

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 13-86

November 4, 2014

Petition of NSTAR Electric Company pursuant to G.L. c. 164, § 72, for approval to construct and operate two 115 kV underground transmission lines from K Street to Columbia Road in the City of Boston

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I. INTRODUCTION

A. Description of the Proposed Project

On July 30, 2013, the Petitioner, NSTAR Electric Company (“NSTAR” or “Company”), filed a petition with the Department of Public Utilities (“Department”) pursuant to G.L. c. 164, § 72 (“Petition”) seeking approval to construct two new underground 115 kilovolt (“kV”) transmission lines in South Boston to improve the reliability of service from the Company’s Andrew Square Substation in South Boston and its Dewar Street Substation in Dorchester. The two new lines, which would parallel the route of two existing underground transmission lines, would run from the Company’s K Street Substation on East First Street to the median of Columbia Road near its intersection with G Street in South Boston, a distance of just under one mile (“Project”) (Exh. NSTAR-1, at 4).

Currently, all load served by Andrew Square and Dewar Street Substations is fed by the two existing 115 kV underground lines from the K Street Substation. The two existing lines connect to separate wye joints¹ beneath the Columbia Road median near G Street (*id.* at 2). Each wye joint splits the incoming line into two segments; one segment of each incoming line proceeds to Andrew Square Substation and the other segment to Dewar Street Substation (*id.* at 3). However, the capacity of the four line segments is limited to the capacity of the two lines entering the wye joints (Tr. at 17-19). Thus, if either of the two incoming lines were out of service, Andrew Square and Dewar Street Substations would share the capacity of the one

¹ A wye joint is a splice location with one cable entering and two cables exiting, creating a single circuit with three terminals (Exh. NSTAR-1, at 2, n.1).

remaining line to serve a total of 86,000 customers (id.). The Company asserts that the combined peak summer load of Andrew Square and Dewar Street Substations exceeds both the Summer Normal and Summer Long Term Emergency (“LTE”) ratings of a single 115 kV line (id. at 17-18).

To improve the reliability of service, the Company proposes to construct two additional underground 115 kV lines along a route parallel to the two existing lines, and to replace the two existing wye joints in the Columbia Street median with four straight joints (Exh. NSTAR-1, at 3-4). The two existing lines from K Street Substation would be connected to two new straight joints, creating two dedicated lines to Dewar Street Substation. The two new lines would be connected to two other straight joints, creating two new dedicated lines to Andrew Square Substation.² The Project would result in a doubling of the capacity of the lines serving both Andrew Square and Dewar Street Substations (Tr. at 3).³ The Project would also involve the installation of a new 115 kV breaker at K Street Substation to isolate one of the new lines (Line 483-525) and the existing autotransformer (id. at 3, n.3). The Company estimated that the Project would cost \$20.5 million (id. at exh. 8).

B. Procedural History

The Company filed its Petition on July 30, 2013. The Department conducted a site visit on September 30, 2013 and, pursuant to a Notice of Adjudication and Public Comment

² The new cables would each have rated capacities similar to those of the existing cables (Tr. at 20).

³ See Figure 2, in Section II.B, below.

Hearing, conducted a public comment hearing on September 30, 2013 at the Joseph Tynan Elementary School in South Boston. On October 10, 2013, the Massachusetts Bay Transportation Authority (“MBTA”) filed a petition to intervene in the proceeding, which NSTAR did not oppose. On November 14, 2013, the Department granted intervenor status to the MBTA.

From November 2013 to January 2014, the Department conducted written discovery of the Company. The evidentiary record includes the Company’s Petition, including 22 attached exhibits and the prefiled direct testimony of four NSTAR witnesses; the Company’s responses to two sets of Department information requests; and the Company’s responses to Department record requests made at an evidentiary hearing on February 13, 2014.

In addition to submitting prefiled direct testimony, the following NSTAR witnesses prepared responses to information requests issued by the Department and appeared for questioning at the evidentiary hearing: (1) John Zicko, NSTAR Acting Director of Substation and Overhead Transmission Line Engineering, and Manager of Substation Design Engineering; (2) Wayne Karzenski, NSTAR Senior Planning Engineer; (3) Kevin F. McCune, Northeast Utilities Licensing and Permitting Project Manager; and (4) Kristen Trudell, NSTAR Project Manager for the Project. Mr. Karzenski, Mr. McCune, and Ms. Trudell also prepared responses to record requests issued by the Department. The Company also submitted information request responses and record request responses prepared by Christopher Plecs, Northeast Utilities Manager of Forecasting; Mr. Plecs appeared for questioning at the hearing. The Company also submitted information request responses prepared by Peter A. Valberg,

Principal, Gradient Corporation; the Company submitted an affidavit by Dr. Valberg, in lieu of his appearing at the hearing.

On March 26, 2014, the Company submitted its brief. The MBTA did not issue discovery, appear at the evidentiary hearing, or submit a brief.

II. REQUEST FOR AUTHORITY TO CONSTRUCT AND USE TRANSMISSION LINES 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.⁴

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.

⁴ 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.

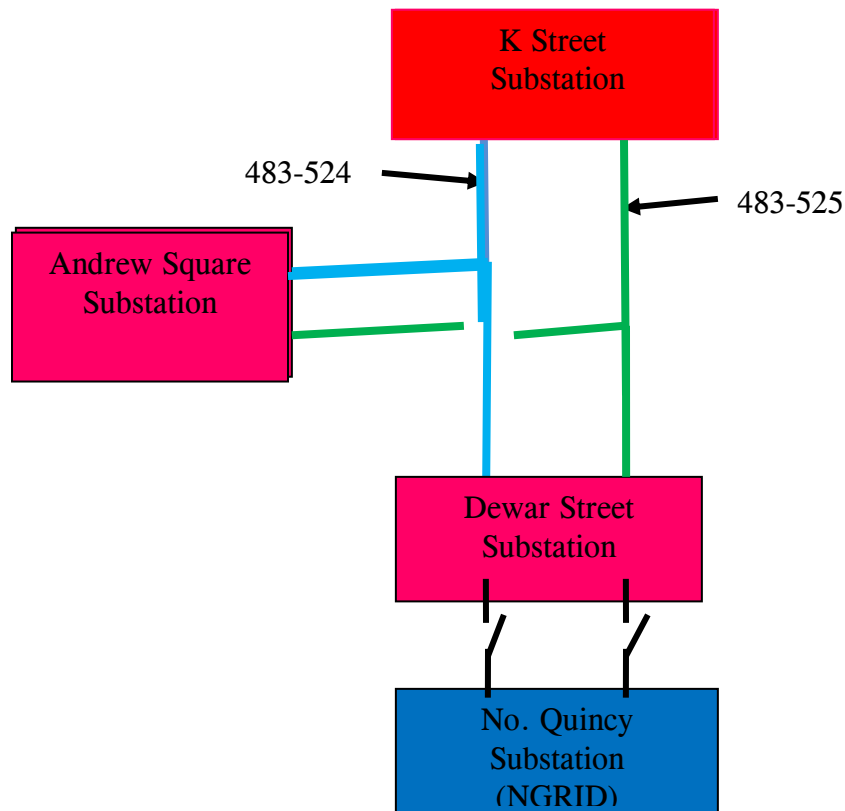
In evaluating petitions filed under G.L. c. 164, § 72, the Department examines: (1) the need for, or public benefits of, the present or proposed use; (2) the environmental impacts or any other impacts of the present or proposed use; and (3) the present or proposed use and any alternatives identified. New England Power Company d/b/a National Grid, D.P.U. 12-02, at 37-38 (2012) (“Westborough”); 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. Need for or Public Benefit of the Proposed Use

1. Existing System

Two 115 kV underground pipe-type transmission cables, designated as Lines 483-524 and 483-525, originate at NSTAR’s K Street Substation in South Boston and supply Andrew Square Substation in South Boston and Dewar Street Substation in Dorchester (Exh. NSTAR-1, at 2-3). The two cables from K Street Substation supply the entire load of both Andrew Square and Dewar Street Substations (id.). These two lines from K Street Substation also are available to provide backup supply to National Grid’s North Quincy Substation through a normally open tie line through Dewar Street Substation, (id. at 3). The system is shown schematically in Figure 1, below.

Figure 1. One Line Diagram of the Existing NSTAR System Serving Andrew Square and Dewar Street Substations



Source: Exh. NSTAR-1, exh. 1.

The Company stated that the capacities of Lines 483-524 and 453-525 limit the amount of load that Andrew Square and Dewar Street Substations can serve reliably (Exh. NSTAR-1, at 7). According to the Company, in an “N-1 scenario”⁵ in which one of the two existing cables is out of service, the reliable load-serving capability of these two substations is limited

⁵ An N-1 contingency is a circumstance in which there is an unexpected fault or loss of a single electric element.

to the 30-day LTE rating⁶ of the remaining cable (i.e., Line 483-524 or Line 453-525) (id.; Tr. at 14, 61).

Lines 483-524 and 483-525 together have a normal summer capacity of 480 megavolt-amperes (“MVA”), and a summer LTE rating of 520 MVA (Exh. NSTAR-1, at 7). In the event of a fault on one of these lines, the capacity of the remaining line is also reduced because the lines share a heat exchanger that shuts down to prevent circulation of any contaminated fluid (Exh. NSTAR-1, at 6, n.6; Tr. at 84).⁷ Ratings for Lines 483-524 and 483-525 under various conditions are shown in Table 1, below. The table indicates that in the event of a fault on one line requiring a lengthy repair time, the combined summertime capacity of Lines 483-524 and 483-525 is 211 MVA (see Exh. NSTAR-1, at 7, n.7).

⁶ The 30-day LTE capacity provides a measure of the maximum capacity the remaining line in service during an N-1 contingency can provide safely over a 30-day period. A 30-day period is used for planning purposes as a conservative estimate of the length of time that may be needed to identify and repair the fault on the other line serving the Andrew Square/Dewar Street Substations.

⁷ The Company explained that both lines need to be in operation in order for the heat exchanger to operate; if one cable is not in service, the oil cannot circulate and the heat exchanger cannot work (Tr. at 18, 84).

**Table 1. Load Serving Capacity of Existing Lines (483-524 and 483-525)
Under a Range of Operating Conditions**

Condition of Lines	Summer Normal Capacity Per Working Line (MVA)	Summer LTE Per Working line (MVA)	Total LTE Capacity from Available Lines (MVA)
Both cables in service with heat exchanger operating	240	260	520
Both cables in service without heat exchanger in operation	151	192 (12-hr rating)	384
One cable in service without heat exchanger in operation	190	252 MVA (12-hr rating)	252
		211 MVA (30-day rating)	211

Sources: Exh. NSTAR-1, at 7; Tr. at 84-89.

The Company indicated that in an N-1-1 contingency (the sequential loss of two elements) involving the loss of both Lines 483-524 and 483-525, all load served by the Andrew Square Substation and Dewar Street Substations would be lost (Tr. at 15). The Company projected the 2013 summer peak load to be 122 megawatts (“MW”) at Andrew Square Substation and 137 MW at Dewar Street Substation, for a total 2013 peak summer load served by both substations of 259 MW (Exh. NSTAR-1, at 8).

2. Load Forecast

As part of its annual filing with the Department, in 2013 the Company prepared an analysis of the expected performance of the NSTAR transmission system in the current year, and five and ten years in the future based on expected regional loads and loads at individual

substations (Exh. NSTAR-1, at 14).⁸ The Company then reduced the projections of peak loads by assumed amounts of energy efficiency (id. at 15).⁹ Following this approach, the Company reported that it expected peak summer regional load to grow at an average rate of 1.8 percent from 2012 to 2023 (id.).¹⁰

The Company assumed that any distributed generation (“DG”) facilities in the area served by Andrew Square and Dewar Street Substations with greater than five MW capacity would not be available at the time of system peak load and that the Company would be obligated to possess sufficient system capacity to replace the idle distributed generation capacity (id. at 16). However, the Company also noted that the total DG capacity installed or in the interconnection queue in the combined Andrew Square and Dewar Street load zones as of the date of the Petition (July 2013) was only 3.58 MW (Exh. NSTAR-1, at 25). Therefore, no distributed generating facilities were actually excluded from the load forecast methodology.¹¹

⁸ The Company stated that it forecast regional load by regressing peak load demand for the most recent twelve years against regional econometric variables and Temperature Humidity Index values (Exh. NSTAR-1, at 14).

⁹ The forecasts of substation demand assume that incremental energy efficiency is spread across substations in proportion to load (Exh. NSTAR-1, at 16).

¹⁰ The Company’s assumptions on peak load growth exceed the rates projected by ISO-NE in its 2013 Regional System Plan (“RSP 13”). RSP 13 assumed an average annual rate of growth in total system summer peak load of 1.4 percent per year between 2013 and 2023. (See <http://www.iso-ne.com/system-planning/system-plans-studies/rsp>).

¹¹ Although the Company’s load forecast methodology regarding the treatment of DG resources over five MW did not have any significance in this case, the Department finds this approach lacking in justification. Installed DG capacity, as recognized by

3. Adequacy of Cables to Serve Current and Future Loads

The Company explained that with both Lines 483-524 and 483-525 in service and the heat exchanger in operation (i.e., “N-0” or no contingency), the existing cables are adequate to serve the forecasted loads at Andrew Square and Dewar Street Substations through 2023 (Exh. NSTAR-1, at 17). However, in the event of a fault on one of the two lines (i.e., an N-1 contingency) peak summer loads would exceed the capacity of the remaining line as early as 2013, whether on a 12-hour basis (252 MVA capacity) or on a 30-day basis (211 MVA capacity) (id. at 18; Tr. at 17-20). Under an N-1 contingency, summer peak loads grow from 123 percent of the combined capacity of Andrew Square and Dewar Street Substations in 2013 to 139 percent by 2023¹². Faults on both lines (i.e., an N-1-1 contingency) would result in a complete loss of load served from Andrew Square and Dewar Street Substations (Tr. at 14).^{13,14}

ISO-NE for planning purposes, is an appropriate DG capacity measure for the Company’s system planning and should also serve as the basis of the Company’s load forecasts used in future transmission facility siting petitions submitted to the Department.

¹² The percentage overload was derived by staff based on Summer LTE line ratings in Table 1 (Exh. NSTAR-1, at 7) and the projected combined summer peak loads for Dewar Street and Andrew Square substations shown in Table 2 (Exh. NSTAR-1, at 17).

¹³ The Company indicated that the existing National Grid cables that could be closed to support South Boston from Quincy do not have sufficient capacity to support Andrew Square and Dewar Street load by themselves, and that supporting the area from both sides at once creates a loop or network with the potential for unmanageably high flows through area lines (Exhs. NSTAR-1, at 3; DPU 1-13; Tr. at 24-26).

¹⁴ The Company explained that the ultimate load-serving capacity of a substation is based on a combination of the capacities of the incoming line(s) and the transformers at the substation (Tr. at 88). As a result, even with both lines operating, the existing transformer capacity would limit the load-serving capacities at Andrew Square

The Company explained that while Lines 483-524 and 483-525 are not required to adhere to the reliability standards dictated by ISO-NE, the Northeast Power Coordinating Council (“NPCC”), or the National Electric Reliability Council (“NERC”)¹⁵, the lines themselves and the design of NSTAR’s system are subject to criteria set forth in the Company’s “Transmission System Assessment Procedure” (“SYS PLAN-001”) (Exh. NSTAR-1, at 13 and exh. 12). The Company further described the purpose of SYS PLAN-001 as “to assure that a consistent design approach is applied across the Company’s transmission system and that the system is tested and designed to be in compliance with the NERC, NPCC and ISO-NE standards and [reliability] criteria” (Exh. DPU-1-5). The Company explained that its SYS Plan-001 replicates the design and testing standards of NERC, NPCC and ISO-NE because lines that are not currently classified as subject to NERC, NPCC, and ISO-NE standards may in the future be reclassified and become subject to these standards (id.).

SYS PLAN-001 states that the Company’s goal is that, following an N-1 contingency, its transmission system should be capable of automatically restoring service by operating

Substation and Dewar Street Substation to 134.2 MVA and 150.2 MW, respectively. The proposed Project does not address the transformer capacity limits (id.).

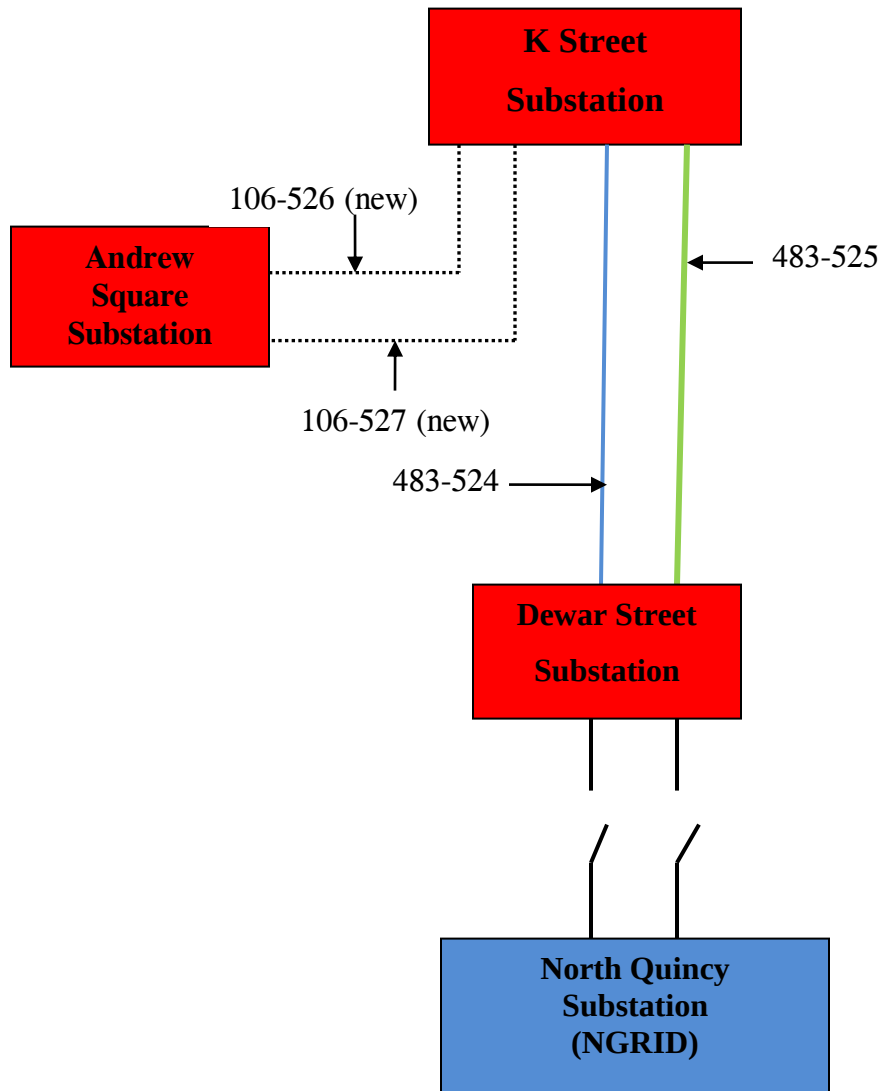
¹⁵ The primary reason that Lines 483-524 and 483-525 are not subject to planning criteria established by ISO-NE, NPCC, or NERC is because these lines are radial lines over which power flows in only one direction (that is, from the K Street Substation to either Andrew Square or Dewar Street Substation) (Exh. DPU-1-5). Radial lines are not classified as part of the Bulk Power System (“BPS”), the Bulk Electric System (“BES”), or Pooled Transmission Facility (“PTF”) system and, therefore, the NERC, NPCC, and ISO-NE standards do not apply (id.).

equipment at emergency ratings with voltage levels within five percent of normal (Exh. NSTAR-1, exh. 12, p. 19)).

The SYS PLAN-001 provides that if modeling indicates that load would be lost in an N-1-1 contingency (despite reliance on emergency line ratings and permissible voltage level deviations from normal) the Company would evaluate the need for system upgrades based on the duration of the load losses, amount of load lost, number of customers impacted, safety issues, cost of upgrades, and other factors (id.).

4. Proposed Project

The Project involves the installation of two new underground cables (Lines 106-526 and 106-527) from K Street Substation and the replacement of the existing wye joints beneath the median of Columbia Road with four straight joints (Exh. NSTAR-1, at 3). The result (illustrated in Figure 2, below) will be four lines originating at K Street Substation, with two lines serving Dewar Street Substation and two lines serving Andrew Square Substation.

Figure 2. One-Line Diagram of Project

Source: Exh. NSTAR-1, exh. 3.

The Company stated that the Project would improve its ability to reliably serve the loads associated with Andrew Square and Dewar Street Substations in several ways. In an N-1

contingency, the remaining cable serving either substation would be capable of serving that substation with no loss of load (Tr. at 22). In an N-1-1 contingency, the Project would effectively limit the maximum load loss in the Company's South Boston service area to the load associated with one substation (Tr. at 15).¹⁶ In addition, the Company said that there will be an inherent improvement in the reliability of service to its South Boston service area due to the elimination of the two wye joints (Tr. at 30-32). The Company considers wye joints inherently less reliable than straight joints and eliminates wye joints when possible (id.).¹⁷

Finally, the Company said that Line 483-525 and the K Street Substation 345B auto transformer currently share the same electrical connection point without any isolation device separation (Exh. NSTAR-1, at 8). The Company explained that in the event of a fault on either of the elements, the other element would also be lost (id.). Therefore, as part of the Project the Company proposes to install a new 115 kV breaker at the K Street Substation to isolate Line 483-525 and the K Street 345B auto transformer (id. at 3, n.3).

5. Analysis and Findings on Project Need and Benefits

Presently, the loss of either of the two lines serving Andrew Square and Dewar Street Substations from the Company's K Street Substation during peak summer loads would result in

¹⁶ Currently with the loss of one cable, there would be unserved load at both Substations during peak summer loads. With the Project, in a worst case scenario, if both cables serving the same Substation were lost, then the total load of that Substation would be lost. However, if one cable were lost to each Substation, there would be no unserved load (Tr. at 15).

¹⁷ The Company stated that it currently has only four wye joints at the 115 kV transmission level in its entire system. Two of the four wye joints would be eliminated with the Project (Tr. at 31).

thermal violations and potentially the loss of load.¹⁸ As loads in South Boston grow, the amount of load at risk will continue to increase. The Department notes that potential loss of load associated with the loss of either Line 483-524 or Line 483-525 exceeds the Company's internal design criteria,¹⁹ which are themselves designed to be in compliance with the standards of NERC and NPCC, and ISO-NE Planning Procedure 3. In addition, the record demonstrates that, by replacing wye joints with straight joints, the Project would provide additional reliability improvements. The Department finds that there is a need for the Project, and that by meeting this need, the construction and operation of the Project would result in public benefits.

C. Alternatives Explored

1. Project Alternatives

In addition to the Project, the Company evaluated two categories of potential alternatives to the Project to address the capacity and reliability needs described in Section B.1.b, above (Exh. NSTAR-1, at 20-30). These alternatives include: (1) three transmission alternatives; and (2) reliance on non-transmission alternatives (energy efficiency, demand response, and distributed generation) to reduce peak load (id.).

¹⁸ The Company stated that in an N-1 situation, if the loading on the remaining line exceeds the LTE rating for more than 15 minutes, there would be load at risk at the Andrew Square Substation and/or the Dewar Street Substation (Exh. NSTAR-1, at 19).

¹⁹ Documented in the Company's SYS PLAN-001 (Exh. NSTAR-1, exh. 12).

a. Transmission Alternatives

The Company considered three transmission alternatives to the proposed Project to resolve the reliability concerns associated with Andrew Square and Dewar Street Substations (Exh. NSTAR-1, at 30).²⁰ The Company concluded that all three alternatives were inferior to the Project, based on considerations of cost, improved reliability and system operability (id. at 35).

i. Alternative 1

The Company described Alternative 1 as involving the construction of two new underground 115 kV cables from K Street Substation directly to Dewar Street Substation. Both existing cables with the wye splice (483-524 and 483-525) would continue to serve Andrew Square Substation and to provide backup to National Grid's North Quincy Substation, while the new cables would serve only Dewar Street (Exh. NSTAR-1, at 31 and exh.14). The two new lines would each be approximately 2.8 miles long and would follow a similar path to the existing lines (id.). Alternative 1 would resolve the N-1 reliability concern and also improve N-1-1 reliability; however, because it follows a longer route than the Project does, it would cost an estimated \$40.5 million (approximately double the estimated cost of the Project), and have greater environmental impacts (Exh. NSTAR-1, at 31 and exh. 8; Tr. at 22-24). In view of the similar reliability benefits, but a longer route, higher costs and added

²⁰ All three transmission alternatives include the same modifications to K Street Substation as the Project (Exh. NSTAR-1, at 30, 33, and 34).

environmental impacts, the Company stated that Alternative 1 would be inferior to the Project (Exh. NSTAR-1, at 32).

ii. Alternative 2

Alternative 2 would switch the source of supply to Dewar Street and Andrew Square Substations from radial service from K Street Substation to network service supplied through the interconnected Greater Boston 115 kV system (Exh. NSTAR-1, at 33-34; Tr.at 24-25). The Company explained that Alternative 2 would not involve laying new cable, but would require closing the normally open lines between K Street Substation and National Grid's North Quincy Substation and the addition of phase-shifting transformers at Dewar Street Substation (Tr. at 25-27). The Company stated that the addition of the phase-shifting transformers would require expansion of Dewar Street Substation and would greatly complicate system operations (Exh. NSTAR-1, at 34). The Company estimated the cost of Alternative 2 to be \$40.8 million (id. at exh. 8). The Company concluded that Alternative 2 would provide the same benefits as the Project, but at approximately double the cost and with added operational complexity (id. at 34). For these reasons, the Company indicated that Alternative 2 would be inferior to the Project (id.).

iii. Alternative 3

The Company described Alternative 3 as adding one new cable from K Street Substation to the wye joint on Columbia Road, breaking the wye joint on one of the existing lines and connecting the new cable to the Andrew Square tap line (Exh. NSTAR-1, at 34-35). Alternative 3 would provide Dewar Street and Andrew Square Substations with one dedicated

cable each and one shared cable (Tr. at 27). However, unlike the Project, the loss of two cables (the two dedicated cables) could lead to overloading the remaining line (Tr. at 27-28). Alternative 3 would resolve the N-1 contingency, but would not address the N-1-1 contingency (Exh. NSTAR-1, at 34). The Company estimated that the cost of Alternative 3 would be \$15.6 million, which is less than the estimated cost of the Project (RR-DPU-1). Despite the lower cost, the Company assessed Alternative 3 as inferior to the Project because it leaves unaddressed a potential overloading situation under an N-1-1 contingency (Tr. at 28).

b. Non-Transmission Alternatives

The Company considered whether a program of targeted, accelerated energy efficiency measures could defer or avoid the need for the Project (Exh. NSTAR-1, at 24). The Company estimated that 1.8 MVA of incremental energy efficiency could be obtained each year in the future, but that load in the area will grow at an even higher rate (id.). The Company concluded that energy efficiency could not resolve the current or future capacity and reliability needs in the area served by Andrew Square and Dewar Street Substations (id.).

The Company also considered whether the addition of DG facilities powered by wind, solar or internal combustion within the area could reduce load sufficiently to avoid or defer the need for the Project (id. at 25). The Company stated that as of June 2013 there was 3.3 MW of DG installed within in the area served by Andrew Square and Dewar Street Substations and there was an additional 0.27 MW in NSTAR's DG queue for the area (id.). Given the current level and intermittent nature of most DG resources installed in the Project area, the lack of coincidence of peak electrical load and peak photovoltaic output, and the risk of DG resources

tripping offline during incidences of voltage and frequency abnormalities, the Company concluded that additional DG resources could not be relied upon to resolve the capacity and reliability needs in its South Boston service area (id. at 25-28).

The Company also explored the potential for Real Time Demand Response (“DR”) to address the reliability need at Andrew Square and Dewar Street Substations (Exh. NSTAR-1, at 29). The Company explained that DR resources are procured by ISO-NE for each of the eight New England zones during each annual Forward Capacity Auction (id.). In the event of actual or threatened real-time deficiencies of systems reserves within a zone or across multiple zones, ISO-NE can activate DR resources in order to reduce load in the zone(s) (id.). Thus, by design, DR resources are procured and activated at a zonal rather than substation level (id.). The Company noted further that DR resources are committed for a year at a time, so a DR resource can leave the program with relatively short notice and does not adequately meet the long-term need served by transmission facilities (id. at 30). The Company also noted that in the case of an underground line being out of service, restoration time could be days, rather than the limited hours for which DR was designed (id. at 29-30). For all of these reasons, the Company concluded that it could not rely on load reductions from DR resources as a Project alternative (id. at 30).

The Company concluded that individually and in combination, the non-transmission alternatives, including EE, DG and DR, are inadequate to reduce peak loads such that the existing N-1 thermal overloads on Lines 483-524 and 483-525 would be addressed in a timely

manner (id. at 30). Furthermore, the non-transmission alternatives would not resolve the reliability issues under N-1-1 conditions (id.).

c. Company Conclusion on Project Alternatives

Having assessed three transmission alternatives as well as non-transmission alternatives as inferior, the Company proceeded with planning for splitting the wye joints at Columbia Road and connecting that location to the K Street Substation with additional underground cables (Exh. NSTAR-1).

2. Route Alternatives

To determine the best route for the two new lines, NSTAR stated that it evaluated potential underground cable routes between the Columbia road wye joints and K Street Substation (Exh. NSTAR-1, at 35). The Company stated that its route alternatives analysis included evaluations of permitting and engineering complexity, potential subsurface contamination, sensitive land uses, traffic and public transportation impacts, parking, subsurface utility density, and construction difficulty (Exh. NSTAR-1, at 35). The Company also stated that it consulted with City of Boston (or “City”) officials to determine if there were any municipal concerns, constraints, or preferences (id.).

The Company evaluated five routes other than the proposed Project route. The Company’s analysis of the route alternatives revealed disadvantages compared to the Project route in terms of: (1) neighborhood impacts during construction; (2) construction period disruptions at South Boston High School and other sensitive receptors; (3) length of trenching along primary commercial and commuting routes; (4) logistical and design challenges

presented by existing utility infrastructure; (5) traffic impacts; (6) increased permitting requirements; and (7) potential to disrupt MBTA bus routes (id. at 35). The Company noted that City officials indicated a preference for the proposed Project route over the alternative routes (id. at 37-38).

The Company concluded that the proposed Project route would minimize the anticipated construction phase impacts, would be consistent with guidance obtained from City officials and would be significantly less expensive than the alternative routes (id. at 45).

3. Analysis and Findings on Alternatives

The Company has explored a reasonable set of alternatives to the Project. The non-transmission alternatives offer only limited load relief throughout the forecast period and would not be adequate to improve the Company's ability to meet load during either N-1 or N-1-1 contingencies. Nonetheless, NSTAR should continue to strongly encourage its customers, both existing and new, to take full advantage of its energy efficiency programs. NSTAR should, in general, also continue to explore creative ways to use NTAs (individually or in combination) to avoid or delay the need for new transmission infrastructure.

In terms of meeting the identified reliability concerns, the Project and all three transmission alternatives resolve the N-1 reliability need, and all improve reliability under N-1-1 contingencies. However, Alternative 1 is inferior because its cost and impacts are greater than those for the Project without additional reliability benefits. Alternative 2 imposes significant operational complexity and higher cost than the Project, and Alternative 3 leaves

unresolved a potential overload condition under an N-1-1 contingency. For these reasons, none of the transmission alternatives is superior overall to the Project.

Further, the Company explored a reasonable range and number of alternative routes for the Project. All alternative routes were found to be longer and more costly, and would result in more disruptive construction impacts on the community. In addition, the record indicates that City officials favor the Project route over the alternative routes.

In view of the above, the Department finds that the Company's decision to pursue the Project rather than the alternatives is reasonable.

D. Impacts of the Proposed Use

In accordance with its responsibility to undertake a broad and balanced consideration of the general public interest and welfare, the Department examines the potential impacts associated with the Project.

1. Construction Methods

NSTAR stated that the underground cable installation process includes four principal stages: (1) manhole construction; (2) duct line construction; (3) cable pulling and splicing; and (4) fluid filling (Exh. NSTAR-1, at 8). The Project also includes making minor modifications to the Company's K Street Substation (Exh. NSTAR-1, at 2-5). The Company stated that Project construction would not require any electricity, water, sewer, or gas service interruptions, and would not involve any blasting (Exhs. NSTAR-1, at 53; DPU-1-26; Tr. at 72-73).

NSTAR stated that it would install a second manhole vault near the existing manhole vault on the Columbia Road median, and indicated that it would install a new manhole in East Second Street between H Street and I Street as well (Exh. NSTAR-1, exh. 4, sheets 4 and 10 of 10; Tr. at 33). Manhole construction would include the use of an excavator, dump trucks, a cement mixer, various pick-up trucks and a crane (Exh. NSTAR-1, at 8). The Company has not yet determined whether the new manholes will be precast or built in place (Tr. at 51). If a precast manhole is used, a crane will be used to set it in place; if a precast manhole cannot be used, forms will be placed into the excavated hole and a cement manhole will be poured in place (Exh. NSTAR-1, at 8-9).

The Company will install the duct line using open trenching in a linear progression along the transmission line route, beginning at the Columbia Road median and ending at K Street Substation (Exh. NSTAR-1, at 4, 9). Pavement will be cut by a saw cutter, removed with pneumatic hammers, and loaded into a dump truck by a backhoe for disposal. The trench will be excavated to depth by backhoe and pipe and conduit installation will be performed by a small crane, welding trucks and other material-handling trucks (id. at 9). Backfilling will be performed with the same type of equipment used for trenching, as well as vibratory compacting equipment.

Cable-pulling activities will occur at manholes and line terminals (Exh. NSTAR-1, at 9). Splicing will occur only at manholes and line terminals and will require a splicing van, an air conditioning unit, and a generator (id.). The Company will fill the cables with dielectric fluid after splicing and line termination is complete (id.).

As noted above, the Company will make minor modifications to K Street Substation, including the addition of a new 115 kV breaker, two sets of termination stands, two disconnect switches and a lightning shield mast (Exh. NSTAR-1, at 3, 10). Equipment to be used will include a vacuum truck, drill rig, small loaders, concrete trucks, a small crane, aerial lifts, pickup trucks and passenger vehicles (Exh. DPU-1-21).²¹

Repaving of the transmission line route will involve asphalt installation equipment and pavement rollers (Exh. NSTAR-1, at 9). The Company indicated that the City would make a decision about the specifications for repaving during the grant-of-location and street-opening approval process (id.). The Company indicated its willingness to perform curb-to-curb repaving upon the City's request (id.).

a. Horizontal Directional Drill

The Company reported that it might change its construction method in the vicinity of the intersection of K Street and East First Street from open trenching to a horizontal directional drill ("HDD") because this intersection is congested with existing subsurface utilities (Exh. DPU-1-47; RR-DPU-7; Tr. at 110-111). The changes reflect comments from, and consultation with, the Boston Water and Sewer Commission ("BWSC" or "Commission") regarding the Commission's concern that the proposed transmission lines could interfere with or damage existing and planned water and sewer infrastructure, including an ongoing sewer separation project in this area (Exh. DPU-1-47; Exh. DPU-1-1, att. 1-1).

²¹ The Company provided sound levels for the equipment to be used in Project construction. Construction noise is discussed in Section II.D.5, below.

The BWSC provided NSTAR with design drawings of its existing and planned facilities. NSTAR stated that, at the time of hearings, it was reviewing the BWSC data; will use this data to determine the optimal method for crossing the intersection; and will consult again with the Commission regarding the Company's recommended construction method (RR-DPU-7). The Company stated that either trenching or HDD would avoid conflicts with the existing and proposed BWSC infrastructure (id.; Exh. DPU-1-47). Thus, NSTAR requests that the Department approve the Project allowing the Company to cross the intersection of K Street and East First Street using either of these two construction methods (RR-DPU-7; Company Brief at 29-30).

2. Construction Schedule and Community Outreach

a. Construction Schedule

The Company hopes to begin Project construction in the fall of 2014, or within approximately two months of receiving Department approval (Tr. at 41, 107, 138). The Company expects construction to last approximately nine months, assuming a six-day work week (id. at 41).

The Boston Municipal Code limits construction to weekdays (Exh. DPU-1-22 and att. (a)). To minimize the overall length of Project construction, the Company indicated that it plans to seek, and expects to receive, approval from the City to work on Saturdays as well (Exhs. NSTAR-1, at 47; DPU-1-23; DPU-1-53; Tr. at 70-71, 126-129).²²

²² The Company indicated that Saturday work would be confined, for the most part, to activities that constitute "sole use," or that are necessary due to weather or scheduling

The Municipal Code limits construction to the hours of 7:00 a.m. to 6:00 p.m. (Exh. DPU-1-22 and att. (a)). The Company stated that construction generally would occur between 7:00 a.m. and 5:00 p.m., although it may seek approval for an extended work day “when length of daylight permits” or when circumstances require work outside normal hours (Exh. NSTAR-1, at 47). The Company stated that it would prefer to begin Saturday work at 7:00 a.m. with non-equipment activities, and 7:30 a.m. with equipment use (Exh. DPU-1-23). At hearings, the Company stated that it would consider delaying the Saturday start time for equipment use beyond 7:30 a.m., to as late as 9:00 a.m. (Tr. at 72-73).

b. Community Outreach

NSTAR stated that it has consulted with the City regarding the Project, including representatives of the Conservation Commission, the BWSC, the Public Improvement Commission, and the Transportation Department (Exhs. NSTAR-1, at 46; DPU-1-4, att.). The Company stated that it also intends to meet with the Mayor’s Office of Neighborhood Services, and that the Project will require a permit from the Boston Inspectional Services Department (Exh. DPU-1-4, att.; Tr. at 42, 134-135). The Company reported that potential traffic impacts were the City’s primary concern and, accordingly, that an individual at the Transportation Department has been assigned to lead the City’s review of the Project (Exh. NSTAR-1, at 46). The Company stated that it will continue to maintain communications with City officials throughout the permitting, construction and post-construction phases of the

delays (Exh. DPU-1-23). Sole use refers to activities that would halt or impede other activities, such as large excavations, transmission line cutovers, and oil filling (id.).

Project, will address any concerns or issues that may arise, and will conduct further presentations and outreach if requested (id.).

The Company stated that it will notify direct abutters along the Project route of upcoming construction, including nighttime and weekend construction (Exh. DPU-1-2). Notifications will occur by a combination of mail, email, and/or door-to-door outreach, typically one to two weeks in advance of construction (id.). With respect to notification of persons other than abutters, the Company anticipates that the Transportation Department will require construction-related signage in the neighborhood of the Project, and that the Mayor's Office of Neighborhood Services may post Project information on its website (Tr. at 134-135).

3. Land Use Impacts

a. General Impacts

The Company characterized the land use in the area of the Columbia Road section of the Project as a combination of urban residential on the north side of Columbia Road, and open space/parkland and the Massachusetts Department of Conservation and Recreation ("DCR") Parkway to the south of Columbia Road (Exh. NSTAR-1, exh. 20, at 6). The Company described the primary land use pattern for the remaining portion of the transmission line route as dense, urban, and residential (Exh. DPU-1-17 and att.). The Company estimated that approximately 93 housing structures (including two- and three-family structures) are located along the route (id.). Other housing structures along the route include storefronts with housing on the second floor, a nursing home and a large apartment complex (id.). The Company stated

that the Project will have no effect on the existing patterns of land use in South Boston (Exh. NSTAR-1, at 48 and exh. 20, at 6).

b. Article 97 Lands

The southern terminus of the Project, the Columbia Road median, is within DCR's Carson Beach Reservation (Exh. NSTAR-1, exh. 20, at 11). Project construction in this area will require Article 97 approval from the state legislature²³, and a construction access permit from DCR (Exhs. NSTAR-1, exh. 20, at 11; DPU-1-4, att.; DPU-1-1). The Company stated that it has consulted with DCR regarding this portion of the Project, and that the Project is designed to comply with DCR's requirement that the roots, trunks, and canopies of the trees along Columbia Road should not be impacted during construction or operation of the Project (Exhs. DPU-1-27; DPU-1-36; Tr. at 39). The Company stated that it will require its construction contractor to use specific measures to protect the existing trees within the Columbia Road median, as well as along K Street and H Street (Exh. DPU-1-27).

With respect to mitigation for the use of Article 97 land, DCR has requested that the Company comply with the Executive Office of Environmental and Energy Affairs ("EEA") Article 97 Disposition Policy by: (1) ensuring that the monetary compensation for the easement the Company will acquire be directed to the DCR Conservation Trust and that the amount of the compensation based on either the fair market value or the value of the proposed

²³ Article 97 of the Amendments to the Massachusetts Constitution establishes and protects the right of the people to enjoy the natural resources of the Commonwealth. Land taken or acquired for Article 97 purposes cannot be used for other purposes except by enactment of laws by two-thirds of the General Court.

use, whichever is greater; and (2) evaluating opportunities to convey to DCR an easement of similar size to satisfy the “no net loss” provision of the policy (Exh. DPU-1-1). The Company indicated that it intends to comply with these DCR mitigation requests (Tr. at 47, 120). The Company stated that the specific cost of such mitigation has not yet been determined; the Company also noted that there is no line item in the Project budget for mitigation in general (Exh. NSTAR-1, exh. 8; RR-DPU-5; Tr. at 47). The Company stated that the costs for all required Project mitigation would be taken out of the 15 percent contingency allocation contained in the overall Project budget (RR-DPU-8; Tr. 1, at 119-122).

4. Traffic Impacts

The Company stated that temporary construction-related traffic impacts will occur, primarily in connection with trenching and conduit installation (Exh. NSTAR-1, at 53). The Company stated that where construction activities will interfere with areas of heavier traffic, NSTAR will develop a traffic management plan in coordination with local officials to minimize impacts on motorists (id.). NSTAR stated that it has met with representatives of the Boston Transportation Department, and that the Company was nearing completion of a set of traffic management plans to present to the Transportation Department for review (Tr. at 43-44). The Project will require a street-opening permit from the Transportation Department that will include conditions pertaining to traffic management, signage requirements, police detail requirements, parking restrictions, as well as permissible hours of construction (Tr. at 46, 134).

NSTAR stated that four MBTA bus routes run through the portion of South Boston in which the Project will be located (Exh. DPU-1-30 and att.). The Company indicated that Project construction will be managed so as to avoid disruption to these bus routes (Exh. NSTAR-1, at 52). The Company expects construction crews of six to ten workers (Tr. at 133). Construction crew parking will occur off-site, at a staging area to be selected by the construction contractor, to avoid any parking of personal vehicles at the worksite (Exh. DPU-1-31; Tr. at 53).

5. Noise Impacts

NSTAR stated that there would be no operational noise associated with the Project (Exh. NSTAR-1, at 49). With respect to construction noise, the Company stated that East First Street, Columbia Road/Day Boulevard, and East Broadway all have high daytime ambient noise levels due to vehicle traffic (id.). Nevertheless, the Company stated that, where appropriate, it will take measures to reduce construction noise, such as limiting the size of construction equipment and using the latest designs in such equipment, to minimize engine noise (id.). The Company also stated that it will comply with state laws and regulations limiting engine idling, with some exceptions, to no more than five minutes (id. at 50).

With respect to weekday construction between the hours of 7:00 a.m. and 6:00 p.m., the Company stated that it will comply with the City of Boston Air Pollution Control Commission's Regulations for the Control of Noise in the City of Boston ("City Noise Regulations"), which prohibit the operation of any piece of construction equipment (except for impact devises, as defined in the regulations) with a noise level exceeding 86 decibels on an

A-weighted scale (“dBA”) at a distance of 50 feet from the equipment (id. at 49-50 and Tables 3 and 4; DPU-1-22 and att. (b); Tr. at 68-69).²⁴ With respect to construction that may occur on Saturdays or on weekdays outside of the allowable 7:00 a.m. to 6:00 p.m. period, the Company stated that it will comply with Chapter 16, Section 26.5 of the Boston Municipal Code, which limits construction sound levels to a maximum of 50 dBA at any residential lot line (Exh. DPU-1-22 and att. (a); Tr. at 66).

The Company described the area in which HDD work would occur as a mix of residential and commercial uses (Tr. at 103-104). The Company stated that most buildings in the area are close to the street, as they are adjacent to the sidewalk with no front yards (id. at 104). The Company indicated during hearings that a number of residences would be within 50 feet of the HDD location (id.). The Company subsequently stated that the best method for mitigating HDD noise impacts would be to keep the HDD as far from residences as possible, and that, if HDD is used, the HDD set-up area would be located in the non-residential section of K Street, approximately 100 feet from the nearest residence (id.).²⁵ The Company indicated that the maximum sound level from any piece of equipment associated with the HDD would be no greater than 86 dBA at a distance of 50 feet from the HDD equipment, as required by the City Noise Regulations (DPU-RR-5). The Company noted that

²⁴ Only pavement cutters would exceed the 86 dBA noise limit (Exh. DPU-1-19). Pavement cutters are considered to be impact devices, and thus are exempt from the 86 dBA limit (Exh. DPU-1-22, att. (b) at 4, 8).

²⁵ The Company indicated that it would make every effort to perform HDD work between 7:00 a.m. and 5:00 p.m. only, and would complete the work within two weeks (RR-DPU-5).

the maximum composite noise level at 50 feet, including other sources of construction noise, would be 89 dBA (id.).

The Company indicated that if it were to receive a noise complaint, it would follow up with noise measurements and, if appropriate, place temporary noise barriers around the HDD equipment (RR-DPU-5; Tr. at 57). The Company stated that noise barriers could reduce sound levels by 15-20 dBA at a distance of 50 feet. The Company estimated that noise barriers would cost eight to 15 dollars per square foot, depending on whether walls or curtains were used (RR-DPU-5).

6. Air and Water Impacts

The main sources of potential Project-related air quality impacts are: (1) emissions from construction equipment and motor vehicles; and (2) fugitive dust emissions from disturbed soil and street openings (Exh. NSTAR-1, at 47). The Company stated that contractors will be contractually required to comply with all applicable regulations regarding vehicle emissions and dust (id.). The Company stated that all construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of project construction will have U.S. Environmental Protection Agency (“USEPA”) -verified (or equivalent) emission control devices installed (id.). Vehicle idling will be limited in accordance with the Massachusetts anti-idling law, and with NSTAR’s company-wide idling reduction policy (Exhs. NSTAR-1, at 47-48; DPU-1-35). If necessary, dust generated from earthwork and other construction activities will be controlled by spraying water, as well as daily sweeping of the pavement and adjacent roadways (Exhs. NSTAR-1, at 48; DPU-1-34).

The Project will not affect any wetlands, and is not within a Massachusetts Department of Environmental Protection (“MassDEP”) Zone II Wellhead Protection Area or Interim Wellhead Protection Area, or a Water Supply Protection Area (Exh. NSTAR-1, at 48).

To maintain the stability of excavations minor dewatering of groundwater seepage and precipitation by sump pumps is anticipated during Project construction (id.). The Company will obtain a permit to discharge the collected water to the BWSC catch basin system (Tr. at 43, 49). In accordance with USEPA and MassDEP requirements, the Company will implement a Stormwater Management Plan and Sedimentation Control Program to prevent stormwater impacts during Project construction (Exh. NSTAR-1, at 53-54).

7. Other Impacts

a. Visual

Because the proposed transmission lines and new manhole will be underground, they will have no post-construction visual impacts (Exh. NSTAR-1, at 48). The Company stated that the modifications to K Street Substation will not significantly alter the current appearance of the Substation (Exh. NSTAR-1, at 48-49 and exh. 18).

b. Magnetic Fields

The Company provided information indicating that projected and actual peak magnetic fields along the transmission line route will decrease as a result of the Project (Exhs. NSTAR-1, exh. 19; DPU-1-44; DPU-1-45). Further, the Company stated that it expects that the actual magnetic field values will be less than the modeled values by up to a factor of ten, as

the modeled values do not take into account shielding by the ferromagnetic steel pipes that enclose each set of phase conductors (Exhs. NSTAR-1, exh. 19; DPU-1-46).

Table 2. Modeled Magnetic Fields

Location	Peak Magnetic Field (mG)		
	Existing	Post Project w/o Shielding	Post Project w/Shielding
East Second St. (proposed 115 kV lines)	NA	15.5	1.6
H St. (proposed and existing 115 kV parallel)	29.4	27.9	2.8
Intersection of H St. and Columbia Rd.	49.7	42.3	4.2
K St. between Substation and East Second St.	43.3	43.0	4.3

Source: Exh. NSTAR-1, exh. 19, at Tables 4.1 and 4.2.

c. Contaminated Soil, Waste Disposal, and Recycling

The Company stated that, as of the filing of the Petition, the Project route includes no MassDEP-listed hazardous waste sites (Exh. NSTAR-1, at 54). The Company will conduct soil-testing before and during Project construction to determine whether hazardous materials are present. Excavated soils generally will be placed back into the trench; any contaminated soils will be managed and disposed of in accordance with applicable state and federal requirements (id.). Solid wastes such as cardboard, wood, plastics, and paper will be recycled, as will waste asphalt (id.).

d. Habitat Areas, Protected Species, and Historic Resources

The Company stated that there are no Areas of Critical Environmental Concern (“ACECs”) at or near the Project site, and that no part of the Project is within mapped Estimated or Priority Habitat for protected species. The Company stated that the nearest historical resource (the Dorchester Memorial on Old Harbor Street) is over 600 feet from the Project at its closest point, and that the Project will not affect the Dorchester Memorial (Exh. NSTAR-1, at 53).

8. Analysis and Findings on Project Impacts

The Department’s review of the record in this case has identified a number of potential environmental impacts associated with the Project to be evaluated under the Department’s established standard of review.

Regarding construction schedule impacts, the record shows that the City of Boston Municipal Code limits construction to weekdays only, but that the Company wishes to reduce the overall length of Project construction by working on Saturdays as well, and will seek authorization from the City to do so. Although the Company is interested in seeking approval from the City to commence construction work at 7:00 a.m on Saturdays, the Department finds that work at this hour this would be potentially disruptive to area residents. Accordingly, the Department approves construction from 7:00 a.m. to 5:00 p.m. Monday through Friday and, with approval from the City of Boston, from 9:00 a.m. to 5:00 p.m. on Saturdays, excepting public holidays. Should the Company need to extend construction work beyond those days or hours, 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 days or hours should occur, the Company may request prior authorization from the Department.

With respect to traffic impacts, the record shows that temporary but potentially significant traffic and parking impacts may occur during Project construction given the urban nature and high residential density of the Project area, the location of the Project route in City streets, the proximity of arterial roads, and the presence of several MBTA bus routes. The record also shows that the traffic impacts are the primary Project-related concern expressed by City officials. The Department accordingly directs the Company to work closely with all appropriate City agencies, offices, and departments, particularly the Transportation Department, in developing a comprehensive Traffic Management Plan for all phases of Project construction. The Traffic Management Plan should include, at a minimum, requirements for advance notice to the public of upcoming traffic and parking disruptions, detour signage, and the use of police details to direct traffic as deemed appropriate by the City. To further minimize traffic impacts, there shall be no NSTAR, contractor, or subcontractor Project-related parking on South Boston streets. All Project-related parking shall be limited to the selected off-site staging areas for the Project, the Company's property within the fenceline of K Street Substation, or other arranged off-street parking facilities.

With respect to land use impacts, the Project will require the use of certain land currently protected from development by Article 97. In addition to obtaining the required

approval from the state legislature for the use of this land, the Company is directed to mitigate the use by complying with DCR's request that the Company adhere to the EEA Article 97 Disposition Policy by: (1) ensuring that the monetary compensation for the easement the Company will acquire will be directed to the DCR Conservation Trust and that the amount of the compensation will be based on either the fair market value or the value of the proposed use, whichever is greater; and (2) making a good faith effort to convey to DCR an easement of similar size to satisfy the "no net loss" provision of the Policy. Additionally, NSTAR shall: (1) comply with DCR's requirement that the roots, trunks, and canopies of the trees along Columbia Road not be impacted during construction or operation of the Project; and (2) require its construction contractors to use specific measures to protect the trees within the Columbia Road median, as well as along K Street and H Street.

In terms of noise impacts, the Department recognizes that excavation and construction work associated with the installing new transmission lines below paved city streets is inherently noisy, and that portions of the proposed Project route currently experience high levels of ambient daytime noise related to traffic. The record shows that HDD, if used by the Company at the intersection of K Street and East First Street, will be noisy, as the maximum composite noise level at 50 feet from the HDD operation would exceed the applicable City noise limit for a single piece of equipment. Unlike other construction work, which will move continuously along the Project route, the HDD operation would remain in place at a single location for an estimated period of two weeks. The Company has indicated that use of a noise barrier could reduce sound levels from the HDD operation by 15-20 dBA at a distance of 50 feet.

Accordingly, the Department directs the Company to install a noise barrier around the HDD operation, if the Company decides to use HDD at the intersection of K Street and East First Street.

With respect to air quality impacts, the Company has stated its intention to use a number of measures to reduce both dust and motor vehicle emissions. In this regard, the Department directs the Company to ensure: (1) that all diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of the Project construction will have USEPA-verified or equivalent emission control devices installed; and (2) that all vehicle idling will be limited, generally to five minutes, in accordance with the Massachusetts anti-idling law and regulations.

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.

E. Conclusion on Public Convenience and Public Interest

Based on the foregoing analysis of: (i) the need for or public benefit of the proposed use; (ii) alternatives explored; and (iii) impacts of the proposed use, the Department finds that that the Project is necessary for the purpose alleged, that the benefits of the Project to the general public exceed the local impacts, and that the Project will serve the public convenience and is consistent with the public interest.

III. SECTION 61

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 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 EEA, 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).

On July 26, 2013, the Secretary issued a Certificate on the Company’s Environmental Notice Form, determining that the Project does not require the preparation of an EIR (Exh. DPU-1, att. 1). Accordingly, Section 61 findings are not necessary in this case.²⁶

IV. ORDER

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

ORDERED: That the Petition of NSTAR Electric Company pursuant to G.L. c. 164, § 72, seeking approval to construct and operate two new underground transmission lines and to perform associated work as described in the record of this proceeding, is granted; and it is

²⁶ The Department notes the requirements set forth in G.L. c. 30, § 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 EEA’s Greenhouse Gas Emissions Policy and Protocol and no finding related to climate change is required. The Department nonetheless notes that this Project would have no direct greenhouse gas emissions because it consists of underground transmission lines and does not itself generate any power. The Project would have only minimal indirect greenhouse gas emissions, during construction only, from construction equipment and worker vehicles.

FURTHER ORDERED: That NSTAR shall limit Project construction to Monday through Friday unless the City of Boston approves Saturday construction. Construction Monday through Friday shall be limited to the hours of 7:00 a.m. to 6:00 p.m. If NSTAR obtains City approval for Saturday construction, NSTAR shall limit construction to the hours of 9:00 a.m. to 5:00 p.m. on Saturdays. Should the Company need to extend construction work beyond these hours or 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 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 it is

FURTHER ORDERED: That if the City or the Department authorizes any work outside of the time limits approved in this Order, that NSTAR shall notify affected abutters at least 24 hours prior to commencing such work; and it is

FURTHER ORDERED: That NSTAR may use either HDD or trenching for cable installation in the area of the intersection of K Street and East First Street; provided, however, that if NSTAR elects to use HDD, the Company shall place temporary noise barriers around the HDD equipment while it is operating; and it is

FURTHER ORDERED: That NSTAR consult with the City of Boston regarding the nature and timing of Project route repaving, and that the Company shall perform curb-to-curb re-paving if the City so requests; and it is

FURTHER ORDERED: That NSTAR shall consult with the City of Boston in developing a Traffic Management Plan that is acceptable to the City for all phases of Project construction, and that the Traffic Management Plan shall include at a minimum provisions regarding advance notice to the public of upcoming traffic and parking disruptions; detour signage; and the conditions or situations requiring the use of police details for traffic management; and it is

FURTHER ORDERED: That NSTAR shall comply with DCR's request that the Company comply with the EEA Article 97 Disposition Policy by: (1) ensuring that the monetary compensation for the easement the Company will acquire will be directed to the DCR Conservation Trust, and that the amount of the compensation will be based on either the fair market value or the value of the proposed use, whichever is greater; and (2) making a good faith effort to convey to DCR an easement of similar size to satisfy the "no net loss" provision of the Policy; and it is

FURTHER ORDERED: That, with respect to trees, NSTAR shall: (1) comply with DCR's requirement that the roots, trunks, and canopies of the trees along Columbia Road not be impacted during construction or operation of the Project; and (2) require its construction contractors to use specific measures to protect the trees within the Columbia Road median, as well as along K Street and H Street; and it is

FURTHER ORDERED: That NSTAR shall ensure that: (1) all diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of the Project construction will have USEPA-verified or

equivalent emission control devices installed; and (2) that all vehicle idling will be limited, generally to five minutes, in accordance with the Massachusetts anti-idling law and regulations; and it is

FURTHER ORDERED: That NSTAR shall work cooperatively with City of Boston officials, state officials, and affected residents to minimize traffic, parking, noise, and other local impacts associated with the Project; and it is

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

FURTHER ORDERED: That NSTAR and its successors in interest shall 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 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 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 the Secretary of the Department shall transmit a certified copy of this Order to the Mayor of the City of Boston, and that NSTAR shall serve a copy of

the Order on the Boston City Council, the Boston Transportation Department, the Boston Water and Sewer Commission, and the Massachusetts Department of Conservation and Recreation within five business days of its issuance and shall 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/
Ann G. Berwick, Chair

/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.