter fence and other related security improvements at the Substation (“Security Fence Project”, jointly the “Projects”).

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<sup>1</sup> On September 29, 2017, the Company filed a project update letter in Boston Edison Company d/b/a NSTAR Electric, EFSB 04-01/D.T.E. 04-5/04-7 (“NSTAR/Stoughton”), which described the proposed modifications to the K Street Substation under review by the Department in this proceeding. In light of the Department’s review of these modifications in this zoning exemption docket, the Siting Board did not undertake a separate review of the proposed modifications in the NSTAR/Stoughton docket. On February 28, 2019, Eversource filed an additional update regarding an equipment addition to manage short-circuit issues at the K Street Substation, which the Company describes as unrelated to the modifications filed in this docket. The Department agrees that the proposed changes described in those two letters do not require a review in this docket and appear consistent with the approval granted in NSTAR/Stoughton.

A. Description of the Proposed Projects

As proposed, the Voltage Regulator Project includes the installation of a voltage regulator, a circuit breaker, and a 100-foot tall shielding mast on a portion of a Company-owned parcel of land abutting the rear of the existing Substation (“New Parcel”) (Exhs. EV-1, at 4, 32).<sup>2,3</sup> The voltage regulator would be approximately 27-feet long by 27-feet high by 26-feet wide and would be placed on a concrete foundation with an oil spill containment system and surrounded by crushed stone (Exh. EV-1, at 4). The Voltage Regulator Project also includes the conversion of an existing 345 kV bus to a ring-bus design and the installation of new breaker control equipment, wiring, and three new circuit breakers within the existing Substation footprint (Exh. EV-1, at 5).<sup>4</sup>

Concurrent with construction of the Voltage Regulator Project, Eversource would install a new perimeter fence around the existing K Street Substation and the developed portion of the New Parcel (together the “Substation Site”) (Exh. EV-1, at 2-3, 19, 21).<sup>5</sup> The Security Fence Project would consist of the replacement of the currently approximately 10-to-2-foot-tall perimeter fence and gates at the Substation with approximately 2,045 linear

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<sup>2</sup> The existing K Street Substation has been in operation since the mid 1960s (Exh. EV-1, at 41; Tr. at 85).

<sup>3</sup> The approximately three-acre New Parcel was purchased by Eversource in 2007 and the Company refers to it as the “Banfield Property” (Exh. EV-1, at 2; DPU-G-14, att. 1 at 5; Tr. at 74).

<sup>4</sup> Eversource stated that the new ring bus would be located partly within the existing Substation footprint and partly within the New Parcel (Exh. EV-1, at 5).

<sup>5</sup> The additional fenced area would be approximately 86-feet wide by 121-feet long (Exh. EV-1, at 4).

feet of fencing at 15 feet in height; 1,775 linear feet of fencing at 20 feet in height; and 895 linear feet of fencing at 26 feet in height (Exh. EV-1, at 10-11). The Project would also include enhancements to the existing security camera system and lighting (Exhs. EV-1 at 6; DPU-V-1).

The scope of this zoning exemption Order encompasses all parcels at the Substation Site on which the Projects are located.<sup>6</sup> Eversource estimated that the Voltage Regulator Project would cost approximately \$12.0 million and that the Security Fence Project would cost approximately \$21.4 million (Exh. EV-1, at 5-6; RR-DPU-2).<sup>7</sup>

B. Procedural History

On May 2, 2018, Department staff conducted a site visit followed by a duly-noticed public comment hearing at the Tynan Elementary School in South Boston. At the public comment hearing, the speakers expressed support for the planned extension of the

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<sup>6</sup> Regarding the Project-related work that will occur at the existing Substation Site (2005 Parcel) (e.g., the installation of (1) portions of the new perimeter fence, (2) 345 kV bus work, and (3) three new circuit breakers), the Company submits that no further zoning relief is necessary because the Siting Board granted the Company a comprehensive exemption from the operation of the Zoning Code for the use of the existing Substation Site and the “construction, operation and maintenance of the proposed transmission project.” See NSTAR/Stoughton at 163. Eversource argues that, if the Department disagrees with the Company’s view, then the zoning analysis presented in this proceeding would apply equally to all construction, operation, and maintenance of the Projects within the footprint of the existing Substation (Company Brief at 39).

<sup>7</sup> The accuracy level of the Company’s cost estimates is +25/-25 percent for the Voltage Regulator Project and +50/-25 percent for the Security Fence Project (Exh. EV-1, at 5-6).

Harborwalk and the integration of its extension into the Company's plans.<sup>8</sup> Residents also requested information on the future plans for the remaining portion of the New Parcel. The Department received no petitions to intervene. The Company sponsored the following witnesses at the evidentiary hearing held in Boston on July 25, 2018: (1) John McLaughlin, senior planning engineer, Eversource; (2) John M. Zicko, P.E., director of substation design engineering, Eversource; (3) Joshua Creelman, project manager consultant, EN Engineering; (4) Matthew Waldrip, senior environmental specialist, Eversource; and (5) John F. Hoey, community relations specialist, Eversource.

The record in this case includes 171 exhibits, including the Petition and responses to information requests and record requests. The Company filed its brief on October 25, 2018.

## II. REQUEST FOR INDIVIDUAL ZONING EXEMPTIONS PURSUANT TO SECTION 6 OF CHAPTER 665 OF THE ACTS OF 1956

### A. Standard of Review

The provisions of G.L. c. 40A do not apply to the City of Boston, although they do apply to other cities and towns in the Commonwealth. Emerson College v. City of Boston, 393 Mass. 303 (1984). However, by Special Act of the Legislature, the City's Zoning Code is subject to the Department's authority for granting zoning exemptions to public service corporations in the same manner as G.L. c. 40A, § 3 applies to other municipalities.

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<sup>8</sup> The Company currently maintains the existing portions of the Harborwalk, a public walkway along Boston Harbor, to the north and west of the Substation (Exh. DPU-G-5). These portions were constructed pursuant to Chapter 91 requirements associated with construction at the Substation approved in NSTAR/Stoughton (id.).

NSTAR/Stoughton at 147, n.91. Specifically, Section 6 of Chapter 665 of the Acts of 1956 provides that:

A building, structure, or land used or to be used by a public service corporation may be exempted from the operation of a zoning regulation or amendment if, upon petition of the corporation, the state [Department] shall, after public notice and hearing, decide that the present or proposed situation of the building, structure, or land in question is reasonably necessary for the convenience or welfare of the public.

In evaluating a company's petition for zoning relief pursuant to Section 6 of Chapter 665 of the Acts of 1956, the Department relies on the standard of review established for G.L. c. 40A, § 3 petitions. Hopkinton LNG Corp, D.P.U. 17-114, at 7 (2018) ("Hopkinton LNG"); NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 15-85, at 3 (2016) ("Woburn Substation"); NSTAR Electric Company, D.P.U. 13-126/13-167, at 5 (2014).

Thus, a petitioner seeking exemption from a zoning bylaw under Chapter 665 of the Acts of 1956 must meet three criteria. First, the petitioner must qualify as a public service corporation. Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667, 678-683 (1975) ("Save the Bay"). Second, the petitioner must demonstrate that the proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public. Hopkinton LNG at 10; Woburn Substation at 3; Tennessee Gas Pipeline Company, D.T.E. 01-57, at 3-4 (2002). Third, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. Hopkinton LNG at 7; Woburn Substation at 3; Boston Gas Company, D.T.E. 00-24, at 3 (2001).

1. Public Service Corporation

In determining whether a petitioner qualifies as a “public service corporation” (“PSC”) for the purposes of G.L. c. 40A, § 3, the Massachusetts Supreme Judicial Court 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.

Save the Bay at 680. See also Woburn Substation at 3-4; NSTAR Hopkinton at 6-7; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997) (“Berkshire Power”).

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 at 30; Save the Bay 366 Mass. at 685-686; Town of Truro v. Department of Public Utilities, 365 Mass. 407, at 410 (1974). 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.” Hopkinton LNG at 8; Woburn Substation at 3-4; 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). The Department has determined that it is not necessary for a petitioner to demonstrate the existence of “an



appropriate franchise” in order to establish PSC status. Hopkinton LNG at 9; Woburn Substation at 3-4; Berkshire Power at 31.

2. Public Convenience and 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, 365 Mass. at 410; New England Power Co. d/b/a National Grid, D.P.U. 14-128/14-129, at 5 (2015) (“NEP Cabot Taps”). 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”); NEP Cabot Taps at 5.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3, does not require the petitioner to demonstrate that its primary 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 primary 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; NEP Cabot Taps at 5.

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 need for, or public benefits of, the present or proposed use; (2) the present or proposed use and any alternatives or alternative sites identified; 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 public convenience or necessity. Hopkinton LNG at 56; NSTAR Hopkinton at 6; Tennessee Gas Company, D.T.E. 98-33, at 4-5 (1998).

### 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 makes a determination whether the exemption is necessary to allow construction or operation of the petitioner's Project. Hopkinton LNG at 10; Woburn Substation at 6; Tennessee Gas Company, D.P.U. 92-261, at 20-21 (1993). It is a 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); Hopkinton LNG at 10; Woburn Substation at 6.

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. See Woburn Substation at 3-4; NSTAR Hopkinton at 6-7; NSTAR Electric Company, D.P.U. 11-80, at 7 (2012) ("NSTAR Plympton"). Accordingly, the Department finds that Eversource qualifies as a public service corporation for the purposes of Chapter 665 of the Acts of 1956.

C. Public Convenience and Welfare

1. Need for and Alternatives to the Voltage Regulator Project

The K Street Substation is part of the New England Bulk Power System and performs a key role in the flow of electricity and power delivery in the Greater Boston Area (Exh. DPU-N-1; Tr. at 13).<sup>9</sup> Specifically, the Substation contains two stepdown autotransformers that convert bulk power at a voltage of 345 kV to 115 kV to supply the downtown Boston area (Tr. at 13). Eversource stated that the Greater Boston Area Updated Transmission Needs Assessment ("2015 Needs Assessment,")<sup>10</sup> issued by ISO-New England ("ISO-NE"), identified certain N-1 and N-1-1 contingencies that would result in high voltages

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<sup>9</sup> The Greater Boston Area includes all of the Northeast Massachusetts load zone and portions of the New Hampshire, Southeastern Massachusetts, and Western/Central Massachusetts load zones (Exh. EV-1, exh. B, at 12).

<sup>10</sup> For further discussion of the development of the 2015 Needs Assessment, see NSTAR Electric Company, EFSB 15-03/D.P.U. 15-64/15-65, at 11-14 (2017) and New England Power Company, D.P.U. 15-44/15-45, at 11-13 (2016).

at the K Street Substation and numerous other substations in the downtown Boston area and the neighboring West Medway, West Walpole, and Holbrook areas under present-day light-load conditions (Exhs. EV-1, at 11-12; DPU-N-4).<sup>11,12</sup>

Eversource stated that the acceptable range for per-unit voltages is 0.95 to 1.05, and that, under light load conditions, post-contingency voltage levels between 1.05 to 1.08 per unit were identified in these areas (Exhs. EV-1, at 12; DPU-N-10; Tr. at 24). The Company explained that high voltages can lead to equipment damage and equipment failure (Exh. EV-1, at 12). Eversource stated that because of (1) the K Street Substation's central location between the downtown Boston and West Medway, West Walpole, and Holbrook areas, and (2) the Substation's strong electrical connection to neighboring substations, the Voltage Regulator Project would resolve the high voltage violations modeled in these areas (Exh. DPU-N-4; Tr. at 24-26).

Eversource stated that the existing 345 kV bus arrangement at the K Street Substation is a straight-bus design consisting of three 345 kV circuit breakers and connections for two

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<sup>11</sup> An "N-1" contingency is a circumstance in which there is an unexpected fault or loss of a single electric element (including the loss of a double-circuit transmission tower). If after the first contingency has occurred, a second unrelated transmission or generation outage follows, the two contingencies together are referred to as an "N-1-1" contingency (Exh. EV-1, at 12; Tr. at 38).

<sup>12</sup> With respect to the specific light-load conditions assessed, Eversource stated that two different New England system load levels were modeled: (1) a minimum load level (*i.e.*, a springtime-like condition) of 8,500 MW, and (2) a summer off-peak load level (*i.e.*, the minimum summertime load) of 10,500 MW (Exhs. EV-1, exh. B at 29; DPU-N-6; DPU-N-7; Tr. at 14-15). Dispatch conditions were based on low transfer and generation dispatch levels that would typically be seen under these levels of demand (Exh. DPU-N-7; Tr. at 18-19).

345 KV transmission lines, their associated shunt reactors, and two 345/115 kV autotransformers (collectively, "Existing Bus Arrangement") (Exh. EV-1, at 13). The Company stated that under the Existing Bus Arrangement, one tie circuit breaker is currently operated open to prevent the loss of more than one circuit breaker (Exh. EV-1, at 13; Tr. at 22-23). To connect the Voltage Regulator to the system, Eversource stated it would convert the Existing Bus Arrangement to a ring-bus design (Exh. EV-1, at 13). Eversource noted that a ring-bus design would provide a reliability benefit (Tr. at 22-23).

a. Company Recommended Solution

Eversource's recommended solution to address the reliability concerns described above is to construct the Voltage Regulator Project, consisting of a 345 kV, 160 MVar, shunt reactor and the conversion of the Existing Bus Arrangement to a ring-bus design (Exhs. EV-1, at 1; DPU-PA-7). According to the Company, installation of the shunt reactor would contribute to electric reliability by maintaining system voltages and would resolve voltage violations identified in the 2015 Needs Assessment under light-load conditions (Exh. EV-1, at 13). Furthermore, the Company stated that the shunt reactor and ring-bus conversion are part of a set of solutions recommended by ISO-NE in the 2015 Final Greater Boston Area Transmission Solution Study to address the reliability needs of the Greater Boston Area (Exhs. EV-1, at 11-12; DPU-PA-4).

b. Alternatives to the Voltage Regulator Project

Eversource stated that due to the nature of the reliability need to be addressed in the downtown Boston and West Medway, West Walpole, and Holbrook areas, there are a limited number of viable alternatives to the Voltage Regulator Project (Exh. EV-1, at 15).<sup>13</sup>

According to the Company, both no-build and non-transmission alternatives would be insufficient to address the identified need (Exh. EV-1, at 15). Eversource stated that under a no-build alternative, the post-contingency high voltage violations identified would remain unaddressed and the transmission system would not meet mandatory transmission system reliability planning standards and criteria (Exh. EV-1, at 15). Furthermore, a non-transmission alternative would actually exacerbate the reliability need (Exh. EV-15; Tr. at 28-29). Eversource explained that by removing load from the system, a non-transmission alternative, such as energy efficiency and distributed generation (including solar photovoltaics), would increase the frequency of light-load conditions and the potential for high voltages (Exhs. EV-1, at 14-16; DPU-N-3; Tr. at 28-29).

Eversource then assessed the potential for operator action to address the identified need (Exh. EV-1, at 16-17). First the Company explored the option of “switching-out” certain 345 kV lines during light-load conditions to control voltages (Exh. EV-1, at 16). The Company noted that this alternative would not require any physical construction or any operating costs but would require Eversource’s systems operators to open circuit breakers to

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<sup>13</sup> Under the light load conditions assessed, the modeling results demonstrated high voltage conditions potentially causing equipment damage and failure (Exh. EV-1, at 11-15; Tr. at 24).

isolate specific 345 kV transmission lines (Tr. at 32). Eversource stated that the repeated switching-out of cables is harmful to the equipment because it can damage the insulation and shorten the transmission line's useful life (Exh. EV-1, at 16; Tr. at 32-33). The Company indicated that while this is a method it currently employs to reduce high voltages, it prefers not to rely on switching out the cables as a long-term solution due to the impact on the cables (Tr. at 36-37).<sup>14</sup> Because of the essential role of the 345 kV cables in supplying the Greater Boston Area and the great difficulty and cost associated with replacing these cables, Eversource concluded that a cable-switching alternative was not a practical long-term solution to the areas' reliability needs (Exh. EV-1, at 16).

Second, the Company explored the potential for dispatching local area generation to manage system voltage (Exh. EV-1, at 16-17). Eversource indicated that there is no existing generation located in close electrical proximity to the K Street Substation, as would be necessary for such an alternative (Exh. EV-1, at 16). Furthermore, Eversource asserted that even if local generation resources were available in the vicinity of the K Street Substation, this alternative would be less reliable and would have greater environmental impacts than the Voltage Regulator Project due to the potential for generator unavailability and the air emissions associated with frequent out-of-merit generation dispatch (Exh. EV-1, at 16-17; Tr. at 46-48).

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<sup>14</sup> Eversource noted that it has switched out 345 kV transmission cables between the K Street and Stoughton Substations ten times in the last five years to control voltage levels (RR-DPU-1).

c. Analysis and Findings

The Company has shown that there is a need for enhancements to the 345 kV transmission system at the K Street Substation in order to address the potential for post-contingency high voltage violations in the downtown Boston and West Medway, West Walpole, and Holbrook areas under present-day light-load conditions. The Voltage Regulator Project would resolve these issues. Accordingly, the Department finds there is a need for the Voltage Regulator Project and that its construction and operation would result in public benefits.

Alternatives to the Voltage Regulator Project considered by the Company included (1) a no-build approach, (2) non-transmission alternatives, and (3) operator action. The record shows that a no-build approach would not address the identified reliability need and that non-transmission alternatives, such as energy efficiency and distributed generation, would exacerbate high voltage concerns by reducing system load levels. The record further shows that operator actions, such as switching-out existing 345 kV cables in the area or dispatching local generation, would not provide practical long-term solutions. Ongoing reliance on cable-switching to lower system voltages would shorten the useful life of important transmission system assets that would be costly and difficult to replace. Furthermore, there is no existing generation in the vicinity of the K Street Substation that could be used to regulate system voltages, and even if developed, such a solution would be less reliable than the Voltage Regulator Project, and it could result in increased air emissions



and costs from frequent out-of-merit generation dispatch. Accordingly, the Department finds that the Company's decision to pursue the Project rather than the alternatives is reasonable.

2. Need for and Alternatives to the Security Fence Project

Eversource stated that based on new reliability and physical security standards adopted by the Federal Energy Regulatory Commission ("FERC") and the North American Electric Reliability Corporation ("NERC"), it is required to take measures to further protect the physical security of certain of its transmission system assets (Exh. EV-1, at 14). The Company stated that a new perimeter fence and related security improvements at the K Street Substation are needed to comply with these standards (Exh. EV-1, at 14).

Specifically, Eversource stated that as an owner and operator of transmission facilities under the jurisdiction of FERC and NERC, it was required to develop an implementation plan demonstrating compliance with the new reliability and physical security standards (Exhs. EV-1, at 14; DPU-G-10; DPU-G-17; DPU-G-18). The Company's implementation plan was designed to identify appropriate security measures which could reduce potential risk of damage or failure of transmission facilities (Exh. DPU-N-12). As part of that plan, the Company assessed risks to the reliability of the Substation and developed specific measures to improve reliability and security (Exh. DPU-N-18). Eversource's plan was subject to review by an independent consultant with extensive experience in the utility industry relative to physical security issues (Exhs. DPU-PA-18; DPU-PA-19). The implementation plan and security upgrades will be further reviewed by federal agencies for compliance with regulatory

standards (Exh. DPU-G-17). Failure to comply with those standards may result in financial penalties (id.).

Eversource stated that it considered three primary alternatives to the Security Fence Project: (1) a no-build alternative; (2) the use of armed guards; and (3) alternative fence and barrier configurations.<sup>15</sup> The Company noted that a no-build alternative would not meet the Company's obligation to comply with the federal reliability and physical security requirements to enhance the physical security of its transmission assets (Exh. EV-1, at 17).

With respect to the use of armed guards, the Company stated that it rejected this alternative because it would not provide for visual or physical deterrence and because a response by guards would require the time necessary to detect and react to a threat (Exhs. EV-1, at 18; DPU-PA-1). Further, the nominal cost of an armed security guard option was estimated to be significantly greater than the cost of the proposed Security Fence Project (Exh. EV-1, at 18; RR-DPU-5).<sup>16</sup>

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<sup>15</sup> Eversource noted that the Company also considered alternative system designs that might incorporate additional substation/transmission lines, but rejected this option based on the greater cost and environmental impacts associated with the construction and addition of new electrical facilities (Exh. EV-1, at 17 n.9).

<sup>16</sup> Eversource estimated the nominal cost of an armed security guard alternative to be over \$50 million assuming the use of two security guards to provide 24-hour coverage of the Substation over a 40-year period (based on the expected useful life of the Security Fence Project) (Exh. DPU-PA-1; RR-DPU-5). As discussed in Section I.A., above, the estimated cost of the Security Fence Project is approximately \$21.4 million (Exh. EV-1, at 6).

Finally, Eversource rejected alternative fencing and barrier combinations, noting that the Company's proposed design best minimized cost and environmental impacts while meeting need, reliability, and security goals (Exh. EV-1, at 18; Company Brief at 3, 17).<sup>17</sup>

a. Analysis and Findings

In order to comply with new federal regulatory requirements, Eversource undertook an assessment of the security and reliability of the K Street Substation and developed an implementation plan to enhance the physical security of the Substation. The Company's analysis was performed in consultation with third-party experts and considered, but ultimately rejected, alternatives to the Security Fence Project, including the use of armed security guards and other fencing/barrier combinations. The Department concurs with the Company's determination that the proposed fence alternative provides the best balance of cost, reliability, and environmental impact while meeting the Company's federal regulatory obligations. Based on our review of the federal regulatory standards and the Company's implementation plan, the Department concludes that the Security Fence Project is needed and that its construction and operation would result in public benefits. Further, the Department finds that the Company's decision to pursue the Security Fence Project rather than the alternatives is reasonable.

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<sup>17</sup> During the course of the proceeding, the Company made additional modifications to the Security Fence components by substituting protective panels for free standing barriers, which would provide protection without the requirement for pile-supported foundations, eliminating the need for excavation (Exh. DPU-PA-16).

### 3. Impacts of the Proposed Use

#### a. Land Use Impacts

As shown in Figure 1 below, the Substation Site is bordered to the north and west by the Reserved Channel and coastal wetland resources, to the south by East 1<sup>st</sup> Street, and to the east by K Street (Exh. EV-1, at 3, exh. E at 1). Commercial and industrial uses, including King's Terminal, are located to the east along K Street (Exhs. EV-1, at 3; DPU-G-2).<sup>18</sup> Multi-family and medium density residential development and commercial uses are located to the south along East 1<sup>st</sup> Street (Exhs. EV-1, at 21, exh. E; DPU-LU-3). Eversource stated that there are approximately 135 residences and 17 commercial properties within 250 feet of the Substation property line (Exh. DPU-LU-3). Currently, there is a landscaped buffer directly outside of the Substation Site fence along East 1<sup>st</sup> Street to the west of the access road; this landscaping was planted in accordance with NSTAR/Stoughton (Exhs. DPU-V-5; DPU-V-5(1); Tr. at 78-79). An approximately 1,025-foot portion of the Harborwalk constructed in 2005 in two non-contiguous portions extends adjacent to the north and west of the Substation Site (Exhs. DPU-G-5; DPU-G-6).

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<sup>18</sup> The owners of the King's Terminal building met with Eversource to discuss the design of the Security Fence on September 11, 2017, November 17, 2017, and February 21, 2018 (Exh. DPU-G-2).

**Figure 1. Map of the Existing K Street Substation and the Company's Proposed Projects**



Source: Adapted from Exh. EV-1, exh. E at 1.

The new voltage regulator and a portion of the new security fence would be located on a currently paved lot in the New Parcel (Exh. EV-1, at 21).<sup>19</sup> The Company noted that given the existing K Street Substation abuts the New Parcel, land use at the Substation would be comparable to current conditions following completion of the Projects (Exh. EV-1, at 21).

Eversource stated that Projects are not located within an Area of Critical Environmental Concern ("ACEC"), Priority Habitat or Estimated Habitat for rare species, nor any National or Local Historic Districts or any Inventoried Areas, and the Substation does not contain any known archaeological sites (Exh. EV-1, at 27, 28). The Kings Terminal Historic Area, consisting of historic manufacturing facilities, warehouses, and shops is located to the east of the Substation Site (Exh. EV-1, at 27). The Company explained that no work would take place outside of the Substation Site and there would be no impacts on the historic character of this area (Exh. EV-1, at 27, 28).

As part of the Projects, the Company would construct a new, approximately 760-foot-long section of the Harborwalk along the border of the New Parcel to connect the existing two sections, creating a continuous path along the waterfront (Exh. DPU-G-5). In consultation with the Friends of the Harborwalk, the Company would integrate interpretive signing at or near the perimeter fence into the design of the Harborwalk extension (Exhs. DPU-G-3; DPU-V-8; Tr. at 104-105). Specifically, the final Chapter 91 License for

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<sup>19</sup> The expansion of the existing Substation footprint onto the New Parcel would be approximately 10,406 square feet in size (Exh. EV-1, at 21).

the Project provides that two double-sided Harborwalk signs be placed at either end of the northern and western fenceline (RR-DPU-6(S1)(1) at 2).

Eversource stated that it would use the New Parcel and an access road internal to the existing Substation for construction equipment and material laydown areas, material and construction trailer storage, and construction worker parking (Exh. DPU-LU-1). Given the need for temporary laydown areas in the vicinity of the Harborwalk extension, the Company stated that it could not complete the Harborwalk until after the Voltage Regulator Project is constructed (RR-DPU-6). The final Chapter 91 License requires that the Harborwalk be completed and open for public use within six months of installation of the Voltage Regulator Project (RR-DPU-6(S1)(1) at 2).

b. Visual Impacts

According to the Company, visual impacts of the Projects would be consistent with, or an improvement to, existing conditions at the Substation Site (Exh. EV-1, at 24-25). Eversource stated that given the limited proximity to abutters, and the height of the voltage regulator (27 feet) relative to existing Substation equipment, the addition of the Voltage Regulator Project to the Substation would be consistent with the current visual landscape (Exh. EV-1, at 24).<sup>20</sup> The Company further stated that construction of the Security Fence Project – which, as described above, would include new perimeter fencing varying in height between 15 feet and 26 feet around the Substation Site – would limit abutters' and passersby'

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<sup>20</sup> The Company stated that the existing transformers and voltage regulators are approximately 25-30 feet above finished grade and the existing shielding masts are 100-feet high (Exh. EFSB-V-6).

views of the Substation Site (Exhs. EV-1, at 25; DPU-PA-15). The Company explained that since the fence would be nearly opaque, it would thoroughly screen the interior of the Substation from the public view (Exh. DPU-V-3).

Eversource stated that it had conducted a number of outreach sessions with stakeholders regarding the Projects and that feedback from these sessions had been incorporated into the Projects' design (Exhs. DPU-G-2; DPU-V-4). Some general comments included the need to improve the Substation's aesthetics to align with the changing neighborhood, and to continue the Harborwalk screening and aesthetics around the entire site (Exh. DPU-V-4(1) at 2). Commenters also noted that the design should recognize anticipated improvements to K Street by the Kings Terminal owners and by the City of Boston, including sidewalks, trees, parking and pedestrian access, as well as the potential for long term development of the FedEx site on K Street (*id.*). While the Company has not yet selected the final materials and patterning, it eliminated a staggered concrete panel/industrial concept from consideration at the request of stakeholders (Exh. DPU-V-4). The Company asserts that by incorporating stakeholder feedback and developing the Projects consistent with these concerns, it has mitigated the visual impacts of the Projects (Company Brief at 25).

In order to comply with security clearances for a buffer zone, the Company will clear all of the existing vegetation abutting the southwest portion of the Substation along East 1<sup>st</sup> Street (Exh. DPU-V-1; RR-DPU-4). To provide screening in this area, the Company stated it would plant new shrubs and deciduous trees along East 1<sup>st</sup> Street to the southwest of the Substation (Exh. DPU-V-1). The Company submitted a conceptual landscaping plan to the



Department (RR-DPU-4(S)). The Company indicated that it would continue to work with the community to solicit feedback and collaboratively refine the conceptual landscaping plan (id.).

c. Noise Impacts

With regard to operational noise, the Company stated that the voltage regulator is the only sound-producing equipment proposed as part of the Projects (Exh. EV-1, at 26). The Company determined that operation of the voltage regulator would not increase existing sound levels at the nearest residential receptor located on East 1<sup>st</sup> Street (Exh. EV-1, exh. I at 5-2). Nighttime sound levels at the Substation's northern property line – which is closest to the new voltage regulator – would increase by three A-weighted decibels (“dBA”) (Exh. EV-1, exh. I at 5-2).<sup>21</sup> Accordingly, the Company stated that the Projects would comply with the Massachusetts Department of Environmental Protection's (“MassDEP”) noise policy limit of 10 dBA over pre-existing ambient levels (Exh. EV-1, at 26, exh. I at 5-2). The Company further stated that the Projects would not result in any “pure tone” conditions, as defined by MassDEP (Exh. EV-1, at 26, exh. I at 5-2).<sup>22</sup>

The City of Boston has two sets of noise standards: (1) the Boston Municipal Code and (2) the Boston Air Pollution Control Commission (“BAPCC”) noise regulations

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<sup>21</sup> The voltage regulator would be located approximately 1,100 feet from the nearest residential abutters on East Street (Exh. EV-1, at 26, exh. I at 5-2).

<sup>22</sup> Under the MassDEP definition a pure tone condition is where any one octave band sound pressure level exceeds the two adjacent frequency bands by three decibels or more (Exh. EV-1, exh. I at 3-1).

(Exh. EV-1, exh. I, at 3-1). The Boston Municipal Code prohibits noise generally in excess of 50 dBA between the hours of 11:00 p.m. and 7:00 a.m., or in excess of 70 dBA at all other hours, and it prohibits noise at residential lot lines in excess of 50 dBA from 6:00 p.m. to 7:00 a.m. (Exhs. EV-1, at 26, exh. I at 3-1; DPU-NO-1(1) at 1 and 2). The Boston Municipal Code also regulates days and hours of construction, limiting construction to 7:00 a.m. to 6:00 p.m. Monday through Friday (Exh. DPU-NO-1(1) at 1).

The BAPCC noise regulations provide maximum allowable sound levels at the property line of the applicable property, distinguished by districts (e.g., residential, business, and industrial) (Exh. EV-1, at 26, exh. I at 3-1, 3-2). The Company evaluated noise from operation of the voltage regulator under the more stringent BAPCC noise regulations and determined that the sound levels are well below the daytime and nighttime limits (Exh. EV-1, exh. I at 5-3, 5-4).<sup>23</sup>

With regard to construction-related noise, Eversource proposed a weekly construction schedule of Monday through Saturday, from 7:00 a.m. to 6:00 p.m. (Exh. EV-1, at 18; Company Brief at 18). The Company also identified two Project activities that, once started, must be conducted continuously: (1) vacuum processing and filling of the voltage regulator, and (2) concrete placement (Exh. DPU-NO-1).<sup>24</sup> Given that the Boston Municipal Code does

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<sup>23</sup> Under the BAPCC regulations the sound level limit in residential areas is 50 dBA daytime and 60 dBA nighttime; the projected sound levels at East 1<sup>st</sup> Street are 29 dBA (Exh. EV-1, exh. I at 5-4).

<sup>24</sup> Eversource stated that vacuum processing and filling of the voltage regulator could take between one to two weeks to complete (Exh. DPU-NO-1). Concrete placement could take up to twelve hours to complete (id.).

not allow construction on Saturdays, the Company indicated it would have to apply for an “off hours permit” from the Boston Inspectional Services Department for Saturday construction (Exh. DPU-NO-1; Tr. at 122-125). The Company stated it had yet to discuss its proposed construction hours with the City of Boston (Exh. DPU-NO-1).

Eversource stated that it would minimize construction-related noise impacts, where possible, by using the smallest sized equipment suitable for the work and selecting foundation designs that minimize digging (Exhs. EV-1, at 25; DPU-NO-2). In addition, the Company stated it would have the perimeter fence material manufactured and assembled off-site to the greatest degree possible (Exh. DPU-NO-2).

Finally, the Company stated it would have a project hotline for residents and the general public to present questions, concerns, or complaints (Exh. DPU-NO-4). The Company provided assurance that it would respond within 24-hours to any noise complaints received (*id.*).

d. Wetlands and Water Resources

Eversource stated that there are no direct wetland impacts would result from the installation or operation of the Projects (Exh. EV-1, at 22). However, some work would take place in the 100-foot buffer of Coastal Wetland Resource Areas, as well as within Land Subject to Coastal Storm Flowage (“LSCSF”) – both resources regulated under the Wetlands Protection Act (Exh. EV-1, at 22).

The Company stated that water-related permanent impacts from construction of the Projects would be limited to the 100-year floodplain/LSCSF and the 100-foot buffer to

Coastal Wetland Resource Areas (Exh. EV-1, at 23). The Company indicated that impacts to the 100-year floodplain would be de minimus as the New Parcel is currently paved and no significant changes in land use would result from the Projects (Exhs. EV-1, at 24; DPU-W-9). The Company further noted that the Projects would displace approximately 5,560 cubic feet of floodplain, an amount it regards as negligible compared to the total area of the mapped 100-year floodplain for South Boston (Exhs. EV-1, at 24; DPU-W-1; Company Brief at 23-24). The Company stated that it would install a secondary containment system in association with the Voltage Regulator Project to minimize the potential for a release of mineral oil dielectric fluid ("MODF"),<sup>25</sup> and Eversource stated that it would apply appropriate mitigation measures during project construction, such as sedimentation and erosion control devices, to minimize potential construction-related impacts to the resource areas (Exhs. DPU-LU-2; DPU-W-1; DPU-W-2).

The Company has received an Order of Conditions from the Boston Conservation Commission ("BCC") for the Voltage Regulator Project (Exh. DPU-W-3). Eversource relayed that the Order of Conditions did not require flood plain mitigation (Exh. DPU-W-9). The Company stated that it was in discussions with the BCC regarding the Security Fence Project and opined that the BCC would not include any special conditions in the Order of Conditions for the Security Fence Project when it is issued (Tr. at 110-112). The Company has also received its Final Chapter 91 License for the Projects from MassDEP

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<sup>25</sup> Eversource stated that the voltage regulator would contain 18,000 gallons of MODF, and the volume of the containment structure would be 30,700 gallons (Exh. DPU-S/HM-2).

(RR-DPU-6(S1)) (see Section II.C.3.a, above, for Chapter 91 conditions related to Harborwalk completion and signage).

Finally, Eversource stated that measures to address the potential for sea level rise had been incorporated into the design of the Projects (Exh. DPU-W-7). The foundation of the perimeter fence would include a concrete flood barrier installed subgrade to a level 5-feet above grade, which would serve to hold back any rising water, as well as provide security protection (Exhs. EV-1, at 24; DPU-W-6; Tr. at 114-115). Additionally, the voltage regulator would be constructed at the same elevation as the existing yard, which Eversource stated is above current flood level predictions for the area as well as the worst-case 36-inch sea level rise scenario considered by Climate Ready Boston (Exhs. DPU-W-7; DPU-W-8).<sup>26</sup>

Specifically, Eversource reported that the current the Flood Insurance Rate Map Elevation and the Flood Insurance Study Base Flood Elevation for the Substation Site are twelve feet (Exh. DPU-W-8). The Company stated that the finished yard grade at the Substation and the proposed elevation for the voltage regulator would be 15 feet (Exh. DPU-W-8).

e. Traffic

Vehicular access to the Substation Site is located off of East 1<sup>st</sup> Street (Exh. EV-1, at 26). The Company stated that because the Substation property is large enough to accommodate construction vehicles and staging areas, traffic impacts associated with the

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<sup>26</sup> The Climate Ready Boston study considered three sea rise scenarios: nine inches; 21 inches; and 36 inches above current levels (Exh. DPU-W-7).

Projects are not expected to have a material impact on East 1<sup>st</sup> Street or any of the other roads surrounding the Substation Site (Exh. EV-1, at 26; Company Brief at 27). The Company projects an average of 25 construction vehicles entering and exiting the site during peak construction (Exh. DPU-T-1). The Company stated that a coordinated construction schedule, coordinated truck deliveries, and the use of dedicated parking and laydown areas would help avoid traffic impacts (Exh. DPU-T-2). Finally, the Company also committed to delivering the voltage regulator during non-peak traffic hours and to coordinating the delivery of the voltage regulator in advance with state and local officials, as well as police and fire departments (Exh. DPU-T-3).

f. Air Impacts

Eversource reported on its use of sulfur hexafluoride (“SF<sub>6</sub>”), a gas identified as a non-toxic but highly potent greenhouse gas (“GHG”) (Exh. DPU-A-1). The new 345 kV circuit breakers would contain approximately 1,628 pounds of SF<sub>6</sub>, and it would be designed for a maximum annual emission rate of 0.1 percent, which the Company stated would be in compliance with MassDEP’s SF<sub>6</sub> regulations in 310 CMR 7.72 (emissions of not more than 1.0 percent per year) (*id.*).<sup>27</sup> Eversource stated that it currently uses SF<sub>6</sub> at the Substation for circuit breakers and other devices, which have a combined nameplate capacity of 5,916

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<sup>27</sup> On August 11, 2017, MassDEP issued final regulations in accordance with the Global Warming Solutions Act that updated regulations under 310 CMR 7.72 to include declining annual aggregate emission limits for SF<sub>6</sub> and other measures of gas insulated switchgear. Companies and municipalities that own, lease, operate or control Gas-Insulated Switchgear purchased after June 1, 2015, that contains SF<sub>6</sub> and is located in Massachusetts must comply with 310 CMR 7.72.

pounds (id.). Eversource reported that filling new equipment with SF<sub>6</sub> would take place at installation and that no SF<sub>6</sub> would be stored on site once the Projects are complete (Exh. DPU-A-1). Eversource employees who handle or supervise handling of SF<sub>6</sub> receive training from the equipment manufacturer (id.). A specialty gas vendor recovers and reclaims SF<sub>6</sub> gas at equipment retirement (id.).

Construction vehicle idling would be limited in accordance with the Massachusetts anti-idling law (Exh. EV-1, at 28). The Company also committed to use USEPA-verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies, in all diesel-powered non-road construction equipment rated 50 horsepower or above that would be used for 30 or more days over the course of the Project (id.). The Company would minimize fugitive dust impacts through the implementation of best management practices, such as water misting, regular sweeping of the site and public roads, and covering open dirt piles (id. at 29).

g. Hazardous Materials

The Company stated that once construction is complete, the Substation would include equipment containing substances with the potential to cause negative impacts to the environment if released (Exh. DPU-S/HM-3). These substances include SF<sub>6</sub> and MODF (as discussed above), and batteries with electrolytes containing sulfuric acid (id.). Each of these substances, however, is present at the Substation today (id.).

h. Magnetic Fields

The Company stated that the primary source of magnetic fields at a substation is associated with the transmission lines entering and exiting the substation, and Eversource asserts that magnetic fields generated from the equipment itself are localized within the substation and decrease rapidly with distance (Exh. EV-1, at 27). The Company conducted magnetic field modeling inside and along the perimeter fenceline of the 345 kV portion of the K Street Substation to be modified by the Projects (Exh. EV-1, exh. N at 5).<sup>28</sup> The Company explained that magnetic field levels were not modeled around other portions of the Substation fenceline because magnetic field levels along other fenceline segments are dominated by other Substation equipment and transmission lines that are not part of the Projects and, thus, will not change as a result of the Projects (id.). Magnetic field modeling was performed for both Pre-Project and Post-Project equipment layouts and annual average and non-emergency peak loading scenarios (id. at 11-12). Modeling showed some decreased and some increased magnetic field levels around the northern perimeter fenceline in the vicinity of Voltage Regulator Project; however, the highest post-Project magnetic field level is predicted to be 21.77 milligauss ("mG"), which is lower than the highest pre-Project fenceline measurement of 23.33 mG (Exh. EV-1, exh. N, at 5-6; Company Brief at 28). The Company concluded that overall, only minor differences between pre-Project and

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<sup>28</sup> The Company modeled seven discrete locations at different points along the northern fenceline, four northwest, two north, and one northeast (Exh. EV-1, exh. N, at 6).



post-Project fenceline magnetic field levels at the northern property line were predicted (Exh. EV-1, exh. N at 22).

i. Analysis and Findings

The record shows that the land use impacts of the Projects would be similar to impacts of existing uses at the Substation. The Projects are not in an ACEC, Priority Habitat or Estimated Habitat for rare species, nor in any National or Local Historic Districts or any Inventoried Areas. The Substation Site does not contain any known archaeological sites. In accordance with its Chapter 91 License, the Company will be adding to the existing Harborwalk, creating a contiguous public access path that will incorporate interpretive signage and would be completed within six months of construction of the voltage regulator. The new perimeter fence includes an integrated concrete flood barrier in its design, and the final elevation of the voltage regulator and the Substation yard would be consistent with, and provide protection from, the 36-inch maximum sea level rise scenario considered by Climate Ready Boston.

Given the size of the existing Substation components and the current views from the surrounding areas, the new voltage regulator would result in a minimal increase in visual impacts. Importantly, the new Security Fence Project would screen much of the existing Substation and the new Voltage Regulator from public view. Based on input from the City of Boston and area residents, the Company has made several design revisions that are intended to address identified aesthetic and access concerns. However, the Company has not yet selected the final fence panel design. In addition, although it has prepared a conceptual

landscaping plan, the Company has not yet finalized its landscaping plan for the Substation Site. Therefore, the Department directs the Company to provide a final rendering of the perimeter fence, including panel and frame selections, and a final landscaping plan for the entire Substation site. The final plans should include documentation of community comments and collaboration between Eversource and the community.

The Company proposed a six-day per week construction schedule, Monday through Saturday, from 7:00 a.m. to 6:00 p.m. The Company would mitigate construction-related noise impacts by using smaller equipment and minimizing digging. The closest residences are located across the street from the Substation Site's southern fence line. There are a total of 135 residences within 250 feet of the Substation property line where construction of the Security Fence Project would occur; the closest residence to the voltage regulator is 1,100 feet away. Given the proximity to residences, the Department approves a construction schedule of Monday through Friday from 7:00 a.m. to 6:00 p.m., as allowed by the City of Boston. Should the Company need to extend construction work beyond those hours and days (with the exception of emergency circumstances on a given day that necessitate work beyond such times), the Company is directed to seek written permission from the relevant City authorities prior to the commencement of such work and to provide the Department with a copy of such permission. If the Company and City officials are not able to agree on whether such extended construction hours should occur, the Company may request prior authorization from the Department and provide the City with a copy of such request.

The Company shall inform the Department and the City in writing within 72 hours of any work that continues beyond the hours and days allowed by the Department, or, if granted extended work hours in writing by the City, work that continues past the hours allowed by the City. The Company shall also send a copy to the Department, within 72 hours of receipt, of any authorization for an extension of work hours issued by the City.

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 City, work that continues past the hours allowed by the City, and it must submit such record to the Department within 90 days of Project completion.

Modeled operational sound levels showed no increase over nighttime ambient conditions at the nearest residential areas, and it showed a three dBA increase at the north property line after completion of the Projects. Additionally, no potential pure tones were identified in association with the Project. These impacts would be in compliance with MassDEP's noise policy, and are generally consistent with impacts deemed acceptable in past Department Orders. See e.g., Woburn Substation at 28; NSTAR Hopkinton at 30.

With respect to traffic impacts, the Substation property would accommodate construction vehicles and crew parking for approximately 25 vehicles. The Company committed to coordinating large equipment deliveries (i.e., the voltage regulator) with state and local officials, as well as police and fire departments to further minimize traffic impacts. Due to the proximity of the residences on East 1<sup>st</sup> Street as well as the commercial operations

surrounding the Substation site, the Company shall develop a traffic management plan in coordination with the City of Boston.

The Projects are subject to idling restrictions imposed by MassDEP, and the Company committed to use USEPA-verified (or equivalent) emission control devices in all diesel-powered non-road construction equipment rated 50 horsepower or above to be used for 30 or more days over the course of the Projects.

With respect to magnetic fields, the identified increases in magnetic fields from the installation of the voltage regulator are minimal and occur at the northern fenceline area, which is not in the vicinity of any residences. The Project also reduces magnetic fields slightly in some other locations at the Substation Site.

In order to ensure that information about construction and operation of the Projects is disseminated widely within the communities, the Department directs the Company, in consultation with the City of Boston, to develop a community outreach plan for construction and operation of the Projects. The outreach plan should, at a minimum, lay out procedures for providing prior notification to affected residents of the following: (1) the scheduled start, duration, and hours of construction; (2) any construction that must take place outside the hours or days indicated below; (3) any operation the Company intends to conduct that could result in unexpected community impacts due to unusual circumstances; and (4) complaint and response procedures, including contact information.

The Department concludes that the impacts of the Projects will be minimized by the Projects' compliance with the following: (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 (3) the Department's conditions, as discussed above and set forth below.

D. Conclusion on Public Convenience and Public Interest

Based on the foregoing analysis of (1) the need for or public benefit of the proposed use, (2) alternatives explored, and (3) impacts of the proposed use, the Department finds that that the Projects are necessary for the purpose alleged, that the benefits of the Projects to the general public exceed the local impacts, and we find that the Projects are reasonably necessary for the convenience or welfare of the public and are consistent with the public interest.

E. Exemptions Required

1. Individual Exemptions

Eversource has identified a number of provisions of the Zoning Code that could be applicable to both Projects. With regard to the construction, operation, and maintenance of the Voltage Regulator Project, the Company seeks certain exemptions to avoid the need for a conditional use permit and several variances.

With regard to the Security Fence Project, Eversource stated that the comprehensive zoning relief granted by the Energy Facilities Siting Board ("Siting Board") in 2005 in connection with modifications to the Substation approved in NSTAR/Stoughton is sufficient to allow some, but not all, of the anticipated work (Exh. EV-1, at 39-40). As such, the Company requests both individual exemptions from certain provisions of the Zoning Code

and a comprehensive exemption for the portions of the Security Fence Project that would be located outside of the portions of the existing Substation property reviewed by the Siting Board in the NSTAR/Stoughton.

Table 1, 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 provision or why the available zoning relief is inadequate.

**Table 1. Requested Individual Exemptions from the Zoning Code – Summary of Company's Position**

<b>Section of the Zoning Code</b>	<b>Project</b>	<b>Available Relief</b>	<b>Why Exemption is Required: Company's Position</b>
Section 68-17 and Table C of Article 68 Use	Voltage Regulator	Conditional Use Permit	Substation use on the New Parcel requires a conditional use permit for its location. Company seeks to avoid delay and legal uncertainty associated with permit process and potential related appeals.
Section 11-2 Signs	Both Projects	Variance	The Company may be unable to meet the specific sign requirements which otherwise would limit the number, size, and placement of the signs necessary for the Projects. The Company seeks to avoid the delay and uncertainty related to securing a variance and a potential appeal of the variance.
Articles 18, 19, 20 Fence Height	Both Projects	Variance	The provision contains restrictions on height which could apply to the fence structure and prohibit fences in a rear yard. The Company seeks to avoid the delay and uncertainty related to securing a variance and the potential appeal of the variance.

Section of the Zoning Code	Project	Available Relief	Why Exemption is Required: Company's Position
Article 25  Storage of Flammables	Voltage Regulator	Variance	The provision includes prohibitions for flammable substances in a flood district for which the Company would need a variance related to its use of dielectric fluids necessary for operation. The Company seeks to avoid the delay and uncertainty related to securing a variance and the potential appeal of the variance.
Article 9  Change in Non-Conforming Use	Security Fence	Authorization to Structurally Change a Non-Conforming Use	The replacement of the perimeter fence would constitute a structural change to a pre-existing Non-conforming use require a finding by the Board of Appeal. Such a grant would be discretionary. The Company seeks to avoid the potential for adverse interpretations, delay, burden, and expense related to a finding by the Board of Appeal and any potential appeal of the finding.

Sources: Exhs. EV-1, at 32-39; DPU-Z-8; Tr. at 131-134; Company Brief at 38, 43.

The Company asserts that legal uncertainty and the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and any appeals therefrom are factors that underlie its request for zoning relief from the Department rather than pursuing zoning relief from the City of Boston (Exh. EV-1, at 32-47; Company Brief at 33). The Company asserts that the need for the Projects is immediate and that the potential delay associated with pursuing zoning relief from the City of Boston would not allow for the timely, efficient and consistent construction of the Projects, contrary to the public interest (Exh. EV-1, at 47; Company Brief at 34-45).

## 2. Company Consultation with Local Officials and Community Outreach

The Company stated that, prior to filing of the Petition, it held meetings with City officials to discuss the requested zoning exemptions. On April 27, 2017, Eversource met

with City of Boston representatives who suggested modifications to improve visual impacts and requested revised renderings of the proposed design (Exh. DPU-G-2). On August 29, 2017, the Company met with representatives of the Boston Planning and Development Agency to review the aesthetic design of the Security Fence Project (Exh. DPU-G-2).

The Company also held an open house and follow-up meetings with abutting property owners within 300 feet of the Substation Site and modified the design of the Projects to reflect input from both City officials and local abutters (Exh. DPU-G-2). For example, the Company committed to construct a new portion of the Harborwalk along the perimeter of the New Parcel and to provide interpretive signage related to the Harborwalk as a component of the Security Fence Project (Exh. DPU-G-3). In addition, the Company has met and committed to work with the Friends of the Harborwalk to incorporate historic information and images elsewhere along the Harborwalk (Exh. DPU-G-2).<sup>29</sup>

In particular, Eversource notes that it has met with various representatives of the City of Boston, including the City's Inspectional Services Department, regarding the Projects and its requested zoning relief (Exhs. EV-1, at 31, 48; DPU-G-2). Eversource provided a copy of a letter from the Commissioner of the City of Boston's Inspectional Services Department that confirmed the City's support of the zoning exemptions requested by the Company and commented favorably on Eversource's efforts to provide information to the surrounding community (Exh. EV-1, Exhibit J).

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<sup>29</sup> The Company provided materials presented at the stakeholder meetings as attachments to Exhibit DPU-G-2.



### 3. Analysis and Findings

As described above, the record shows that the Projects' construction would require the Company to obtain certain variances. By Special Act of the Legislature, the City's Zoning Code is subject to the Department's authority for granting zoning exemptions to public service corporations in the same manner that G.L. c. 40A, § 3 applies to other municipalities. NSTAR/Stoughton at 147 n.91. In evaluating the Company's petition for zoning relief pursuant to Section 6 of Chapter 665 of the Acts of 1956, the Department relies on the same standard of review established for G.L. c. 40A, § 3 petitions. NSTAR Electric Company, D.P.U. 13-126/13-167, at 5 (2014).

The Department accepts the Company's argument that the legal uncertainty associated with obtaining a variance and a conditional use permit is significant. See G.L. c. 40A, § 10; see also, 28 Mass.Prac.Series, Real Estate Law, § 23.24 (4<sup>th</sup> ed.) (“[e]stablishing each one of the three requirements [for obtaining a variance] is a very difficult task”). Additionally, we note that the granting of a variance may be appealed. See G.L. c. 40A, § 17; see also, 28 Mass. Prac. Series, Real Estate Law, § 23.24 (4<sup>th</sup> ed.) (“it is not surprising that few variances stand up when challenged in court”). Consequently, requiring the Company to obtain variances and/or a conditional use permit could, at a minimum, result in significant delay to the Projects.

Accordingly, we find that exemptions from the identified provisions of the Zoning Code that would require the Company to obtain a conditional use permit and certain variances to construct and operate the Projects are required within the meaning of Section 6

of Chapter 665 of the Acts of 1956. Specifically, the Department grants exemptions from the following provisions of the Zoning Code for areas impacted by Project work: Section 68-17 and Table C of Article 68 related to use; Section 11-2 related to sign requirements; Articles 18, 19 and 20 related to fence height; Article 25 related to the storage of flammables within a flood hazard district for work related to the New Parcel; and Article 9 for authorization to change an existing non-conforming use at the existing Substation.

#### 4. Consultation with Municipality

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. Hopkinton LNG at 70; Woburn Substation at 37-39; 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. Woburn Substation at 41-42; NSTAR Electric Company, D.P.U. 14-55/14-56, at 41 (2015) (“NSTAR Belmont”); NSTAR Electric Company, D.P.U. 13-177/13-178, at 36 (2015) (“Seafood Way”).

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. As a result of those discussions, the Commissioner of Inspectional Services has provided a letter that expresses his support for the Company’s request for a grant of individual zoning exemptions for the Projects. 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.

5. 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 Section 6 of Chapter 665 of the Acts of 1956. Additionally, we find that the Company engaged in good faith consultations with the City of Boston. Accordingly, the Department grants the Company's request for the individual zoning exemptions listed in Table 1, above, subject to the conditions set forth in this Order.

III. REQUEST FOR A COMPREHENSIVE EXEMPTION

A. Standard of Review

The Department considers requests for comprehensive zoning exemptions on a case-by-case basis. Hopkinton LNG at 73; Woburn Substation at 42; Princeton Municipal Light Department, D.T.E./D.P.U. 06-11, at 37 (2007). The Department will not consider the number of exemptions required as a sole basis for granting a comprehensive exemption. Rather, the Department will consider a request for comprehensive zoning relief only when issuance of a comprehensive exemption would avoid substantial public harm. Hopkinton LNG at 73; Woburn-Wakefield at 150; NSTAR Electric Company, D.P.U. 07-60/07-61 at 50-51 (2008) ("NSTAR Carver").

B. The Company's Position

The Company has also requested a comprehensive exemption from the operation of Article 68 (which governs use in the South Boston Neighborhood District), and Article 2A (Definitions Applicable in Neighborhood Districts) of the Zoning Code, in addition to all individual exemptions discussed above (Exhs. DPU-Z-9; DPU-Z-10; Company Brief at 43).

In support of its position, the Company submits that there are four factors that the Department has articulated are 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; and (4) the communities affected by the project support the issuance of a comprehensive zoning exemption (Exh. EV-1, at 46 (citations omitted)).<sup>30</sup>

Addressing the first two factors, the Company argues that the Projects are needed in order to improve system reliability and that this need is immediate to meet existing light-load conditions and to comply with new federal regulatory standards (Company Brief at 45-47). Regarding the third factor, the Company maintains that it has actively engaged the community and responsible officials to discuss the applicability of local zoning provisions and

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<sup>30</sup> Other Department Orders have enunciated a fifth factor, whether the project proponent has actively engaged the communities and responsible officials to discuss the applicability of local zoning provisions and address local concerns. Hopkinton LNG at 70; Woburn Substation at 37-39.

address local concerns (Company Brief at 33, 46).<sup>31</sup> Finally, the Company contends that it has satisfied the fourth factor because the City of Boston, acting through a letter from the Commissioner of Inspectional Services, supports the issuance of a comprehensive zoning exemption (Company Brief at 46).

The Company maintains that the Department's grant of a comprehensive zoning exemption would provide greater certainty with respect to all provisions of the Zoning Code whether they are in existence or subsequently enacted and made applicable to the Project (Company Brief at 47). According to the Company, local zoning bylaws and ordinances often (1) directly conflict with overarching state and industrial safety and engineering standards; (2) are vague, ambiguous, and difficult to apply to unique energy infrastructure; or (3) are discretionary in nature and can result in burdensome or restrictive conditions (*id.*).

### C. Analysis and Findings

The grant of a comprehensive exemption is based on the specific facts of each case. Compared to the grant of individual zoning exemptions, which are tailored to meet the construction requirements of a particular project, the grant of a comprehensive exemption serves to nullify a municipality's zoning code in its entirety with respect to the project under review. Thus, compared to the grant of individual zoning exemptions, a comprehensive zoning exemption constitutes a broader incursion upon municipal home rule authority. In the absence of a showing that substantial public harm may be avoided by granting a

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<sup>31</sup> The Company acknowledges that the Projects are located in a single municipality (Company Brief at 46).

comprehensive exemption, the granting of such extraordinary relief is not justified.

Hopkinton LNG at 79; Woburn Substation at 39; NSTAR Electric Company, D.P.U. 08-1, at 35-37 (2009).

Department and Siting Board cases that grant comprehensive exemptions typically involve time-sensitive projects. 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). The record shows that construction of the Projects is necessary immediately for system reliability and security, thereby making the Projects time-sensitive. Moreover, the Company has consulted with the City of Boston, and the Commissioner of Inspectional Services supports a comprehensive exemption.

Considering all of the factors discussed above, the Department finds Eversource's request for a comprehensive zoning exemption is warranted and necessary to avoid substantial public harm.<sup>32</sup> Accordingly, the Department grants a comprehensive zoning exemption for the Projects.

#### IV. SECTION 61 FINDINGS

The Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have

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<sup>32</sup> In granting a comprehensive exemption as requested, the Department notes that the zoning exemptions granted are limited in nature to the Projects as specifically described by the Company in this docket and not universally applicable to any and all future uses.

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 Secretary of Energy and Environmental Affairs, in a certificate dated November 9, 2017, determined that an EIR was not required and that the Projects’ environmental impacts will be avoided, minimized, and/or mitigated to the extent practicable (Exh. EV-1, Exhibit O). Accordingly, Section 61 findings are not necessary for the Projects.

V. ORDER

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

ORDERED: That the petition of Eversource seeking individual exemptions set forth in Table 1 from the operation of the Boston Zoning Code pursuant to Section 6 of Chapter 665 of the Acts of 1956, is granted; and it is

FURTHER ORDERED: That the petition of Eversource seeking a comprehensive exemption from the operation of the Boston Zoning Code pursuant to Section 6 of Chapter 665 of the Acts of 1956, is granted; and it is

FURTHERED ORDERED: That Eversource shall provide a final rendering of the perimeter fence including panel and frame selections and a final landscaping plan for the entire Substation Site. The final plans shall include documentation of community comments and collaboration between Eversource and the community; and it is

FURTHER ORDERED: That Eversource shall limit construction of the Projects to Monday through Friday from 7:00 a.m. to 6:00 p.m. Should the Company need to extend construction work beyond those hours and days (with the exception of emergency circumstances on a given day that necessitate work beyond such times), the Company is directed to seek written permission from the relevant City authorities prior to the commencement of such work and to provide the Department with a copy of such permission. If the Company and City officials are not able to agree on whether such extended construction hours should occur, the Company may request prior authorization from the Department and provide the City with a copy of such request; and it is

FURTHER ORDERED: That Eversource shall inform the Department and the City in writing within 72 hours of any work that continues beyond the hours and days allowed by the Department, or, if granted extended work hours in writing by the City, work that continues past the hours allowed by the City. The Company shall also send a copy to the Department, within 72 hours of receipt, of any authorization for an extension of work hours issued by the City. 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 City, work that continues past the hours allowed by the City, and must submit such record to the Department within 90 days of completion of the Projects; and it is

FURTHER ORDERED: That Eversource shall develop a traffic management plan in coordination with the City of Boston; and it is



FURTHER ORDERED: That Eversource or its successors in interest and all contractors and subcontractors comply with all applicable federal, state, and local laws, regulations, and ordinances for which the Company has not received an exemption; and it is

FURTHER ORDERED: That Eversource or its successors in interest obtain all other government approvals necessary for the Projects; 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 these Projects are subject to change over time, construction of the Projects shall commence within three years of the date of this Order; and it is

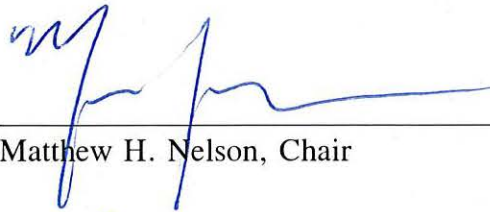
FURTHER ORDERED: That within 90 days of completion of the Projects, the Company or its successors in interest shall submit a report to the Department documenting compliance with all conditions in this Order, noting any outstanding conditions yet to be satisfied and the expected date and status of such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

FURTHER ORDERED: That the Secretary of the Department transmit a certified copy of this Order to the Mayor of Boston, and that the Company transmits a certified copy of this Order to Boston City Council, the Boston Redevelopment Authority, and the Boston Inspectional Services Department within five business days of its issuance, and that the Company 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.

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

By Order of the Department

A handwritten signature in blue ink, appearing to read 'Matthew H. Nelson', written over a horizontal line.

Matthew H. Nelson, Chair

A handwritten signature in blue ink, appearing to read 'Robert E. Hayden', written over a horizontal line.

Robert Hayden, Commissioner

A handwritten signature in blue ink, appearing to read 'Cecile M. Fraser', written over a horizontal line.

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.