# The Commonwealth of Massachusetts

## DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 13-177/178 January 7, 2015

NSTAR Electric Company petition pursuant to Section 6 of Chapter 665 of the Acts of 1956 for Exemptions from the Boston Zoning Code for a substation at Seafood Way in South Boston and Approval Pursuant to G.L. c. 164, § 72 to loop two of its existing 115 kV transmission lines from Northern Avenue to the new substation.

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# I. INTRODUCTION

## A. Description of Proposed Project

On November 15, 2013, NSTAR Electric Company ("NSTAR" or "Company") filed a petition with the Department of Public Utilities ("Department") seeking: (1) exemption from the Boston Zoning Code pursuant to Section 6 of Chapter 665 of the Acts of 1956 ("Zoning Petition"); and (2) approval pursuant to G.L. c. 164, § 72 for installation of two transmission lines ("Section 72 Petition"). The Company indicated that the exemption and approval are needed for the Company's proposal to construct and operate: (1) a new 115/14 kilovolt ("kV") substation on land owned by the Company on Seafood Way in the South Boston neighborhood of Boston ("Substation"); (2) four new 115 kV underground pipe-type transmission cables of approximately 1,095 feet each; and (3) an underground distribution conduit (together, the "Project") (Exh. NSTAR-1, at 2, 7). The Department docketed the Zoning and Section 72 Petitions as D.P.U. 13-177 and D.P.U. 13-178, respectively, and consolidated the two petitions into a single proceeding, D.P.U. 13-177/13-178.

The Substation would be located within the Marine Industrial Park administered by the City of Boston's (or "City") Economic Development and Industrial Corporation ("EDIC"). While there are a number of seafood processing and wholesaling companies and a brewery in the area, the only developed parcel adjacent to the site is a vent building for the Ted Williams Tunnel section of the Massachusetts Turnpike (Interstate 90), which is almost directly beneath the site, as shown in Figure 1, below (Exh. NSTAR-1, at 6, 36). Figure 1 shows the proposed Substation location, in relation to its surroundings including warehouses, drydocks, the Blue Hills Bank Pavilion and the Boston Design Center, all between Boston Inner Harbor at the top of the photo and the Reserved Channel at the bottom.

**Figure 1. Aerial View of Project Location, Seafood Way, South Boston Waterfront Area**


Source: Exh. DPU 2-7(1)

The Substation would be constructed on a 28,357-square-foot piece of land at the corner of Seafood Way and Fid Kennedy Avenue, in the South Boston Waterfront area (Exh. NSTAR-1, at 2, 39).[1] The Substation site is currently vacant and consists of two parcels (id. at 2). One parcel is 11,815 square feet and was purchased by the Company from the

[1] The area bounded by the Fort Point Channel on the northwest, the Reserved Channel on the southeast, and extending to West First Street on the southwest, is often described as a part of South Boston. The nomenclature of this particular area – with its recent extensive development activity – now includes names such as the "South Boston Waterfront," the "Seaport District," "Boston's Innovation District," and "Fort Point." For clarity and consistency, the Department will use "South Boston Waterfront area" to describe the Project area in this Order.

Massachusetts Turnpike Authority on July 1, 2009 (id.). The second parcel is 16,542 square feet, was previously owned by the EDIC and the Boston Redevelopment Authority ("BRA"), and is subject to a long-term lease with the Massachusetts Port Authority ("Massport") (id.). It was transferred to NSTAR on December 19, 2012 (id.). As part of NSTAR's acquisition of the property, Massport relinquished the 16,542-square-foot parcel from the existing lease (id.). The Company selected this site for its new substation in consultation with, and with the full cooperation of, the BRA (id.) As described in more detail below, there is presently no connection to the 115-kV transmission system within the South Boston Waterfront area; the area is currently served only by lower-voltage distribution lines emanating from the Company's heavily loaded 115/14 kV K Street Substation, which is south of the Reserved Channel.

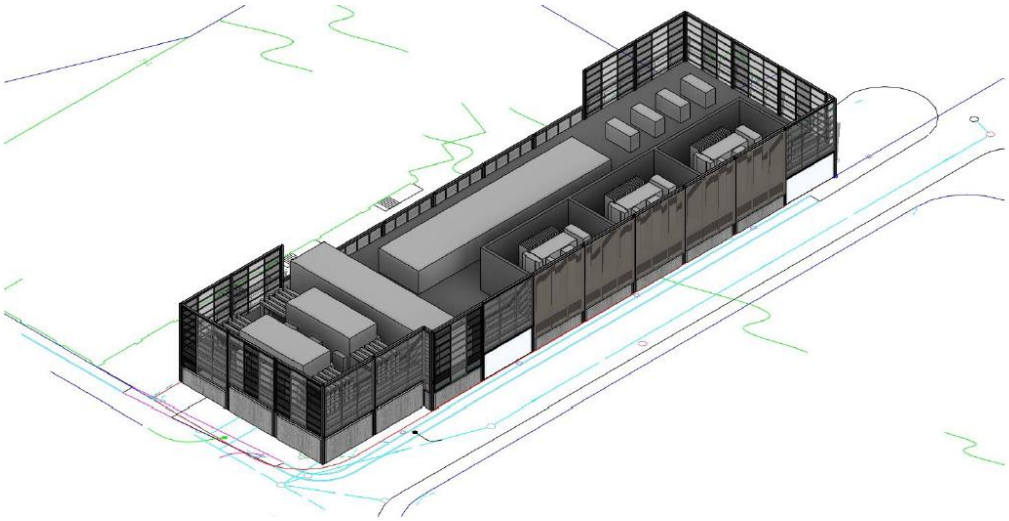
Equipment at the Substation would include three 115/14 kV 62.5 megavolt-ampere ("MVA") transformers; 115 kV gas-insulated switchgear with twelve circuit breakers in a breaker-and-a-half configuration; four 15 kV, 9.6 megavolt-ampere-reactive ("MVAR") capacitor banks; four sections of metal-clad 14 kV switchgear designed to support 32 new 14 kV distribution feeders; and an enclosure for a control house, batteries, and communications equipment (Exh. NSTAR-1, at 4-5). The Company would place the Substation equipment on a 15-foot-high elevated platform, with room for vehicle access underneath (Exh. NSTAR-1, at 5).[2] The surface at ground level would be partly paved and partly gravel (Tr. at 88). The Company

[2] NSTAR indicated that an elevated platform would protect against an increasing risk of coastal storm surges (Exh. NSTAR-1, at 5). The Company stated that the 15-foot platform elevation is in comparison to a reference point at grade on the site that would be 10.9 feet above mean sea level, so that the Substation platform would be approximately 25.9 feet above mean sea level – above predicted flood levels (Exhs. DPU-1-10; DPU-1-12).

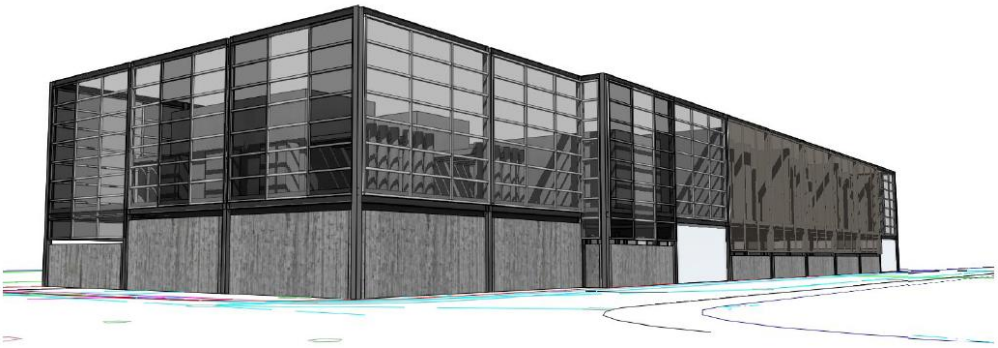
plans to construct a 46-foot-high architectural screening wall around the Substation, as shown in Figure 2, below (Exh. NSTAR-1, at 41).

NSTAR indicated that each of the four transmission lines would be approximately 1,095 feet in length, extending to the Substation via Fid Kennedy Way and Channel Street from an existing 115 kV underground cable near the intersection of Northern Avenue and Trilling Way (a.k.a. the Massport Haul Road) (Exhs. NSTAR-1, exh.13, app. A and app. C; DPU-1-46(1) at 7). Each transmission line would be an 8 5/8 inch-diameter steel pipe-type cable containing three copper conductors, and would be filled with high-pressure fluid (Exh. NSTAR-1, exh.13, at 1). The 32 new 14 kV distribution feeders would be installed in new underground duct banks along Channel Street to connections with existing lines on Northern Avenue, and in other new duct banks that would follow Seafood Way, Northern Avenue, Harbor Street, and Drydock Avenue for a distance of approximately 2,500 feet, to connections with existing lines on Summer Street near Fargo Street and Drydock Avenue at the edge of the Marine Industrial Park (Exhs. NSTAR-1, exh.13, at 1, 8; DPU-1-46(1) at 7; Tr. at 17-19). The duct banks for the distribution lines would consist of six-inch plastic conduits arranged in an array with centers typically nine inches apart (Exh. NSTAR-1, exh.13, at 1).

**Figure 2. Angle Aerial and Street Renderings of Proposed Substation**



OVERVIEW



PERSPECTIVE VIEW: INTERSECTION

utile
Utile, Inc. | Architecture + Planning
50 Summer Street | Boston, MA 02110

**NSTAR Substation 99** - Revised Concept Design - May 17, 2013

Source: Exh. NSTAR-1, exh.4

The conceptual grade cost estimate (-25%/+ 50%) for the Project is $112 million (Exhs. NSTAR-1, at 31; DPU-1-62).[3] NSTAR projected that construction would require approximately 24 months to complete, depending on the timing of approvals, as some phases of construction cannot be performed during periods of peak electrical demand for reliability reasons (Exh. NSTAR-1, at 7).

B. Procedural History

NSTAR filed its Petition with the Department on November 15, 2013. On January 7, 2014, the Department conducted a duly noticed public hearing at its office in South Station, Boston. No person or entity filed a petition to be admitted to these proceedings as a party or as a limited participant. The Company sponsored the following witnesses: (1) John Zicko, Manager of Substation Design Engineering; (2) Richard Zbikowski, Senior Planning Engineer; and (3) Kevin McCune, Licensing and Permitting Project Manager.

The Department conducted an evidentiary hearing at its offices in Boston on May 5, 2014. The evidentiary record of the proceeding, in addition to the Company's Petition and accompanying exhibits, includes the Company's responses to 118 information requests and three record requests. The Company filed a brief on May 21, 2014.

[3] The Department encourages NSTAR and other companies in the future to submit cost estimates that incorporate a narrower range than -25 percent to +50 percent. An accurate estimate with a narrower range would provide greater certainty about the true cost of a project.

## 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, 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. Boston Edison Company, 14 DOMSB 233, at 392, n.91 (2005) ("NSTAR/Stoughton"). 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. NSTAR/Stoughton at 392, n.91. 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 (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. Massachusetts Electric Company, D.T.E. 01-77, at 4 (2002); 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. 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 D.T.E. 00-24, at 3-4; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997).

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 D.P.U. 96-104, at 30; Save the Bay 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." D.P.U. 96-104, 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). 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. D.P.U. 96-104, 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. 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). 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 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.

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. D.T.E. 00-24, at 2-6; D.T.E. 01-77, at 5-6; D.T.E. 01-57, at 5-6; Tennessee Gas Pipeline Company, D.T.E. 98-33, at 4-5 (1998).

3. Exemption Required

In determining whether exemption from a particular provision of a zoning by-law 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. See D.T.E. 01-77, at 4-5; D.T.E. 01-57, at 5; Western Massachusetts Electric Company, D.P.U./D.T.E. 99-35, at 4, 6-8 (1999); 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).

B. Public Service Corporation Status

NSTAR is an electric company as defined by G.L. c. 164, § 1, and, as such, is a public service corporation. NSTAR Electric Company, D.P.U. 11-80, at 7 (2012). Accordingly, the

Department finds that NSTAR 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 or Public Benefit of Use

a. Loads and Capacity of K Street Substation

NSTAR stated that K Street Substation, serving an area including the South Boston Waterfront area, was constructed in 2003-2004 with three transformers at the corner of K Street and East First Street in South Boston, and has a firm capacity of 212 MVA (Exh. NSTAR-1, at 17-18).[4] The Company defines the firm capacity of a substation as the capacity that can be carried after loss of the largest single supply element, whether that is a transformer or a transmission line, without exceeding the Long Term Emergency rating of the remaining elements (Exhs. DPU-1-20; DPU-1-34).[5]

The Company stated that, in 2012, actual peak loading on K Street Substation was 138.4 MVA (Exh. NSTAR-1, at 18). In its Petition, the Company projected that peak loads in 2013 and 2014 would be closer to the firm capacity of K Street Substation, at 153.2 MVA and 178.2 MVA, respectively (Exh. NSTAR-1, at 17). Also at the time of the Petition, the Company

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4 The Department notes that in its November 4, 2014 order in D.P.U. 13-86, the Department granted, with conditions, NSTAR's petition to construct and operate two 115 kV underground transmission lines from K Street to Columbia Road in South Boston. That project was designed to improve the reliability of service from the Company's Andrew Square Substation in South Boston and its Dewar Street Substation in Dorchester, and did not change the capacity of the K Street Substation itself. D.P.U. 13-86 at 1, 12.

5 According to ISO-NE's Operating Procedure 19, the Long Term Emergency rating for transmission equipment is the thermal rating of the equipment for 12 hours of operation in the summer and for four hours of operation in the winter. http://www.iso-ne.com/rules_proceds/operating/isone/op19/op19_rto_final.pdf

forecasted that the K Street Substation's 2016 peak load would be 191.8 MVA, or 53.4 MVA higher than the 2012 actual peak load (id.; Exh. DPU-1-33).

The South Boston Waterfront area has experienced significant load growth in recent years, with plans for extensive business and residential development being rapidly fulfilled (Exh. NSTAR-1, at 2). At the time of the Petition, NSTAR had received work orders for 32.9 MVA of new "step loads" by 2016 (Exh. DPU-1-24, Tr. at 78).[6] Step loads represent new customers with a demand of at least one megawatt ("MW") that have paid a deposit and for which NSTAR has completed the design for their electrical supply (Exhs. NSTAR-1, at 19; DPU-1-24).[7] Between the date of the Petition and the day NSTAR responded to the Department's Information Requests on March 28, 2014, another 16.8 MVA of step load customers signed up (Exh. DPU-1-24). Between March 28, 2014, and May 12, 2014, the date the Department's Record Requests were answered, another six MVA of step load signed up (RR-DPU-1). With another 22.8 MVA of step load, NSTAR now forecasts K Street Substation peak load would reach 209.6 MVA in 2016, or 99 percent of the substation's firm capacity.[8]

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6 In its Petition, NSTAR mentioned several new step loads, including two new laboratory/office buildings on Fan Pier (16 MVA), a new office building for State Street Bank (five MVA), and ten mixed use developments (13.5 MVA) in Seaport Square (the proposed eventual development of 23 acres between South Boston's Fort Point District and the Seaport World Trade Center) (Exh. NSTAR-1, at 17).

7 NSTAR stated that it engages developers of new construction early on in the design process to identify and promote the adoption of cost-effective energy efficiency measures (Exh. DPU-1-25).

8 NSTAR also stated that it planned to transfer approximately ten MVA of load to the K Street Substation from Andrew Square Substation, located further inland (on the other side of K Street Substation from Seafood Way), to relieve potential overloads at the K Street Substation in 2015 (Exh. DPU-1-24). Because of the significant planned development represented by the new step loads, the Company stated that it would not transfer the ten MVA of load from Andrew Square to K Street Substation until some

With these new step loads, NSTAR projected that load would exceed the firm capacity of K Street Substation by 2017 (id.).

In addition, NSTAR indicated that loads on transformer 110A, one of the three K Street Substation transformers, could exceed 100 percent of its normal rating as early as 2016 even under normal operating conditions (Exh. NSTAR-1, at 17).[9] Normal ratings relate to system conditions when all elements are in service, and are typically lower than emergency ratings. The Company noted that the projected exceedance of transformer 110A's normal capacity by 2016 is expected to occur prior to the January 2017 in-service date for completion of Project (Exh. DPU-1-16).

In addition to the individually identified developments, the Company projected that growth in the area would continue in the period 2016 through 2023 with approximate increases of six MVA per year from additional development activity in the South Boston Waterfront area (Exhs. NSTAR-1, at 2; DPU-1-24; DPU-1-33). Upon completion of the Project, NSTAR plans to transfer 65 MVA or more from K Street Substation to Seafood Way Substation (Exh. DPU-1-26). NSTAR maintains that with the proposed capacity of 135 MVA, the Seafood Way

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K Street Substation load is transferred to the new Seafood Way Substation in 2017 (id.; Tr. at 24).

9 NSTAR's planning criteria document for substation design (SYS PLAN-010) states that under regular use, transformer loads should not exceed 75 percent of normal ratings, for any transformer that potentially serves as backup for another transformer (Exh. NSTAR-1, at exh.10). In the absence of any loss of system elements, NSTAR compared loads to normal ratings of its K Street Substation transformers. The Company's projected that transformer 110A would exceed 100 percent of its normal rating in 2016 and the other two transformers would each exceed 80 percent of their normal ratings in 2016 as well (Exhs. NSTAR-1, at 24; DPU-1-21).

Substation would ensure that anticipated load growth for this rapidly expanding area is accommodated throughout the Company's ten-year planning horizon (Exh. NSTAR-1, at 25).[10]

Additionally, NSTAR indicated that distribution service to the South Boston Waterfront Area from the K Street Substation is restricted by available space in the crossing of the Reserved Channel (Exh. NSTAR-1, at 26, exh.2; Tr. at 43-48). NSTAR stated that the Seafood Way Substation would add new distribution feeders that would address some emerging operating concerns and contingencies related to loading on distribution circuits extending from K Street Substation through the South Boston Waterfront area, and also that the distribution circuits would be shorter and therefore more reliable if served from a closer location (Exh. NSTAR-1, at 25; Tr. at 43-44).[11] Thus, according to the Company, the Project would enhance the reliability of the distribution system so that customers would experience fewer outages attributable to failures in the distribution system (Exh. NSTAR-1, at 25).

b. Analysis and Finding

Large development projects in the South Boston Waterfront area would require an increase in deliverable electrical power in the area between the Fort Point Channel and the Reserved Channel. In response to rapidly growing loads, K Street Substation, which currently serves the area, is approaching the limits of its firm capacity and is likely to be exceeded in 2017

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10 NSTAR stated that the capacity of the Substation was determined by the size of the available parcel, 0.65 acres (Exh. DPU-1-35). It would not have room to expand beyond the proposed three transformers and four sections of 14 kV switchgear (Exh. DPU-1-36).

11 The Summer Street tunnel that houses the existing distribution circuits between K Street Substation and the South Boston Waterfront area was placed into service in 1917 (Exh. NSTAR-1, at 40). NSTAR stated that the tunnel requires extensive repairs in the near future and concluded that it would be more reasonable to abandon the tunnel instead and construct replacement distribution circuits (Exh. NSTAR-1, at 40).

if no additional capacity is installed. Sustained loads in excess of normal transformer ratings mean that the K Street Substation transformers would be operating under some stress (but within emergency limits) as early as 2016. In addition, electrical reliability at new development locations is expected to be impaired due to the large number of long feeders required to serve the South Boston Waterfront area from K Street Substation, if no closer source is provided. The Department finds that there is a need for the Project, and that by meeting this need and providing other electrical system benefits, the construction and operation of the Project would result in public benefits.

2. Alternatives Explored

a. Description

NSTAR evaluated the potential to meet the need for additional resources using alternatives including expanding the Andrew Square Substation ("Substation Expansion Alternative") instead of constructing a new substation, as well as using energy efficiency ("EE"), demand response ("DR"), and distributed generation ("DG") (Exh. NSTAR-1, at 26-38).

The Substation Expansion Alternative evaluated by the Company would involve installation of a fifth 115/14 kV transformer at Andrew Square Substation and installation of distribution lines to connect customers in the South Boston Waterfront area to Andrew Square Substation (Exh. NSTAR-1, at 29). The fifth transformer would raise the Andrew Square Substation's firm capacity from 133 MVA to 178 MVA, which would be sufficient to meet the identified need (Exh. NSTAR-1, at 29-30). However, the Company stated that there is limited available land at the Andrew Square Substation, and there would be significant difficulties in finding space for all of the distribution circuits that would emanate from the substation (Exh. NSTAR-1, at 30). In particular, distribution lines would exit into Ellery Street, which

already contains the two existing transmission lines supplying Andrew Square Substation plus 32 distribution circuits (id.). Furthermore, the Company stated that increased heat from adding more distribution lines would decrease the ratings of all the distribution lines by approximately 15 percent (Exh. NSTAR-1, at 30).

The Substation Expansion Alternative would require underground distribution circuits from Andrew Square Substation to the South Boston Waterfront, extending well over one mile each, and would be constructed along three different pathways from Dorchester Avenue to the north, with a total length of street excavation of 5.7 miles (Exh. NSTAR-1, at 29-36). The Company identified Broadway, D Street, and the South Boston Haul Road for this purpose (Exh. NSTAR-1, at exh. 11).

NSTAR indicated that construction impacts (such as construction noise) for the Substation Expansion Alternative would exceed impacts for the Project (Exhs. NSTAR-1, at 30; DPU-2-10). The Substation Expansion Alternative would also expose customers to the potential for loss of power during construction, with resulting limits in the time periods appropriate for construction and, therefore, increased construction difficulty (Exh. NSTAR-1, at 31-32). NSTAR projected that the cost of the Substation Expansion Alternative to be $124 million, or $12 million more than the Project, even though no transmission work would be required; NSTAR presented cost figures of both this alternative and the Project as -25%/+50% estimates (Exh. NSTAR-1, at 30 and exh.7).

NSTAR stated that it has "a strong tradition of offering customers comprehensive EE programs," adding that its programs have helped customers save 3,600,000 megawatt-hours of electricity over five years, thereby reducing carbon dioxide ("$CO_2$") emissions by approximately

1.8 million tons (Exh. NSTAR-1, at 27). NSTAR offers EE programs in the Commercial and Industrial sector ("C&I"), Residential, and Low-Income (Exh. NSTAR-1, at 27-28). However, the Company stated that EE would not be able to provide load reductions of the magnitude, timing, and location required to meet the identified need for the Project (Exh. NSTAR-1, at 28). The Company estimated that EE has reduced peak load in the South Boston Waterfront area by approximately three MW over the last five years, and that load growth has exceeded the load relief obtained through EE installations since 2001 (Exhs. NSTAR-1, at 28; DPU-1-28). The Company also stated that real-time DR would fail to meet the identified need, because there are no real-time DR resources in the area that can be activated in 30 minutes (Exh. NSTAR-1, at 28, fn.28).

NSTAR identified plans to install combined heat and power distributed generation totaling one MW in the South Boston Waterfront area, and a total of two MW of DG projects (Exh. NSTAR-1, at 29). The Company does not anticipate that DG resources would meet the identified need (Exh. NSTAR-1, at 29).

b. Analysis

The evidence described above shows that, compared to the Project, expansion of Andrew Square Substation would involve extensive construction in heavily used streets, would cost an estimated $12 million more than the Project , would result in longer feeders serving load areas, and would be difficult to build without risk of losing load. Therefore, the Project would be more cost-effective and would have less adverse impact to the surrounding community.

The evidence described above shows that projected EE, DR, and DG resources would be insufficient to supply the incremental loads associated with significant development activity in the South Boston Waterfront area. Nonetheless, NSTAR should strongly encourage its

customers, both existing and new, to take full advantage of its energy efficiency programs. This is of particular concern for large C&I customers, especially in areas where their load requirements contribute directly to the need for system upgrades, but our observation in this regard applies to all customers.[12]

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 Substation to identify those of significance that may occur during construction and operation. This section also includes an evaluation of the impacts of construction and operation of the related transmission and distribution lines that are also part of the Project, although they do not require any zoning relief from the Department.

NSTAR stated it expects construction to last about 24 months (Exh. NSTAR-1, at 38). Construction would generally occur six days per week, from 7:00 a.m. to 6:00 p.m. (Exh. NSTAR-1, at 38). However, the Company indicated there might be work outside these hours when daylight permits in order to minimize the duration of construction, potentially reducing impacts, as well as to accommodate outage scheduling and continuous work such as filling the transformers (Exh. NSTAR-1, at 38-39). The Company reported that the Boston

[12] The Company indicated that installation of the Substation would, in fact, facilitate the interconnection of DG resources in downtown Boston. This is because the Substation would not be a direct part of the network system nor have the restrictions concerning the interconnection of DG facilities to the current downtown low-voltage network (Exh. NSTAR -1 at 8; DPU-1-1-; Tr. 1, at 71-72).

Municipal Code prohibits excavation for or erection of buildings except between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, except in the interest of public safety or welfare as permitted by the commissioner of the City's Inspectional Services Department ("ISD") (Exh. DPU-1-71). The Company stated that it would petition ISD for a permit for Saturday work and also that ISD is authorized to allow longer hours of work on weekdays (Exh. DPU-1-71).

a. Land Use Impacts

The Substation site is a vacant site in an industrial park (Exh. NSTAR-1, at 39). A vent building for the Ted Williams Tunnel, which the Company characterized as a "utility use," is located immediately to the west (Exh. NSTAR-1, at 39). The Company indicated that to the east, across Seafood Way, is a vacant area (Exhs. NSTAR-1, at exh.4; DPU-1-15; DPU-2-5(1)). The Harpoon Brewery is within 100 feet of the Substation site and seafood processing companies, warehouses, and the Bank of America Pavilion are also nearby (Exhs. DPU-1-40; DPU-1-40(1)). However, NSTAR indicated that the closest residences are in a multi-story mixed use development located approximately 1,200 feet to the west of the Substation (Exhs. DPU-2-5; DPU-2-5(1)). The associated transmission and distribution lines would be located beneath paved roadways in areas that are primarily commercial, industrial, and transportation-related (Exhs. NSTAR-1, at 39; DPU-1-41(1); DPU-1-46(1) at 7).

Since the Project would be located in filled tidelands, construction would require approval under G.L. c. 91 ("Chapter 91") and 310 C.M.R. 9.00, Massachusetts Waterways Regulations (Exh. NSTAR-1, at 41). Roadways, structures, and utilities of the Boston Marine Industrial Park ("BMIP") are licensed under MassDEP Waterways License 10233, issued in 2005, and the Substation would likely constitute a Minor Revision to the BMIP's permit (Exh. NSTAR-1, at 41, 62).

The Substation site and portions of the associated distribution and transmission facilities are located within wetland resource areas such as the 100-foot buffer zone of coastal bank and 100-year floodplain (Exh. NSTAR-1, at 40, 63). With respect to the floodplain designation, the Company stated that the Project is not required to meet flood storage performance standards because the basin with a theoretical "loss" of flood storage is the vast Atlantic Ocean, for which there would be no measurable effect (Exh. NSTAR-1, at 40). With respect to protection of the nearby coastal bank, NSTAR stated that it would take measures to prevent erosion and sedimentation during Project construction (Exhs. NSTAR-1, at 40; DPU-1-43; DPU-1-43(1)).

NSTAR stated that the Substation site and associated transmission and distribution lines are not located within protected species habitat (Exh. NSTAR-1, at 43). The Company stated that there are no properties listed on the National or State Registers, and no recorded archeological resources at the Substation site nor the location of the adjacent transmission lines (Exh. NSTAR-1, at 44). However, the entire area north of the Reserved Channel and east of the Massport Haul Road is included in the Inventory of Historic Assets of the Commonwealth as the Boston Army Supply Base Area (Exh. NSTAR-1, at 44).

b. Visual Impacts

NSTAR stated that the Substation would be surrounded by a 46-foot-tall architectural screening wall (Exh. NSTAR-1, at 41). The design of the wall is indicated in Figure 2 in Section I.A, above. The Company asserted that this design would fit visually with the type of development to be constructed in the area, noting that plans for the Substation had been developed with the participation of EDIC (Tr. at 54-56). With respect to lighting, NSTAR indicated that lights would be installed at the Substation only for completion of tasks rather than general lighting, thereby reducing lighting impacts to the surrounding area (Exh. DPU-1-60).

c. Traffic

NSTAR stated that temporary lane closures, lane shifts, and/or detours may be required for transmission and distribution line installation (Exhs. NSTAR-1, at 43-44; DPU-1-49). The Company stated that traffic in the area of the Substation is light and consists primarily of trucks serving the industrial and commercial area of the South Boston Waterfront area, and that peak traffic times in the area are atypical for a mixed-use area such as this (Exh. NSTAR-1, at 43). The Company stated that in order to limit traffic impacts, work within public ways would need to be coordinated with the EDIC, the Boston Transportation Department ("BTD"), Massport, and the Massachusetts Department of Transportation (Exhs. NSTAR-1, at 43; DPU-2-11).

d. Noise Impacts

The proposed Project site is located in an industrial area, with the closest residences 1,200 feet away from the proposed Substation (Exhs. NSTAR-1, at 39; DPU-2-5; DPU-2-5(1)). NSTAR indicated that the industrial area around the proposed Substation is relatively noisy due to aircraft, truck traffic, food processing plants, and the tunnel ventilation building, with measured $L_{90}$ noise levels from 11:00 p.m. to 1:00 a.m. and from 5:00 a.m. to 7:00 a.m. ranging from 49 to 69 decibels on an A-weighted scale ("dBA") (Exhs. NSTAR-1, exh.12, at 4-3, 5-2; DPU-1-45).[13] NSTAR predicted that noise levels from the Substation at these same locations would range from 14 to 36 dBA (Exh. NSTAR-1, exh.12, at 4-3, 5-2). Based on noise measurements taken at the site and on modeling of transformer noise, the Company predicted

[13] An $L_{90}$ sound level is the level that is exceeded during 90 percent of a measurement period (i.e., ambient sound is quieter only ten percent of the time period). The parameter represents background noise excluding most or all periodic or intermittent noise.

that noise levels in the area would increase by less than one decibel, and that no pure tones would be created (Exh. NSTAR-1, at 42).

With respect to construction noise, NSTAR stated that the Boston Air Pollution Control Commission limits construction noise to an $L_{10}$ of 85 dBA at the affected property (Exh. NSTAR-1, exh.12, at 6-2).[14] While the Company indicated that generic construction equipment creates noise levels of 71 to 98 dBA at distances of 50 feet, it asserted that it would meet the City's 85 dBA limit due to the short duration of peak noise levels (Exh. NSTAR-1, exh.12, at 6-2).

e. Air Impacts

NSTAR stated that it would 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 to be used for 30 or more days over the course of the Project (Exh. NSTAR-1, at 45). Construction air impacts would be further mitigated by conformance with the Massachusetts Anti-Idling law, G.L. c. 90, § 16A, G.L. c. 111, §§ 142A-142M, and 310 CMR 7.11, pavement sweeping to minimize dust, and spraying water to control dust emissions (Exh. NSTAR-1, at 45).

NSTAR reported on its proposed use of sulfur hexafluoride ("$SF_6$"), a gas identified as a non-toxic but highly potent greenhouse gas (Exh. DPU-1-52).[15, 16] NSTAR reported a calendar

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14 An $L_{10}$ sound level is the level that is exceeded during ten percent of a measurement period (i.e., ambient sound is louder during only ten percent of the time period). The parameter includes all but the short-term or sporadically increased noise.

15 $SF_6$ is a greenhouse gas that is 23,900 times more potent than carbon dioxide ("$CO_2$"). One pound of $SF_6$ has the same global warming impact as eleven tons of $CO_2$. See the Massachusetts Clean Energy and Climate Plan for 2020, at 77.

year 2012 nameplate capacity of 94,256 pounds of $SF_6$ in its Massachusetts equipment, and emissions of 1,360 pounds of $SF_6$, for a leakage rate of 1.44 percent (Exh. DPU 1-52). Design of the Substation is not complete, but the Company estimates that the 115 kV switching equipment would contain approximately 6,500 pounds of $SF_6$ in gas-insulated switchgear (Exh. DPU 1-52). The Company reported that the new equipment would be designed for an emission rate of less than 0.1 percent per year (Exh. DPU 1-52).[17] The Company joined the U.S. Environmental Protection Agency's $SF_6$ Emissions Reduction Partnership for Electric Power Systems in 2006 but now reports under the current mandatory USEPA program (id.).

f. Oil and Potentially Hazardous Materials

NSTAR stated that each 115 kV transmission line extension would be filled with the same type of pressurized fluid used in the lines to which the extensions would be connected (Exhs. DPU-1-7; DPU-1-56). Substation transformers, capacitors, and station service capacitors would contain Mineral Oil Dielectric Fluid ("MODF") (Exh. DPU-1-56). Oils, greases, and equipment fuels may be used during construction, as well (Exh. DPU-1-56). Circuit breakers

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16 The Massachusetts Clean Energy and Climate Plan for 2020, issued by the Secretary of Energy and Environmental Affairs on December 29, 2010, adopts a 2020 statewide greenhouse gas emissions limit 25 percent below 1990 emissions levels and sets forth an integrated portfolio of policies to reach the Commonwealth's clean energy and climate goals. Reduction of an amount of $SF_6$ equivalent to a reduction of 0.2 million metric tons of $CO_2$ is one of the policies set forth in the Plan. See G.L. c. 21N and the Massachusetts Clean Energy and Climate Plan for 2020.

17 In April 2014, MassDEP promulgated final regulations that require companies to purchase new gas-insulated switchgear with a manufacturer's guaranteed $SF_6$ emission rate of one percent or less. The new regulations also include requirements for maintenance and handling of $SF_6$, and require that NSTAR comply with a declining $SF_6$ emission rate standard by 2020 (see 310 CMR 7.72).

and other gas-insulated switchgear would contain $SF_6$, as described in the prior subsection (Exh. DPU-1-56).

The new Substation would also contain lead-acid batteries with a total rating of approximately 900 Ampere-hours (Exhs. DPU-1-11; DPU-2-4). The Company indicated that it would install two battery racks, and that, subject to final design, each would contain 60 cells with 14 gallons of sulfuric acid electrolyte in each cell (Exhs. DPU-1-56; DPU-2-4; DPU-2-4(1)).

NSTAR stated that nearly all vehicle and equipment refueling would occur off-site (Exh. DPU-1-55). NSTAR stated that spill response, including application of absorbent materials, would be activated if oil, grease, or fuel were spilled (Exh. DPU-1-56; see Exh. DPU-1-57(a)). The Company stated that it would also use its spill response procedure in the event of a release of MODF or similar fluids (Exh. DPU-1-56). The Company asserted that a spill of battery electrolyte would be of small volume, due to the small size of individual battery cells, and that such a spill would likely be confined within the building housing the battery (Exh. DPU-1-56).

With respect to the potential existence of contamination at the Substation site, NSTAR recognizes that soil typical of urban fill may be encountered; however, no Recognized Environmental Conditions were identified in an Environmental Site Assessment of the parcel (Exh. DPU-1-42).

g. Magnetic Fields

The Company modeled magnetic fields with what it characterized as a heavy loading scenario of 67.5 MVA on each of the incoming transmission lines to the Substation and zero on the outgoing transmission lines, and a total of 150 MVA distributed among 32 circuits on the distribution lines (Exh. NSTAR-1, exh. 13, at 7). According to the Company, magnetic fields from the underground transmission cables are reduced by the use of steel pipe conduit and by the

triplexed conductor arrangement of three cables in the conduit (Exhs. NSTAR-1, at 44; DPU-1-7; DPU-2-9).[18] The conductor arrangement of three cables in one conduit (i.e., triplex cable) would also be used for the distribution lines, but without the steel pipe (Exh. DPU-1-8). The modeling shows that the highest magnetic field levels for the Project would be along Seafood Way on the southeast side of the Substation, located above a cluster of distribution lines, with a maximum predicted value three feet above the ground of 46.6 milligauss ("mG") (Exh. NSTAR-1, exh. 13, at 11, 12, 16). The field levels would drop off with distance from the proposed ductwork (id.). The Company contends that further mitigation, such as greater cable burial depths, would be costly and is not warranted (Exh. DPU-2-9).

h. Analysis and Findings

The proposed Substation is expected to be visually compatible with the surrounding ventilation building and commercial and transportation land uses. Visually, the Substation would be shielded with architectural wall treatment. The facility would normally be unlit.

NSTAR proposes to use a six-day per week Project construction schedule, generally from 7:00 a.m. to 6:00 p.m. As noted by the Company, it also would seek a permit from the City's ISD for Saturday work hours. To allow the Project to proceed expeditiously, the Department approves construction from 7:00 a.m. to 6:00 p.m. Monday – Friday and, with approval of ISD, from 7:00 am to 6:00 p.m. on Saturdays, excepting public holidays. Should the Company need to extend construction work beyond those hours and days, the Company is directed to seek written permission from the City prior to the commencement of such work and to provide the

[18] The Company stated that researchers have estimated that the steel pipes enclosing the three phase transmission conductors reduces magnetic fields by a factor of 25 to 30, compared to an arrangement without the steel pipes (Exh. NSTAR-1, exh.13, at 9). For modeling purposes, the Company assumed a ten-fold reduction, however (id.).

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. The Company shall provide the City with a copy of any such request.

With regard to noise, the potential Project noise impacts consist of construction and operational noise. There are no nearby residences and background sound levels tend to be high due to air traffic, road traffic, and warehouse operations. Nevertheless, the Department directs the Company to minimize construction noise by using best construction practices (e.g., use of well-maintained mufflers). Additionally, the Department directs the Company to comply with City restrictions on noise emitted from construction sites, or to obtain the necessary waivers therefrom. Operational noise is not expected to be significant, due to the low-noise transformers that would be selected and the relatively high level of ambient noise at the Substation location.

Air emissions associated with the Project include exhaust from construction equipment and fugitive emissions of $SF_6$ over time from Substation equipment. The Project is subject to idling restrictions imposed by MassDEP, and the Company has agreed that 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 Project would be retrofitted. In terms of mitigation of construction air impacts, consistent with recent Department and Siting Board requirements, the Department directs NSTAR to ensure that: (1) all diesel-powered non-road construction equipment with engines rated at 50 horsepower and above, to be used for 30 or more days over the course of Project construction, will have USEPA-verified or equivalent emission control devices installed; and (2) that all vehicle idling be limited, generally to five minutes, in accordance with the

MassDEP regulations. See NSTAR Electric Company, D.P.U. 13-126/13-127, at 29 (2014) ("Electric Avenue"); NSTAR Electric Company, D.P.U. 13-64, at 24-25 (2014) ("Barnstable"); New England Power Company, D.P.U. 10-77 ("Easton-Mansfield"), at 37 (2011).

NSTAR is subject to USEPA reporting and MassDEP statewide limits for $SF_6$ emissions. NSTAR has proposed installing circuit breakers at the new Substation with a design annual $SF_6$ leakage rate of less than 0.1 percent. In addition, the Department directs NSTAR to inform the Department if it adds $SF_6$ to any equipment at the new Substation or replaces any equipment at the new Substation due to $SF_6$ loss within five years of the completion and initial operation of the Project, after which time the Company will consult with the Department to determine whether the Department will require continuing reporting, as deemed appropriate.

The record shows that the Company has plans prepared for contingencies of a spill of oil or other potentially hazardous material at the site. Magnetic fields from the transmission lines would be minimized by enclosure in steel ducts and by burial at an appropriate depth.

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 NSTAR has stated it will implement during Project construction; 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 benefits of the Project exceed adverse local impacts and, thus, that the proposed use is reasonably necessary for the public convenience or welfare.

D. Exemptions Required

1. Introduction

The Company is seeking multiple individual exemptions as well as a comprehensive exemption from the Boston Zoning Code ("Zoning Code") (Exh. NSTAR-1, at 48-61). NSTAR stated that the ISD determined that the proposed Substation would constitute a non-conforming use under the Zoning Code (id., exh.8). In addition, NSTAR asserted that the construction and operation of certain components of the Project may be construed to be inconsistent with certain provisions in the Zoning Code (id. at 48). Because the Project is needed in the immediate timeframe to provide reliable electric service in the area, the Company stated that it is seeking zoning relief from the Department in order to allow for the timely and efficient construction of the Project (id.).

2. Individual Exemptions

a. The Company's Position

In addition to the general reasons cited above, Table 1, below, summarizes the provisions of the Zoning Code from which the Company seeks exemptions, the relief available from the City, and the Company's argument as to why the Project cannot comply with the identified zoning provisions.

**Table 1. The Company's Position – Boston Zoning Code Exemptions**

| **Individual Zoning Exemption Requested** | **Company's View of Available Relief from Boston** | **Why Project Cannot Comply: Company's Position** |
|---|---|---|
| Section 8-7 | Use Variance | It is difficult, if not impossible, to demonstrate the existence of unique conditions relating to soil, shape or topography of a particular parcel of land or structure. Moreover, variances are a legally disfavored form of relief, and even if granted, can be susceptible to appeal. Thus, there is legal uncertainty in obtaining variances and there exists the potential for adverse interpretations, delay, burden and undue expense associated with the permitting process and possible appeals (Company Brief at 42). |
| Section 42A-7 | Variance<br>Waterfront Yard Area | As noted above, there is legal uncertainty in obtaining a variance from the requirements of Section 42A-7 establishing a Waterfront Yard Area on the Site and from the prohibition of placing structures within the Waterfront Yard Area (Company Brief at 42). |
| Section 42A-8 | Variances<br>Urban Design | The urban design guidelines are ambiguous. As noted above, there is legal uncertainty in obtaining variances and there exists the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 42). |
| Section 42A-5 | Variance<br>Chapter 91 Requirements | As noted above, there is legal uncertainty in obtaining variances and "with either a request for a variance or the duplicative process required by Section 42-5 and G.L. c. 91, there is the potential for adverse interpretations, delay, burden and undue expense associated with the permitting process and possible appeals" (Company Brief at 42). |
| Article 13, Table B | Variance<br>Maximum Floor to Area Ratio | As noted above, there is legal uncertainty with regard to obtaining a variance from the requirement that the Project must have a floor area ratio of no more than 2.0 and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 43). |

| **Individual Zoning Exemption Requested** | **Company's View of Available Relief from Boston** | **Why Project Cannot Comply: Company's Position** |
|---|---|---|
| Section 23-5 | Variance<br>Off Street Parking | As noted above, there is legal uncertainty in obtaining a variance from the requirement to provide 13 parking spots for the Project and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 42). |
| Article 13, Table B | Variances<br>Setbacks | As noted above, there is legal uncertainty in obtaining rear and side yard setback dimensional variances and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 43). |
| Article 19, Section 19-1 | Variance<br>Wall within Setbacks | As noted above, there is legal uncertainty in obtaining dimensional variances from the prohibition of having a wall over six feet in height in the side and rear yard, and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 43). |
| Section 11-2(b) | Variance<br>Signs | As noted above, there is legal uncertainty with regard to obtaining a variance from the sign requirements and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 43). |
| Section 80E-2 | Variances<br>Small Project Review | As noted above, there is legal uncertainty with regard to obtaining a variance from the requirement to undergo small project review and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 43). |
| Article 25-5(4) | Variance<br>Storage of Flammables | As noted above, there is legal uncertainty with regard to obtaining a variance from the requirement that the Project cannot store flammable materials on site because it is located within a flood hazard district and there is the potential for adverse interpretations, delay, burden, and undue expense associated with the permitting process and possible appeals (Company Brief at 43-44). |

b. Analysis and Finding

According to the zoning map entitled "Map 4A/4B Harborpark District: Fort Point Waterpoint & Dorchester River Waterfront" ("Zoning Map"), the Substation site is located in the South Boston Maritime Economy Reserve Subdistrict of the Harborpark District (Exh. NSTAR-1, at 49). Section 8-7 of the Zoning Code provides the use regulations for the City's zoning districts (id.). Use item No. 31 in Section 8-7 prohibits public service substations in the maritime economy reserve districts (id.). Accordingly, NSTAR would need to obtain a use variance to construct the Project at Seafood Way (id.; Exh. DPU-1-80).[19]

The Department concurs with the Company that the acquisition of a use variance involves much uncertainty, legal and otherwise, and the potential for adverse interpretations, delay, burden, and the potential for undue expense. Indeed, it appears unlikely that NSTAR could demonstrate the unique circumstances of this parcel necessary to obtain a use variance. Accordingly, the Department finds that the Company requires exemption from Section 8-7 of the Zoning Code.

In addition to a use variance, the Project would require variances from several other provisions of the Zoning Code. Specifically, the Project would not meet, and therefore would need variances from: the prohibition against structures in a Waterfront Yard Area (Section 42A-7); the urban design dimension guidelines that require visual and physical access to the water be maintained (Section 42A-8); the requirement that the lot maintain a maximum floor to area ratio ("FAR") of 2.0 (Article 13, Table B); the off-street parking requirements (Section 23-5); the side yard and rear yard height and setback requirements (Article 13, Table B

[19] ISD also concluded that the Company would need a use variance to build the Project (Exh. NSTAR-1, exh.8).

and Section 19-1); the sign restrictions on outside walls (Section 11- 2(b)); the requirement to undergo small project review in the Harborpark District (Section 80E-2); and the prohibition of the storage of materials that are flammable, explosive or injurious to water quality in a flood hazard district (Section 25-5(4)).

The Department concurs with the Company that such variances are difficult to obtain, constitute a disfavored form of relief, and are susceptible to overturn on appeal. Consequently, the need to obtain variances is likely to result in an adverse outcome, a burdensome requirement, or an unnecessary delay. Accordingly, the Department finds that the Company requires exemptions from Sections 42A-7, 42A-8, 23-5, 11-2(b), 19-1, 80E-2, 25-5(4) and Article 13, Table B of the Zoning Code.

As noted above, the Project would require minor modifications to the existing Chapter 91 license and MassDEP approval would be required for the Project as a Minor Revision to the Boston Marine Industrial Park Master Plan (Exh. NSTAR-1, at 41). Section 18 of Chapter 91 requires an applicant to submit a copy of its application to the planning board of the city where the construction would occur. The planning board may conduct a public hearing and is directed to submit a written recommendation to MassDEP within 45 days of receiving the Chapter 91 application. G.L. c. 91, § 18. In its recommendation, the planning board would state whether it "believes the development would serve a proper public purpose and would not be detrimental of the public's rights in these tidal lands." Id. In Boston, the BRA serves as the planning board (Exh. NSTAR-1, at 51).

Section 42A-5 of the Zoning Code states that the recommendation required by Section 18 of Chapter 91 will be made by the BRA in accordance with the provisions in that section

(Exh. NSTAR-1, at 51). The requirements include a determination of proper public purpose and provisions for providing public access to the waterfront and open space (id.). It would appear that the Project would not satisfy the public access and other criteria stated in Section 42A-5 that BRA is directed to consider when making a recommendation to MassDEP (id.). As a consequence, Section 42A-5 would seem to direct BRA to recommend that MassDEP not approve the Project's Chapter 91 application.

NSTAR seeks exemption from the application of Section 42A-5 "[t]o avoid the need to seek a local variance or duplicative permitting processes, and the potential for adverse interpretations, delay, burden and undue expense associated with the local zoning process[.]" (NSTAR Brief at 37-38). However, Section 42A-5 requires BRA to take certain actions or make certain findings. It does not require NSTAR, the Chapter 91 applicant, to take any action, and thus does not appear to impose additional process, burden or undue expense on NSTAR directly. Because Massachusetts law (G.L. c. 91, § 18 and 310 C.M.R. § 9.13(5)) requires BRA to file its recommendation to MassDEP in no less than 45 days after receiving notice of the Chapter 91 application, Section 42A-5 also would not seem to cause undue delay. In addition, Section 42A-5 does not impose any zoning-related requirements or building restrictions on NSTAR (Tr. at 98). Perhaps an exemption would remove the requirement that BRA make a recommendation to MassDEP applying the criteria stated with Section 42A-5. However, G.L. c. 91, § 18 and 310 C.M.R. § 9.13(5) grant the BRA authority to make a Chapter 91 recommendation separate from any authority derived in Section 42A-5. Therefore, even an exemption from Section 42A-5 would not preclude the BRA from submitting a recommendation to MassDEP.

Furthermore, although MassDEP must consider a planning board recommendation, it may grant a Chapter 91 license modification even if the BRA recommends that MassDEP deny the license modification. G.L. c. 91, § 18; 310 C.M.R. § 9.13(5). In addition, MassDEP may proceed to decide a Chapter 91 application even if the BRA does not submit a recommendation. 310 C.M.R. § 9.13(5). Accordingly, the Department finds that NSTAR does not need an exemption from Section 42A-5.[20]

Accordingly, the Department finds that NSTAR has demonstrated that the requested zoning exemptions listed above in Table 1, except for the exemption from Zoning Code Section 42A-5 as described above, are required pursuant to Section 6 of Chapter 665 of the Acts of 1956.

3. Consultation with Municipality

a. Introduction

Over the past decade, representatives from the Company held numerous meetings with the major landowners in the South Boston Waterfront Development area, including Massport, the BRA, the Massachusetts Turnpike Authority, the Boston Marine Park Business Association and private property owners (Exh. NSTAR-1, at 8). Because of the complexities involved in

[20] The Siting Board reached a contrary result in NSTAR/Stoughton, when it granted an exemption from Section 27P-15 of the Zoning Code, a similar provision involving the standards for the BRA to use in making Chapter 91 recommendations for applicants in the Interim Planning Overlay District where the K Street Substation was then proposed. The Siting Board stated that "pursuant to G.L. c. 91, § 18, when a project is proposed in tideland areas, a developer must obtain a written recommendation from a local planning board to file with [MassDEP] addressing whether the proposed project: (1) serves a public purpose; and (2) would not be detrimental to the public's rights to the tidelands [citing a Boston Edison exhibit and Section 27P-15]." NSTAR/Stoughton at 159-160. However, Chapter 91 and MassDEP regulations do not require a positive recommendation – or any recommendation – from a local planning board for MassDEP to approve a Chapter 91 application.

selecting and securing a site in a development district (where parcels are actively being sold, permitted and developed), NSTAR sought assistance from the BRA's Planning Director to locate the least intrusive site in this area for a substation (id.). This effort identified the Seafood Way parcel as the preferred substation site (id.; Exh. NSTAR-DPU-1-37). Indeed, both Massport and City officials had targeted and recognized this site as the future substation site in South Boston to serve the Waterfront Development District (Exh. NSTAR-1, at 8).

In addition, NSTAR's Transmission and Distribution Engineering groups worked with the EDIC to develop the transmission and distribution routing plans from the new Seafood Way Station (Exh. NSTAR-1, at 8). In October 2011, the EDIC approved the routing plan as submitted in NSTAR's petition to the EDIC (id.) During the summer 2012, representatives from NSTAR met on several occasions with representatives from the BRA and the EDIC to review the proposed station screening plan in connection with the construction of the proposed Substation on the site (id.). NSTAR also met with the BRA during the summer of 2013 to discuss the proposed 15-foot elevation of the Substation as well as enhanced screening (id. at 8-9). In coordinating the design, development and construction of the Project, NSTAR representatives have had multiple meetings with other agencies of the Commonwealth and the City, including: Massachusetts Department of Transportation, Massachusetts Department of Conservation and Recreation, Boston Water and Sewer Commission, the Boston Public Works Department, and the ISD (id. at 9).

The Company met and consulted with the ISD a number of times to specifically discuss the potential application of the Zoning Code to the development and design of the Seafood Way Substation (Exh. NSTAR-1, at 9). On April 4, 2013, Company representatives met with ISD

personnel to introduce the Project, to discuss specific requirements and to obtain the input of ISD in connection with the construction of the Project (id.). On September 8, 2013, the Company provided ISD with detailed plans for the Project in order to facilitate ISD's assessment of the zoning relief required for the Substation and the Company's request for individual and comprehensive zoning exemptions from the Department (id.). On October 11, 2013, ISD notified the Company by letter that the proposed substation use at the site was not allowed under the Zoning Code and indicated that a use variance would be required (Exh. NSTAR-1, exh.8). ISD also indicated in conversations with Company representatives that it has no objection to NSTAR seeking the necessary zoning exemptions from the Department pursuant to Section 6 of Chapter 665 of the Acts of 1956. After NSTAR filed its Petition with the Department, the BRA submitted a letter of support for the Project and indicated that the BRA supported granting the Company both the individual and comprehensive zoning exemptions requested (Exh. NSTAR-1, exh.17).

b. Analysis and Findings

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. Russell Biomass LLC/Western Massachusetts Electric Company, EFSB 07-4/D.P.U. 07-35/07-36, at 60-65 (2009) ("Russell"). 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 and Section 6 of Chapter 665 of the Acts of 1956. See Electric Avenue at 36; Barnstable at 34; New England Power Company d/b/a National Grid, D.P.U 12-02, at 33-34 (2012)("Westborough").

In this case, prior to seeking zoning relief from the Department, the Company had multiple contacts with various City authorities regarding the Project. The record shows that the City supports both individual and comprehensive exemption from the Boston Zoning Code. Consequently, we find that the Company made a good faith effort to consult with municipal authorities and that the Company's communications were consistent with the spirit and intent of Russell.

4. Conclusion on Request for Individual Zoning Exemptions

As described above, the Department finds that: (1) NSTAR is a public service corporation; (2) the proposed use is reasonably necessary for the public convenience or welfare; and (3) the specifically requested zoning exemptions, as limited and described above, 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. Accordingly, the Department grants the Company's request for the individual zoning exemptions listed above in Table 1, with the exception noted above.

## III. REQUEST FOR A COMPREHENSIVE EXEMPTION

### A. Standard of Review

The Department has granted requests for a comprehensive zoning exemption on a case-by-case basis. NSTAR Electric Company, D.P.U. 07-60/07-61, at 50-51 (2008), citing Princeton Municipal Light Department, D.T.E./D.P.U. 06-11, at 37 (2007) ("Princeton"); NSTAR Electric Company, D.T.E./D.P.U. 07-9/07-10, at 37 (2007). The Department will not consider the number of exemptions required as a sole basis for granting a comprehensive exemption. Princeton at 37 (2007). Rather, the Department will consider a request for comprehensive zoning relief only when issuance of a comprehensive exemption would avoid

substantial public harm. Id.; see also NSTAR Electric Company, D.P.U. 07-60/07-61, at 51-52 (2008).

B. The Company's Position

In addition to the individual exemptions discussed above, NSTAR also requests a comprehensive exemption from the Boston Zoning Code (Company Brief at 44-48). The Company asserts that granting a comprehensive exemption is appropriate because the Project is "critical to reliably supply imminent capacity requirements" of the South Boston Waterfront area (id. at 46). The area is currently served out of K Street Substation, which cannot solely support the expected load growth (id.). The adjacent substations are also heavily loaded so that K Street Substation load cannot be transferred to the adjacent substations (id.). As detailed in Section II.C.1.a, above, the South Boston Waterfront area has experienced "an explosion of development" in the last decade (Exh. DPU-1-6). NSTAR asserts that a comprehensive zoning exemption would ensure the timely construction of a needed reliability project (Company Brief at 47).

In addition, the Company asserts that NSTAR representatives have met with City officials repeatedly over the last few years and have actively engaged their support for the location and design of the Substation and the entire Project (Company Brief at 47). NSTAR notes that both the ISD and the BRA have indicated support for both the individual zoning exemptions and a comprehensive zoning exemption (id. at 48).

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. 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. Electric Avenue at 38; Westborough at 35-37; NSTAR Electric Company Waltham, D.P.U. 08-1, at 35-37 (2009).

Department and Siting Board cases that have considered and granted comprehensive exemptions have typically involved projects that were time sensitive and needed for reliability, and that dealt with the zoning ordinances of multiple municipalities, where conflicting interpretations could arise. NGrid Worcester, 18 DOMSB 173 (2011); Western Massachusetts Electric Company, 18 DOMSB 7 (2010)("GSRP"); New England Power Company Millbury, D.P.U. 09-136/09-137 (2011). In GSRP, the Siting Board placed considerable importance on the extensive engagement and consultation between the Company and the affected municipalities, and the fact that each municipality expressed support for granting a comprehensive exemption. GSRP at 154-155.

While the Project is located entirely in Boston, it is time sensitive and needed to address reliability issues. The South Boston Waterfront area that would be served by the new Seafood Way Substation has undergone tremendous development in recent years, and the evidence shows that this trend will continue into at least the near future. Between November and May of 2014 developers submitted new work orders that will add another 22.8 MVA of large customer load by 2016 (Exh. RR-DPU-1). NSTAR had to postpone its plan to transfer ten MVA of load from its Andrew Square Substation to its K Street Substation because the rapid growth of load in the

South Boston Waterfront area has already used up most of the excess capacity at K Street Substation and will do so completely by 2016 (id., Tr. 23, 37). Now the ten MVA transfer must wait until the Seafood Way Substation is in service, and NSTAR estimates a 24-month construction period. These reliability upgrades are necessary not just based just on econometric forecasts but from current loads and work orders for 2016 loads requiring the future customers to pay a deposit to NSTAR. Accordingly, the Department finds that completion of the Project is time-sensitive, and that delay may result in substantial public harm. Additionally, the City of Boston, as represented by the BRA and the ISD, supports the request for a comprehensive zoning exemption.

Because the Department finds that the Company has met the burden of demonstrating that there is substantial public harm that could result from delays in commencement and completion of the Project as affected by the Boston Zoning Code, the Department approves the Company's request for a comprehensive exemption from the Boston Zoning Code. However, for the reasons noted above, the Department excludes the provisions of Section 42A-5 of the Boston Zoning Code from the comprehensive zoning exemption granted. This comprehensive exemption shall apply to the construction and operation of the proposed facility as described herein, to the extent applicable. See Planning Bd. of Braintree v. Department of Public Utilities, 420 Mass. 22, at 29 (1995).

## IV. REQUEST FOR AUTHORITY TO CONSTRUCT AND USE THE TRANSMISSION LINE PURSUANT TO G.L. c. 164, § 72

### A. Standard of Review

General Laws c. 164, § 72, requires, in relevant part, that an electric company seeking approval to construct a transmission line must file with the Department a petition for:

> authority to construct and use … a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric Company or to a municipal lighting plant for distribution and sale … and shall represent that such line will or does serve the public convenience and is consistent with the public interest .... The [D]epartment, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.[21]

The Department, in making a determination under G.L. c. 164, § 72, considers all aspects of the public interest. Boston Edison Company v. Town of Sudbury, 356 Mass. 406, 419 (1969). Among other things, Section 72 permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420.

In evaluating petitions filed under G.L. c. 164, § 72, the Department examines: (1) the need for, or public benefits of, the present or proposed use; (2) the environmental impacts or any other impacts of the present or proposed use; and (3) the present or proposed use and any alternatives identified. Westborough, at 37-38 (2012); NSTAR Electric Company/New England Power Company d/b/a National Grid, D.P.U. 11-51, at 6 (2012); Boston Edison Company, D.T.E. 99-57, at 3-4 (1999). The Department then balances the interests of the general public against the local interests and determines whether the line is necessary for the purpose alleged and will serve the public convenience and is consistent with the public interest.

B. Analysis and Findings

In evaluating petitions filed pursuant to G.L. c. 164, § 72, the Department relies on the standard of review established for G.L. c. 40A, § 3 used above for the analogous Section 6 of

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[21] Pursuant to G.L. c. 164, § 72, the electric company must file with its petition a general description of the transmission line, a map or plan showing its general location, an estimate showing in reasonable detail the cost of the line, and such additional maps and information as the Department requires.

Chapter 665 of the Acts of 1956 for determining whether the Project is reasonably necessary for the convenience or welfare of the public. Based on the record in this proceeding and compliance with the directives and mitigation discussed in Section II.C.3.h, above, and compliance with applicable state and local regulations, the Department finds pursuant to G.L. c. 164, § 72, that the proposed transmission line is necessary for the purpose alleged, will serve the public convenience, and is consistent with the public interest.

## V. SECTION 61 FINDINGS

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 been taken to avoid or minimize said impact" ("Section 61 findings"). G.L. c. 30, § 61. Pursuant to 301 C.M.R. § 11.01(3), Section 61 findings are necessary when an environmental impact report ("EIR") is submitted to the Secretary of Energy and Environmental Affairs, and should be based on such EIR. Where an EIR is not required, Section 61 findings are not necessary. 301 C.M.R. § 11.01(3). NSTAR submitted the affidavit of David S. Rosenzweig in which he asserts that the Project does not trigger any thresholds that would require Massachusetts Environmental Policy Act review (Exh. NSTAR-1, exh.16). Therefore, the Project does not require the filing of an Environmental Notification Form or an EIR with the Secretary of the Executive Office of Energy and Environmental Affairs (id.). Accordingly, Section 61 findings are not necessary in this case.[22]

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[22] The Department notes the requirements set forth in G.L. c. 30A, § 61, effective November 5, 2008, regarding findings related to climate change impacts. Since Section 61 findings are not required in this case, the Project is not subject to the Greenhouse Gas Emissions Policy and Protocol. The Department nonetheless notes that this Project would have low greenhouse gas emissions because it does not itself generate power and because the new switchgear equipment has reduced leakage rates, less than

VI. ORDER

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

ORDERED: That the petition of NSTAR seeking the specific exemptions set forth in Table 1, from the operation of City of Boston Zoning Code is granted with the exception of the request to be exempted from Section 42A-5 of the City of Boston Zoning Code; and it is

FURTHER ORDERED: That the petition of NSTAR seeking comprehensive exemption from the operation of the City of Boston Zoning Code is granted, with the exception of Section 42A-5; and it is

FURTHER ORDERED: That the petition of NSTAR, seeking approval to construct and operate a transmission line pursuant to G.L. c. 164, § 72, is granted; and it is

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

FURTHER ORDERED: That to help mitigate noise and construction impacts, NSTAR is limited to working Monday through Friday from 7:00 a.m. to 6:00 p.m. and, with approval of ISD, from 7:00 a.m. to 6:00 p.m. on Saturdays, excepting public holidays. Should the Company need to extend construction work beyond those hours and days, the Company is directed to seek written permission from the relevant City of Boston authorities prior to the commencement of such work and to provide the Department with a copy of such permission. If NSTAR and City

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MassDEP standards. As such, the Project would have minimal direct emissions from a stationary source under normal operations and would have minimal indirect emissions from transportation sources limited to construction, occasional repair, or maintenance activities. The Department addresses Project $SF_6$ emissions in more detail in Sections II.C.3.e and h, above.

of Boston officials are not able to agree on whether such extended construction hours should occur, NSTAR may request prior authorization from the Department; NSTAR shall provide the City of Boston with a copy of any such request; and it is

FURTHER ORDERED: That the Company shall minimize construction noise by using best construction practices; and it is

FURTHER ORDERED: That the Company shall comply with City of Boston restrictions on noise emitted from construction sites, or obtain the necessary waivers therefrom; and it is

FURTHER ORDERED: That NSTAR inform the Department if it adds $SF_6$ to any equipment at the new Substation or replaces any equipment at the new Substation due to $SF_6$ loss within five years of the completion and initial operation of the Project; and it is

FURTHER ORDERED: That NSTAR shall ensure that (1) all diesel-powered non-road construction equipment with engines rated at 50 horsepower and above, to be used for 30 or more days over the course of Project construction, will have USEPA-verified or equivalent emission control devices installed; and (2) that all vehicle idling be limited, generally to five minutes, in accordance with the MassDEP regulations; and it is

FURTHER ORDERED: That NSTAR and its contractors and subcontractors comply with all applicable state and local regulations for which the Company has not received an exemption, including those pertaining to noise, emissions, herbicides, and hazardous materials; and it is

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

FURTHER ORDERED: That NSTAR and its successors in interest notify the

Department of any significant changes in the planned timing, design, or environmental impacts of the Project so that the Department may decide whether to inquire further into a particular issue; and it is

FURTHER ORDERED: That within 90 days of Project completion, NSTAR 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 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 City of Boston Clerk's Office, and that NSTAR serve a copy of this Order on the Mayor of Boston, the Boston City Council, the Boston Public Works Department, the Boston Transportation Department, the Boston Redevelopment Authority, the Economic Development and Industrial Corporation of Boston and the Boston Inspectional Services Department, within five business days of its issuance and certify to the Secretary of the Department within ten business days of its issuance that such service has been accomplished.

By Order of the Department:

**/s/**

Jolette A. Westbrook, Commissioner

/s/

Kate McKeever, 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.