The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

April 2, 2008

D.P.U. 07-60 / 07-61

Petition of NSTAR Electric Company pursuant to G.L. c. 164, § 72 for approval to construct and operate new transmission lines in the Towns of Carver, Middleborough, Rochester and Wareham, and Petition pursuant to G.L. c. 40A, § 3 for exemption from the Zoning By-Laws of Carver and Wareham to expand facilities at two electric substations.

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I. INTRODUCTION

On July 12, 2007, pursuant to G.L. c. 164, § 72, the NSTAR Electric Company ("NSTAR Electric" or "Company") filed with the Department of Public Utilities ("Department") a petition seeking approval to install and operate: (1) a new 115 kilovolt ("kV") transmission circuit, approximately 8.3 miles in length along an existing right-of-way extending from NSTAR Electric's Carver Substation in Carver to NSTAR Electric's Tremont Substation in Wareham, and (2) two 345 kV tap lines, approximately 250 feet in length, at Carver Substation (collectively, "the proposed project"). On July 12, 2007, pursuant to G.L. c. 40A, § 3, NSTAR Electric also filed with the Department a related petition seeking exemption from the zoning by-laws of Carver and Wareham, to expand facilities at Carver Substation and Tremont Substation. On August 8, 2007, pursuant to G.L. c. 25, § 4, the Department consolidated the filings, and docketed these matters as D.P.U. 07-60 and D.P.U. 07-61.

On September 10, 2007, the Department conducted a public hearing. The Department received no petitions for leave to intervene. On November 10, 2007, the Department conducted a procedural conference and technical session. On February 5, 2008, the Department conducted an evidentiary hearing. The evidentiary record consists of thirteen Company exhibits, 65 Company responses to Department information requests, and eleven Company responses to Department record requests. On February 19, 2008, the Company filed a brief.

II. STANDARD OF REVIEW

NSTAR has filed both a petition for a zoning exemption from the Town of Carver and the Town of Wareham zoning bylaws pursuant to G.L. c. 40A, § 3, and a petition for approval to construct and operate a transmission line pursuant to G.L. c. 164, § 72.

A. G.L. c. 40A, § 3

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

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

Thus, a petitioner seeking exemption from a local zoning bylaw under G.L. c. 40A, § 3 must meet three criteria. First, the petitioner must qualify as a public service corporation. Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975) ("Save the Bay"). Second, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. Boston Gas Company, D.T.E. 00-24, at 3 (2001) ("Boston Gas"). Finally, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. Massachusetts Electric Company, D.T.E. 01-77, at 4 (2002) ("MECo (2002)"); Tennessee Gas Pipeline Company, D.T.E. 01-57, at 3-4 (2002) ("Tennessee Gas (2002)").

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 ("SJC") has stated:

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

Save the Bay, 366 Mass. 667, 680. See also, Boston Gas, D.T.E. 00-24, at 3-4; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997) ("Berkshire Power").

The Department interprets this list not as a test, but rather as guidance to ensure that the intent of G.L. c. 40A, § 3 will be realized, i.e., that a present or proposed use of land or structure that is determined by the Department to be "reasonably necessary for the convenience or welfare of the public" not be foreclosed due to local opposition. See Berkshire Power at 30; Save the Bay at 685-686; Town of Truro at 407. 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." Berkshire Power at 30; see also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59-B/95-80/95-112/96-113, at 6 (1998) ("Nextel"). The Department has determined that it is not necessary for a petitioner

to demonstrate the existence of "an appropriate franchise" in order to establish PSC status. See Berkshire Power at 31.

2. Exemption Required

In determining whether exemption from a particular provision of a zoning bylaw is "required" for purposes of G.L. c. 40A, § 3, the Department looks to whether the exemption is necessary to allow construction or operation of the petitioner's the proposed project as proposed. See MECo (2002), D.T.E. 01-77, at 4-5; Tennessee Gas (2002), 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 the petitioner's burden to identify the individual zoning provisions applicable to the proposed 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).

3. Public Convenience or Welfare

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

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

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

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

welfare of the public. Boston Gas, D.T.E. 00-24, at 2-6; MECo (2002), D.T.E. 01-77, at 5-6; Tennessee Gas (2002), D.T.E. 01-57, at 5-6; Tennessee Gas Company, D.T.E. 98-33, at 4-5 (1998).

B. G.L. c. 164, § 72

G.L. 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.[1]

The Department, in making a determination under G.L. c. 164, § 72, is to consider all aspects of the public interest. Boston Edison Company v. Town of Sudbury, 356 Mass. 406, 419 (1969). Section 72, for example, permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420. All factors affecting any phase of the public interest and public convenience must be weighed fairly by the Department in a determination under G.L. c. 164, § 72. Town of Sudbury v. Department of Public Utilities, 343 Mass. 428, 430 (1962).

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[1] 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.

As the Department has noted in previous cases, the public interest analysis required by G.L. c. 164, § 72, is analogous to the Department's analysis for the "reasonably necessary for the convenience of the or welfare of the public" standard under G.L. c. 40A, § 3. See New England Power Company, D.P. U. 89-163, at 6 (1993); New England Power Company, D.P.U. 91-117/118, at 4 (1991); Massachusetts Electric Company, D.P.U. 89-135/136/137, at 8 (1990). Accordingly, in evaluating petitions filed under G.L. c. 164, § 72, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3, as set forth above.

C. G.L. c. 30, § 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 proposed project and a finding that all feasible measures have been taken to avoid or minimize said impact." G. L. c. 30, § 61. Pursuant to MEPA Regulations, 301 C.M.R., § 11.01(3), these findings are necessary when an Environmental Impact Report ("EIR") is submitted by a petitioner to the Secretary of Environmental Affairs, and should be based on such EIR. Where an EIR is not required, G. L. c. 30, § 61 findings are not necessary. 301 CMR, § 11.01(3). The record indicates that the Massachusetts Executive Office of Energy and Environmental Affairs ("EOEEA") required an EIR for the Company's proposed project; consequently, a finding under G. L. c. 30, § 61 is necessary in this case.

III. PROPOSED PROJECT

Carver Substation is located at the intersection of 345 kV and 115 kV transmission lines (Exh. NSTAR-1, at 13). The 345 kV lines are located on a right-of-way ("ROW") that is oriented west-to-east as it passes on the south side of Carver Substation; these include three circuits: Line 331, extending 34 miles from Walpole Substation to Carver Substation; Line 322, extending from Carver Substation to a switchyard at the Mirant Canal, LLC generating facility ("Canal power plant"); and Line 355, extending from Bridgewater Substation to Pilgrim Nuclear Power Station, bypassing Carver Substation on the south side of the ROW (id.; Exh. NSTAR-1-D(2)). One 115 kV line, Line 116, is located on a separate ROW extending northward from Carver Substation to Brook Street Substation in Plympton (Exh. NSTAR-1, at 13; NSTAR-1-D(2)). Another 115 kV line, Line 127, extends southward 8.3 miles on a ROW from Carver Substation to Tremont Station (Exh. NSTAR-1, at 13; NSTAR-1-D(2)). Carver Substation has a dedicated access road from Main Street in Carver (Exh. DPU-T-3; NSTAR-1-D(2)).

Tremont Substation is located along the NSTAR Electric transmission system on a dead end street in Wareham (Exh. NSTAR-1, at 42). Tremont Substation is connected to 115 kV transmission lines extending toward Acushnet to the southwest, Hyannis to the east, and Carver to the north, as well as to local 23 kV lines (Exh. NSTAR-1-D(1). Line 127, the line which extends southward from Carver Substation towards Tremont Substation, occupies one side of a series of steel double-circuit monopoles; the other side is vacant (Exh. NSTAR-1, at 13).

A. Project Description

NSTAR is proposing to: (a) expand and reconfigure the existing Carver Substation in order to connect into the station a second 345 kV line (Line 355) that currently passes by the substation on an adjacent ROW and to accommodate the addition of a new 115 kV line (Line 134) which would run from Carver Substation to Tremont Substation in Wareham; (b) install a new 115 kV line (Line 134) on existing poles along the existing ROW from Carver Substation to Tremont Substation; and (c) connect Line 134, and expand the control house to facilitate the operation of the new Line 134 at Tremont Substation (Exh. NSTAR-1, at 10-16). Taken together, these changes would increase the capability of the transmission system to import power into the lower southeastern Massachusetts area ("Lower SEMA region") and facilitate the distribution of power within that region (Exh. NSTAR-1, at 10-11).

As part of the proposed project, NSTAR Electric would split Line 355, which now bypasses Carver Substation, and route each line through the substation (id. at 12). NSTAR Electric would install a second 345 kV/115 kV transformer at Carver Substation and connect new Line 134 to the substation (id. at 14). At Tremont Station, NSTAR would connect Line 134 to the substation and expand the existing control house (Exh. NSTAR-1-D(1). Between Carver Substation and Tremont Substation, NSTAR Electric would install Line 134, as a second 115 kV circuit, on the vacant side of poles currently carrying Line 127 (id. at 14). The Company indicated that the duration of construction at Carver Substation would be at least nine months, and that installation of the new Line 134 would occur over a six-week period (Exh. NSTAR-3, at 3-21; Tr. at 55). Project details are provided in Appendix A.

B. Need or Public Benefit of Use

1. Company Position

NSTAR Electric stated that, ultimately, the purpose of the proposed project is to avoid uneconomic wholesale market costs, while maintaining the reliability of the Lower SEMA transmission system in accordance with standards of the New England Independent System Operator ("ISO-NE") (Exh. NSTAR-1, at 27; Tr. at 25).[2] The Company explained that the need for the proposed project is based upon a lack of transmission capacity to support the Lower SEMA region electrical load under N-2 conditions (Exh. NSTAR-1, at 27). The Company defined N-2 conditions as the loss of two elements from among generators, transmission lines and transformers (Exh. NSTAR-GS-2, at 2). The Company explained that ISO-NE requires that the bulk power system be designed with sufficient transmission capacity to integrate all resources and serve area loads following the loss of two elements (id.). The Company further clarified that the double contingency standard is typically applied to systems serving a large amount of load (i.e., more than several hundred megawatts) (Tr. at 20-21).

The Company asserted that, beginning in January 2006, the differential in fuel costs between oil and gas prices began to increase significantly, such that the oil-fueled Canal power plant began to experience an economic disadvantage relative to other non-oil-fired generators in New England (Exh. NSTAR-GS-2, at 2). The Company stated that once the Canal power plant became uneconomic to operate, it would not merit dispatch under ISO-NE's normal

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[2] The Company defines the Lower SEMA region as including Cape Cod and the area from Marshfield, Duxbury and Plymouth along the coast southwest to New Bedford, Dartmouth and Westport (Tr. at 16).

economic dispatch pattern (id. at 2-3). However, ISO-NE's requirement to maintain the area supply to an N-2 level of contingency protection has resulted in the Canal power plant being required to run to ensure system reliability (id.). The Company opined that, since 2006, the operation of the Canal power plant under these circumstances has created millions of dollars of uneconomic wholesale market costs (a.k.a. "uplift costs") that are passed on to electric consumers (id. at 3).[3] Specifically, NSTAR Electric submitted ISO-NE's estimates of uplift costs of $80 million in 2006 and $95.7 million for the first eleven months of 2007 (Exh. DPU-N-12).

NSTAR Electric explained that currently, if the two 345 kV lines (Lines 331 and 342) fail when the Canal power plant is not operating, the area transmission system can only import about 35 percent of peak Lower SEMA load (Exh. NSTAR-GS-2, at 4). The Company stated that, beginning in the fall of 2006, it has worked closely with ISO-NE to come up with a number of system upgrades to reduce uplift costs and provide greater reliability (Exh. DPU-N-13). The Company indicated that the proposed project is part of a series of line and station upgrades proposed and/or underway which are designed to increase the ability of the Lower SEMA region to import power from 35 percent to 73 percent of system peak demand, within an N-2 level of contingency protection (Exhs. NSTAR-1, at 30;

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[3] NSTAR Electric explained that pursuant to a Settlement with FERC in Docket ER07-921-000, these uplift costs in the Lower SEMA region are to be born by Load Serving Entities (i.e. suppliers) unless the costs exceed certain triggers, in which case amounts above these thresholds are allocated to Network Load (i.e., transmission customers) (RR-DPU-2).

NSTAR-GS-2, at 3-4; Tr. at 28).[4] The Company explained that supplying 73 percent of system peak load would mean that for approximately 300 out of 365 days per year, import capacity would be sufficient to meet system needs (Exh. DPU-N-4). NSTAR Electric stated that the increased import capability should be sufficient for the ISO-NE to call upon area generation only when it is within economic merit (id.).[5]

The Company stated that improving power import to the Lower SEMA region requires three elements: (1) reducing reliance on 345 kV Lines 331 and 342; (2) adding to the available regional capacity to transform 345 kV power to 115 kV; and (3) increasing the capacity of the Lower SEMA 115 kV transmission network to accommodate the imported power (Exh. NSTAR-1, at 28). Each is considered below.

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[4] The Company noted that ISO-NE set a target of increasing Lower SEMA import capacity to approximately 70 percent of peak system load (Exh. NSTAR-GS-1, at 30). The Company stated that the proposed project, together with the expansion of NSTAR Electric's Brook Street Substation in Plympton which was the subject of NSTAR Electric, D.T.E./D.P.U. 07-9/07-10 (2007), and static and dynamic reactive power upgrades planned for other substations, constitute the short-term measures designed to allow the Lower SEMA region to import 70 percent of its peak power requirements (Exh. NSTAR-GS-2, at 4).

[5] Furthermore, NSTAR Electric stated that, according to ISO-NE, as the system load level rises and the cost of a marginal megawatt of capacity rises, the Canal power plant will become more competitive, and actually could run in-merit or closer to in-merit when system loads exceed 70 percent of peak system load (Exh. DPU-N-4).

a. Power Import Capability

NSTAR Electric stated that historically, the Lower SEMA region has relied on three sources of power to provide reliable transmission of 345 kV power into the region: 1120 megawatts of oil-fired generation at the Canal power plant constitute one source, and each of the two 345 kV lines make up the other two sources (Exh. NSTAR-1, at 13-14; Tr. at 28). The Company stated that with the Canal power plant in operation, Carver Substation and the Lower SEMA region had N-2 protection because the Lower SEMA region could continue to receive sufficient power for peak loads even if Lines 331 and 342 were to fail or be out of service (Tr. at 24-26).

b. Augmentation of Transformer Capacity

The Company indicated that there is a single 345/115 kV transformer at Carver Substation (Exh. NSTAR-1-D(3)). The Company stated that augmenting transformer capacity would increase the strength of the power import source into the Lower SEMA region (Exh. NSTAR-1, at 28).

c. Augmentation of 115 kV System

NSTAR Electric stated that in addition to the need to develop adequate import capacity for the Lower SEMA region under N-2 conditions, there is a need to relieve overloading conditions that develop on the region's 115 kV lines under N-2 conditions (Exh. NSTAR-1, at 14). The Company asserted that constructing Line 134 between Carver and Tremont Substations would add additional 115 kV import capacity to the area, and thereby relieve Line 127 of actual and projected overloads in N-2 conditions (id.).

2. Analysis and Findings

The Company has presented documentation showing that the Lower SEMA region currently is able to import only 35 percent of its peak system demand due to import limitations for N-2 contingencies. Because of this import limitation under N-2 conditions, ISO-NE has found it necessary to dispatch the oil-fired Canal power plant units for a significant portion of the year, even though the units are more expensive to run (recently due to the higher cost of oil than natural gas) than other generating units available elsewhere within the ISO-NE system. The record shows that the practice of dispatching the Canal power plant units "out-of-merit" has resulted in an estimated $175.7 million in uplift costs from January 2006 through November 2007. Thus, the system is inadequate to economically deliver off-peak power to the Lower SEMA region while ensuring immediate capability to respond to two major independent simultaneous contingencies.

The Company also has demonstrated that the proposed project, as part of a series of upgrades including the previously Department approved expansion of the NSTAR Plympton Substation, NSTAR Electric, D.P.U. 07-09/10 (2007), and static and dynamic reactive power upgrades planned for other facilities in the area, would enable NSTAR Electric to import sufficient power from outside the region to meet 73 percent of the peak system demand in the Lower SEMA region. The record shows that an ability to import 73 percent of peak system demand would have provided enough power on about 300 out of 365 days in 2006. The record shows that with an additional transformer at Carver Substation, installation of the 115 kV Line 134 between Carver and Wareham, and associated substation improvements, the system

could more reliably disperse the added power throughout the Lower SEMA transmission network.

The record further indicates that by avoiding the need to run the Canal power plant units when they are not cost competitive with other generating units, significant uplift costs, which averaged over $7 million per month for January 2006 through November 2007, could be avoided. The Department notes that, assuming the recent uplift costs, the projected $20 million cost of the proposed project (see Section III.C, below) is equivalent to roughly three months worth of uplift costs at that rate.

The Department finds that the proposed project would serve energy needs and provide energy benefits, including providing sufficient transmission capacity to import power to and within the Lower SEMA region when the Canal power plant is not operating, and would, thereby, avoid uplift costs associated with out-of-merit operation of generation resources.

C. Alternatives Explored

1. Company

The Company described three alternatives it considered in addition to the proposed project to meet the reliability and 115 kV transmission needs of the Lower SEMA region (Exh. NSTAR-1, at 30-36). In evaluating the alternatives, NSTAR Electric stated that it considered the complexity, cost and time required to implement the alternatives in order to address the identified need in an expedited manner, at least cost and with the least environmental impact (id. at 30).

The Company was able to compare the three alternatives to the proposed project. The Company estimated that the proposed project would cost approximately $20 million, would require a 110,500-square foot (2.6-acre) expansion of Carver Substation, and may include temporary presence in wetland areas (Exh. NSTAR-1, 31, 40, 43). However, since existing transmission poles would be used for Line 134, the Company stated that construction of the line would not alter existing land use along the right-of-way (id. at 40). More details on environmental impacts are provided in Section III.D, below.

a. New Substation in Myles Standish State Forest

NSTAR Electric stated that it considered constructing a new substation in Myles Standish State Forest adjacent to the convergence of 345 kV Lines 322, 355 and 342 (Exh. NSTAR-1, at 32). According to NSTAR Electric, the addition of this new substation, through which the three 345 kV lines would be routed, would provide a way to bring in sufficient power to Carver Substation (and its transformer) in the event that Lines 342 and 331 were to be simultaneously out of service and, thereby, satisfy the N-2 reliability needs of the region (id.). The Company asserted that there is insufficient space at the convergence of these lines to install breakers (id. at 33). Therefore, according to the Company, the construction of the substation would require the acquisition of 2.5 acres of land within the State Forest (id.). The Company stated that land acquisition would require an Article 97 Legislature approval (id.). In addition, the Company described that it would be necessary to construct a 2-mile-long 24 kV transmission line to provide station service power (id.). The Company maintained that the proposed second transformer at Carver Substation as well as the additional 115 kV line

from Carver Substation to Tremont Substation would still be necessary (id.). NSTAR Electric asserted that the time delay associated with acquiring and clearing the land would delay completion of this alternative compared to the proposed project, and that the cost of building on an unimproved site, and the cost of the 24 kV line would increase its estimated cost to $26 million (id.).

b. Transmission of 345 kV Supply from the South

NSTAR Electric described another alternative in which the source of 345 kV supply into the Carver/Tremont area would be from Brayton Point in Somerset (Exh. NSTAR-1, at 33). According to NSTAR Electric, this alternative would involve construction of 28 miles of 345 kV transmission line along an existing ROW that presently carries 115 kV lines (id. at 33-34). The Company stated that approximately 3 miles of the route east of Fall River would potentially be installed underground and/or underwater (id.at 34). The alternative would also include construction of 345 kV termination switching facilities and a transformer on property that would need to be acquired near Tremont Substation (id.). The Company stated that this alternative would meet the needs described above, and would add the advantage of creating geographical diversity for Lower SEMA supply (id.). However, the Company estimated that the alternative would take several years longer to license and construct than the proposed project (id.). While the Company stated that this alternative may be a desirable long-term option, it would cost an estimated $54 million for the line and $15 million for the termination station in Wareham, for a total cost of $69 million (id.).

c. New 345 kV Substation Near Manomet Substation

NSTAR Electric stated that it considered the construction of a new 345/115 kV substation adjacent to the ROW that carries Lines 355 and 342 near Manomet Substation, three miles west of Pilgrim Nuclear Power Station (Exh. NSTAR-1, at 34-35). Either Line 355 or Line 342 would be looped into this new substation and 115 kV tie lines would be built between the new substation and Manomet Substation (id. at 35). The Company stated that looping one of the existing 345 kV lines into a new substation and constructing 115 kV tie lines with Manomet Substation would meet the needs described above (id. at 30). For this option, the Company stated it would need to acquire additional land, and, since Manomet Substation does not presently have 115 kV circuit breakers, Manomet Substation would need to be upgraded to add 115 kV circuit breakers and at least a six-breaker ring bus (id.). NSTAR Electric estimated that the cost of this alternative would be $36 million (id.). The Company noted that this alternative would require more time to complete than the proposed project due to the need for land acquisition and clearing and a more complex construction schedule (id.).

2. Analysis and Findings

The record shows the Company considered cost, environmental impacts, and time requirements in evaluating the proposed project in comparison to the identified alternatives. The Department notes that maximizing utilization of existing system elements would minimize costs, construction time and environmental impacts associated with the proposed project.

The Department agrees with NSTAR Electric that, given uplift costs in the Lower SEMA region recently rising to $14 million per month, those alternatives that could be

implemented most expeditiously to improve reliability and reduce operating costs would offer an important advantage. The record shows that the three identified alternatives would likely involve delays associated with land acquisition and permitting that would not be involved with the proposed project. Further, the estimates of capital cost favor the proposed project over the alternatives. The estimated capital costs of the alternatives considered range from $26 million for the Miles Standish alternative to $69 million for the transmission of 345 kV power from the South. The estimated capital cost for the proposed project is $20 million.

In terms of environmental impact, the proposed project is advantageous because it relies on expansion of two existing substations, use of an existing ROW and existing poles therein with an unused arm. While Carver Substation would be expanded by 2.5 acres, the upgrade at Tremont Substation requires no work outside the presently fenced area, and no tree clearing is anticipated on the ROW for Line 134. The three other identified alternatives would require more land clearing for new substations, ROWs and/or new poles. The alternative to bring 345 kV power from the south might also involve three miles of underwater line and some widening of an existing ROW. Thus, the record shows that the proposed project would have fewer environmental impacts than the identified alternatives.

The Department finds that the Company reasonably established, as siting attributes, that the proposed project would allow the Company to make maximum use of the existing system configuration and existing elements therein, and, by comparison with identified alternatives would constitute a more expedient, cost-effective, and environmentally preferable solution to the needs described in Section III.B, above, than the identified alternatives.

D. Impacts of the Proposed Use

1. Carver Substation

a. Land Use and Water Resource Impacts

NSTAR Electric indicated that the project would expand the fenced-in area of the Carver Substation from approximately 127,500 square feet (2.9 acres) to approximately 238,000 square feet (5.5 acres) (Exh. NSTAR-1, at 40). The Company stated that it recently acquired 52,500 square feet (1.2 acres) of land from an abutter (id.; Tr. at 107). Excepting the acquired land, the Company asserted that site land use for the project would be consistent with current conditions (Exh. NSTAR-1, at 40).

NSTAR Electric stated that there are no wetland resource areas, or waterways within the proposed work area at Carver Substation (id. at 43). The Company also stated that expansion of Carver Substation and equipment installation at Tremont Substation would be outside of wetlands buffer zones and flood zones (id. at 38; Exh. NSTAR-3, at 3-7). The Company stated that rain and snow melt would flow through the pervious stone surface and recharge back into the groundwater (Exh. DPU-W-5). With respect to wellhead or water supply areas, Carver Substation is outside a Zone II Wellhead Protection area, but as of December 2007, several small areas were incorporated into a larger, three-mile-diameter Interim Wellhead Protection Area to protect groundwater for potential future use; this area includes the site (Exh. DPU-LU-3(S); Tr. at 101-102). The Carver site, together with the entirety of Carver, is also within a Groundwater Protection Zone as defined by the Carver Zoning By-law (Tr. at 102). The Company stated that since the project is already subject to

similar requirements of the Carver Zoning By-law, the extension of the Interim Wellhead Protection Area would have no practical effect on the project (Exh. DPU-LU-4; Tr. at 102). The Company stated that it would submit to the Massachusetts Department of Environmental Protection ("MADEP") a water quality certification application for the proposed project (Exh. NSTAR-1, at 46).

NSTAR Electric indicated that there are no Areas of Critical Environmental Concern ("ACECs"), flood zones, or registered historic areas at the Carver Substation site (id. at 36, 38, 39). With respect to rare species, the Company stated that there are no Priority Habitats at the Carver Substation site (id. at 41). The Company stated that it would clear approximately 72,000 square feet (1.7 acres) of trees in conjunction with expanding Carver Substation (Exh. DPU-LU-1). The Company indicated that it would expand the area to which it applies herbicides, in accordance with the expanded substation footprint (Exh. DPU-LU-7).

b. Visual Impacts

According to NSTAR Electric, Carver Substation is not generally visible from most of the surrounding areas, but it is visible to abutters to the north on Peltola Lane (Exh. NSTAR-1, at 42). The proposed facilities include structures up to 84 feet in height, which is the height of similar structures already located at Carver Substation (Exh. DPU-Z-2). The new structures would be of a similar nature to those presently existing at the site, and would be added further to the rear of the view from Peltola Lane (Tr. at 87). The Company stated that downward and upward illuminating fixtures would be installed at Carver Substation, but lighting at the facility would normally be turned off, as is the Company's current practice,

and turned on only when needed for workers at night or at the request of local law enforcement personnel (Exh. DPU-V-4; Tr. at 116).

The Company indicated that evergreen and mixed vegetative buffers currently provide screening along portions of the fenceline not bordering adjacent ROW areas, extending from the main entrance along the north and east sides of the existing substation (Exh. NSTAR-3, at 3-25, 4-2, Figure 2, sheet 1). The Company indicated that it would reestablish evergreen vegetative buffers along the expanded fenceline outside ROW areas (id. at 2-25, 4-2). The Company indicated that there may be existing and future substation views from some locations in the Peltola Lane neighborhood located to the north of the substation along the entrance way to the substation (Tr. at 86-88). The Company presented photo simulations of views from along the ROW opposite to the residences that indicated the visibility of western portions of the existing and expanded substation (Exh. DPU-V-1; Tr. at 87).

c. Noise and Traffic

The Company indicated that operating noise would include noise from the existing transformer and the transformer to be added for the proposed project (Exh. DPU-A-4). The existing transformer has an external sound wall, while the additional transformer would have built-in sound walls (id.; Tr. at 92-93). Calculations provided by NSTAR Electric indicate that the sound level from the new transformer at the nearest residence, which is 425 feet away, would be 30.6 decibels on the A-weighted scale ("dBA") (Exh. DPU-A-7). The Company indicated that the total flow of power through the two transformers would be similar to the

existing flows through the existing transformer (Tr. at 97-100). NSTAR Electric stated that power flowing through the new transformer would be roughly offset by a reduction in power through the existing transformer (id.). The Company indicated that noise generated by the new transformer would therefore be offset by a reduction in noise from the existing transformer (id.).

The Company stated that construction at Carver Substation would cause an increase in noise from truck movements, operation of heavy equipment, earth moving, and transformer processing operations including transformer assembly, vacuum-drying, and transformer oil loading (Exhs. NSTAR-3, at 3-21; DPU-A-3). NSTAR Electric expects that construction would occur six days per week, generally from 7 a.m. to 6 p.m. or occasionally later when length of daylight permits, and specified that it would endeavor to avoid starting equipment before 7:30 a.m. on weekends (Exhs. NSTAR-1, at 37; DPU-A-1). The Company stated that it would minimize construction noise by: (a) maintaining equipment and ensuring that equipment meets best practice for noise emissions; limiting any reversing of equipment; and ensuring quick and efficient response to any noise complaints (Exh. NSTAR-3, at 3-22). Also, the Company stated that it would provide abutters with a phone number to contact a community liaison person, should issues arise (Tr. at 113-115).

NSTAR Electric stated that traffic associated with construction and operation of the proposed facility would enter and exit via the existing access driveway from Main Street (Exh. DPU-T-1). Cranes and earth-moving equipment would be kept at the site during the period of use, instead of moving these vehicles on and off the site daily (id.). The Company

stated that the number of workers could be as high as 40 to 50 individuals during some phases of construction (Exh. DPU-T-3). The Company stated that all parking would be on Company property but also stated that construction vehicles would not park along the access road to the substation (id.).

NSTAR Electric stated that, following land clearing and grading, it would install a construction perimeter fence, and once equipment and structures are delivered, permanent fencing would be constructed (Exh. DPU-LU-8). The Company stated that it maintains physical barriers to the extent practical to discourage all-terrain vehicle access to its property (id.).

d. Hazardous Materials and EMF

NSTAR Electric stated that, prior to construction, it would search the list of hazardous waste sites maintained by MADEP for the existence of sites near Carver Substation (Exh. DPU-W-6). The Company stated that, for each identified neighboring site, it would contact the Licensed Site Professional ("LSP") associated with the site to determine if the proposed project could be affected (id.). In addition to this records search, the Company stated that it would collect soil samples around the site, prior to construction (id.). If samples indicate potential contamination, NSTAR Electric stated that it would hire an LSP to manage the issue (id.).

NSTAR Electric indicated that motor oil, hydraulic oil, diesel fuel, and gasoline would be used to run equipment during construction at Carver Substation (Exh. DPU-W-2). The Company stated that mineral oil dielectric fluid would be used in the new transformer and also

in capacitive voltage transformers, and that the transformer would be filled with this fluid at the site (id.). The Company indicated that battery acid and sulfur hexafluoride gas would also be used at the site (Exh. NSTAR-1, at 38; RR-DPU-11). The Company stated that the transformer would be equipped with an alarm triggered by a drop in dielectric fluid level, and with containment under the transformer, while a berm would be constructed around the battery, and any released sulfur hexafluoride would disperse in the air (RR-DPU-11). NSTAR Electric stated that all construction activities at the Carver Substation would be conducted in accordance with the Company's Spill Prevention, Control and Countermeasures ("SPCC") plan in order to minimize the possibility of and damage from spills of hazardous materials. The Company stated that an accidental release of material would trigger implementation of procedures in accordance with the Company's Spill Notification and Response procedure (Exh. DPU-W-2). The Company stated that it has two spill responders available on a 24-hour on-call basis (id.).

NSTAR Electric provided a study of electric and magnetic fields associated with the existing and proposed Carver Substation (Exh. NSTAR-PAV-3, at 1). The Company stated that electric field levels along the perimeter fence would not change (id.). The Company stated that the highest projected magnetic field strength along the future fenceline at Carver Substation would be 59 milligauss ("mG") on the west side and the Company noted this predicted level represents a decrease from the current peak load maximum of 76 mG along the present fenceline (id. at 2). On the north or Peltola Lane side of the substation, the maximum magnetic field strength along the fence would increase from 43 mG to 49 mG (id. at 16).

e. Analysis and Findings

The record shows that the proposed project would expand the existing Carver Substation by approximately 2.6 acres, and require clearing of approximately 1.7 acres of trees. There are no ACECs, or habitat for rare species at the site. There are no wetland resource areas, or waterways within the proposed work area, and runoff patterns would not be significantly affected. The substation is now within a designated Interim Wellhead Protection Area, and therefore, protection of area groundwater is needed. The record shows that NSTAR Electric maintains a SPCC Plan for all its facilities. The Department concludes that the Company has taken feasible measures to avoid or mitigate impacts on land use and groundwater at Carver Substation.

With respect to visual impacts, the record shows that Carver Substation would become larger, and would continue to be visible from abutting properties along Peltola Lane. However, the new structures would be of a similar nature and height to those presently existing at the site, and these would be added toward the rear of the facility. Facility lighting would be turned on only when needed for workers at night or at the request of local law enforcement personnel. The Department concludes that the Company has taken feasible measures to avoid or mitigate the visual impacts of the proposed project at Carver Substation.

With respect to noise and traffic, the record shows that construction at Carver Substation would generally be confined to six days per week, generally from 7 a.m. to 6 p.m, during which normal major construction noises and traffic would be expected. Traffic would enter and exit via the existing access driveway from Main Street. The record shows that

NSTAR Electric would install fencing around the facility, which would enhance public safety by deterring trespassers. The record shows that there would be no parking either along the facility access road or off NSTAR Electric property.

Construction noise impacts have the potential to cause undue disturbance in the neighborhood of the proposed site. To help mitigate noise impacts from construction, the Department requires that the Company ensure quiet at its construction site before 7 a.m., Monday through Friday, and before 8 a.m. on Saturday. The Department further requires that no construction activities occur before 8 a.m. on Saturdays.

Operational noise would include noise from an additional transformer, but the noise from this transformer would not be expected to exceed 30.6 dBA at the nearest residence, which is a fairly low level, and there would generally be some offsetting diminution of noise from the existing transformer at the site. The Department concludes that, with the proposed mitigation described herein, the Company has taken feasible measures to avoid or mitigate noise and traffic impacts at Carver Substation.

With respect to hazardous materials and EMF, NSTAR Electric would survey for soil contamination prior to construction, and engage the services of an LSP if warranted. The record shows that NSTAR Electric would take design measures to contain any spill of transformer oil or battery acid, and that any released sulfur hexafluoride would disperse in the air. In addition, the Company has established in its SPCC plan operational procedures to prevent and respond to any spills of hazardous materials. The highest projected magnetic field strength along the future fenceline at Carver Substation would be 59 mG, which is lower than

the current peak load maximum of 76 mG. The Department concludes that the Company has taken feasible measures to minimize impacts from hazardous waste and EMF at Carver Substation.

Based upon our analysis above, the Department finds that the proposed project at Carver Substation, with the proposed mitigation measures described herein, would result in some modest local adverse environmental impacts consisting primarily of temporary noise impacts during construction and some increase in visible facility elements at generally existing structure heights.

2. Tremont Substation

a. Land Use and Water Resource Impacts

NSTAR Electric stated that the proposed project would not alter land use or stormwater runoff at Tremont Substation (Exhs. NSTAR-1, at 40; DPU-W-5). New equipment installation at Tremont Substation would be within an upland area and outside wetland buffer zones and flood zones (Exhs. NSTAR-1, at 38; NSTAR-3, at 3-7). Tremont Substation is located outside Zone II and Interim Wellhead Protection Areas (Exh. DPU-LU-3). The Company stated that there are no Priority Habitats at Tremont Substation (Exh. NSTAR-1, at 41).

b. Visual Impacts

NSTAR Electric stated that the proposed control house expansion at Tremont Substation would be designed to be similar in character to the existing building (Exh. NSTAR-1, at 42). The location is on a dead-end street with no residences and there would be no visual impact for neighboring residences or businesses (id.). The Company stated

that building expansion would include lighting at entrances, and that the lighting would be consistent with lighting on buildings in the immediate area (Exh. DPU-V-4).

c. Noise and Traffic

The Company stated that operational noise at Tremont Substation would not change as a result of the proposed project (Exh. DPU-A-6). NSTAR Electric indicated that typical construction noises would emanate from work at Tremont Substation (Exhs. NSTAR-1, at 40; DPU-A-3). The Company expects construction would occur six days per week, generally from 7 a.m. to 6 p.m. or occasionally later when length of daylight permits, and specified that it would endeavor to avoid starting equipment before 7:30 a.m. on weekends (Exhs. NSTAR-1, at 37; DPU-A-1). The Company stated that it would minimize construction noise by: (a) maintaining equipment and ensuring that equipment meets best practice for noise emissions; (b) limiting any reversing of equipment; and (c) ensuring quick and efficient response to any noise complaints (Exh. NSTAR-3, at 3-22). Also, the Company stated that it would provide abutters with a phone number to contact a community liaison, should issues arise (Tr. at 113-115).

With respect to traffic, NSTAR Electric noted that Tremont Substation is located on a dead-end street with no facilities other than other NSTAR facilities (Exh. DPU-T-3). Construction parking would occur along this street and on the site (id.). No other traffic issues were identified.

d. Hazardous Materials

NSTAR Electric stated that, prior to construction, it would search the list of hazardous waste sites maintained by the MADEP for the existence of sites near Tremont Substation (Exh. DPU-W-6). The Company stated that, for any identified neighboring site, it would contact the LSP associated with the site to determine if the proposed project could be affected (id.). In addition to this records search, the Company stated that it would collect soil samples around the site, prior to construction (id.). If samples indicate potential contamination, NSTAR Electric stated that it would hire an LSP to manage the issue (id.).

NSTAR Electric indicated that motor oil, hydraulic oil, diesel fuel, and gasoline would be used to run equipment during construction at Tremont Substation (Exh. DPU-W-2). The Company stated that an accidental release of material would trigger implementation of procedures in accordance with the Company's Spill Notification and Response procedure (id.). The Company stated that it has two spill responders available on a 24 hour on-call basis (id.).

e. Analysis and Findings

The record shows that there are no wetland resource areas or waterways within the proposed work area at Tremont Substation and that runoff patterns would not be affected. The record shows that there are no habitats for rare species at the site. The record shows that visual impacts at Tremont Substation would be negligible. The record also shows that noise and traffic impacts at Tremont Substation would be negligible. With respect to hazardous materials, NSTAR Electric would survey for soil contamination prior to construction, and engage the services of an LSP if warranted. The record shows that NSTAR Electric would

take design measures to contain any spill and would enforce its SPCC to avoid and contain any spills of hazardous materials. The Department concludes that the Company has taken feasible measures to avoid or mitigate impacts on land use and groundwater, visual impacts, noise and traffic impacts, and impacts from hazardous waste at Tremont Substation.

The Department finds that at Tremont Substation, the proposed project, with mitigation actions identified herein, would likely result in minimal impacts on the local community.

3. Transmission Line 134

a. Land Use and Water Resource Impacts

NSTAR Electric has proposed to site the new 115 kV circuit (Line 134) along an existing ROW on existing poles which have a vacant arm (Exh. NSTAR-1, at 12). The Company stated that, as a result of using an existing ROW and existing poles,[6] the environmental impacts associated with adding the new line would be "extremely minimal" (Exh. NSTAR-1-F(1)). The Company further asserted that there are no ACECs along the proposed route for Line 134 (Exh. NSTAR-1, at 36). The Company stated that the ROW crosses two Priority Habitats which are mapped for long-leaved panic-grass under the Natural Heritage and Endangered Species Program ("NHESP") (Exh. NSTAR-1-F(2), at 3), but stated that the impact on Priority Habitats would be slightly below the two-acre MEPA review trigger (Exh. NSTAR-1-F(1), at 6). However, NSTAR Electric stated that it plans to file with

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[6] NSTAR Electric stated that there is a possibility that it may need to install one new tower outside Tremont Substation in Wareham to facilitate the interconnection of Line 134 with Tremont Substation (NSTAR-1, at 40).

NHESP prior to construction to determine the Best Management Practices for avoiding impacts to rare species (id.).

NSTAR Electric stated that during the process of siting the existing transmission line (Line 127) in 1992 and 1993, an Archaeological Survey and Archaeological Site Evaluation was conducted along the transmission ROW (Exh. NSTAR-1, at 39). These studies indicated the presence of an archaeological site and Line 127 was therefore constructed with oversight from the Massachusetts Historical Commission (id.). The Company stated that the installation of Line 134 would require temporary vehicle access to the existing poles, but would not involve ground disturbance (Exh. NSTAR-3, at 3-32). NSTAR stated that operation of the transmission line would require periodic maintenance of the ROW, but that maintenance activity would also involve only temporary vehicle access and not involve ground disturbance (id.). Therefore, the Company concluded that it anticipated no impacts on archeological resources (id.).

The Company affirmed that all construction activity associated with the new line would take place within the existing ROW and is expected to take place over an approximately six week period (Exh. NSTAR-1-F(2); Tr. at 55). The Company stated that the new line would cross six water bodies, but no excavation work is planned within the waterway or within 200 feet of the banks (Exh. NSTAR-1, at 43). The Company stated that there are several wetland resource areas and one Certified Vernal Pool located along the ROW (id.). The Company stated that it plans to use swamp mats and/or helicopters to minimize the impact on water bodies wetlands resources (id. at 43-44 and Tr. at 58). NSTAR Electric affirmed that

there would be no permanent loss of wetland as a result of the proposed project (Exh. NSTAR-1, at 44).

b. Visual Impacts

NSTAR Electric asserted that because it plans to install the new circuit on an existing pole in an existing ROW, visual impacts after construction would be minimal (Exh. NSTAR-1, at 42).

c. Noise and Traffic

The Company stated that noise associated with the construction of Line 134 would be temporary and minimal, and primarily associated with the use of equipment within the ROW to install and remove temporary rider poles to string the line along existing towers at road way crossings (Exh. NSTAR-1, at 41). NSTAR Electric stated that it plans to coordinate traffic management for the affected road crossings with state and local authorities (id.).

NSTAR Electric projected that construction of Line 134 would last approximately six weeks, with work occurring more or less continuously on the ROW, depending on the stage of construction (Tr. at 55). NSTAR Electric described that construction would occur six days per week, generally from 7 a.m. to 6 p.m. or occasionally later when length of daylight permits, and specified that it would endeavor to avoid starting equipment before 7:30 a.m. on weekends (Exhs. NSTAR-1, at 37-38; DPU-A-1). NSTAR Electric stated it might need an exception to the six-day per-week schedule if it were necessary to pull the new wire across Interstate 495 at a time of extremely low traffic, and that might be very early on a weekend day (Tr. at 65).

NSTAR Electric described that the construction would typically be carried out by crews of ten to twelve people, though crews may be combined for jobs requiring more manpower or subdivided for jobs requiring less manpower (Exh. DPU-T-2). NSTAR Electric stated that, under the direction of the contractor it hires to install the line, members of these crews would be instructed to meet at a specified location from which they would be transported to the construction site in contractor vehicles (Tr. at 58). The Company stated that contractor vehicles would be parked within the ROW (Tr. at 57-58).

d. Hazardous Materials and EMF

The Company stated that potential contaminants that may be used in the construction of Line 134 include motor oil, hydraulic oil, diesel fuel and gasoline (Exh. DPU-W-1). These materials would be used to run equipment necessary for the construction of the new line (id.). NSTAR Electric maintained that it would minimize the potential of releasing contaminants to the soil and groundwater by conducting all filling and fueling operations over a paved area outside the ROW (id.). In the event of a spill, NSTAR Electric confirmed that the workers would follow NSTAR Electric's Spill Notification & Response procedure (id.). The Company described that it has two Company spill responders available 24 hours a day, seven days a week and that it has on-going contracts with Clean Harbors and Cyn Oil to clean up hazardous material releases (id.).

The Company stated that the ROW of existing Line 127 and proposed Line 134 has historically been maintained by mechanical cutting (Exh. DPU-LU-9). NSTAR Electric stated that in 2005 it introduced an Integrated Vegetation Management Plan ("IVMP") that

incorporates mechanical cutting and target herbicide application (id.). The Company stated that its IVMP is on file with, and has been approved by, the Massachusetts Department of Agriculture Resources (Exh. DPU-LU-7). NSTAR Electric further stated that it uses only those herbicides recommended by the Commonwealth for use in Sensitive Areas (pursuant to 333 C.M.R. § 11.04(1)(d)) (id.). The Company asserted that the use of a combination of selected herbicide application and limited mechanical cutting and selected herbicides produces less environmental impact than mechanical cutting alone (Exh. DPU-LU-5).

The Company provided estimates for EMF levels along the ROW with the existing Line 127 alone, and with Line 127 and the proposed Line 134 together (Exh. NSTAR-PAV-2, at 17). The Company confirmed that while there are no houses located on the ROW, there are homes as close as 40 to 50 feet from the tower centerline (Exh. DPU-E-6; RR-DPU-7). The projections of electric field levels (given in kilovolts per meter, "kV/m") for the east and west edges of the ROW under maximum loading conditions[7] are indicated Table 1 below.

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[7] NSTAR Electric projected that maximum future loading conditions with Line 127 alone would be equal to 54.3 megavolt-amperes or 273 amps (RR-DPU-6). With the addition of the proposed Line 134 and Line 127, the maximum future loading conditions would be 60.4 megavolt-amperes or 303 amps, an approximately 11 percent increase (id.). These maximum loading conditions were simulated consistent with assumptions that one or both of Canal power plant units are in service (id.).

Table 1

Affected Location[8]	Electric Field (kV/m) Present-day: Line 127 only	Electric Field (kV/m) Line 127 and Line 134
East edge of ROW	0.40	0.30
West edge of ROW	0.04	0.03

NSTAR Electric concluded that these estimates indicate a slight electric field cancellation effect anticipated from operating Lines 127 and 134 together when both lines are operating at maximum loading conditions (RR-DPU-8). The Company indicated that the magnitude of any realized cancellation would be dependent on actual line current (id.).

The Company estimated the strength of magnetic fields for the edges of the ROW in Table 2 below.

Table 2

Affected Location	Magnetic Field (mG) Existing Line 127 Only	Magnetic Field (mG) Line 127 and Line 134
East Edge of ROW	19	19
West Edge of ROW	2.6	3.0

NSTAR Electric stated that its estimates of magnetic fields showing a limited to no increase in magnetic field with both Line 127 and Line 134 in operation assume that the conductors are arranged to achieve partial cancellation of magnetic fields at the edges of the ROW (Exh. DPU-E-3). The Company explained that a greater degree of cancellation could be

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[8] The poles carrying the existing Line 127, which would also carry the proposed Line 134, are generally located closer to the east side of the ROW.

produced by an inverted phase arrangement. As indicated in Table 3, below, the Company estimated that with an inverted phase arrangement there would be greater reduction in both magnetic and electric fields under maximum loading (Exh. DPU-E-4).

Table 3

Affected Location	Magnetic Field (mG)	Electric Field (kV/m)
East Edge of ROW	10.3	0.25
West Edge of ROW	0.21	0.009

The Company explained that it did not further pursue a design based on the use of the inverted phase arrangement because it needed to match the phase order for conductor connections of multiple lines within Carver and Tremont Substations (Exh. DPU-E-3). The Company further explained that it is NSTAR Electric's policy to have a common phase order for multiple lines within any substation so that operators and engineers working at the substation have a consistent arrangement throughout the substation (Tr. at 77). The Company stated that in order to preserve a consistent phase order of connections within Carver Substation and use an inverted phase arrangement on Line 134, the Company would need to rotate the conductors as they exit the substation (Tr. at 75). The Company further explained that to achieve this rotation of conductors, an 8 to 16-foot higher structure would be required in order to maintain safe separation of the circuits at the substation (Tr. at 74-79). The Company stated that it had not considered in detail the feasibility and cost of using an inverted phase design for the new line coming into the substation (Tr. at 78), but concluded that it would involve higher structures and be more expensive (Exh. DPU-E-4).

e. Analysis and Findings

The new transmission line (Line 134) would be built along an existing ROW and installed on existing poles originally designed for an additional line. The record shows that any impacts on land use and water resources would be temporary and mitigated by the use of swamp mats and/or helicopters. The record further shows that there are no ACECs, no anticipated impact on historic resources and only temporary short-term noise and traffic impacts.

With respect to EMF impact, the record shows that with the proposed design and configuration of conductors, the proposed project would provide an 11 percent increase in peak transmission within the ROW during maximum load conditions, without any significant increase in strength of electric and magnetic fields at the east and west edges of the ROW. The Company's analysis shows that the use of an inverted phase arrangement of conductors would allow a more substantial reduction in both electric and magnetic field strengths and, thus, lower edge-of-ROW field levels. However, the use of a higher structure to rotate transmission lines at Carver Substation would result in some increase in both project visual impact and project cost, and we note that similar increased impacts may be entailed at Tremont Substation. Further, the use of an inverted phase arrangement of conductors has not been pursued by the Company in detail, so it is possible that a redesign could extend the construction schedule.

Therefore, given the immediacy of the need to expand the Carver Substation, together with the fact that the proposed project would not significantly increase current EMF levels, the Department concludes that the proposed installation of Line 134 represents feasible mitigation

of EMF impacts. The Department notes that, as part of future Company project design policies that may relate to EMF levels, it may be prudent to provide for regular consideration of available low and no-cost measures to minimize EMF levels. The Department also notes that as part of future project design policies, it may be prudent not only to consider design options that would minimize or avoid increases in EMF levels but also, as applicable, options which would serve to actually reduce EMF below pre-project levels.

The Department concludes that the proposed project would include use of feasible measures to avoid or minimize environmental impacts with respect to the installation of Line 134. The Department finds that installation of Line 134, with proposed and other identified mitigation described herein, would likely result in minimal impacts on the local community, consisting primarily of temporary land and water resource impacts and noise impacts during construction.

E. Conclusion

The Department's review shows that the proposed project would expeditiously address immediate power import and 115 kV transmission needs of the Lower SEMA region. The proposed project would, thereby, help provide important economic benefits, in that it would displace uneconomic operation of generation resources. In addition, the proposed project would allow the Company to make maximum use of the existing system configuration and elements, thereby providing advantages over identified alternatives.

The record shows that, with the proposed and other identified mitigation described herein, the impacts on the communities that are the site of the substations would be minimal,

with the exception of possible construction noise impacts, which have the potential to cause undue disturbance in the neighborhoods of the proposed substations. To help mitigate noise impacts from construction, the Department directs the Company to ensure quiet at its construction site before 7 a.m., Monday through Friday, and before 8 a.m. on Saturday. The Department further directs the Company that no construction activities shall occur before 8 a.m. on Saturdays.

The record shows that impacts associated with installing Line 134 on existing poles would be minimal and extend over a limited approximate six-week construction period.

Based on the foregoing, the Department finds that the public interest in the construction of the proposed project on the proposed site would outweigh the impacts of the proposed project. Consequently, the Department finds that the proposed project is reasonably necessary for the convenience and welfare of the public.

IV. REQUEST FOR ZONING EXEMPTIONS

A. Introduction

NSTAR Electric requests both individual and comprehensive exemptions from the Carver and Wareham Zoning By-laws (Exh. NSTAR-1, at 1). The Company provided a description of the parcels of land in Carver and Wareham for which it seeks exemptions (Exhs. DPU-Z-7; DPU-Z-8).[9]

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[9] In 1987, the Department granted the Company an exemption from the Carver Zoning By-laws to construct Carver Substation. Commonwealth Electric Company, D.P.U. 86-257 (1987). The Company stated that at the time NSTAR Electric's Tremont Substation was built in Wareham in the 1920s, there were no zoning nor other

(continued…)

B. Need for Requested Exemptions – Carver Zoning By-law

The Company identified nine substantive chapters of the Carver Zoning By-law from which it is specifically seeking an exemption in order to construct and operate the proposed project (Exh. NSTAR-1, at 16-23). The Company stated that the Carver Zoning By-law does not allow the construction and operation of the substation as a permitted use (id. at 8). According to NSTAR Electric, the construction of the substation may be inconsistent with several additional Carver Zoning By-law provisions (id.). The sections for which the Company is seeking zoning relief are described below.

1. Permitted Use and Non-Conforming Structures

The Company requested an exemption from the Use Regulations of the Carver Zoning By-law, §§ 2200, 2210, 2220, 2230, 2240 and 2250 (Exh. NSTAR-1, at 16-17). The Company stated that the proposed project would be located within an area of Carver zoned as Residential-Agriculture ("RA"), where public utility uses are not a permitted use (id. at 16). According to the Company, the Carver Zoning Board of Appeals does not have the authority to grant a variance in any residential district (Exh. NSTAR-1-A at 2-7).

2. Dimensional Requirements

NSTAR Electric requested that the Department grant exemptions to specific dimensional provisions of the Carver Zoning By-law, as set forth in § 2320 (Exhs. NSTAR-1, at 17-20). These provisions prescribed: lot width; frontage for front, rear

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[9] (…continued)
permits required (Exhs. DPU-Z-8; DPU-Z-4).

and side yards; and building height and width requirements (NSTAR-1-A at 12, § 2320). The Company argued that because the by-law's definitions of "rear lot" and "building line" are ambiguous when applied to the Carver substation, the Carver building inspector may interpret these terms differently from the Company (Exhs. NSTAR-1, at 17-18; NSTAR-1-A at 12, § 2320). If so, the Company argued that an exemption would be needed because, under the inspector's determination, the proposed project might not meet the rear lot and building line requirements of Carver's Zoning By-law (Exhs. NSTAR-1, at 17-18; NSTAR-1-A at 12, § 2320).

NSTAR Electric stated that the Carver substation consists of multiple poles and structures typical to electricity transmission in its rear and side yards (Exh. NSTAR-1, at 18-19). The Company argued that the Carver Substation might not meet the "rear yard requirements" and "minimum side yard dimension" of the Carver Zoning By-law due to the multiple structures located in the area of the Carver Substation (Exh. NSTAR-1, at 18-19; NSTAR-1-A at 12, § 2320). In addition, NSTAR Electric maintained that the construction at the Carver Substation facilities would not meet the definition of "building" as it relates to maximum building height (Exh. NSTAR-1, at 19; NSTAR-1-A at 12, § 2320).

3. Site Plan Review

The Company requested exemption from the requirement for a site plan review by the Carver Planning Board, as required by § 3100 of the Carver Zoning By-law (Exhs. NSTAR-1, at 20-21; NSTAR-1-A at 29, § 3100). The Company argued that it needs discretion to design

the substation in a manner that is consistent with established utility standards, which may be beyond the general scope and expertise of the Planning Board (Exh. NSTAR-1, at 20-21).

4. General Landscaping Requirements

NSTAR Electric argued that it may not be feasible given the design of the substation to comply with the landscaping requirements applicable to "any nonresidential use," as set forth in §§ 3200 of the Carver Zoning By-law (Exhs. NSTAR-1, at 21; NSTAR-1-A at 32-35). The Company stated that it would install screening to match what is currently present at the plant, but otherwise requested an exception to these provisions of the Carver Zoning By-law (Exhs. NSTAR-1, at 21; NSTAR-1-A at 32-35, §§ 3200, 3220).

5. Townwide Parking and Loading Requirements

NSTAR Electric requested an exemption from the parking and loading space requirements included in § 3300 of the Carver Zoning By-law (Exhs. NSTAR-1, at 21; NSTAR-1-A at 35, §§ 3310 through 3350). The Company stated that parking at the Carver Substation would be rare because it is unmanned (Exh. NSTAR-1, at 21). NSTAR Electric asserted that it would incorporate adequate loading space to conform with proper electric transmission construction techniques (id.).

6. Signs

NSTAR Electric requested an exemption from § 3500 of the Carver Zoning By-law governing the placement of signs (Exhs. NSTAR-1, at 22; NSTAR-1-A at 42, § 3500, 3520). The Company argued that the Carver Zoning By-law allows signs for permitted uses only, and that the substation may not be a permitted use (Exh. NSTAR-1, at 22).

7. Environmental Controls

Section 3610 of the Carver Zoning By-laws prohibits "Disturbances" associated with sound, noise, vibration, odor or flashing in an RA district that would be perceptible without instruments more than 40 feet from the boundaries of the originating premises (Exh. NSTAR-1-A, at 53). NSTAR Electric requested an exemption from this provision because it restricts sounds generally that may be perceptible from the Carver substation at distances of greater than 40 feet (Exh. NSTAR-1, at 22). The Company stated that it would mitigate noise as necessary to comply with state noise regulations (Exh. NSTAR-1, at 22).

8. Erosion Control

Section 3620 of the Carver Zoning By-law regulates site design, materials and construction necessary to avoid erosion damage, sedimentation or uncontrolled runoff (Exh. NSTAR-1-A at 53). NSTAR Electric stated that it does not believe that expansion of the Carver substation would be inconsistent with the provisions of this section (Exh. NSTAR-1, at 22). However, according to NSTAR Electric, unforeseen circumstances may result in construction that could be inconsistent with the requirements of this provision (id.).

9. Water Resources Protection

NSTAR Electric requested exemptions from the water resource protection provision of the Carver Zoning By-law, which prohibits the storage and disposal of hazardous wastes (Exhs. NSTAR-1, at 23, § 42; NSTAR-1-A at 65, §§ 4310, 4320, 4330). The Company requested an exemption from this provision because it intends to use certain materials at the substation such as transformer fluid, battery acid and sulfur hexafluoride gas that may

otherwise require a special permit from the Town of Carver pursuant to § 3620 (id. at 23). The Company explained, however, that it would protect Carver water resources by installing an alarm to detect a drop in transformer fluid levels and including full spill containment underneath the transformer, and putting an acid resistant berm around the battery (RR-DPU-11; Tr. at 133-136).

10. Remaining Provisions of the Carver Zoning By-law

The Company stated that, because Carver's Building Inspector may interpret the Zoning By-laws in a manner inconsistent with the Company's interpretation, NSTAR Electric's proposed substation control house could conceivably require other exemptions from the Zoning By-laws (Exh. NSTAR-1, at 23). Because of the number and extent of the zoning requirements implicated for this Project, the vagueness of the terminology in the Carver Zoning By Laws and the acute need for expedition in obtaining the requested zoning exemption, NSTAR Electric has requested a comprehensive zoning exemption from the Carver Zoning By-laws (id.).

C. Need for Requested Exemptions – Wareham Zoning By-law

The Company identified four substantive chapters of the Wareham Zoning By-law from which it is specifically seeking an exemption in order to construct and operate the expanded control house at Tremont Station (Exh. NSTAR-1, at 24-26). The sections for which the Company requested zoning relief from the Wareham Zoning By-law are described below.

1. Use Regulations

The Company requested an exemption from §§ 310, 321 of the Wareham Zoning

By-law, which regulates permitted uses in Wareham (Exh. NSTAR-1-B at 5). According to the Company, Tremont Station is located within an area in Wareham zoned as Commercial Strip ("CS") and the Wareham Zoning By-law does not permit public utility uses in a CS district (Exh. NSTAR-1, at 24).

2. Density and Dimension Regulations

The Company requested an exemption from §§ 611 and 620 of the Wareham Zoning By-law, which regulates the density and dimensional requirements of buildings in Wareham (Exh. NSTAR-1, at 24-25). NSTAR Electric stated that the current control house at Tremont Station "appears to be" inconsistent with the dimensional provisions with the dimension requirements, which require 20 feet of minimum front setback for a "nonresidential use" and a minimum of 40 feet from a residential use (id. at 24).

3. Alteration or Reconstruction Without Increase in Nonconformity

NSTAR Electric requested exemption from § 1331 of the Wareham Zoning By-law, which allows for a pre-existing nonconforming structure to be altered or reconstructed under certain identified circumstances, with the use of a special permit (Exh. NSTAR-1, at 25). The Company indicated that it is seeking this exemption because of the potential for undue delay associated with obtaining such a special permit (id.).

4. Site Plan Review

As stated in § 1510 of the Wareham Zoning By-law, the purpose of site plan review is to insure that the impacts of certain developments allowed as a matter of right or by special permit are in accord with the purposes of the Wareham Zoning By-law

(Exh. NSTAR-1-B at 59). The Company requested an exemption from the requirement for site plan review because "the Company must have the discretion to design its control house . . . in a manner that is consistent with established utility standards in order to ensure its reliable operation (Exh. NSTAR-1, at 26)."

5. Remaining Provisions of the Wareham Zoning By-law

The Company stated that because Wareham's Building Inspector may interpret the Zoning By-laws in a manner inconsistent with the Company's interpretation, NSTAR Electric's proposed expansion of the Tremont control house could conceivably require other exemptions from the Zoning By-laws (Exh. NSTAR-1, at 26). Because of the number and extent of the zoning requirements implicated for this Project, the vagueness of the terminology in the Zoning By-Laws and the acute need for expedition in obtaining the requested zoning exemption, NSTAR Electric is seeking a comprehensive zoning exemption from the Wareham Zoning By-laws (id.).

D. Analysis and Findings

1. Public Service Corporation

NSTAR Electric is an "electric company" as defined by G.L. c. 164, § 1. See G.L. c. 164, §§ 3-33; Boston Edison Company, Cambridge Electric Light Company, Canal Electric Company, Commonwealth Electric Company d/b/a/ NSTAR Electric , D.T.E. 04-60, at 1-4, 119-123 (2006). Accordingly, the Department finds that NSTAR Electric qualifies as a public service corporation for the purposes of G.L. c. 40A, § 3.

2. Need for Exemptions

The Company has identified nine specific provisions of the Carver Zoning By-law and four specific provisions of the Wareham Zoning By-law from which it seeks exemption to minimize delay in the construction and ultimate operation of the relevant substations and associated transmission lines. The record demonstrates that, regarding the Permitted Uses section, the proposed project may not be an allowable use, and further that, regarding the Dimensional Requirements section, the proposed project may not meet applicable requirements in the Carver and Wareham Zoning By-laws. Thus, the record reasonably demonstrates an exemption from the Permitted Uses and Dimensional Requirements sections of both the Carver and Wareham Zoning By-laws is required.

With respect to the other identified bylaw sections, including provisions relating to site plan review, general landscaping requirements, parking requirements, signs, environmental controls, erosion control, water resources protection, and alteration or reconstruction of pre non-conforming structures, the Company has maintained that exemption is required to avoid uncertainties for project implementation such as: the potential that the landscaping requirements applicable under the Carver Zoning By-law may not be feasible given the design of the substation; the possibility that sound from the substation may be perceptible without instruments more than 40 feet from the boundaries of the Carver substation; the potential that unforseen circumstances may result in construction that is inconsistent with the erosion damage, sedimentation and surface water runoff provisions of the Carver Zoning By-law; and the potential delay associated with obtaining special permits and/or site plan reviews.

The Department acknowledges that while these provisions do not on their face prevent the development of the proposed project, the record demonstrates some likelihood that these provisions would result in one or more of the following: an adverse outcome, a burdensome requirement, or an unnecessary delay as part of zoning review. Accordingly, the Department finds that the nine identified substantive chapters of the Carver Zoning By-law and the four identified substantive chapters of the Wareham Zoning By-law would or could affect the Company's ability to implement the proposed project.

3. Public Convenience or Welfare

In Section III.B.2, above, the Department found that the proposed project would serve energy needs and provide energy benefits, including providing sufficient transmission capacity to import power to and within the Lower SEMA region when the Canal power plant is not operating, and would, thereby, reduce system costs associated with out-of-merit operation of generation resources. In Section III.E, above, the Department also found that the public interest in constructing the proposed project on the proposed sites would outweigh the impacts of the proposed project. Similarly, we find here that the general public interest in constructing the proposed facility would outweigh any adverse local impacts of the proposed project. Accordingly, the Department finds that the proposed project is reasonably necessary for the convenience and welfare of the public.

4. Conclusions on Requested Exemptions

Based on the record, the Department has concluded above that: (1) NSTAR Electric qualifies as a public service corporation for purposes of G.L. c. 40A, § 3; (2) the nine

identified chapters of the Carver Zoning By-law and the four identified chapters of the Wareham Zoning By-law would or could affect the Company's ability to implement the proposed project; and (3) the proposed project is reasonably necessary for the convenience and welfare of the public.

The proposed project would increase the ability of the area transmission to carry power into Lower SEMA up to 70 percent of SEMA's annual peak load requirements. This would reduce the number of days in which ISO-NE would require the oil-fueled Canal power plant to run to ensure system reliability. The public would benefit by avoiding substantial uneconomic wholesale market costs related to the Canal power plant running under certain conditions.

As also described above, the nine identified Carver Zoning By-law chapters and four Wareham Zoning By-law chapters all raise uncertainties for project implementation, although these cannot be fully known in advance, and may differ as to the degree or the significance of the uncertainty they pose. Given our finding herein that project benefits would outweigh any adverse local impact, and the importance of timely achieving the identified project benefits, the Department concludes that the requested exemptions are warranted.

The Company has also requested an exemption from the remaining provisions of the Carver and Wareham zoning by-laws, arguing that, in general, the uncertainty of their interpretation and the vagueness of the terminology used may create the need for additional unknown exemptions.

In past cases, the Department has granted requests for a comprehensive zoning exemption of a case-by-case basis. Princeton Municipal Light Department,

D.T.E./D.P.U. 06-11, at 37 (2007) ("Princeton"); NSTAR Electric Company, D.T.E./D.P.U. 07-9/07-10, at 37 (2007) ("Plympton"). However, the Department has also denied other such requests. For example, in New England Power Company, D.T.E. 04-66/04-81 (2005), the Department granted a request for an exemption from ten identified provisions of the local zoning by-law, but denied a request for a comprehensive zoning exemption because the petitioner had failed to demonstrate why it should not be required to obtain a building permit from the building inspector. Id. at 23-26. The Department concluded that "in the absence of a showing that public harm may be avoided by granting a comprehensive zoning exemption, the granting of such extraordinary relief is not justifiable." Id. at 26. In Tennessee Gas Pipeline Company, D.T.E. 01-57, at 11 (2002), the Department denied a request for a comprehensive zoning exemption because there was insufficient evidence that the proposed construction "is time sensitive or of critical importance to Tennessee's ability to continue serving its customers in a satisfactory manner pending the building's construction and operation."

The circumstances under which the Department will grant a comprehensive zoning exemption were most recently stated in Princeton at 37. There, the Department first modified an earlier standard that had provided, as one possible ground, that a comprehensive zoning exemption could be allowed on the basis of the number of exemptions requested. The Department held that in future cases it will "not consider the number of exemptions required as a sole basis for granting a comprehensive exemption." Id. The Department then stated that it would, however, "continue to use its standard for granting comprehensive relief when

construction of a proposed facility would avoid substantial public harm." Id. "This allows the Department to examine whether a comprehensive exemption would support the goal of granting relief that is in the public interest." Id.

In the instant case, the record demonstrates that as a principal benefit, the proposed project would sharply avoid uneconomic wholesale generation costs associated with the current inability to import sufficient power into the region. A possible delay in improvements serving to avoid these uneconomic costs supports the issuance of an exemption to NSTAR Electric from the zoning by-laws of Carver and Wareham. The Department hereby finds that an exemption from the remaining provisions of the zoning by-laws of Carver and Wareham (to the extent applicable) associated with the proposed project is in the public interest. This exemption shall apply to the construction and operation of the proposed facility at the proposed specific site locations as described in Exhibit NSTAR-1, to the extent applicable (see Exhs. DPU-Z-7; DPU-Z-8). See Planning Bd. of Braintree v. Department of Public Utilities, 420 Mass. 22 (1995).

V. SECTION 61

A. Company Actions to Mitigate Environmental Impacts

On November 15, 2007, the Secretary of the Office of Energy and Environmental Affairs ("EOEEA") issued a certificate on the Company's Final Environmental Impact Report ("Certificate") (Exhs. NSTAR-2; NSTAR-3). The Secretary found that the FEIR adequately assessed potential impacts and committed to avoid, minimize and mitigate environmental impacts (Exh. NSTAR-3, at 4).

The Company has presented evidence that it has received, or it is in the process of receiving, required approvals of the proposed project from other federal, state and local authorities concerned with environmental impacts (Exh. NSTAR-3, at 1-2; RR-DPU-9; RR-DPU-10; RR-DPU-11; Tr. at 116-140). On January 29, 2008, the Company received a permit from the U.S. Army Corps of Engineers authorizing the Companies to fill in wetlands, subject to certain conditions (RR-DPU-9; Tr. at 126). The Company expects to obtain the required Massachusetts Department of Environmental Protection Section 401 Water Quality Certification (Exh. NSTAR-3, at 1-2; RR-DPU-10; Tr. at 126). The Company stated that, pursuant to the Massachusetts Wetlands Protection Act, it will submit notices of intent to the Conservation Commissions of Carver, Middleborough, Rochester, and Wareham (Exh. NSTAR-3, at 1-2; Tr. at 121).

B. Analysis and Findings

The Department determines that in making a Section 61 finding in this case, it would examine the same environmental issues that were comprehensively examined by the EOEEA. Since the EOEEA's decision and record of the EOEEA decision have been incorporated into the record of this case, the Department incorporates the Company's analysis of environmental impacts in its Environmental Impact Report as the principal basis for Section 61 review in this case (Exhs. NSTAR-2; NSTAR-3).

The Department's review of environmental impacts as proposed incorporates the conclusions in Sections III.D and E, and Section IV.D above. Based upon the record in this case and the Companies' compliance with the federal, state and local authorities noted above,

the Department finds that the Companies have taken all feasible measures to avoid or minimize the environmental impacts of the proposed project.

VI. G.L. c. 164, § 72

As stated above, in evaluating petitions filed pursuant to G.L. c. 164, § 72, the Department relies on the standard of review established for G.L. c. 40A, § 3 for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public. Based on the record in this proceeding and the above analysis, and with the implementation of mitigation measures proposed by the Company and directed by the Department, the Department finds pursuant to G.L. c. 164, § 72, that the proposed transmission line is necessary for the purpose alleged, will serve the public convenience, and is consistent with the public interest.

The Department directs NSTAR Electric to serve a copy of this decision, within five business days of this issuance, on (1) the Town of Carver Board of Selectmen, Planning Board, and Zoning Board of Appeals; and (2) the Town of Wareham Board of Selectmen, Planning Board, and Zoning Board of Appeals. The Department further directs NSTAR Electric to certify to the Secretary of the Department within ten business days of its issuance that such service has been made.

VII. ORDER

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

ORDERED: That the Carver Substation portion of the project proposed by the Company in this proceeding, with the specific elements as described in Appendix A hereto, to

be built on land described in Appendix B hereto, is hereby exempted from the operation of the zoning ordinances of the Town of Carver, Massachusetts, pursuant to the provisions of G.L. c. 40A, § 3, as amended, and it is

FURTHER ORDERED: That the Tremont Substation portion of the project proposed by the Company in this proceeding, with specific elements as described in Appendix A hereto, to be built on land described in Appendix B hereto, is hereby exempted from the operation of the zoning ordinances of the Town of Wareham, Massachusetts, pursuant to the provisions of G.L. c. 40A, § 3, as amended; and it is.

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

FURTHER ORDERED: That the Secretary of the Department shall transmit a certified copy of this Order to the Town of Carver and the Town of Wareham; and it is

FURTHER ORDERED: That NSTAR Electric Company shall obtain all other governmental approvals necessary for this proposed project before construction commences; and it is

FURTHER ORDERED: That NSTAR Electric Company shall follow all directives listed in this Order.

By order of the Department

_____/s/_____
Paul J. Hibbard, Chairman

_____/s/_____
Tim Woolf, Commissioner

_____/s/_____
W. Robert Keating, 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.

APPENDIX A Project Components

The Company proposes to construct, maintain and operate an expansion of its Carver Substation; to construct a new 115 kV circuit (Line 134) from Carver Substation to Tremont Substation in Wareham; and to expand its control house at Tremont Substation (Exh. NSTAR-1, at 10-11). The existing Carver substation consists of two switchyards, one containing 345 kV facilities, in two bays, and one containing 115 kV facilities, also in two bays (id. at 11). The proposed expanded Carver Substation would represent an expansion of these switchyards with reconfigured 345 kV and 115 kV facilities, as well as construction of two new "tap" lines connecting an existing 345 kV line to the substation (id.).

The Project would consist of the following elements (id. at 11-12):

(a) installation at Carver Substation of six 345 kV circuit breakers with associated disconnect switches, bus work and concrete foundations to expand an existing 345 kV ring bus to a "breaker-and-one-half" bus arrangement and, in the process, create one new "switching bay" and one new "transition bay" in the existing 345 kV switchyard at Carver Substation;

(b) expansion and preparation of the existing fenced area at Carver Substation to accommodate the proposed equipment on the east side of the existing 345 kV switchyard;

(c) relocation of the termination structures of one 345 kV overhead circuit (Line 322) at Carver Substation and construction of supporting structures to connect it to a new breaker position in an existing bay in the 345 kV switchyard;

(d) installation of two dead-end structures on the 345 kV ROW adjacent to Carver Substation and splitting and rerouting an existing 345 kV overhead circuit (Line 355) into two new circuit positions in the existing 345 kV switchyard through the construction of two 250 foot "tap" lines;

(e) installation of a second 345/115 kV autotransformer at Carver Substation with associated foundation and switches and connection to a new circuit position in the 345 kV switchyard and a new circuit position in the 115 kV switchyard;

(f) installation of five 115 kV circuit breakers with associated disconnect switches, bus work and concrete foundations to expand an existing 115 kV "ring bus" to a "breaker-and–a-half" switchyard at Carver Substation. This also includes installation of an additional bay for 115 kV circuit breakers on the west side of the existing 115 kV facilities, which would be used to terminate the proposed Line 134 to Wareham;

(g) miscellaneous associated protective relaying, metering, control wiring, and related equipment at Carver Substation;

(h) relocation of an existing 115 kV circuit (Line 127) connection to a new circuit position in the 115 kV switchyard at Carver Substation;

(i) extension of the existing chain link fence enclosure at Carver Substation on the easterly side of the 345 kV switchyard and the northwesterly side of the 115 kV switchyard;

(j) installation of overhead wire to create a second 115 kV circuit (Line 134) on the vacant side of the existing double circuit tower line that runs a total of 8.3 miles from Carver through Middleborough and Rochester to Wareham. Line 134 would terminate in an existing spare 115 kV circuit position in the existing Tremont Station;

(k) installation of a utility building for the storage of maintenance tools and equipment to create space in the existing control enclosure at Carver Substation; and

(l) expansion of the control house at Tremont Substation, and construction of associated electrical equipment.

APPENDIX B Parcel Descriptions

The Company identified the parcels for which it requested zoning exemptions (Exhs. DPU-Z-7; DPU-Z-8). Exemption from the Carver Zoning By-laws applies to:

A certain parcel of land situated on the westerly side of Main Street (Rte. 58) in the Town of Carver, in the County of Plymouth and the Commonwealth of Massachusetts, at the intersection of the Company's 115kV and 345kV transmission line rights of way, bounded and described as follows:

Beginning at a point in the westerly side of Main Street at the northeasterly corner of land now or formerly of Michael J. And Christine E. Lafleur and the easterly corner of the parcel herein described; thence

South 40° 00' 10" West a distance of four hundred twenty-five and eighty-one hundredths feet (425.81), in the line of land now or formerly of said Lafleur to a point; thence

South 47° 13' 20" East a distance of four hundred ninety-five and eighty-four hundredths feet (495.84), in the line of land now or formerly of said Lafleur and the land now or formerly of Thomas R. O'Neill, to a point in the line of land now or formerly of Gary F. Weston, Trustee; thence

South 43° 07' 40" East a distance of three hundred eleven and eighty-three hundredths feet (311.83), in the line of land now or formerly of Gary F. Weston, Trustee, to a point in the line of land now or formerly of said Weston; thence

North 08° 13' 02" East a distance of four hundred twenty three and sixty-nine hundredths feet (423.69) bounding on and to a point of land of said Weston; thence

South 81° 46' 58" West a distance of three hundred fifty-seven and thirty-five hundredths feet (357.35) to a point in the line of land of said Weston; thence

South 81° 46' 58" West a distance of three hundred ninety three and twenty-two hundredths feet (393.22) in the line of land of said Weston and the land now or formerly of Francis J. and Patricia A. D'Angelo, to a point in the land of John D. and Patricia A. Anderson; thence

North 62° 01' 00" East a distance of three hundred thirty two and forty-four hundredths feet (332.44); thence

North 41° 14' 16" West a distance of four hundred seventy two and fifty-six hundredths feet (472.56) to a stone bound and corner of land now or formerly of John P. and Eileen M. White; the previous two (2) courses bounding on land of said Anderson and White; thence

North 40° 01' 32" East a distance of one thousand two hundred forty-one and seventy hundredths feet (1241.70) in the line of land now or formerly of Linda A. Gray, land now or formerly of J. Edward and Jeanne Garner; land now or formerly of William E. And Stacy A. Smith to a point in the westerly side of said Main Street; thence

South 47° 13' 20" East a distance of forty and no hundredths feet (40.00) to a point and the point of beginning.

The above-described parcel of land contains an area of 13.266 acres and is shown as Lot 1 and Lot B on a plan "ANR EXHIBIT PLAN, 33 MAIN STREET, CARVER, MASS., SCALE 1" = 100', JUNE 5, 2007, REVISED ON 10/16/07 AND ON 11/07/07 HARRY R. FELDMAN, INC., LAND SURVEYORS", recorded in the Plymouth County Registry of Deeds, Book 53, Page 1021.

Exemption from the Wareham Zoning By-laws applies to:

A certain parcel of land situated on the westerly side of Carver Road in the Town ofWareham, in the County of Plymouth and the Commonwealth of Massachusetts

Beginning at a concrete bound in the westerly side of Carver Road at the southeasterly corner of land now or formerly of Edith L. And Melville C. Beaton and the northeasterly corner of the parcel herein described; thence

South 39° 30' West a distance of four hundred ninety-six and sixty-nine hundredths feet (496.69), along said Carver Road to a concrete bound; thence

North 33° 54' West a distance of two hundred and no hundredths feet (200.00), in the line of land now or formerly of Mabel Doty to a concrete bound; thence

North 16° 13' East a distance of one hundred forty-seven and sixty hundredths feet (147.60), in the line of land to a concrete bound; thence

North 39° 30' East a distance of three hundred fifty-one and eighty-one hundredths feet (351.81) to a concrete bound the previous two (2) courses in the line of land now or formerly of New Bedford Gas and Edison Light Company; thence

South 39° 40' East a distance of two hundred fifty-four and fifty-four hundredths feet (254.54) to a concrete bound in the line of land now or formerly of said Beaton, the point of beginning.

The above-described parcel of land is shown on a plan "NEW BEDFORD GAS AND EDISON LIGHT COMPANY, TREMONT SUBSTATION, TOWN OF WAREHAM, COUNTY OF PLYMOUTH MASSACHUSETTS, SCALE 1" = 50', AUGUST 15, 1949, SAMUEL H. CORSE, SURVEYOR".