

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 13-64

March 18, 2014

Petition of NSTAR Electric Company pursuant to G.L. c. 40A, § 3 for Exemptions from the Zoning Ordinance of the Town of Barnstable

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I. INTRODUCTION

A. Description of Proposed Project

On March 15, 2013, NSTAR Electric Company (“NSTAR” or “Company”) filed a Petition (“Petition”) for individual and comprehensive zoning exemptions from the Town of Barnstable (“Town”) Zoning Ordinance (“Ordinance”) pursuant to G.L. c. 40A, § 3 in connection with proposed modifications to NSTAR’s existing Hyannis Junction Substation No. 961 (“Hyannis Junction” or “Substation”) and related facilities (collectively, the “Project”) (Exh. NSTAR-1, at 1). The Substation is on a parcel of land owned by the Company at 565 Mary Dunn Road in Hyannis, Massachusetts (id.). The purpose of the Project is to serve additional load NSTAR anticipates in the Mid-Cape¹ area as well as to maintain reliable service to NSTAR’s existing customers (Exh. NSTAR-1, at 4-5).

The existing Substation is connected to two 115 kV transmission lines (Lines 123 and 124) and five 23 kV distribution lines (Lines 80B, 84B, 90, 92A, and 93) (Exh. NSTAR-1, at 2). There are two 115 kV/23 kV step-down transformers within the Substation: a 30/40/50 megavolt ampere (“MVA”) unit with a long-term emergency (“LTE”) rating of 62 MVA (the “Line 124 Transformer”) and a 45/60/75 MVA unit with an LTE rating of 95 MVA (the “Line 123 Transformer”) (id.). The Substation site also contains a 40 megavolt ampere reactive (“MVAR”) 115 kV capacitor bank, two 4.8 MVAR 23 kV capacitor banks, a single-story control house, and associated protective relaying, metering, control wiring and related equipment (id.).

¹ The Company defines its Mid-Cape service area as including Barnstable, Yarmouth, Dennis, Brewster, and Harwich (Exh. NSTAR-1, at 2-3).

As part of the Project, NSTAR proposes to add a third 115/23 kV transformer (another 30/40/50 MVA unit), an additional 4.8 MVAR 23 kV capacitor bank, and associated switching equipment at the Substation (Exh. NSTAR-1, at 4-5). The Company proposes to install a full spill containment system for the new and existing transformers (id. at 4-5) and expand the fenced area of the Substation from approximately 36,000 square feet to approximately 53,000 square feet (id. at 42). NSTAR proposes to reconductor approximately one mile of 115 kV transmission cable on Line 123 between the Substation and Barnstable Switching Station (id.). The proposed Project also would reconfigure approximately 200 feet of Lines 123 and 124 at the entry to the Substation to eliminate an overhead crossing of the lines (Exh. NSTAR-1, at 5).² To accomplish this, the Company proposes to replace existing wood support structures for these lines with new steel support structures of the same height, which would allow a net decrease of five support structures and associated guy wires (id.).

The Company also proposes distribution upgrades that do not require zoning exemptions, but would be undertaken in conjunction with the Project and, therefore, were presented for Department review. These include: (1) transferring some of the existing Hyannis Junction 23 kV feeders between buses; and (2) installing a new 4,000-foot 23 kV underground distribution feeder line from the Substation to the South Yarmouth area through a new duct bank located beneath the runway of the Hyannis Airport to a riser pole on Mary Dunn Road in Yarmouth (Exh. NSTAR-1, at 5-6). The new 23 kV feeder would improve the reliability of

² The line reconfiguration would prevent the loss of both transmission supply circuits into the Substation (Exh. NSTAR-1, at 4, 6). Presently, a single line break at the point of crossing could potentially trip Lines 123 and 124 simultaneously (id.).

service associated with Lines 92A and 92B by reducing the loads and customer counts on these lines (id. at 5-6, 14).

The estimated cost of the Project, including the cost to reconductor Line 123 and modify the entrance of Lines 123 and 124 into the Substation, is \$11,900,000 (Exh. DPU 1-23). Estimated construction time is approximately six months (RR-DPU-NSTAR-9).

B. Procedural History

NSTAR filed its Petition with the Department on March 15, 2013. On May 2, 2013, the Department conducted a Project site visit followed by a public hearing at Barnstable High School. On May 15, 2013, the Town filed a petition to intervene, which the Department granted in a ruling issued on June 4, 2013. The Company submitted the prefiled direct testimony of three witnesses: (1) John Zicko, Manager of Substation Design Engineering at NSTAR; (2) Keith L. Jones, Senior Planning Engineer in the Transmission and Distribution Planning Group at NSTAR; and (3) Kevin McCune, Licensing and Permitting Project Manager in the Environmental Affairs Department at Northeast Utilities, including its NSTAR Electric Company subsidiary. The Town of Barnstable submitted prefiled direct testimony of four witnesses: (1) Jo Anne Miller Buntich, Director, Town of Barnstable Growth Management Department; (2) Hans Keijser, Supervisor, Hyannis Water System; (3) Daniel W. Santos, Director of Public Works, Town of Barnstable; and (4) C. Carter Fahy, Principal, Environmental Partners. NSTAR filed rebuttal testimony of Mr. Zicko and Mr. McCune.

Evidentiary hearings originally were scheduled for August 6, 2013. However, the parties jointly requested, and were granted, several extensions to the procedural schedule to continue negotiations on a settlement agreement to address certain issues in the proceeding. Evidentiary hearings were held on October 28 and 29, 2013. On November 15, 2013, the

Town and the Company filed a Settlement Agreement between NSTAR and the Town (“Settlement Agreement”) (Exh. NSTAR/BAR-1) (Exh. NSTAR/BAR-1). The Company filed a brief on November 22, 2013.

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

A. Standard of Review

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

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

Thus, a petitioner seeking exemption from a local zoning by-law under G.L. c. 40A, § 3, 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 its present or 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) (“Tennessee Gas Pipeline Company (2002)”). Finally, the petitioner must establish that it requires exemption from the zoning ordinance or by-law. 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 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 4-7 (2012); NSTAR Electric Company, D.P.U. 07-60/07-61, at 2-6 (2008). Accordingly, the Department finds that NSTAR qualifies as a public service corporation for the purposes of G.L. c. 40A, § 3.

C. Public Convenience and Welfare

1. Need for or Public Benefit of Use

a. Capacity and Contingency Issues

NSTAR prepared a ten-year 90/10 summer peak load forecast for the years 2013-2022 which shows a significant rebound in demand levels previously seen in earlier forecasts (Exh. NSTAR-1, at 34-35). NSTAR attributes increased demand for electricity in the area of Hyannis Junction to a number of factors, including an economic rebound from the recession of 2007-2009 and increasing seasonality of the load served from Hyannis Junction (Exhs. DPU 1-14; DPU 2-4). NSTAR asserts that, in addition to accommodating expected peak load growth, the Project would resolve capacity needs associated with serving existing peak loads under normal conditions and contingencies on the Company's 115 kV and 23 kV systems in the Mid-Cape area (Exh. NSTAR-1, at 2, 3, 13).

Based on its planning standards set forth in SYS PLAN 010,³ NSTAR states that the transmission and distribution system at Hyannis Junction currently has multiple planning criteria violations which adversely affect system performance and reliability (*id.* at 12). A key constraint noted by NSTAR is the capacity of the Line 124 Transformer at the Substation, which has an LTE rating of 62 MVA (approximately 62 MW). At the forecasted 2013 summer peak load of 97 MW for the Substation, there is approximately 35 MW of load (and 12,600 customers) at risk of a loss of service should the other main 115 kV/23 transformer at the Substation fail.

³ The Company developed the Project in response to criteria and guidelines in SYS PLAN 010, NSTAR Electric's Bulk Distribution Substation Assessment Procedure used in the Company's overall assessment of its system (Exh. NSTAR-1, at 12, exh. 7).

NSTAR asserts that the Project would address existing N-0 capacity constraints⁴ at Hyannis Junction (Exh. NSTAR-1, at 13) and also post-contingency capacity constraints for several different potential N-1 contingency events caused by the loss of any one of the following system elements: (1) either of the two existing transformers at Hyannis Junction; (2) either of the two 115 kV lines (Lines 123 and 124) into Hyannis Junction; (3) either of the two transformers at Harwich Substation; (4) either 115 kV line (Lines 118 and 119) into Harwich Substation; (5) the transformer at the Oak Street Substation located elsewhere in Barnstable; or (6) any one of three 23 kV feeders from Hyannis Junction and Harwich Station (Exh. NSTAR-1, at 13).

NSTAR states that loading on the Line 124 Transformer approached its nameplate rating in the summers of 2010, 2011, and 2012 under N-0 conditions (id. at 14). Further, a contingency outage of any one of three 23 kV feeders, Lines 92A, 93, or 92B, would result in an exceedance of the LTE rating of one of the remaining feeders (Exh. NSTAR-1, at 12-14, exh. 7).⁵ NSTAR contends that high customer counts on Lines 92A and 92B currently necessitate a fourth distribution feeder into the South Yarmouth area to allow reconfiguration of the 23 kV distribution supply system (id.).

b. Service Quality Issues

NSTAR identifies three area feeders, 92A (Hyannis), 92B (Harwich), and 93 (Hyannis) as local lines adversely contributing to the Company's historical outage performance

⁴ N-0 represents the modeled condition of the transmission system with no unexpected generation or transmission contingencies. N-1 would include one such contingency.

⁵ Each feeder serves more than 11,000 customers and provides back up for the other two feeders (Exh. NSTAR-1, at 14).

over a five-year period (Exh. NSTAR-1, at 26, 27, exh. 8). Specifically, the Company's data indicate that Line 92A, and circuits fed by Line 92A, experienced twelve individual outage events in 2012 (id.). Similarly, the Company notes that in 2008 and 2012 there were repeated outages along Line 92B and associated circuits (id.). NSTAR data indicate that in 2008, 18 outage events associated with Line 92B affected close to 18,000 customers, resulting in 16,163 customer outage hours ("COH"); in 2012; Line 92B, and circuits it feeds, experienced 17 separate outage events involving 2,752 customers and resulting in 2,639 COH (id.). NSTAR contends that, due to their high customer counts, Lines 92A and 92B are significant factors in the Company's reliability statistics (id. at 27).

c. Remedial and Short-Term Measures Instituted

NSTAR reports that during summer heat wave conditions in 2010, 2011, and 2012, the Company conducted remedial switching on its 23 kV system to transfer load from the Line 124 Transformer to the Line 123 Transformer (both at Hyannis Junction) and also to the Oak Street Substation (Exh. NSTAR-1, at 14-15). To keep loading on the Line 124 Transformer below its normal rating during heat wave conditions, the Company conducted remedial switching for 177 hours in 2011, and for 60 hours in 2012 (id.). NSTAR asserts that remedial switching was again necessary in 2013 when its Cape Cod District peak load was four percent over the 2013 summer peak forecasted value (Exh. DPU 2-22; RR-DPU-NSTAR-8). NSTAR notes that because of the central role of the Line 124 Transformer in many N-1 constraints in the Barnstable area, the Company cannot rely on peak load remedial transfer switching to postpone the need for the Project (Exh. NSTAR-1, at 14-15).

NSTAR also used remedial switching to relieve high loading on Line 92A during summer heat wave conditions in 2010, 2011, and 2012 (id.). The Company asserts that heavy

N-0 loading on Line 92A has resulted in the feeder becoming a limiting element for two N-1 contingency events involving other 23 kV distribution feeders (id.).

d. Analysis and Findings

The Company has taken measures to mitigate some of the capacity, contingency, and reliability issues in the Mid-Cape area. These interim measures, discussed above, are useful in the near term, but they are not sufficient long-term solutions; while they may avert short-term exceedances of system element capabilities, they leave load growth and longer-term service quality issues unresolved and also fail to meet NSTAR's planning standards for reliable service.

As noted above, the Company also has transferred load under peak load conditions to avoid overloading the Line 124 Transformer. However, there are numerous contingency events as of 2013, including the loss of either transformer at Hyannis Junction that would necessitate dropping load entirely to avoid equipment overloads. The Company also has shown that there is a need for enhancements to the distribution feeders served by Hyannis Junction. These and other constraints would be resolved by the Project (Exh. NSTAR-1, at 12-16).

Based on the Company's demonstration of: (1) the potential for normal capacity constraints and post-contingency capacity constraints to affect Hyannis Junction and associated equipment; (2) constraints that result in the potential for exceedances of the LTE ratings of elements of NSTAR's electric system in NSTAR's Cape Cod service territory, particularly in and around Barnstable; and (3) the resulting likelihood of outages of increasing frequency and duration given growing loads and number of customers in the Mid-Cape area, the Department concludes that the Project is needed and would provide public benefits.

2. Alternatives Explored

NSTAR evaluated an alternative substation to the Project as well as energy efficiency, active demand response (“active DR”), and distributed generation (“DG”) alternatives.

a. Alternative Substation

As an alternative substation solution, the Company explored construction of a new 115/23 kV bulk supply substation on NSTAR property at White Rock Road in Yarmouth (“alternative substation”) (Exh. NSTAR-1, at 33-35). The Company’s evaluation of the alternative substation included cost, environmental impacts, and reliability information, summarized and compared against information for the Project (Exhs. NSTAR-1, at Exh. 13; DPU 1-21; DPU 1-23).

NSTAR provided a comparison of the Project and the alternative substation which examines the ability of the two options to meet need and resolve: (1) existing N-0 capacity constraints; and (2) post-contingency capacity constraints for twelve identified potential N-1 contingency events (Exh. DPU 1-21).⁶ Information presented by the Company indicates that the alternative substation would be comparable to the Project in meeting need and in resolving the system constraints identified by the Company in its Petition (id.; Exh. NSTAR-1, at 13-27, 33-34).

NSTAR estimates the cost of the alternative substation at \$16.3 million (RR-DPU-NSTAR-10). Given the Company’s estimate of \$10.7 million for work within the Substation fence and \$1.2 million to reconfigure the entry of Lines 123 and 124 into Hyannis

⁶ See Section II.C.1.a for additional description of the referenced N-0 capacity constraints and N-1 contingency events.

Junction, the comparable cost of the Project would be \$11.9 million (Exh. DPU-1-23).⁷ The Company also provided a comparison of the environmental impacts of the Project and those of the alternative substation (Exh. NSTAR-1, at exh. 13). Table 1 below presents the costs, benefits, and environmental impacts of the Project and the alternative substation.

Table 1. Comparative Analysis: Project & Alternative Substation

Type of Impact	Project: Modification of Substation and Related Facilities	Alternative Substation: New 115/23 kV Substation at White Rock Road	Comparison
Total Cost	\$11,900,000	\$16,300,000	Project preferred.
Reliability Benefits	Reduces load on Hyannis Junction and Harwich Substations. Resolves identified N-0 constraints at Hyannis Junction. Resolves N-1 constraints identified in the Petition. Reduces customer counts of existing feeders served by Hyannis Junction and Harwich Substations.	Identical to Project	Comparable.
Construction Duration	Construction of Project is expected to take six months.	Construction of Alternative expected to take nine months.	Project slightly preferred. Shorter construction period reduces costs and construction impacts.
Land use	Land use at Substation consistent with current use. Project would expand existing Substation.	Alternative requires construction of new substation on currently undeveloped parcel in residential area.	Project preferred. Impacts minimized by use of existing substation site.
Wetland/waterway Resource Areas	No portion of the Project would impact a wetland or waterway.	No direct impact, but portion of alternative tap lines would cross over a waterbody (Little Greenough Pond).	Project slightly preferred. Alternative would require spanning pond w/tap lines.
Wellhead Protection & Water Supply Resource Areas	The Project is within MA Department of Environmental Protection ("MassDEP") and Cape Cod Commission mapped Zone II Wellhead Protection Zones.	Alternative not located within MassDEP and Cape Cod Commission mapped Zone II Wellhead Protection Zones.	Alternative slightly preferred. Avoids Wellhead Protection Zones.
Groundwater	A portion of the proposed expansion is located within Barnstable's Groundwater Protection District. A portion of the property is also located within Barnstable's more restrictive Wellhead Protection District.	Located within Yarmouth's Aquifer Protection District.	Comparable.
Visual	The Project is located to rear of existing Substation. The location is surrounded by industrial uses, not by residences. No change to visual impacts in the area due to Project.	Undeveloped residential location. Potential impact to residential abutter directly across White Rock Road from site. Site development may reduce vegetative screening.	Project slightly preferred. No change to visual impacts in Project area. Potential for limited impacts at alternative site.

⁷

The Company argues that its modifications of Line 123 and Line 124 (beyond the substation fence), and costs associated with these modifications, are not part of the Project (Exh. DPU 1-23). The Department notes, however, that the Project work at the Substation is dependent on modifications to Lines 123 and 124 beyond the Substation (*id.*). For purposes of comparing the total cost of the Project against the total cost of the alternative substation, the Department includes the cost of modifying Lines 123 and 124 outside the Hyannis Junction fence (*id.*). Modifying Lines 123 and 124 is not required at the alternative substation (Exh. NSTAR-1, at 33-40).

Noise	Temporary impacts at Project location during construction. Operational noise from added new transformer. Noise impact minimized by choice of reduced sound design equipment and masking by existing transformers (louder than new transformer).	Temporary impacts at construction site during installation. Reduced sound design transformer would provide some mitigation of operational noise impacts.	Project preferred. No incremental noise impacts anticipated with operation of Project at Hyannis Junction Substation.
Traffic	Temporary impacts associated with Project construction.	Temporary impacts associated with constructions.	Comparable.
Areas of Critical Environmental Concern (“ACEC”)	No ACEC impacts.	No ACEC impacts.	Comparable.
Historic Resources	The Project is not located within a designated historic area.	Construction would occur within the Old Kings Highway Historic District.	Project preferred. Not in historic resource area.
Flood Zone	The Project is not located within a flood zone according to Flood Insurance Rate Map (FIRM) and Federal Energy Management Agency (FEMA) data from MassGIS.	Not within a flood zone according to FIRM and FEMA data from MassGIS.	Comparable.
Protected Species & Habitat	The Project is located within a Priority Habitat as mapped by Natural Heritage & Endangered Species Program (“NHESP”), but NHESP indicates it anticipates no protected species impacts in Project-affected area of right-of-way.	NHESP has mapped a portion of the proposed alternative location as Priority Habitat.	Comparable.

Sources: Exh. NSTAR-1, at 34-40, exh. 12, exh. 13; Exh. DPU 1-21; Exh. DPU 1-23; Tr. 1, at 138; RR-DPU NSTAR-10; RR-DPU-NSTAR-11.

b. Energy Efficiency and Renewables Alternative

NSTAR notes that the Cape Light Compact (“CLC”) administers energy efficiency programs in the Project area as well as elsewhere on Cape Cod, and that the Company’s demand reduction forecast due to energy efficiency is based on these programs. Using CLC’s projections through 2022, the Company estimated the share of total expected Cape Cod peak demand reductions due to energy efficiency programs which would offset loads served at Hyannis Junction, Harwich Station, and Oak Street Substation – the substations that serve the Mid-Cape area (Exhs. NSTAR-1, at 29; DPU 1-17; DPU 2-9). Using this approach, the Company estimated that peak demand reductions for Hyannis Junction would be 3.8 MW in 2013, 4.8 MW in 2014, and 5.8 MW in 2015, or 14.4 MW in total over the three-year period (Exh. NSTAR-1, at 29-30). NSTAR asserts that load-at-risk⁸ for Hyannis Junction is more

⁸ The Company defined load-at-risk for Hyannis Junction based on the summer 2013 peak load forecast being 35 MVA above the Substation’s firm capacity of 62 MVA – which is the LTE capacity of the Line 124 Transformer (Exh. NSTAR-1, at 29).

than twice the Company's estimate of cumulative energy efficiency demand reductions between 2013 and 2015 (id.).⁹

The Company states that the Substation's location in the Cape Cod area offers less potential for active demand response than in other areas in Massachusetts with more industrial and large commercial load (Exh. NSTAR-1, at 30-31). NSTAR contends that only one active demand response participant is currently available in the Hyannis Junction area and that this level of participation is insufficient to avoid the need for upgrades at Hyannis Junction) (id.).

The Company also contends that distributed generation ("DG") would not avoid need for the Project because: (1) photovoltaic and wind energy facilities, the most prevalent DG resources on the NSTAR system, are intermittent and non-dispatchable and thus an unreliable means of serving load at a specific time (summer peak load periods, for example); (2) the output of photovoltaic resources drops precipitously when Cape Cod loads are typically highest – in the evening between 6:00 p.m. and 8:00 p.m.; and (3) in many of the contingency events driving the need for the proposed Project, a number of existing and proposed DG resources would trip offline (a requirement of DG interconnection standards in the Institute of Electrical and Electronics Engineers ("IEEE") Standard 1547-2003) (Exh. NSTAR-1, at 32, exh. 10).

c. Analysis and Findings

Construction of the Project would occur at the site of the existing Substation whereas NSTAR would construct the alternative substation at an undeveloped parcel of land. The Project would not significantly increase existing land use, visual and noise impacts at the Project site. At the alternative substation location, land use, visual, and noise impacts of the

⁹ The total energy efficiency out of Hyannis Junction over 2013 to 2015 is 14.4 MW, a potential shortfall of 20.6 MW.

Project would all require mitigation to ensure minimization of permanent impacts in these categories. The Project site is within the Town of Barnstable's Groundwater and Wellhead Protection Districts; the alternative substation site is within the Yarmouth Aquifer Protection District. Mitigation and minimization of potential impacts to water resources would be possible with construction of either the Project or the alternative substation. The alternative substation would be significantly more costly than the Project and would involve more construction-related impacts. Accordingly, the Department finds that the overall environmental impacts and cost would be less for the Project than for the alternative substation.

The record demonstrates that energy efficiency and renewables do not offer an adequate alternative to the Project – especially as the need for the Project is immediate. The Company's summer peak forecast for the Project area shows that energy efficiency programs, even in combination with active demand response, would meet less than half of NSTAR's identified Mid-Cape at-risk peak load in the immediate three-year period. The record also shows that DG resources would not provide NSTAR with reliable load relief in the Hyannis Junction area because some contingency events would trip a number of existing and proposed DG resources offline. In addition, the effectiveness of photovoltaic resources to address peak demand capacity needs in the Mid-Cape area is limited by both intermittency of photovoltaic resources and the non-coincident relationship between system peak loads in the late afternoon during the summer and the production profiles for photovoltaic systems, which peak earlier in the day.

Accordingly, the Department finds that the Company's decision to pursue the Project rather than the alternatives explored is reasonable.

3. Impacts of the Proposed Use

a. Land Use Impacts

The Project would expand the fenced area at Hyannis Junction from a total of 36,000 square feet to approximately 53,000 square feet (Exh. NSTAR-1, at 42). The site is located in an undeveloped industrially zoned area (id. at 43). Land use information provided by NSTAR indicates that the closest residential areas are more than one-half mile to the south and east of Hyannis Junction, separated from the Project site by the Barnstable Municipal Airport (Exh. DPU 1-39, Att.).¹⁰

The Project is not located within an Area of Critical Environmental Concern (“ACEC”), but is within NHESP-mapped Priority Habitat (Exh. NSTAR-1, at 44). NHESP informed NSTAR during a consultation that NHESP did not anticipate impacts to rare and endangered species due to construction and operation of the Project and associated facilities (id.). A final determination by NHESP is pending (Tr. 1, at 117).

b. Visual

The Company anticipates minimal visual impacts as a result of construction and operation of the Project at Hyannis Junction Substation given the lack of nearby sensitive receptors and the Project’s location at the rear of the site (Exhs. NSTAR-1, at 43; DPU-1-39, Att.). Visual impacts would be avoided by installation of an underground distribution line associated with the Project, which requires no vegetation control after its installation (Exh.

¹⁰ The only business locations that are closer to the Project than the airport are the Barnstable County Fire and Rescue Academy and A-1-A Steel, both of which are slightly less than a quarter mile to the west of the Project site (Exh. DPU 1-39, Att.; Tr. 1, at 118-119).

DPU 1-38). In addition, the Company asserts that the Project would not significantly alter lighting impacts at Hyannis Junction (id.; Exh. DPU 1-39, Att.).

c. Wetlands and Water Resources

The Project is not in an area regulated under the Wetlands Protection Act, wetlands protection regulations, or the Town of Barnstable wetlands bylaws (Exhs. NSTAR-1, at 37, 42; Tr. 1, at 133-134). There are no certified or potential vernal pools within 750 feet of the Project site, nor are there rivers or streams within 200 feet of the Project site (Exh. NSTAR-1, at 42). However, the Project is within a Massachusetts Department of Environmental Protection (“MassDEP”) Zone II Wellhead Protection Area and a Potential Public Water Supply Area under the Cape Cod Commission Regional Policy Plan (id.).

NSTAR reports that the Company has an established Spill Prevention, Control, and Countermeasure (“SPCC”) Plan; it also has a contract with Clean Harbors Environmental Services Company, to ensure proper implementation of the SPCC Plan (Exhs. NSTAR-1, at 42; DPU 1-50; DPU 1-51, Att. (1); NSTAR-KM/JZ-1, at 16). The Company contends that its SPCC Plan would prevent contamination of the water table in the event of a transformer oil (or other oil) release (Exhs. NSTAR-1, at 42; DPU 1-50; DPU 1-51, Att. (1); NSTAR-KM/JZ-1, at 16). NSTAR also proposed, and subsequently enhanced and expanded, a design for a secondary containment system at Hyannis Junction to minimize potential Project impacts to water resources (Exhs. NSTAR-1, at 42; NSTAR-KM/JZ-1; NSTAR/BAR-1). The ultimate design for the secondary containment system reflects concerns and input from the Town of Barnstable and is formalized in the Settlement Agreement (Exh. NSTAR/BAR-1).

The containment system described in the Settlement Agreement incorporates reinforced concrete collection aprons for the two existing transformers at Hyannis Junction as well as for

the proposed transformer (Exh. NSTAR/BAR-1). Piping would link the three collection aprons to allow shared storage capacity (id.). Construction requirements include use of Imbiber Bead® technology for stormwater drainage; installation of collection aprons with a six-inch “reveal” above grade; and construction of site grades such that they do not slope towards the aprons (id.). Groundwater monitoring requirements include NSTAR’s installation, at its own expense, of two groundwater monitoring wells, each two inches in diameter, at locations agreeable to the Town (id.). NSTAR also must follow groundwater sampling, analysis, and reporting protocols itemized in the Settlement Agreement (id.).

d. Traffic

NSTAR asserts that constructing the Project would not involve blocking or closing roads because the Project is located in a sparsely developed area and is not on and does not cross a public roadway (Exhs. NSTAR-1, at 43; DPU 1-52). The Company states that it would arrange for a police detail and schedule activities in conjunction with the Town should activities occur (e.g., trenching and delivery of large items or equipment) with potential impacts to traffic flow (Exh. NSTAR-1, at 52). The Company indicates that airport management would oversee the movement of construction vehicles and deliveries within the confines of airport property (id.; Exh. DPU 1-9). In addition, the Company asserts that the arrival and departure of construction crews would not adversely affect local traffic because of the small number of workers involved (id.).

The Company contends that the absence of direct or nearby residential abutters to the Project location would minimize impacts of construction-related activities, including staging, access plans, equipment delivery, and nighttime and weekend construction (Exh. DPU 1-5). NSTAR states it would provide to the Town an updated construction schedule at least 14

business days prior to the start of construction, and would meet to discuss this schedule as required by the Town (id.). The Company also states that it would provide regular updates and notify the Town in the event of significant changes to the Project schedule (id.). With respect to non-residential abutters to the Project, NSTAR states it would hand deliver the phone number of its community relations manager for the area, and would otherwise maintain contact with any direct abutters, and abutters to direct abutters within 300 feet of the Project site (id.).¹¹

e. Noise Impacts

The Company reports that, with the exception of noise from the new transformer, Project noise impacts would be construction-related and temporary (Exh. NSTAR-1, at 43, exh. 13). The Company states that its new transformer at Hyannis Junction would incorporate noise attenuation features to reduce noise impacts of operation, and that existing Hyannis Junction transformers would further mask noise from the transformer proposed for the Project (Exh. NSTAR-1, at 43, Exh. 13). The Company asserts that the Project is designed for and would meet MassDEP's noise regulations (Exh. DPU 1-66).

The Company indicates that it prefers a construction schedule from 7:00 a.m. to 6:00 p.m., six days per week, to shorten the length of the overall construction process (Exh. DPU 1-9). Although work would begin at 7:00 a.m. each workday (i.e., Monday through Saturday), the Company would delay equipment use until after 7:30 a.m. on Saturdays to minimize noise impacts on Saturday mornings (id.). The Company states that Saturday

¹¹ The Company stated that an NSTAR construction or operations/site supervisor would be at the Project site during construction hours and available to address any concerns of area residents (Exh. DPU 1-5).

construction would be confined to efforts to make up time due to weather and scheduling delays, or to activities that require setting equipment, off-peak outages, or “sole use”¹² of the site (*id.*). The Company explains that it would address sole-use and other Saturday construction-related impacts, including noise impacts, with the Town or abutters to the location on a case-by-case basis (*id.*).¹³

f. Air Impacts

In response to questions from the Department, NSTAR reported on its use of sulfur hexafluoride (“SF₆”), a gas identified as a non-toxic but highly potent greenhouse gas (“GHG”) (Exh. DPU 1-24).^{14,15} The new equipment at Hyannis Junction would include a circuit switcher that would contain approximately six pounds of SF₆ gas and a skid-mounted circuit breaker module that would contain an estimated 310 pounds of SF₆. NSTAR currently uses SF₆ at Hyannis Junction for a circuit switch that contains approximately 18 pounds of SF₆

¹² A “sole use” activity occurs to the exclusion of other activities at a given location at the time it is in process (Exh. DPU 1-9). Examples of sole use activity include large excavation work, deliveries of large equipment, switching of transmission lines, and testing and energizing of equipment (*id.*).

¹³ See Section II.C.3.d regarding the Company’s plans to communicate with the Town and abutters about possible impacts of scheduled construction activities.

¹⁴ SF₆ is a GHG that is 23,900 times more potent than CO₂. One pound of SF₆ has the same global warming impact as eleven tons of CO₂. See the Massachusetts Clean Energy and Climate Plan for 2020, at 77.

¹⁵ The Massachusetts Clean Energy and Climate Plan, issued by the Secretary of Energy and Environmental Affairs on December 29, 2010, adopts a 2020 statewide GHG 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 SF₆ equivalent to a reduction of 0.2 million metric tons of CO₂ is one of the policies set forth in the Plan. See G.L. c. 21N.

(Exh. DPU 1-24). NSTAR estimates that the emissions rate for the new equipment would be less than 0.1 percent per year (id.).¹⁶,

NSTAR reports that filling new equipment with SF₆ takes place at installation, and that from equipment installation to retirement, the Company institutes special measures to minimize atmospheric releases of SF₆ (Exh. DPU 1-24). These include the Company's use of a gas cart to capture SF₆ during maintenance – the only time that NSTAR opens SF₆ equipment once operation begins (id.). NSTAR employees who handle or supervise handling of SF₆ receive specialized training from the equipment manufacturer (id.). A specialty gas vendor recovers and reclaims SF₆ gas at equipment retirement (id.).

The Company would mitigate construction air impacts by limiting vehicle idling in accordance with 310 CMR 7.11(1)(b) (Exh. DPU 1-25). The Company indicates that it is committed to retrofitting 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 with USEPA-verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (id.).

g. Magnetic Fields

NSTAR provided an assessment, prepared by its contractor, of potential electric and magnetic field (“EMF”) impacts of the Project (Exh. DPU 1-47, Att.). The Company asserts that the Project would not change voltages on Lines 123 and 124, but would alter the balance of flow between these two lines (id. at 10).

¹⁶ NSTAR determined its SF₆ gas emission rates in accordance with United States Environmental Protection Agency (“USEPA”) methods for Mandatory GHG reporting under 40 CFR 98, Subpart DD (Exh. DPU 1-24).

Drawing upon results of its EMF assessment, the Company indicates that, at the edges of the ROW for Lines 123 and 124, maximum magnetic field values from the transmission lines would typically increase from 12.1 milligauss (“mG”) in the existing configuration to 17.5 mG in the proposed configuration (Exh. DPU-1-47, Att. at 4). The Company also reports both existing and post-Project maximum magnetic fields ranging from five to 50 mG at the fence line of the Substation, depending on location (Exh. DPU 1-47).

h. Analysis and Findings

The land use impacts of the Project would be consistent with existing impacts at the Hyannis Junction Substation. The Project is not within an ACEC, but is within NHESP-mapped Priority Habitat. NHESP informed NSTAR that NHESP did not anticipate impacts to rare and endangered species as a result of the construction and operation of the Project and associated facilities; NHESP is yet to issue a determination, however. The determination, when available, is required in support of NSTAR’s assertion that the Project would not adversely affect rare and endangered species. The Department therefore directs the Company to provide the Department with a copy of NHESP’s determination on the impacts of the Project to protected species, when issued.

Project construction would not trigger road blockage or closure. The Project is on a parcel in a sparsely developed area that involves no roadway crossings and is large enough for laydown uses and construction crew parking. NSTAR plans to have a police detail, if required by the Town, and to otherwise work with the Town to minimize any potential disruption to traffic flow from construction-related activities. Airport management will supervise construction activities on airport property. The Company has proposed notification plans for abutters and abutters to direct abutters within 300 feet of the Project site. To include

notification of all potentially affected entities in the vicinity of the Substation, the Department directs the Company to extend its contact and notification arrangements to those within one-half mile of the Project location.

The visual and noise impacts of the Project would be consistent with existing impacts at the Project site. No sensitive receptors are in the immediate vicinity of the Substation; this would not change with construction and operation of the Project. Visual impacts at the Substation would not increase significantly; there would be no change to visual impacts resulting from the installation of an underground 23kV distribution feeder into the South Yarmouth area. Noise attenuation features of the new transformer proposed for Hyannis Junction would mitigate permanent noise impacts due to operation of the Project. The distance separating the Project from sensitive receptors and the Company's proposal to delay the use of heavy equipment on Saturday mornings for one-half hour would help minimize noise impacts of construction. The Company's plan to address sole-use and other Saturday construction-related impacts, including noise impacts, with the Town or abutters to the Project location on a case-by-case basis would further mitigate noise impacts of construction. The Department directs NSTAR to inform the Department if the Company is unable to resolve any noise-related concerns raised by the Town or area residents or entities.

In terms of mitigation of construction air impacts, consistent with recent Department and Siting Board requirements, the Department directs the Company to use ultra-low sulfur diesel fuel in its diesel-powered construction equipment, limit vehicle idling to five minutes pursuant to state regulations, and retrofit 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.

See NSTAR Electric Company and New England Power Company, D.P.U. 11-51, at 30, 31 (February 27, 2012); Tennessee Gas Pipeline Company, D.P.U. 11-26, at 20, 21 (January 6, 2012); New England Power Company, D.P.U. 10-77, at 37 (May 6, 2011). New equipment requiring SF₆ would include one circuit switcher and a skid-mounted circuit breaker module; the equipment would have a leakage rate of less than 0.1 percent per year.

The Project is in a MassDEP Zone II Wellhead Protection Area and a Potential Public Water Supply Area under the Cape Cod Commission Regional Policy Plan. As is the Company's established practice, NSTAR proposes to implement its previously developed SPCC Plan with an experienced vendor responsible for plan coordination. Also, NSTAR and the Town have together developed measures, formalized in the Settlement Agreement, to prevent Project impacts to wellhead protection and water supply resource areas, to groundwater, and to wetland and water resources. Provisions one through four of the Settlement Agreement contain: (1) detailed technical requirements for the design of the secondary containment system to be installed at the Substation, for both the existing transformers and the proposed new transformer; (2) groundwater monitoring requirements; (3) an agreement by NSTAR to restrict future commercial development on land in the vicinity of the Substation; and (4) a provision requiring NSTAR to provide funds (up to \$10,000) so that the Town can retain consultants to assist with its review of the engineering plans for enhanced groundwater protection design for the Substation. In summary, the Settlement Agreement institutes a comprehensive plan to guard against and minimize any potential impacts of construction and operation of the Project to Town of Barnstable water resources and supply.

Maximum magnetic field values would increase from 12.1 to 17.5 mG at edges of the right-of-way extending from Barnstable Substation, and would continue to range from five to 50 mG at the fence line of the Substation. The distance of sensitive receptors from NSTAR's Hyannis Junction fence line and right-of-way further mitigates any Project-related magnetic field impacts; magnetic field impacts would, therefore, be minimized with construction and operation of the Project.

Based on the above, the Department concludes that compliance with all applicable federal, state and local regulations plus the mitigation measures proffered by the Company – and as additionally directed by the Department herein – would result in a Project that includes feasible measures to avoid or minimize environmental impacts.

4. Conclusion on Public Convenience and Welfare

Based on the foregoing analysis of: (1) need for or public benefit of use; (2) alternative explored; and (3) impacts of the proposed use, the Department finds that the benefits of the Project exceed adverse local impacts, and that the proposed use is thus reasonably necessary for the public convenience or welfare.

D. Exemptions Required

1. Introduction

NSTAR is seeking a number of individual exemptions from the Ordinance. The Company seeks exemption from several provisions of the Ordinance that would require a variance for construction and operation of the Project. The Company notes that the legal standard for obtaining a variance is difficult to meet and that, even if obtained, a variance is appealable and therefore a source of potentially significant project delay. The Company also seeks exemption from provisions of the Ordinance that would require special permits and site

plan approval for the Project, citing the discretionary nature of such approvals, the potential for burdensome conditions, and the potential for project delay should the approvals be appealed (Exh. NSTAR-1, at 1, 49-57; Company Brief at 47-56).

2. Individual Exemptions

a. The Company's Position

In addition to the general reasons cited above, Table 2 below, summarizes: (1) each of the specific provisions of the Ordinance from which the Company seeks exemption; (2) the relief available from the Town through the local zoning process; and (3) the Company's argument as to why it cannot comply with the identified zoning provision and/or why the available zoning relief is inadequate.

Table 2. Company Position: Town Of Barnstable Zoning Ordinance Exemptions

Individual Zoning Exemption Requested	Available Relief from Town	Why Project Cannot Comply: Company's Position
Nonconforming Uses Sections 240-93, 240-94	Special Permit	The Substation is a preexisting nonconforming use. Expansion of preexisting nonconforming structures or uses requires a Special Permit from the Zoning Board of Appeals. Issuance of a Special Permit is discretionary and thus uncertain, and the local permitting process, including potential appeals, may result in burdensome conditions and delay.
Use Regulations Section 240-32	Use Variance	A use variance is required because Section 240-32 does not expressly allow public utility uses in an LTD IND (Limited Industrial) district, the district in which the Substation is located. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Use Regulations Section 240-7	Use Variance	A use variance is required because Section 240-7 prohibits the use of any building or premises "for any purpose except in conformity with all of the regulations herein specified for the district in which it is located." and public utility uses are not expressly allowed in an LTD IND district. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Well Protection and Groundwater Protection Overlay Districts Sections 240-35(F)(2), 240-35(G)(2)	Use Variance	The Substation is located in Well Protection and Groundwater Protection Overlay Districts. Public utility uses are not expressly allowed in the underlying LTD IND district, thus a use variance would be required to allow such a use in Well Protection and Groundwater Protection Overlay Districts. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Prohibited Uses Section 240-10	Use Variance	Any use that is injurious, noxious or offensive by reason of odor, fumes, dust, smoke, vibration, noise, lighting, or other cause is prohibited. The Project would emit sound, light and vibration that subjectively may be deemed injurious, noxious or offensive. (Exh. DPU-1-66). Thus, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.

Individual Zoning Exemption Requested	Available Relief from Town	Why Project Cannot Comply: Company's Position
Structure Height Section 240-32(E)	Dimensional Variance	It is unclear whether the 30-foot height restriction applies to the Project's dead end structures, poles and shielding masts, which would exceed 30 feet in height. If the height restriction is applicable, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted subject to appeal.
Off-Street Parking Article VI, Sections 240-48 to 240-58	Special Permit	Off-street parking requirements apply to expanded or intensified uses. Parking at the Substation is rare because it is unmanned. The Planning Board may reduce the requirements of Article VI by issuance of a Special Permit. Seeking a Special Permit would be burdensome. Special Permits are discretionary and, if granted, subject to appeal.
Signs Article VII, Sections 240-61, 240-65, 240-66	Variance	Danger and warning signs are prohibited in any district, thus a variance would be required for the danger signs normally posted on the Company's property. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Site Plan Review Article IX	Site Plan Approval	Site Plan approval requires Project compliance with all applicable requirements of the Ordinance, and the Project cannot meet all requirements. The Company must have the discretion to design the Project and site layout in a manner consistent with established industry standards. Site Plan approval is discretionary and, even if granted, subject to appeal.
Performance Bonds Section 240-124A	Variance	The performance bond requirements are not defined in the Ordinance and are set on a project-by-project basis by the Building Commissioner. Because the amount of the bonds is unfixed and there is no process for how these determinations are to be made, the potential for delay is great. A variance would be required, but the legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.
Occupancy Permits Section 240-124B	Variance	An occupancy permit cannot be granted unless the structure or use complies in all respects with the Ordinance. If any exemptions are granted, the Project would not be in compliance with those provisions of the Ordinance. In that case, a variance would be required. The legal standard for obtaining a variance is difficult to meet. Variances are a disfavored form of relief and, even if granted, subject to appeal.

Sources: Exh. NSTAR-1, at 48-56; Company Brief at 50-56.

b. The Town's Position

Initially, the Town opposed the Company's Petition (Town of Barnstable Petition to Intervene (May 15, 2013) at 3). The Town expressed a number of concerns regarding the Project, focusing primarily on the asserted inadequacy of the Project, as designed, to protect groundwater in the vicinity of the Substation site (*id.*). However, in the Settlement Agreement, the Town states that "[a]s a result of this Agreement of Settlement, the Town hereby supports NSTAR's request, in connection with the Substation expansion, for individual and comprehensive zoning exemptions" from the Ordinance (Exh. NSTAR/BAR-1, at 2-3). See Sections II.C.3.c and II.C.3.h.

c. Analysis and Findingsi. Nonconforming Use or Structure

The Company states that the Department originally approved construction of the Substation in 1939, and that the Town did not adopt its first zoning bylaw until 1949 (Exh. NSTAR-1, at 48-49). The Company therefore concludes that the Substation is a preexisting nonconforming use, and the structures built on the site at the time it was approved are preexisting nonconforming structures (id.). However, the record indicates that, at the time NSTAR filed its Petition, the Company had not received confirmation from the Town that the Substation constitutes a nonconforming use or structure under the Ordinance (Exh. NSTAR-1, at 49). Thus, the Company seeks exemption from provisions of the Ordinance that would apply to the Project whether or not it is considered a nonconforming use.¹⁷

(A) The Project is a Preexisting Nonconforming Use or Structure

Under the Ordinance, the alteration and expansion of a preexisting nonconforming structure (Section 240-93) and the expansion or intensification of a preexisting nonconforming use (Section 240-94) requires a Special Permit from the Zoning Board of Appeals. To grant a Special Permit for a nonconforming structure, the Board of Appeals must find that the proposed alteration or expansion is “not substantially more detrimental to the surrounding neighborhood” (Section 240-93(B)). To grant a Special Permit for a nonconforming use, the Board of Appeals must find that the proposed expansion or intensification “will not be more

¹⁷ During the course of the proceeding, the Town subsequently opined that the Substation constitutes a prior nonconforming use under the Ordinance (Exhs. DPU-BAR-1-6; DPU-BAR-1-3). However, this opinion was given subject to certain “caveats and pending research” (Exh. DPU-BAR-1-6).

detrimental to the neighborhood” and that certain conditions are met, related to minimizing the impacts of the expanded or intensified use (Section 240-94(B)).

If the Substation were to be viewed by the Town’s zoning authority as a preexisting nonconforming use or structure, the Project would constitute an expansion of the use or structure, thus requiring a Special Permit. The Company is not entitled to a Special Permit as of right and, even if granted, a Special Permit may be appealed. Thus, requiring NSTAR to seek a Special Permit for the Project would involve some uncertainty, a potentially adverse outcome, and potential delay in Project implementation. A Special Permit also could include conditions that the Project could not meet, or that might be inconsistent with industry standards or practices. The Department finds that exemption of the Project from Sections 240-93 and 240-94 of the Ordinance is required.

(B) The Project is Not a Preexisting Nonconforming Use

If the Town concluded that the Substation does not qualify as a preexisting nonconforming use or structure, the Company would need to seek: (1) nine variances; (2) a Special Permit; and (3) Site Plan Approval.

With respect to variances, the Project would not meet, and thus would require a variance from: the Use provisions applicable to Limited Industrial districts (Section 240-32); the prohibition against uses that do not meet all applicable zoning requirements (Section 240-7); the prohibition against noxious or offensive uses (Section 240-10); the Well Protection and Groundwater Protect Overlay District provisions (Sections 240-35(F)(2) and 240-35(G)(2)); the limitations on signage (Article VII); the performance bond requirements (Section 240-124(A)); the height restrictions for structures located in Limited Industrial districts (Section 240-32(F));

and the occupancy permit requirements (Section 240-124(B)). Furthermore, the Company would require a special permit for off-street parking provisions, Article VI, Sections 240-48 to 240-58.

The Department concurs with the Company that variances are difficult to obtain, constitute a disfavored form of relief, and are susceptible to being overturned on appeal. Consequently, the need to obtain variances is likely to result in an adverse outcome, a burdensome requirement, or an unnecessary delay. The Department finds that an exemption from Sections 240-7, 240-32, 240-35(F)(2), 240-35(G)(2), 240-32(F), 240-124A, 240-124B, and Article VII of the Ordinance is required. In addition, with regard to the special permit for off-street parking provisions, the Department finds that an exemption from Article VI, Sections 240-48 to 240-58 of the Ordinance is required (see Section II.D.2.c.i.(A) above).

The Company states that Article IX of the Ordinance, Site Plan Review, “would appear to apply to the Project” (NSTAR-1, at 52). Among other things, Article IX requires that a project comply with all applicable requirements of the Ordinance (Exh. NSTAR-1, at 52; Section 240-103(J)). As discussed above, the Project cannot meet all requirements of the Ordinance. Additionally, substantive requirements of Site Plan approval could conflict with established industry standards for substation layout and design. Thus, requiring the Company to seek Site Plan approval may result in denial of such approval, which would preclude construction of the Project. Even if granted, Site Plan approval may be appealed, thus delaying, or prohibiting, Project implementation. The Department finds that exemption from Article IX of the Ordinance is required.

The Department finds that the substantive sections of the Ordinance included in Table 2 above would or could affect the Company's ability to implement the Project as proposed. However, as noted in Table 2 above, the Prohibited Uses, Section 240-10 of the Ordinance regulates not only the nature and characteristics of the facility to be constructed, but also the on-going operation of the proposed facility. Were the Department to grant an exemption from this Section, the Town of Barnstable could not exercise local zoning control over the on-going operation of the proposed facility with respect to environmental considerations covered by the Prohibited Uses. See D.P.U. 11-26, at 28-29 (2013); New England Power Company, D.P.U. 09-27/09-28, at 52-53 (2010); Western Massachusetts Electric Company, D.P.U. 09-24/09-25, at 36-37 (2010); Braintree Electric Light Department, 16 DOMSB at 186-187 (101-102) (2008). The Company has testified that it can meet the Prohibited Uses section under normal operation of the Project (Tr. 1, at 144-146).

Accordingly, the Department finds that with the exception of Prohibited Uses, Section 240-10, NSTAR has demonstrated that the requested zoning exemptions listed in Table 2 are required pursuant to G.L. c. 40A, § 3.

3. Consultation with Municipality

a. Introduction

Prior to commencing this proceeding, NSTAR met with Town of Barnstable officials on two occasions to discuss the Project (Exh. NSTAR-1, at 7-8). On October 10, 2012, NSTAR representatives met with the Town Manager, Assistant Town Manager, Town Attorney, Town Engineer, Department of Public Works Interim Director, and the Barnstable Airport Manager (id.). At that meeting, the "Town provided feedback on its interpretation of local zoning and [n]o particular concerns regarding the expansion of the Substation itself or

seeking zoning relief from the Department were identified” (id. at 7-8). On January 7, 2013, NSTAR representatives met with the Town Engineer and the Barnstable Airport Manager (id. at 8). NSTAR discussed the methodology for constructing the distribution facilities through the airport, potential synergies with proposed airport projects, additional measures to protect water supplies, and the height and dimensions of the proposed Substation modifications (id. at 8).

As noted above, the Town in its intervention petition, filed on May 15, 2013, requested that NSTAR’s Petition be denied. Both in its intervention petition and throughout the course of the proceeding, the Town expressed its view that the Project, as designed, would not adequately protect groundwater in the vicinity of the Substation site. However, as the result of continuing negotiations between NSTAR and the Town, the parties subsequently executed a Settlement Agreement, the sole focus of which is groundwater protection. The Town states in the Settlement Agreement that “[a]s a result of this Agreement of Settlement, the Town hereby supports NSTAR’s request, in connection with the Substation expansion, for individual and comprehensive zoning exemptions” from the Ordinance (Exh. NSTAR/BAR-1, at 2-3).

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 Biomass”). The Department believes that the most effective approach for doing so is for applicants to consult with local officials regarding their projects before seeking zoning exemptions pursuant to G.L. c. 40A, § 3. New England Power Company d/b/a

National Grid, D.P.U. 12-2, at 33-34 (2012); NSTAR Electric Company, D.P.U. 11-80, at 41, 42 (2012); D.P.U. 11-26, at 26.

The record shows that, prior to seeking zoning relief from the Department, the Company apprised the Town of its proposed Project. More significantly, the record shows that, over the course of the proceeding, the Company engaged in ongoing discussions with the Town which resulted in a mutually satisfactory agreement regarding the Town's chief Project-related concern. The Town, which originally opposed the Company's zoning exemption petition, has now endorsed it. We find that the Company made a good faith effort to consult with municipal authorities, and that the Company's communications have been consistent with the spirit and intent of Russell Biomass.

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 identified zoning exemptions are required for purposes of G.L. c. 40A, § 3. Additionally, we find that the Company engaged in good faith consultation with the Town. Accordingly, we grant the Company's request for the individual zoning exemptions listed above in Table 2, with the exception related to the enforcement of Section 240-10.

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); 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.

D.T.E./D.P.U. 06-11, (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 D.P.U. 07-60/07-61, at 51-52 (2008).

B. The Company's Position

In addition to the individual exemptions discussed above, the Company also requested a comprehensive exemption from the Ordinance (Exh. NSTAR-1, at 1, 57-60; Company Brief at 56-59). The Company asserts that granting a comprehensive exemption is appropriate because there is a reliability need for Project and the need is "immediate" and "widespread" (Exh. NSTAR-1, at 59). The Company contends that a comprehensive exemption would prevent potential delays in Project construction if: (1) a zoning provision originally deemed inapplicable is later determined to be applicable; or (2) prior to construction, a new zoning provision were to be adopted that was potentially applicable to the Project (Exh. NSTAR-1, at 58; Company Brief at 58). Additionally, the Company notes the Town's express support for the granting of a comprehensive exemption (Exh. NSTAR/BAR -1; Company Brief at 59).

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. D.P.U. 12-02, at 35 (2012); D.P.U. 11-80, at 43, 44 (2012); D.P.U. 11-26, at 31; NSTAR Electric Company, D.P.U. 08-1, at 35-37 (2009).

Department and Siting Board cases in which comprehensive exemptions have been granted typically have involved projects that were time sensitive and that dealt with the zoning ordinances of multiple municipalities, where conflicting interpretations could arise. NGrid Worcester, EFSB 09-1/D.P.U. 09-131/09-132 (2011); Western Massachusetts Electric Company, EFSB 08-2/D.P.U. 08-105/08-106 (2010); New England Power Company, D.P.U. 09-136/09-137 (2011); D.P.U. 09-27/09-28 (2010); D.P.U. 09-24/09-25 (2010).

As discussed in Section II.C.1, above, the record in this case shows that NSTAR's proposed project is needed to address both existing and future capacity and reliability needs on NSTAR's distribution system in the Mid-Cape area. To meet these needs, NSTAR plans to place the Project in service for the summer peak of 2015 (Exh. NSTAR-1, at 12). The record shows that, between 2010 and 2012, NSTAR has been using short-term measures, such as peak-load remedial transfer switching, to address these needs (Exh. NSTAR-1, at 14). The Company has stated that it cannot continue these interim measures indefinitely or rely on them as to avoid the need for the Project, particularly given the prospect of increasing loads (Exhibit NSTAR-1, at 15; Company Brief at 13). The Department finds that completion of the project is time-sensitive, and that delay may result in substantial public harm. Additionally, the Town of Barnstable supports the Department's grant of a comprehensive exemption for the Project.

The Department grants NSTAR's request for a comprehensive zoning exemption, with the exception related to the enforcement of Section 240-10.

IV. SECTION 61 FINDINGS

The Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have 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 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). In an affidavit dated March 15, 2013, counsel for NSTAR stated that the Project would not exceed any of the applicable MEPA review thresholds and, accordingly, that the Project does not require a MEPA filing (Exh. NSTAR-2). Accordingly, Section 61 findings are not necessary in this case.¹⁸

V. ORDER

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

¹⁸ The Department notes the requirements set forth in G.L. c. 30A, § 61, effective November 5, 2008, regarding findings related to climate change impacts. However, Section 61 findings are not required in this case. The Department nonetheless notes that this Project would have minimal greenhouse gas emissions, as it consists of modifications to the existing Substation. 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 SF₆ emissions and temporary emissions from off-road construction vehicles in Section II.C.3.f, above.

ORDERED: That the petition of NSTAR seeking the specific exemptions set forth in Table 2, with the exception related to the enforcement of Section 240-10, from the operation of the Town of Barnstable Zoning Ordinance pursuant to G.L. c. 40A, § 3 is granted; and it is

FURTHER ORDERED: That the petition of NSTAR seeking comprehensive exemption from the operation of the Town of Barnstable Zoning Ordinance is granted, with the exception related to the enforcement of Section 240-10; and it is

FURTHER ORDERED: That NSTAR comply with provisions one through four in the November 15, 2013 Settlement Agreement, marked as Exhibit NSTAR/BAR-1 in the record of this proceeding; and it is

FURTHER ORDERED: That NSTAR submit to the Department as a compliance filing the final NHESP determination regarding the potential for Project impacts on rare and endangered species, once the NHESP determination is issued; and it is

FURTHER ORDERED: That, with respect to construction activities that may disrupt traffic flow, NSTAR shall enhance its contact arrangements for abutters and abutters to abutters within 300 feet of the Substation site to include the Barnstable County Fire and Rescue Academy and A-1-A Steel; and it is

FURTHER ORDERED: That NSTAR inform the Department if it is unable to resolve noise-related concerns raised by the Town or abutters; and it is

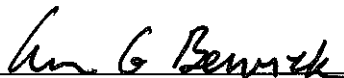
FURTHER ORDERED: That NSTAR and its contractors and subcontractors comply with all applicable state and local regulations for which the Company has not received an exemption, including those pertaining to noise, emissions, herbicides, and hazardous materials; and it is

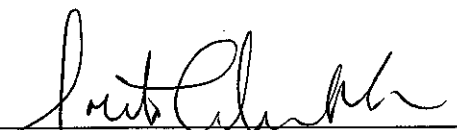
FURTHER ORDERED: That NSTAR and its successors in interest notify the Department of any significant changes in the planned timing, design, or environmental impacts of the Project so that the Department may decide whether to inquire further into a particular issue; and it is

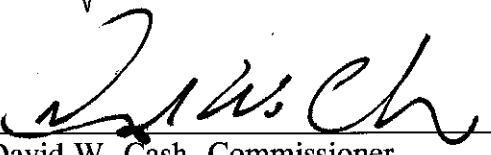
FURTHER ORDERED: That NSTAR obtain all other governmental approvals necessary for the Project; and it is

FURTHER ORDERED: That the Secretary of the Department transmit a certified copy of this Order to the Town of Barnstable, and that NSTAR serve a copy of this Order on the Barnstable Board of Selectmen, the Barnstable Planning Board and the Barnstable Zoning Board of Appeals 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:


Ann G. Berwick, Chair


Jollette A. Westbrook, Commissioner


David W. Cash, 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.