COMMONWEALTH OF MASSACHUSETTS
ENERGY FACILITIES SITING BOARD

Petition of NSTAR Electric Company d/b/a Eversource Energy for Approval to Construct a New 115 kV Transmission Line in the Towns of Sudbury, Hudson, and Stow, and the City of Marlborough and to Make Modifications to Existing Substations in Sudbury and Hudson, Massachusetts, Pursuant to G.L. c. 164, § 69J	EFSB 17-02
Petition of NSTAR Electric Company d/b/a Eversource Energy for Exemptions from the Operation of the Sudbury, Hudson and Stow Massachusetts Zoning Bylaws, Pursuant to G.L. c. 40A, § 3	D.P.U. 17-82
Petition of NSTAR Electric Company d/b/a Eversource Energy for Approval to Construct and Use a New 115 kV Transmission Line in the Towns of Sudbury, Hudson, and Stow, and the City of Marlborough, Massachusetts Pursuant to G.L. c. 164, § 72	D.P.U. 17-83

FINAL DECISION

On the Decision:

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December 18, 2019

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Limited Participants (see Appendix A)

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ABBREVIATIONS

Alliance	Alliance to Protect Nantucket Sound v. Department of Public Utilities, 461 Mass. 190 (2011)
ANRAD	Abbreviated Notice of Resource Area Delineation
ASTM	American Society for Testing and Materials
Berkshire Power	Berkshire Power Development, Inc., D.P.U. 96-104 (1997)
BLSF	bordering land subject to flooding
Box Pond	Box Pond Association v. Energy Facilities Board, 435 Mass. 408 (2001)
BMP	best management practices
Braintree	Planning Board of Braintree v. Department of Public Utilities, 420 Mass. 22 (1995)
BVW	bordering vegetated wetland
CCGT	combined-cycle gas turbine
CELT	Capacity, Energy, Loads, and Transmission (report)
CHG	Commonwealth Heritage Group, Inc.
CMR	Code of Massachusetts Regulations
CPP	critical peak pricing
CPR	critical peak rebate
Company	NSTAR Electric Company d/b/a Eversource Energy
dBA	A-weighted decibels
DCR	Massachusetts Department of Conservation and Recreation

DCR Lease	a 99-year lease between the Massachusetts Bay Transportation Authority and the Massachusetts Department of Conservation and Recreation for the construction of a multi-use trail along a Massachusetts Bay Transportation Authority right-of-way
Department	Massachusetts Department of Public Utilities
DEIR	Draft Environmental Impact Report
DG	distributed generation
DOMSB	Decisions and Orders of Massachusetts Energy Facilities Siting Board
DR	demand response
East Eagle	NSTAR Electric Company d/b/a Eversource Energy, EFSB 14-04/D.P.U. 14-153/14-154 (2017)
EE	energy efficiency
EFSB	Energy Facilities Siting Board
EIR	Environmental Impact Report
EJ	environmental justice
EMF	electric and magnetic fields
ERIS	environmental risk information services database
FCA	Forward Capacity Auction
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
GCA	Green Communities Act
GHG	greenhouse gas

Greater Boston Area	a portion of the electric system including the Northeast Massachusetts load zone, and portions of the New Hampshire, Southeastern Massachusetts, and Western Central Massachusetts load zones
G.L. c.	Massachusetts General Laws chapter
GWSA	Global Warming Solutions Act
HLPD	Hudson Light & Power Department
Hudson Substation	electrical substation owned by the Hudson Light & Power Department located at Forest Avenue in the town of Hudson, Massachusetts
ISO-NE	ISO-New England
kV	kilovolts
LCOE	levelized cost of entry
LEI	London Economics International, LLC
LSP	Licensed Site Professional
LTE	long-time emergency rating
MAPA	Massachusetts Administrative Procedure Act
Marlborough Subarea	a portion of the electric grid serving customers in Marlborough, Hudson, Stow, Berlin, Northborough, Westborough, Southborough, Framingham, Grafton, and Shrewsbury
MassDEP	Massachusetts Department of Environmental Protection
MassDEP Rail Trail BMP	MassDEP Best Management Practices for Controlling Exposure to Soil During the Development of Rail Trails guidance document
MassDFW	Massachusetts Division of Fisheries and Wildlife
MassDOER	Massachusetts Department of Energy Resources
MBTA	Massachusetts Bay Transportation Authority

MCP	Massachusetts Contingency Plan
MCRT	The Mass Central Rail Trail – a proposed 104-mile-long multi-use path between Boston and Northampton on the former Massachusetts Central Railroad corridor
MEPA	Massachusetts Environmental Policy Act
mG	milligauss
MHC	Massachusetts Historical Commission
MLS	Multiple Listing Service
MODF	mineral oil dielectric fluid
MOU	Memorandum of Understanding
MVA	megavolt-amperes
MVRP	New England Power Company d/b/a National Grid, D.P.U. 15-44/15-45 (2016)
MW	megawatts
Mystic-Woburn	NSTAR Electric Company d/b/a Eversource Energy, EFSB 15-03/D.P.U. 15-64/15-65 (2017)
Needham-West Roxbury	NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77 (2018)
NERC	North American Electric Reliability Corporation
New Line	the proposed 115 kV transmission line between the Sudbury and Hudson Substations
NHESP	Natural Heritage & Endangered Species Program
NPCC	Northeast Power Coordinating Council
NY Central Railroad	New York Central Railroad v. Department of Public Utilities, 347 Mass. 586 (1964)
NRG	NRG Canal 3 Development LLC, EFSB 15-06/D.P.U. 15-180 (2017)

NTA	non-transmission alternative
Option Agreement	an agreement between the Massachusetts Bay Transportation Authority and NSTAR Electric Company d/b/a Eversource Energy granting Eversource Energy the right and option to acquire an easement along an existing Massachusetts Bay Transportation Authority right-of-way
PAs	program administrators
PAHs	polycyclic aromatic hydrocarbons
Petitions	Siting Petition, Section 72 Petition, and Zoning Petition
PPA	Proposed Plan Application
PP-4	ISO-NE Planning Procedure No. 4
Project	proposed 115 kV transmission line between the Sudbury and Hudson Substations and associated substation facilities
PSC	Public Service Corporation
Public Comment Hearing Notice	Notice of Public Comment Hearing/Notice of Adjudication
ROW	right-of-way
Russell	Russell Biomass, LLC, 17 DOMSB 1; EFSB 07-4/D.P.U. 07-35/07-36 (2009)
Salem Cables	New England Power Company d/b/a National Grid, 20 DOMSB 129; EFSB 13-2/D.P.U. 13-151/13-152 (2014)
Save the Bay	Save the Bay v. Department of Public Utilities, 366 Mass. 667 (1975)
Section 72 Petition	Eversource petition pursuant to G.L. c. 164, § 72
SF_6	sulfur hexafluoride
Siting Board	Massachusetts Energy Facilities Siting Board
Siting Board Petition	Eversource petition pursuant to G.L. c. 164 § 69J
SJC	Supreme Judicial Court

solar PV	solar photovoltaic
STE	short-time emergency rating
Sudbury Motion	June 13, 2019, motion by the Town of Sudbury requesting reopening of the record and hearing in this proceeding
SWPPP	stormwater pollution prevention plan
TMPs	Traffic Management Plans
TPP	Turtle Protection Plan
Town of Truro	Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974)
ULSD	ultra-low sulfur diesel
URAM	Utility-Related Abatement Measure (310 CMR 40.0460)
USACE	U.S. Army Corps of Engineers
USEPA	U. S. Environmental Protection Agency
Vineyard Wind	Vineyard Wind LLC, EFSB 17-05/D.P.U. 18-18/18-19 (2019)
VMP	vegetation management plan
Walpole-Holbrook	NSTAR Electric Company d/b/a Eversource Energy, EFSB 14-2/D.P.U. 14-73/14-74 (2017)
WHO	World Health Organization
Woburn-Wakefield	NSTAR Electric Company d/b/a Eversource Energy and New England Power Company d/b/a National Grid, EFSB 15-04/D.P.U. 15-140/15-141 (2018)
Worcester	New England Power Company d/b/a National Grid, 18 DOMSB 173; EFSB 09-1/D.P.U. 09-52/09-53 (2011)
WPA	Wetlands Protection Act
Zoning Petition	Eversource petition pursuant to G.L. c. 40A § 3

ZBA	Zoning Board of Appeals
2015 Needs Assessment	Greater Boston Updated Transmission Needs Assessment (2015)

Pursuant to G.L. c. 164, § 69J, the Massachusetts Energy Facilities Siting Board ("Siting Board") hereby approves, subject to the conditions set forth below, the Petition of NSTAR Electric Company d/b/a Eversource Energy ("Eversource" or "Company") to construct a new approximately nine-mile-long 115 kilovolt ("kV") underground transmission line in Sudbury, Hudson, Stow, and Marlborough, Massachusetts. Pursuant to G.L. c. 164, § 72, the Siting Board hereby approves, subject to the conditions set forth below, the Petition of Eversource for a determination that the proposed transmission line is necessary, serves the public interest, and is consistent with the public interest. Pursuant to G.L. c. 40A, § 3, the Siting Board hereby approves, subject to the conditions set forth below, the Petition of Eversource for individual and comprehensive zoning exemptions from the Sudbury, Hudson, and Stow Zoning Bylaws in connection with the proposed transmission facilities, including improvements to the Sudbury Substation, as described herein.

I. INTRODUCTION

A. Description of the Proposed Project

Eversource proposes to construct a new approximately nine-mile-long 115 kV underground transmission line between the Company's Sudbury Substation in Sudbury, Massachusetts, and the Hudson Light & Power Department's ("HLPD") Hudson Substation in Hudson, Massachusetts ("New Line") (Exh. EV-2, at 1-1). In order to accommodate the New Line, both Eversource and HLPD would need to make modifications to their respective substations, including the installation of new breakers and other equipment (together, the "Project")[1] (Exh. EV-2, at 1-1, 3-2 to 3-3, 5-5, 5-8). According to the Company, the Project is

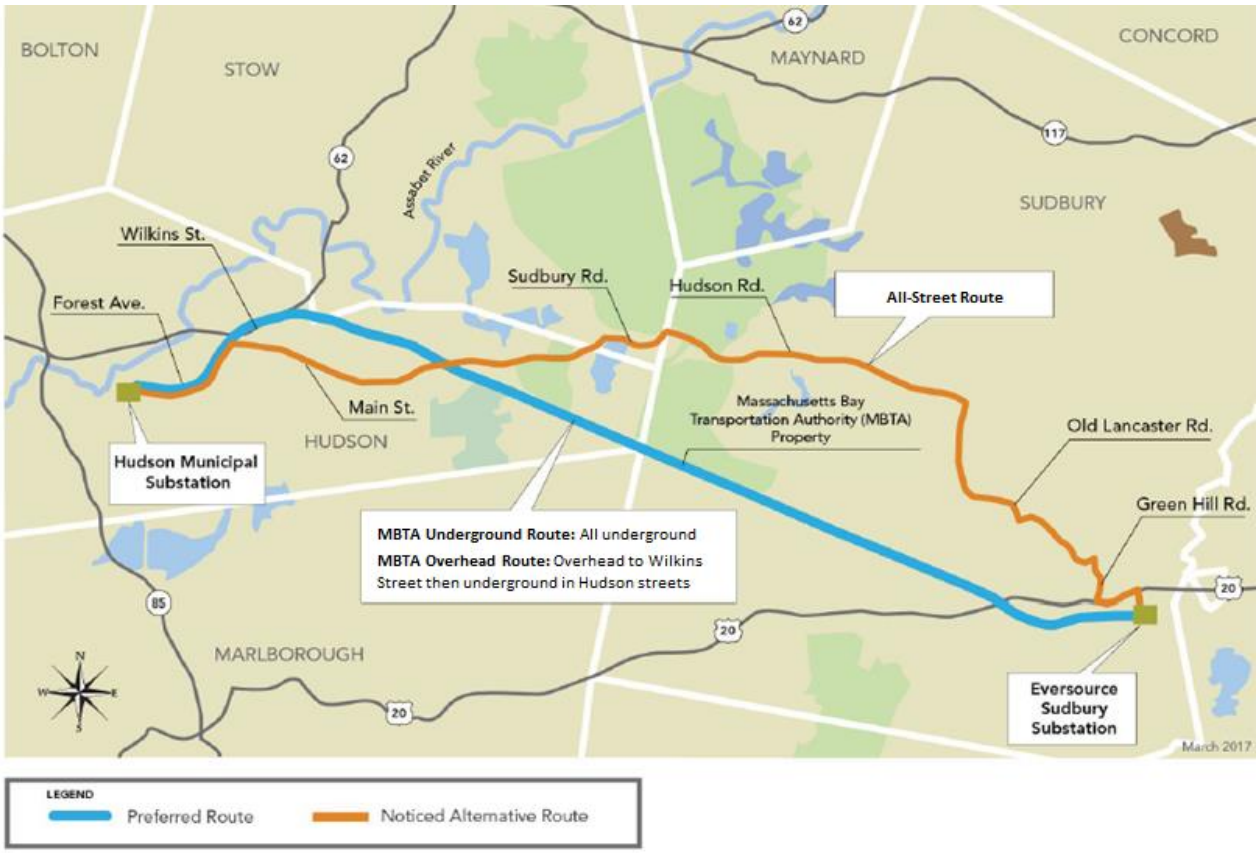
[1] In its Petition, the Company described the scope of "the Project" as including only the New Line and Sudbury Substation facilities (Exh. EV-2, at 1-1). HLPD supports this position and argues that work at the Hudson Substation is outside of the scope of the Siting Board's review (HLPD Brief at 5). The Siting Board views the facilities at both the Sudbury and Hudson Substations as ancillary facilities to the New Line that are essential components of the Project, and as such includes work at both substations within the scope of its review. This is consistent with the Siting Board's responsibilities under G.L. c. 164, § 69J to review the proposed construction of a "facility," which includes relevant ancillary structures which are integral parts of the operation of any transmission line which is a facility, such as the substations at either end of a jurisdictional transmission facility. See G.L. c. 164, § 69G, definition of "facility." While HLPD is

needed to maintain a reliable supply of electricity to customers in the municipalities of Marlborough, Hudson, Stow, Berlin, Northborough, Westborough, Southborough, Framingham, Grafton, and Shrewsbury, Massachusetts (the "Marlborough Subarea") (Exh. EV-2, at 2-1). The Company's estimate for the cost of the Project is approximately $95.8 million (RR-EFSB-50(1)).

Eversource proposes three alternative routes for the New Line: (1) its Preferred Route (aka the Primary Route), an approximately nine-mile-long route including a 7.6 mile underground segment within an inactive Massachusetts Bay Transportation Authority ("MBTA") right-of-way ("ROW") in Sudbury, Stow, Marlborough, and Hudson, and a 1.4-mile underground in-street segment in Hudson ("MBTA Underground Route"); (2) a Noticed Variation along the same route as the Preferred Route, instead using overhead transmission line construction along the MBTA ROW and the same underground, in-street segment in Hudson ("MBTA Overhead Route"); and (3) an approximately 10.3-mile-long Noticed Alternative Route, which would avoid use of the MBTA ROW entirely and be located underground within roadways in Sudbury and Hudson ("All-Street Route") (Exh. EV-2, at 5-3 to 5-4). A map of the MBTA Underground Route, the MBTA Overhead Route, and the All-Street Route is presented in Figure 1 below.

not a co-petitioner here and is not requesting approval of the work to be performed at the Hudson Substation, the Siting Board reviews the impacts of the Project as a whole, including impacts from Project-related work at the Hudson Substation.

Figure 1. MBTA Underground and Overhead Routes, and All-Street Route



Source: Exh. Protect-2-52(1) at 6, with the route names changed to match those memorialized in this Decision.

As part of the proposed MBTA Underground Route for the Project, the Company has partnered with the Massachusetts Department of Conservation and Recreation ("DCR") in the co-development of a segment of the Mass Central Rail Trail ("MCRT"), a DCR-proposed multi-use rail trail (Exh. EV-2, at ES-2).[2] The Company proposes coupling the Project and the

[2] The MCRT is a proposed 104-mile-long multi-use path between Boston and Northampton on the former Massachusetts Central Railroad corridor, including a 23-mile segment of inactive railroad ROW between Waltham and Berlin owned by the MBTA, and leased to the DCR for development of this segment of the MCRT (Exhs. EFSB-LU-36(2) at 1; EFSB-3; SUD-G-19(1)). DCR's lease of the ROW provides 19 feet for development of the rail trail itself, but allows DCR to use the remainder of the ROW for ancillary uses, and to access, construct, and maintain/landscape the ROW, subject to MBTA approval (Exh. SUD-G-19(1) at 3). The MBTA lease to DCR also retains all existing easements and the MBTA's right to lease any and all areas of the

MCRT by constructing the Project's 14-foot-wide access road, required for construction and future maintenance work, as the gravel base for the MCRT, and refurbishing and repairing existing rail bridges needed for both the Project and the MCRT (Exh. EV-1, at ES-2). Under a Memorandum of Understanding ("MOU") between Eversource and DCR, after completion of the Project, DCR would construct the final elements of the MCRT, paving a ten-foot width of the access road and installing a two-foot-wide seeded and loamed shoulder on each side (Exh. EV-18, at 107, fig. 2-4). In its initial petitions, the Company also presented design options for co-locating the MCRT with the MBTA Overhead Route, if that route were selected (Exh. EV-1, at 5-46 to 5-47; 5-83). However, DCR indicated that its support for co-development of the MCRT with the Project relates specifically to the MBTA Underground Route, and it noted that the MBTA lease to Eversource is for underground construction of the Project (Exh. EFSB-5).

B. Procedural History

On April 20, 2017, Eversource filed three petitions with the Siting Board and the Massachusetts Department of Public Utilities ("Department") relating to the Project. In these petitions, the Company seeks: (1) approval to construct the Project, pursuant to G.L. c. 164, § 69J ("Siting Petition"); (2) approval to construct and use the Project, pursuant to G.L. c. 164, § 72 ("Section 72 Petition"); and (3) individual and comprehensive exemptions from the zoning bylaws of Sudbury, Hudson, and Stow for the Project, pursuant to G.L. c. 40A, § 3 ("Zoning Petition") (together, "Petitions").

The Siting Petition was docketed as EFSB 17-02, the Zoning Petition as D.P.U. 17-82, and the Section 72 Petition as D.P.U. 17-83. Pursuant to the Company's motion, on April 27, 2017, the Chairman of the Department issued a Consolidation Order, referring the Section 72 and Zoning Petitions for review by the Siting Board pursuant to G.L. c. 164, § 69H (2). The consolidated proceeding was docketed as EFSB 17-02/D.P.U. 17-82/17-83. The Siting

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ROW to third parties (including any utility or other entity) for revenue (Exh. EFSB-C-12(R)(2)). Thus, the respective MBTA leases to DCR and Eversource allow for overlapping areas and joint uses of the ROW (Exh. EFSB-5, at 1; Exhs. SUD-G-19(1)); EFSB-C-12(R)(2) at 3).

Board conducted a single adjudicatory proceeding and developed a single evidentiary record for the consolidated Petitions.

Pursuant to the Presiding Officer's instructions, the Company published the Notice of Public Comment Hearing/Notice of Adjudication ("Public Comment Hearing Notice") for the Project once per week for two consecutive weeks in the Boston Globe and the MetroWest Daily News. The Presiding Officer directed the Company to place copies of the Public Comment Hearing Notice and a copy of the Petition in the Sudbury, Hudson, Stow, and Marlborough clerk's offices, and to serve the Public Comment Hearing Notice on the planning boards of the Towns of Sudbury, Hudson, and Stow, and the City of Marlborough (as well as the planning board of each city or town abutting any of these four municipalities). The Presiding Officer also directed the Company to place a copy of the Public Comment Hearing Notice and a copy of the Petition in public libraries of Sudbury, Hudson, Stow, and Marlborough. In addition, the Presiding Officer directed the Company to send a copy of the Public Comment Hearing Notice to the property owners abutting the MBTA Underground and Overhead Routes and the All-Street Route, and to abutters-to-abutters within 300 feet.[3]

The Siting Board conducted public comment hearings in Sudbury on May 25, 2017, and in Hudson on June 1, 2017. Commenters raised a variety of concerns about alleged impacts relating to use of the MBTA ROW for both the proposed Underground Route and the Overhead Route alternative, including: adverse impacts on drinking water supplies in Sudbury and Hudson; the need to cut down a large number of trees in the corridor; disruption and harm to the surrounding conservation land; adverse impacts to water resources; adverse impacts from application of herbicides to maintain the transmission corridor, and adverse impacts to property values for homes abutting the ROW.

The Presiding Officer's rulings of June 26, 2017 and June 27, 2017 granted intervenor status to the Town of Sudbury, the Town of Hudson, the Town of Stow, Protect Sudbury, Inc., and HLPD, and granted limited participant status to the individuals listed in Appendix A.

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[3] The Project does not trigger either the enhanced public participation or enhanced analysis of impacts and mitigation provisions of the Commonwealth's Environmental Justice ("EJ") Policy. See also Section VII.B, below.

The Company presented the testimony of the following thirteen witnesses in support of the Petitions: Robert D. Andrew, Eversource Director of System Solutions; William H. Bailey, Principal Scientist, Exponent; Denise M. Bartone, Eversource Senior Environmental Engineer; Marc Bergeron, Senior Wetland Scientist, Vanasse, Hangen, Brustlin, Inc.; James A. Chalmers, Chalmers & Associates, LLC; Julia Frayer, Managing Director, London Economics International, LLC ("LEI"); Elizabeth Leonard, Eversource Senior Engineer; Paul McKinlay, Director Remediation and Assessment, Vanasse, Hangen, Brustlin, Inc.; Brian J. Rice, Eversource Senior Analyst; Demetrios Sakellaris, Eversource Transmission Line Engineer; Jawahar Shah, Senior Consultant, LEI; Christopher P. Soderman, Eversource Lead Engineer; and John M. Zicko, Eversource Director of Massachusetts Substation Engineering.

The Town of Sudbury presented the testimony of seven witnesses: Paul L. Chernick, President, Resource Insight, Inc.; Deborah M. Dineen, Conservation Coordinator, Town of Sudbury; Mark Herweck, Building Inspector and Zoning Enforcement Agent, Town of Sudbury; Ruth M. Geoffroy, Director of Environmental Permitting and Planning, Nover-Armstrong Associates, Inc.; Daniel F. Nason, Town of Sudbury Public Works Director; Marta J. Nover, Principal, Senior Wetland Scientist and Permitting Expert, Nover-Armstrong Associates, Inc.; and William R. O'Rourke, Town of Sudbury Deputy Public Works Director.

The Town of Hudson presented the testimony of two witnesses: Pam Helinek, Conservation Agent, Town of Hudson; and Eric Ryder, Director, Hudson Department of Public Works. Protect Sudbury presented the testimony of four witnesses from Comprehensive Environmental Inc.: Richard Cote, Principal-in-Charge and Manager of Remedial Engineering; Robert Hartzel, Principal and Project Manager; Matthew Lundsted, Principal and Project Manager; and Michael Ohl, Principal and Project Manager. HLDP presented the testimony of two witnesses: Brian Choquette, General Manager, HLPD; and Michael Barrett, Principal, PLM.

The Siting Board issued three sets of Information Requests to the Company and one set of information requests each to the Town of Sudbury, the Town of Hudson, Protect Sudbury and HLPD. The Town of Sudbury issued three sets of Information Requests to the Company, while Protect Sudbury issued two sets and the Town of Hudson issued one set. The Company issued one round of Information Requests to the Town of Sudbury. The Siting Board conducted 16 days of evidentiary hearings. The evidentiary record consists of approximately 1840 exhibits.

Eversource, the Town of Sudbury, Protect Sudbury, and Hudson Power and Light Department filed initial briefs on March 2, 2018. Town of Sudbury, Protect Sudbury, and Town of Stow[4] filed reply briefs on March 16, 2018, and the Company filed a reply brief on March 30, 2018.[5]

Subsequent to briefing, Eversource filed its Final Environmental Impact Report ("FEIR") on the Project with the Massachusetts Environmental Policy Act ("MEPA") Office on July 2, 2018. The Secretary issued a Certificate on Eversource's FEIR on September 14, 2018.[6]

On June 13, 2019, the Town of Sudbury filed a motion requesting that the Siting Board reopen the record and hearing in this proceeding to admit into evidence: (1) current load and energy efficiency forecast data from ISO-NE; (2) current Massachusetts Department of Energy Resources ("MassDOER") solar photovoltaic ("solar PV") data; and (3) new information relating to non-transmission alternatives ("Sudbury Motion") (Sudbury Motion at 1). Sudbury requested that the Siting Board allow for limited additional discovery, cross-examination, or rebuttal with respect to such evidence (Sudbury Motion at 1). Contemporaneously, Sudbury filed a memorandum in support of its motion ("Sudbury Memorandum"), as well as an affidavit of Paul L. Chernick ("Chernick June 13 Affidavit"). In the Sudbury Motion and supporting documentation, Sudbury argues that this additional evidence is necessary for the Siting Board's

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4 The Town of Stow filed an amended brief on March 28, 2018. References to the Town of Stow brief are to its amended brief.

5 Ms. Hewitt, Ms. Nelson, and Mr. O'Neill – individual limited participants in this proceeding – each submitted briefs questioning the need for the Project and the environmental impacts thereof. Issues raised, generally, included alleged impacts to drinking water, wildlife habitat, and wetlands; historical contamination from use as a railroad, community opposition, flawed cost estimates and preference for the All-Street Route. While none of these briefs contained references to record evidence in the proceeding, these topics are addressed generally by the Siting Board in this Decision. The Board notes that the need for the Project is assessed in Section III, below, and that the environmental impacts of the Project and mitigation measures proposed by the Company are discussed in Section VI.D, below.

6 The Town of Sudbury and Protect Sudbury have each filed a notice of intent to commence an action alleging the improper determination that the FEIR complies with MEPA. The appeal of the Secretary's Certificate would commence no later than 30 days following the issuance of the first agency permit, which in this case would be Siting Board's decision in this proceeding. 301 CMR 11.14.

review of the Project. On July 12, 2019, Protect Sudbury, HLPD, and the Company filed written responses to the Sudbury Motion. The Company's response ("Eversource Opposition") included two affidavits in support of its opposition to the Sudbury Motion: (1) a joint affidavit of Robert D. Andrew and Elizabeth Leonard ("Andrew/Leonard Affidavit"); and (2) an affidavit of Julia Frayer ("Frayer Affidavit"). On July 26, 2019, Sudbury filed a reply to the Eversource Opposition, which included a second affidavit of Mr. Chernick ("Chernick July 26 Affidavit").

Siting Board staff prepared a Tentative Decision and distributed it to the Siting Board members and all parties for review and comment on December 2, 2019. The parties were given until December 10, 2019 to file written comments. The Siting Board received timely written comments from parties Town of Sudbury, Town of Hudson, Protect Sudbury, and Eversource, and from limited participants Brian O'Neill and Christine Nelson. The Board conducted a public meeting to consider the Tentative Decision on December 17, 2019, at which the parties and limited participants presented oral arguments. After deliberation, the Board directed staff to prepare a Final Decision approving the Petitions, subject to certain conditions set forth below.

C. Due Process

The Town of Sudbury and Protect Sudbury contend that the Siting Board did not provide due process to parties in this proceeding as required by the Massachusetts Administrative Procedures Act ("MAPA"), G.L. c. 30A, §§ 10, 11.

1. Positions of the Parties

a. Town of Sudbury and Protect Sudbury

The Town of Sudbury asserts that the MAPA "obligates the Siting Board to afford all parties to Proceedings the right to a full and fair hearing" (Sudbury Brief at 6-7, citing G.L. c. 30A, §§ 10, 11). Sudbury argues that the Siting Board must provide every party the right to call and examine witnesses, introduce exhibits, cross examine witnesses who testify, and submit rebuttal testimony (Sudbury Brief at 7). Sudbury contends that the Siting Board did not provide the parties with sufficient notice of the issues to afford the parties a reasonable opportunity to prepare and present evidence and argument (Sudbury Brief at 7). According to

Sudbury, the Siting Board deprived the town of due process during the proceedings (Sudbury Brief at 6-11).

Sudbury maintains that the Presiding Officer's July 10, 2017, Procedural Schedule unreasonably limited discovery to two rounds, did not provide intervenors the right to written surrebuttal, and restricted the entire adjudication to a period of less than six months (Sudbury Brief at 7-8). Sudbury notes that there is significant precedent for longer procedural schedules in Siting Board cases (Sudbury Brief at 8, n.1). The town also asserts that the Company repeatedly failed to adequately respond to discovery and that the Company's supplemental filings failed to adequately respond to the town's discovery requests and/or adhere to the Presiding Officer's instructions (Sudbury Brief at 8). Sudbury notes that it had to divert considerable town resources in order to enforce its due process rights in the Siting Board proceeding (Sudbury Brief at 7, 9).[7] Sudbury also alleges that the Company waited until after completion of the evidentiary hearings to file responses to several key outstanding record requests from the Siting Board (Sudbury Brief at 11).[8]

b. Company Response

The Company maintains that the Intervenors[9] have been fully accorded due process rights during the proceeding and argues that the sheer number of filings in this proceeding (e.g., 922 information requests, 117 record requests, 18 submissions of direct, supplemental and rebuttal testimonies, and 16 days of evidentiary hearings) belies the Intervenors' claims of due process violations (Company Reply Brief at 5). The Company argues that the Intervenors must

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7 Additionally, Sudbury identifies various rulings issued by the Presiding Officer that the town disagrees with and essentially argues that such rulings denied the town due process (Sudbury Brief at 8-11).

8 Protect Sudbury also notes its concerns with the procedure and process in this case, and states that many of the issues raised by the Town of Sudbury "implicate" Protect Sudbury as well (PS Reply Brief at 1, n.1). Protect Sudbury states that it shares and supports the town's position regarding the unfairness of the process (PS Reply Brief at 1, n.1).

9 The Company identifies Town of Sudbury and Protect Sudbury as the "Intervenors" for purposes of arguments regarding due process.

be given "an opportunity to be heard at a meaningful time and in a meaningful manner," and maintains that the Intervenors were afforded a full and fair hearing and that parties were provided with more than sufficient opportunity to participate actively throughout the proceeding (Company Reply Brief at 5-6, citing Alliance to Protect Nantucket Sound Inc. v. Energy Facilities Siting Bd., 448 Mass. 45, 52 (2006)).

In response to Sudbury's argument that the procedural schedule was constrained to a five-month period, the Company argues that neither the proposed procedural schedule, nor any schedule proposed thereafter, contemplated anything less than a twelve-month adjudication process (Company Reply Brief at 7). The Company states that it filed its petitions on April 20, 2017, and the initial procedural schedules were developed to enable the Siting Board to issue a decision within one year, in accordance with the Legislative charge to the Siting Board to endeavor to complete its statutory reviews of petitions within twelve months (Company Reply Brief at 7, citing G.L. c. 164, §69J). The Company maintains that "[t]here is nothing unfair or unfounded about a schedule that complies with a legislative directive," nor is there anything "unusual or unduly compressed about the course of the Siting Board's proceeding" (Company Reply Brief at 7). The Company notes that the schedule was extended on several occasions, providing months of discovery and numerous additional evidentiary hearings, and that approximately eleven months passed between the Company's filing of its petitions and the Intervenors' filing of reply briefs (Company Reply Brief at 7). Indicating that the Intervenors were actually afforded three rounds of discovery, the Company argues that the Intervenors have failed to provide a legal basis to support a claim that they are entitled to a specified number of rounds of discovery (Company Reply Brief at 8).

The Company notes that the Intervenors filed ten procedural motions in this proceeding requesting extensions, stays and compulsion of discovery, and that the Presiding Officer ruled judiciously on these motions, demonstrating flexibility in exercising discretion to adjust the schedule, providing reasonable extensions where appropriate, and in many cases requiring further responses to discovery (Company Reply Brief at 6). According to the Company, its response to certain record requests after hearings concluded is typical in a Siting Board proceeding, and the Intervenors could have moved for additional hearings had they so chosen (Company Reply Brief at 9).

2. Analysis and Findings on Due Process

During this proceeding, the Siting Board has endeavored to conduct its review of the proposed Project in a manner consistent both with applicable principles of due process, such as those reflected in the MAPA, and with the timeframe for Siting Board proceedings set out in the Siting Board statute.[10] The procedural schedule established in the case reflected a balancing of these two interests by the Presiding Officer. Specifically, it represents the Presiding Officer's assessment of the appropriate balance, in this specific case, of: (1) ensuring the opportunity for full, fair, and meaningful review of the Project by the parties; and (2) the goal from G.L. c. 164, § 69J, of conducting Siting Board proceedings as efficiently as possible.[11]

With respect to the specific requirements of the MAPA, G.L. c. 30A, § 11(3) states that "every party shall have the right to call and examine witnesses, to introduce exhibits, to cross-examine witnesses who testify, and to submit rebuttal evidence." The Intervenors were given the opportunity in this case to do so, propounding three rounds of discovery consisting of nearly 600 information requests to the Company (many with multiple subparts). The Intervenors submitted the prefiled testimony of thirteen witnesses; were given the opportunity to provide oral surrebuttal testimony and conduct extensive cross-examination of the Company's witnesses during the 16 days of evidentiary hearings; and had the opportunity to submit both initial and

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[10] See G.L. c. 164, § 69J provides that: "If the board determines the standards set forth above have not been met, it shall within twelve months of the date of the filing reject in whole or in part the petition, setting forth in writing its reasons for such rejections, or approve the petitions subject to stated conditions." G.L. c. 164, § 69J. The SJC has stated that the twelve month language is directory, not mandatory. Box Pond Association v. Energy Facilities Siting Board, 435 Mass. 408, 415 n.7 (2001) ("Box Pond").

[11] The Siting Board acknowledges that this proceeding has, in fact, taken much longer than twelve months, despite the Board's initial efforts and expectations to remain within the period prescribed in the statute. Among other things, the complexity of the case, the numerous and novel issues involved, staffing constraints, and developments in separate but related cases (e.g., MEPA, MBTA, and Natural Heritage and Endangered Species ("NHESP") appeals) were all contributing factors in the Board's extended review. See Section VI.D.

reply briefs.[12] In addition, all of the parties in this proceeding were given advance notice of the anticipated schedule; the procedural schedule was revised several times at the request of parties, and issued to the parties expeditiously.[13] The Siting Board's review of the Project in this proceeding has been extensive, as evidenced by the number of exhibits, witnesses, hearing days, and rulings issued. In short, we see no merit to Sudbury's argument regarding lack of due process.

Sudbury is correct that there has been a history of Siting Board procedural schedules that extended beyond the one-year timetable in G.L. c. 164, § 69J. However, a review of past procedural schedules shows that the schedule for a Siting Board proceeding is highly case-specific and, moreover, that each schedule changes to some extent, as the case in question unfolds. The Intervenor's attempt to rely on schedules in other cases to support an objection to the schedule in this proceeding has no basis in statutes or regulations of the Siting Board, and is not a compelling argument.

The Presiding Officer's rulings on a variety of motions that sought extensions or stays of the proceeding were also guided by the combined goals of fairness and efficiency. Under the Siting Board's regulations, a Presiding Officer "shall have the authority to take all actions necessary to ensure a fair, orderly and efficient proceeding." 980 CMR 1.04(2). Such actions include, among other things, "regulating the course of the proceeding," "disposing of procedural questions," and "hearing and ruling upon motions." Accordingly, the Presiding Officer is

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12 Regarding record requests, the Siting Board notes that its regulations contemplate the ability to issue record requests during the course of evidentiary hearings. 980 CMR 1.1.06(6)(g). Typically, in Siting Board proceedings, some responses to record requests issued during evidentiary hearings are filed after the conclusion of evidentiary proceedings. On occasion, parties have sought additional process with respect to post-hearing record request responses. See e.g., NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77, Presiding Officer Ruling on Motion to Re-open Evidentiary Hearings (April 13, 2018). In this case, in response to a record request filing by the Company after hearings, the Presiding Officer allowed additional Intervenor written testimony, and an additional two days of hearings.

13 The procedural schedules issued to the parties indicated that oral surrebuttal testimony would be allowed. There is no requirement that the Siting Board allow only written surrebuttal testimony.

afforded wide discretion in establishing the course of the proceeding.[14] In this case, motions that were submitted were ruled on by the Presiding Officer, and such rulings reflect the necessary balance that must take place between allowing for additional process and considerations of efficiency, as reflected in G.L. c. 164, § 69J. Although the Siting Board recognizes that Sudbury disagrees with the outcome of several motions seeking additional time or stays of the proceeding, or additional information from the Company, the Board views each such ruling to reflect a proper regard for both fairness and efficiency.

Neither the Town of Sudbury nor Protect Sudbury provided any legal citation or citation to precedent for their assertion that the Siting Board was obligated to provide more process than what was provided in this case. "The hallmarks of due process are notice and an opportunity to be heard at a meaningful time and in a meaningful manner." Daniels v. Board of Registration in Medicine, 418 Mass. 380, 383 (1994) (citations omitted). The Siting Board concludes that all of the Intervenors in this case were afforded a full and fair hearing, within the meaning of the MAPA and applicable legal precedent. Each of the Intervenors in this case was provided with appropriate notice and an extensive opportunity to be heard; the procedural schedule for the case appropriately balanced fundamental considerations of due process and efficiency; and the proceeding was conducted in all respects in a fair and efficient manner. Accordingly, the Siting Board dismisses claims of lack of due process in this proceeding by Sudbury and Protect Sudbury.

II. JURISDICTION AND STANDARD OF REVIEW UNDER G.L. C. 164, § 69J

G.L. c. 164, § 69J provides that the Siting Board should approve a petition to construct if the Siting Board determines that the petition meets certain requirements, including that the plans for the construction of the applicant's facilities are consistent with the policies stated in G.L. c. 164, § 69H to provide a reliable energy supply for the Commonwealth with a minimum

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[14] The SJC has confirmed the broad discretion of the Presiding Officer with respect to the schedule and other procedural aspects of Siting Board proceedings. See Box Pond (decision whether to grant a motion to continue lies within the sound discretion of the hearing officer or the board (citations omitted); refusal to grant a continuance will not constitute error absent an abuse of that discretion).

impact on the environment at the lowest possible cost, and are consistent with current health, environmental protection, and resource use and development policies of the Commonwealth. Pursuant to G.L. c. 164, § 69J, a project applicant must obtain Siting Board approval for the construction of proposed energy facilities before a construction permit may be issued by another state agency.

G.L. c. 164, § 69G defines a "facility" to include "a new electric transmission line having a design rating of 115 [kV] or more which is ten miles or more in length on an existing transmission corridor, except [for] reconductoring or rebuilding of transmission lines at the same voltage" or "a new electric transmission line having a design rating of 69 [kV] or more and which is one mile or more in length on a new transmission corridor." The Company's proposed 115 kV underground transmission line would be approximately nine miles long and run along a new transmission corridor. Therefore, the proposed 115 kV transmission line is a "facility" with respect to Section 69J and, therefore, the Project is subject to Siting Board review under Section 69J.

The Siting Board requires that an applicant demonstrate that its proposal meets the following requirements: (1) that additional energy resources are needed (see Section III, below); (2) that, on balance, the proposed project is superior to alternative approaches in terms of reliability, cost, and environmental impact, and in its ability to address the identified need (see Section IV, below); (3) that the applicant has considered a reasonable range of practical facility siting alternatives and that the proposed facilities are sited in locations that minimize costs and environmental impacts while ensuring a reliable energy supply (see Section V, below); (4) that environmental impacts of the project are minimized and the project achieves an appropriate balance among conflicting environmental concerns as well as among environmental impacts, cost, and reliability (see Section VI, below); and (5) that plans for construction of the proposed facilities are consistent with the current health, environmental protection, and resource use and development policies of the Commonwealth (see Section VII, below).

III. NEED FOR THE PROPOSED PROJECT

A. Standard of Review

The Siting Board reviews the need for proposed transmission facilities to meet reliability, economic efficiency, or environmental objectives. G.L. c. 164, §§ 69H, 69J. When demonstrating the need for a proposed transmission facility based on reliability considerations, a petitioner applies its established planning criteria for construction, operation, and maintenance of its transmission and distribution system. Compliance with the applicable planning criteria can demonstrate a "reliable" system. NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77, at 8-9 (2018) ("Needham-West Roxbury"); NSTAR Electric Company d/b/a Eversource Energy and New England Power Company d/b/a National Grid, EFSB 15-04/D.P.U. 15-140/15-141, at 9-10 (2018) ("Woburn-Wakefield"); NSTAR Electric Company, EFSB 14-04/D.P.U. 14-153/14-154, at 8, 9 (2017) ("East Eagle").

Accordingly, to determine whether system improvements are needed, the Siting Board: (1) examines the reasonableness of the petitioner's system reliability planning criteria; (2) determines whether the petitioner uses reviewable and appropriate methods for assessing system reliability over time based on system modeling analyses or other valid reliability indicators; and (3) determines whether the relevant transmission and distribution system meets these reliability criteria over time under normal conditions and under certain contingencies, given existing and projected loads. Needham-West Roxbury at 8-9; Woburn-Wakefield at 9; East Eagle at 9.

When a petitioner's assessment of system reliability and facility requirements is, in whole or in part, driven by load projections, the Siting Board reviews the underlying load forecast. The Siting Board requires that forecasts be based on substantially accurate historical information and reasonable statistical projection methods that include an adequate consideration of conservation and load management. See G.L. c. 164, § 69J. To ensure that this standard has been met, the Siting Board requires that forecasts be reviewable, appropriate, and reliable. A forecast is reviewable if it contains enough information to allow a full understanding of the forecast method. A forecast is appropriate if the method used to produce the forecast is technically suitable to the size and nature of the company to which it applies. A forecast is considered reliable if its data, assumptions, and judgments provide a measure of confidence in what is most likely to occur. Needham-West Roxbury at 8-9; Woburn-Wakefield at 10; East Eagle at 9.

B. Description of the Company's Demonstration of Need

As part of its role as the independent system operator of New England, ISO-New England ("ISO-NE") carries out a regional system planning process, wherein it conducts periodic needs assessments on a system-wide or specific-area basis, and develops an annual regional transmission plan using a ten-year planning horizon (Exh. EV-2, at 2-5 to 2-6). In 2015, ISO-NE issued one such assessment, the "Greater Boston Area Updated Transmission Needs Assessment" ("2015 Needs Assessment") (Exh. EV-2, at 2-6 to 2-7, app. 2-1). The Company's assertion of need for the Project is based largely on this ISO-NE needs assessment, including the planning standards and criteria, and demand forecast contained therein. Eversource also undertook an "Updated Analysis" to confirm the need for the Project in light of more recent supply and demand projections (Exh. EV-2, at 2-15). ISO-NE's 2015 Needs Assessment and the Company's Updated Analysis are described below.[15]

1. ISO-NE's 2015 Needs Assessment

The Marlborough Subarea is located within the broader transmission area referred to as the "Greater Boston Area," which includes Boston and surrounding suburbs, and for which ISO-NE issued its 2015 Needs Assessment (Exh. EV-2, at 2-3, 2-7, and app. 2-1, at 12).[16,17] According to the Company, this assessment evaluated the reliability performance of the transmission system serving the Greater Boston Area under 2018 and 2023 projected system

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15 The Siting Board addresses a motion by the Town of Sudbury relating to the question of need in Section XII, below.

16 Specifically, the 2015 Needs Assessment defined the Greater Boston Area as including all of the Northeast Massachusetts load zone, and portions of the New Hampshire, Southeastern Massachusetts, and Western/Central Massachusetts load zones (Exh. EV-2, app. 2-1, at 12).

17 The development of the 2015 Needs Assessment and attributes of the assessed base cases are described in NSTAR Electric Company d/b/a Eversource Energy, EFSB 15-03/ D.P.U. 15-64/15-65, at 7-12 (2017) ("Mystic-Woburn"), and New England Power Company, D.P.U. 15-44/15-45, at 8-10 (2016).

conditions, and assessed the system for compliance with planning standards and criteria established by the North American Energy Reliability Corporation ("NERC"), the Northeast Power Coordinating Council ("NPCC"), and ISO-NE (Exh. EV-2, at 2-4). These reliability criteria require that transmission system thermal and voltage levels remain within applicable limits following certain representative contingencies (Exh. EV-2, at 2-1).[18]

a. Load Forecast Methodology

Eversource stated that the 2015 Needs Assessment relied on the summer peak 90/10 load forecast from ISO-NE's 2013 Capacity, Energy, Loads, and Transmission ("CELT") Report to develop the 2018 and 2023 forecasted load levels for the Greater Boston Area (Exh. EV-2, at 2-8, app. 2-1, at 19).[19] Demand response ("DR") resources that had cleared Forward Capacity Auction ("FCA") 7, and energy efficiency ("EE") resources, as forecast in the 2013 CELT Report, were modeled as reductions to load to establish the net demand for the area (Exh. EV-2, at 2-8 to 2-9, app. 2-1, at 31-32). The CELT Report contains a ten-year econometric forecast and is the source of many of the assumptions used in ISO-NE's regional planning studies (Exh. EFSB-N-1). Eversource indicated that the CELT Report demand forecast is updated annually and takes into consideration factors such as regional economic indicators (e.g., predictions of gross state product as provided by Moody's Analytics, Inc.), and customer behavior (e.g., behind-the-meter generation and passive DR participation) (Exhs. EFSB-N-1a(2); EFSB-N-1b(1)). Eversource further indicated that the CELT forecast is reviewed through an extensive stakeholder process, including review by the ISO-NE Planning Advisory Committee and ISO-NE's energy efficiency working group (Tr. 1, at 20-24).

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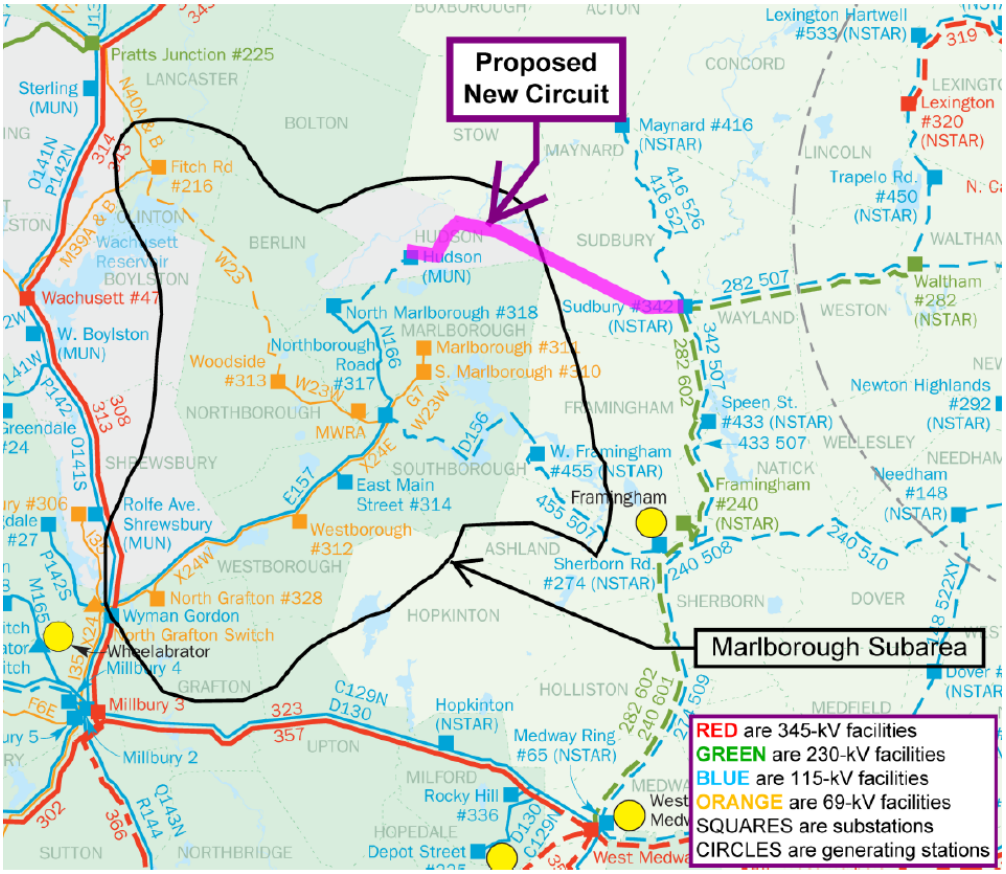
[18] For the transmission system to meet the established reliability criteria, there cannot be any instances of equipment exceeding its Long-Time Emergency ("LTE") or Short-Time Emergency ("STE") rating, or unacceptably high or low voltages following an N-1 contingency (loss of a single transmission element) or N-1-1 contingency (loss of a subsequent non-related transmission element following an initial N-1 event) (Exhs. EV-2, at 2-7 to 2-8, app. 2-1, at 44).

[19] The 90/10 peak load represents a load level that has a ten percent chance of being exceeded because of weather conditions in any one year (Exh. Protect-85(2) at 14, 63).

b. Greater Boston Area Reliability Needs

ISO-NE's 2015 Needs Assessment identified numerous reliability concerns throughout the Greater Boston Area, including criteria violations in Subarea D, which ISO-NE further divided into the Marlborough and Sudbury Subareas (Exh. EV-2, at 2-2, 2-10 to 2-14, app. 2-1, at 6-8, 68-69, app. 3-3 at 63). Figure 2, below, shows the general geographic location of Subarea D, and outlines in black the smaller Marlborough Subarea contained within.

Figure 2. Greater Boston Subarea D and the Marlborough Subarea



Source: Exh. EV-2, at 2-3.

According to the Company, the Marlborough Subarea is currently supplied by two 115 kV transmission lines (the E-157W and 455-507 Lines) and three 69 kV transmission lines (the X-24, N-40, and W-23 Lines) (Exhs. EV-2, at 2-2; SUD-G-10(S-1)). Originally built as a 69 kV system, 115 kV lines were added as demand in the area grew (Tr. 1, at 85-86).

Eversource described the Marlborough Subarea as a "load pocket," where demand for electricity greatly exceeds any local generation and, as such, power flows into the area on the five high-voltage transmission lines from elsewhere on the transmission grid (Tr. 1, at 18).

The 2015 Needs Assessment identified numerous post-contingency thermal overloads and low-voltage violations in the Marlborough Subarea following certain N-1 and N-1-1 contingencies (Exh. EV-2, at 2-11). Eversource stated that while the N-1 violations identified in the area would be addressed by other planned transmission system investments,[20] N-1-1 post-contingency thermal overloads and low voltage violations would remain unresolved (Exh. EV-2, at 2-11).

Focusing solely on these remaining criteria violations, Eversource indicated that, by 2018, post-contingency thermal overloads could occur on each of the five transmission lines serving the Marlborough Subarea, with worst-case overloads exceeding 178 percent of the transmission line's LTE rating (and 171 percent of the STE rating) (Exhs. EFSB-N-7(1); EV-2, at 2-12). Modeling also showed post-contingency voltages well below acceptable limits; Eversource identified a substantial risk of post-contingency voltage collapse in the Marlborough Subarea, which would result in a loss of power to more than 72,000 customers (Exhs. EV-2, at 2-13 to 2-14, 2-19; EFSB-N-10; EFSB-N-11; Tr. 1, at 52-53, 72; RR-EFSB-109).[21]

The 2015 Needs Assessment found that transmission lines in the Marlborough Subarea already failed to meet thermal criteria under N-1-1 contingency conditions prior to 2013 (Exh. EV-2, at 2-15; Tr. 1, at 27, 29).[22] As such, the Company stated that there is an immediate

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20 According to the Company, two National Grid projects – the W-23W Reconductoring Project and the X-24W/E-157W Double Circuit Tower Project – would address the N-1 violations identified in the Marlborough Subarea (Exh. EV-2, at 2-11).

21 Eversource reported that approximately 60 percent of the customers in the Marlborough Subarea are served by National Grid, 27.4 percent by local municipal light plants, and 12.6 percent by the Company (RR-EFSB-109).

22 While a similar year-of-need analysis was not undertaken for voltage violations in the 2015 Needs Assessment, Eversource stated that, based on the severity of the low voltage violations identified, it would be reasonable to conclude that the year of need for these criteria violations was also prior to 2013 (Exhs. EFSB-N-9; EV-EL-1 at 3; Tr. 1, at 82-84).

need for transmission system upgrades in the area, and that this need is not dependent on any future load growth (Exhs. EV-2, at 2-15; EV-EL-1, at 3; Tr. 1, at 27-29).

2. Eversource Updated Analysis

Given the passage of time since the completion of the 2015 Needs Assessment, Eversource conducted an Updated Analysis of the need for the Project in the year 2023 using the 2016 CELT demand forecast (the most recent CELT forecast available at the time), and the updated EE and solar PV forecasts contained therein (Exh. EV-2, at 2-15; Tr. 1, at 40). Generation and DR resources that cleared FCA 10, as well as transmission reinforcements (aside from the Project) that had been recommended by ISO-NE in response to the 2015 Needs Assessment were also included in the Company's assessment (Exh. EV-2, at 2-16 to 2-17; RR-EFSB-6). Eversource indicated that its Updated Analysis confirmed the need for the Project, with modeling continuing to show post-contingency thermal overloads and low voltage violations in the Marlborough Subarea (Exh. EV-2, at 1-4, 2-17 to 2-18; RR-EFSB-15; RR-EFSB-16).[23] Accordingly, the Company stated that there remains an immediate need for additional capacity to reliably serve electric customers in the area (Exh. EV-2, at 1-4).

C. Positions of the Parties

1. Town of Sudbury

The Town of Sudbury argues that the demand forecasts underlying the Company's assertion of need are neither reviewable nor reliable (Sudbury Brief at 21-27). Sudbury describes the Company's Updated Analysis as a "black box," and argues that insufficient information has been provided to allow a full understanding of the Company's forecast methodology (Sudbury Brief at 22, citing Exh. SUD-PLC-1, at 17).[24] Sudbury further asserts

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[23] Based on the 2016 CELT demand forecast and National Grid plans to transfer 17 MW of load to the North Grafton Substation within the Marlborough Subarea, voltage collapse in the subarea would result in the loss of power to approximately 412 MW of load under 2023 peak load conditions (Exh. Protect-2-62(S-1)(1); Tr. 1, at 49-53).

[24] For example, the Town of Sudbury expresses concerns with a lack of specific detail on the method and justification for how substation-level forecasts prepared by the electric

that, while some examination of the Company's Updated Analysis was possible through the discovery process, it has had no meaningful opportunity to replicate or confirm Eversource's methodology (Sudbury Brief at 21, citing Exh. SUD-PLC-1, at 18).

Regarding the reliability of the ISO-NE forecast, Sudbury argues that ISO-NE consistently overestimates future growth in electrical demand (Sudbury Brief at 23). According to Sudbury, a review of ISO-NE's normal weather and extreme weather CELT forecasts for the Boston Subarea since 2003 shows forecasts have always (for 90/10 forecasts) or mostly (for 50/50 forecasts) exceeded both weather-normalized and actual peak electrical demand (Sudbury Brief at 23, citing Exh. SUD-PLC-1, at 7). Sudbury suggests that failing to consider all EE reductions achieved by the utilities, and instead reflecting only those EE savings that have cleared ISO-NE's FCA, may be one reason for ISO-NE's tendency to overestimate load growth (Sudbury Brief at 23-24, citing Exh. SUD-PLC-1, at 14).

Sudbury also argues that the forecast Eversource relies on is overstated because: (1) the 2016 CELT forecast grossly underestimates the rate at which solar PV has been added in the Marlborough Subarea; and (2) the Company did not update its analysis to reflect 2017 CELT Report forecast data, which predicted peak demand for Massachusetts in 2023 would be 191 MW lower than previously forecast (Sudbury Brief at 25; Sudbury Reply Brief at 3). Sudbury argues that the 2017 CELT Report does not support the need for the Project (Sudbury Brief at 24-25; Sudbury Reply Brief at 3).[25] Finally, Sudbury argues that the Company erroneously based its need analysis on load levels in the Boston regional system plan subarea, when a majority of the Marlborough Subarea is outside the Boston planning zone (Sudbury Reply Brief at 2-4, citing Exhs. SUD-N-1; SUD-N-37(1)).

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utilities were adjusted by ISO-NE to produce ISO-NE's subarea forecasts (Sudbury Brief at 21-23).

25 Sudbury references updated load, EE and PV forecast reports in its brief (Sudbury Brief at 24-25). The Siting Board notes that these reports are not part of the record in this proceeding, and as such are not considered by the Siting Board in its determination of need for the Project. 980 CMR 1.06. The Siting Board notes that subsequent to filing its briefs, Sudbury filed a motion to reopen the record to admit updated forecast reports. The Siting Board addresses this motion to reopen in Section XII, below.

Sudbury submits that, in response to the above forecast concerns, Eversource and ISO-NE incorrectly argue that the need for the Project is not dependent on the load forecast (Sudbury Brief at 26, citing Exh. EV-EL-1, at 3; RR-EFSB-1). Sudbury rejects this argument for two reasons, arguing first that because the 2015 Needs Assessment and the Company's Updated Analysis used load forecasts to assess transmission system reliability and facility requirements, the Siting Board's standard of review requires the Board to review the forecasts to ensure that they are based on substantially accurate historical information and reasonable statistical methods that include consideration of conservation and load management (Sudbury Brief at 26). Second, Sudbury argues that, even if Eversource was correct that transmission lines in the Marlborough Subarea were vulnerable to post-contingency overloads under certain pre-2013 conditions, this does not necessarily indicate that the transmission lines would be subject to overloads in the future (Sudbury Brief at 26). According to Sudbury, recent system improvements by National Grid, and a lack of clarity around the exact magnitude of the 2013 load level the Company refers to, mean any pre-2013 scenario may not be applicable in the future (Sudbury Brief at 26-27).

2. Protect Sudbury

Protect Sudbury argues that Eversource has ignored record evidence and credible testimony that the Project is not needed (PS Reply Brief at 1). Protect Sudbury argues further that Eversource has not substantiated its claim that the proposed Project (using underground as opposed to overhead construction along the MBTA ROW) is the result of a transmission system study process undertaken by ISO-NE and its working group to "identify and address" transmission reliability requirements and develop solutions (PS Brief at 5, citing Exh. EV-2, at 1-3).[26]

3. ISO-NE

Although ISO-NE is not a party to the proceeding, it did respond to a request from staff to address the Town of Sudbury's concerns with the CELT forecast. ISO-NE indicated that the

[26] Protect Sudbury's arguments relating to ISO-NE's consideration of an underground Project are evaluated in Section IV, below.

CELT forecast is prepared annually through an open stakeholder process, which is designed to ensure that prudent and up-to-date assumptions regarding the region's economic, policy, and load trends are used when evaluating transmission system adequacy (RR-EFSB-1).

ISO-NE stressed that the reliability issues addressed by the Project could occur at existing load levels, and that the need for the Project is not dependent on forecast growth in electrical demand (RR-EFSB-1). ISO-NE asserted that while it continues to refine its forecasting methods and assumptions, Sudbury's concerns with the CELT forecast are overstated (RR-EFSB-1). With respect to the accuracy of the CELT forecast, ISO-NE stated that Sudbury inappropriately compared forecast gross load levels with actual and normal weather demand, which are net loads (RR-EFSB-1). According to ISO-NE, when net 50/50 forecast loads are compared to actual and weather normal values, the difference between the ISO-NE forecast and actual loads is greatly reduced (RR-EFSB-1).[27]

ISO-NE agreed with the Town of Sudbury that EE performance in recent years has outpaced the original FCA results, suggesting that conservative bidding behavior by Program Administrators ("PAs") and the early delivery of EE measures are the likely cause of underestimated performance (RR-EFSB-1). ISO-NE stated that it works closely with PAs and other key stakeholders to develop the EE forecast, indicating that trends such as these recent underestimates are reviewed and considered within the EE forecast process (RR-EFSB-1).

4. Company Response

The Company argues that the forecasts relied upon to support the need for the Project are based on substantially accurate historical information and reasonable statistical projection methods that include an appropriate consideration of conservation and load management (Company Reply Brief at 10). With respect to whether the forecasts are reviewable, the

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[27] Sudbury acknowledged this error, and revised the prefiled testimony of Mr. Chernick on January 23, 2018. According to Sudbury's updated prefiled testimony, the average difference between actual peak load and the ISO-NE median weather forecast in the 2010 to 2017 CELT Reports was two percent (Exhs. SUD-PLC-1, at 8; SUD-PLC-5, at 1). Sudbury further stated that forecasts of load more than two years into the future overestimated actual loads by an average of three percent (Exhs. SUD-PLC-1, at 8; SUD-PLC-5, at 1).

Company argues that it has provided ample documentation relative to the forecasts and forecast methods, demonstrating that use of CELT forecasts ensures system assessments use consistent load forecasts that have been reviewed through a rigorous stakeholder process (Company Reply Brief at 10-12, citing inter alia, Exhs. EV-2, at 1-3, app. 2-1; EFSB-N-1). The Company argues further that the need for a number of recent transmission projects subject to Siting Board review, namely the Woburn-Wakefield, East Eagle, NSTAR Electric Company d/b/a Eversource Energy, EFSB 14-2/D.P.U. 14-73/14-74 (2017) ("Walpole-Holbrook"), and Mystic-Woburn projects, was established based on similar forecasts and methodology (Company Reply Brief at 11).

With respect to ISO-NE estimates of demand, the Company defends ISO-NE's use of 90/10 forecasts as a conservative measure for planning purposes and argues that actual loads would generally be expected to be less than that forecast for 90/10 conditions (Company Reply Brief at 13-14). The Company states that forecast contingency overloads are as severe as 150 to 170 percent of the STE ratings of equipment, indicating that current loads are sufficient to justify the need for the Project and that only a major decline in peak load on the order of 115 MW would obviate Project need (Company Reply Brief at 16, n.11, 12, citing Tr. 1, at 27; RR-EFSB-19). The Company maintains that EE reductions achieved by the utilities are already reflected in load data, and suggests that these EE reductions may erode with time (Company Reply Brief at 12, 14-15).

The Company maintains that it did update its assessment of the need for the Project to reflect 2017 CELT Report forecast data, and that Eversource's Updated Analysis confirmed the need for the Project (Company Reply Brief at 12, citing Exhs. SUD-N-3; Protect-2-85; Tr. 1, at 60-61). With respect to the load forecasts for the Marlborough Subarea, the Company maintains that its forecast is based on individual substation loads in the Marlborough Subarea, which tie into the CELT forecast being used for the analysis; therefore, the Company argues it does not matter that parts of the Marlborough Subarea may be outside of the Boston regional system plan subarea (Company Reply Brief at 13, n.7, citing Exhs. EV-2 at 2-16; EFSB-N-41; Protect-1(S1); Protect-2-69).

D. Analysis and Findings on Need

In the 2015 Needs Assessment, ISO-NE identified numerous reliability needs within the Greater Boston Area, including deficiencies in the Marlborough Subarea. The Siting Board recognizes the responsibilities and expertise of ISO-NE and accords considerable weight to the 2015 Needs Assessment and its findings. See e.g., Needham-West Roxbury at 13; Woburn-Wakefield at 17-18; Walpole-Holbrook at 16-17; East Eagle at 26-29; Mystic-Woburn at 17-18.

The 2015 Needs Assessment's evaluation of the Marlborough Subarea demonstrated that the existing transmission system would be insufficient to reliably supply customers under both pre-existing and forecast summer peak load conditions following certain N-1 and N-1-1 contingencies. The record shows that the identified N-1 violations in the Marlborough Subarea will be resolved by other planned system reinforcements, while the N-1-1 violations in the area remain to be addressed. Eversource's Updated Analysis, which is consistent with ISO-NE's study approach used in the 2015 Needs Assessment, demonstrated that this remains the case in light of more recent supply and demand information. Furthermore, the Company presented evidence showing that even assuming proposed transmission system reinforcements elsewhere in the Greater Boston Area were constructed, with the exception of the Project, the regional transmission system would remain inadequate.

Eversource must eliminate the potential for post-contingency thermal overloads and low voltages in the Marlborough Subarea in order to comply with applicable national and regional reliability standards, and to provide a reliable supply of electricity to customers in the Greater Boston Area. The Siting Board finds that the Company's use of an N-1-1 planning criterion is reasonable, that the methods used to assess system reliability are reviewable and appropriate, and that Eversource's existing transmission system does not currently meet the established reliability criteria. See e.g., Needham-West Roxbury at 13; Woburn-Wakefield at 17-18; Walpole-Holbrook at 16-17.

The Company's assessment of need relied in part on the 2015 Needs Assessment and the demand forecast contained therein. This forecast was developed using the summer peak 90/10 load forecast from the 2013 CELT Report, adjusted to reflect the contributions of forecast DR

and EE resources.[28] The Company also reviewed the need for the Project using net load projections from the 2016 CELT Report. The Town of Sudbury argues against use of the CELT forecast on the bases that Sudbury was unable to exactly reproduce the results, and that, historically, CELT forecasts have over-predicted net load growth. The Siting Board does not find these arguments to be persuasive because: (1) conservative load forecast predictions are warranted for system planning purposes; (2) the over-predictions by ISO-NE of approximately two to three percent are relatively minor; and, most importantly; (3) the post-contingency thermal and voltage violations are already severe, were shown in the 2015 Needs Assessment to occur at pre-2013 load levels, and would remain so even with flat to declining loads. Based on these facts, the Siting Board finds that the need for the Project is not dependent on growth in electrical demand in the Marlborough Subarea, and that the level of precision in the Company's forecasting methodology is sufficient to make a proper determination on Project need.

The record demonstrates that the CELT forecast – which underlies the Company's forecasting methodology – undergoes a rigorous stakeholder review process, and the Siting Board considers it to be well suited for assessing the reliability needs of electric utilities on a consistent basis across New England.[29] In view of the above, the Siting Board finds that the Company has provided sufficient information to permit an understanding of its forecasting method, and that its forecast is reviewable, appropriate, and reliable for use in this proceeding to evaluate the Company's assertion of need.

For these reasons, the Siting Board finds that additional energy resources are needed to maintain a reliable supply of electricity in the Marlborough Subarea.

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28 The area assessed in the 2015 Needs Assessment encompassed the Boston Regional System Plan subarea plus some load to the west and south (Exh. EV-2, app. 2-1, at 12).

29 The Siting Board has found that the CELT forecast is reviewable, appropriate, and reliable in a number of recent decisions. See Needham-West Roxbury at 13; Woburn-Wakefield at 17-18; Walpole-Holbrook at 16-17; East Eagle at 26-29; Mystic-Woburn at 17-18.

IV. ALTERNATIVE APPROACHES TO MEETING THE IDENTIFIED NEED

A. Standard of Review

G.L. c. 164, § 69J requires a project proponent to present alternatives to the proposed facility, which may include: (1) other methods of transmitting or storing energy; (2) other sources of electrical power; or (3) a reduction of requirements through load management.[30] In implementing its statutory mandate, the Siting Board requires a petitioner to show that, on balance, its proposed project is superior to such alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that the proposed project is superior to alternative project approaches. Needham-West Roxbury at 13-14; Woburn-Wakefield at 18-19; East Eagle at 29; Walpole-Holbrook at 17.

B. Identification of Alternative Approaches for Analysis

On August 12, 2015, ISO-NE issued the Final Solutions Study for the Greater Boston Area, outlining the recommended transmission investments for addressing the reliability needs identified in the 2015 Needs Assessment (Exh. EV-2, app. 3-3). A new overhead 115 kV transmission line between the Sudbury and Hudson Substations was one of the recommended projects (Exh. EV-2, at 2-1, 3-1 to 3-2, app. 3-3, at 12-13).[31] Eversource asserted that its further evaluation of project alternatives confirmed that the Project, using underground construction, is the best alternative for meeting the identified need, with minimal impact to the environment, with a greater degree of reliability, and at the lowest possible cost (Exh. EV-2, at 3-2).

In assessing alternative solutions to meet the identified need, Eversource explored non-transmission alternatives ("NTAs") including generation, EE, DR, and energy storage, as

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30 G.L. c. 164, § 69J also requires an applicant to present "other site locations." This requirement is discussed in Section V, below.

31 Eversource indicated that ISO-NE has not conducted a formal evaluation of an underground version of the 115 kV transmission line between the Sudbury and Hudson Substations (Tr. 8, at 1228-1230).

well as alternative transmission facilities.[32] Each of these alternative approaches is discussed further below.

1. Non-Transmission Alternatives

Eversource engaged LEI to assess the cost and feasibility of using NTAs to address the identified need (Exh. EV-2, at 3-8). Eversource indicated that, as the first step in the process, it provided LEI with information on the necessary amounts and locations of NTA resources that would be required to address the identified need (Exhs. EV-2, at 3-8 to 3-9).[33] Initially, Eversource stated that by 2023 a minimum of 264 MW of effective capacity (237 MW connected to the Northborough Road Substation, and 27 MW connected to Woodside Substation) would be required (Exhs. EV-2, at 3-9; EFSB-PA-10). However, over the course of the proceeding, Eversource revised this figure to a total of 115 MW, with the full amount to be injected at either the Northborough Road or Hudson Substations (which LEI referred to as the "large scale" NTA case), or for the capacity additions to be spread across the West Framingham, Northborough Road, and North Marlborough Substations (which LEI referred to as the "medium scale" NTA case) (Tr. 15, at 2554-2555, 2557; RR-EFSB-19; RR-EFSB-24(R1)(1) at 4-5). Eversource stated that the decrease in the size of the injection requirement was the result of a number of factors, including the application of an improved modeling methodology and use of the 2016 CELT load forecast (rather than the 2013 CELT forecast used in the 2015 Needs Assessment) (Exh. EFSB-PA-10; Tr. 15, at 2647-2654; RR-EFSB-19).

Next, LEI identified a range of NTA technologies that could potentially meet this firm injection requirement, including thermal generation, renewable generation, storage, and EE (RR-EFSB-24(R1)(1) at 5). LEI first considered the minimum and maximum size of each NTA technology to determine whether a particular NTA option could provide the size of injection needed at a specific location (Exh. EV-2, at 3-10; RR-EFSB-24(R1)(1) at 3). Next, LEI

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[32] Eversource also explored a no-build approach. However, this approach did not address the identified reliability need (Exh. EV-2, at 3-2).

[33] LEI's assessment assumed completion of all elements of the ISO-NE recommended solution for the Greater Boston Area, excepting the Project (Tr. 3, at 358).

considered whether a specific NTA technology has the operating characteristics necessary to respond to contingency conditions (Exh. EV-2, at 3-10; RR-EFSB-24(R1)(1) at 3, 6).[34] LEI then considered practical challenges (e.g., land and infrastructure requirements) that might prevent the NTAs identified from being developed (Exh. EV-2, at 3-10; RR-EFSB-24(R1)(1) at 3, 6, 16-17).

After identifying the technically feasible NTA technologies for each location, LEI developed a least-cost set of NTA solutions based on the gross and net levelized cost of entry ("LCOE") for each technology (Exhs. EV-2, at 3-11 and app. 3-5, at 10; RR-EFSB-24(R1)(1) at 3).[35] Given its view that future market revenues are uncertain, LEI calculated the net LCOE under four scenarios with varying assumptions for revenues from the capacity and renewable energy certificate markets (Exh. EV-2, at 3-12; RR-EFSB-24(R1)(1) at 3, 18). Based on this assessment, LEI concluded that the least-cost technically feasible NTA would be a medium-scale generation solution consisting of two 57 MW frame peakers and two 18 MW reciprocating engines (to yield 115 MW of derated capacity) (Exh. EV-2, app. 3-5, at 15). LEI estimated the direct cost to ratepayers of this NTA solution would range from $16.3 million to $23.9 million annually, depending on forward capacity market revenues (Exh. EV-2, app. 3-5, at 15).[36] In

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34 The Company stated that in order to respond to an N-1-1 contingency, an NTA resource must be able to provide energy within 30 minutes of the first contingency (Exh. EV-2, at 3-10). According to the Company, the NTA resource must then be able to continue to operate for a minimum of twelve hours, which would provide sufficient time for the failed transmission system element to be repaired, or for load levels to drop sufficiently (Exh. EV-2, at 3-10; Tr. 15, at 2559-2560).

35 LEI stated that the gross LCOE is a dollars-per-kilowatt-year ($/kW-year) value that includes all investment and operating costs, and that net LCOE is derived by deducting any potential revenue streams (e.g., energy sales, capacity market revenues, etc.) from the gross LCOE (Exh. EV-2, app. 3-5, at 13).

36 LEI also presented a large scale combined-cycle gas turbine ("CCGT") solution, which it estimated would have a net direct cost to ratepayers of approximately $12.8 million annually (RR-EFSB-24(R1)(1) at 15). However, LEI stated that based on the size of the injection requirement and available CCGT technology, this solution would not capable of starting up quickly enough to address the N-1-1 reliability needs of the area, and therefore this option was eliminated from further consideration (RR-EFSB-24(R1)(1) at 15; Tr. 15, at 2614-2617).

comparison, Eversource estimated the annual revenue requirement of the Project to be approximately $11.2 million (RR-EFSB-11(S1); RR-EFSB-24(R1)(1) at 16).

In addition to a higher cost, Eversource identified significant implementation barriers for NTA solutions (Tr. 15, at 2626-2631; RR-EFSB-19; RR-EFSB-24(R1)(1) at 16-17). These barriers included the high cost and limited availability of land in the vicinity of the identified injection points, a lack of sufficient enabling infrastructure (e.g., gas pipeline and transmission system interconnections), zoning restrictions, end-of-life replacement costs, the need for sophisticated operator interventions, and lead-time concerns in light of the pre-2013 date of the reliability needs in the Marlborough Subarea (Tr. 15, at 2626-2631; RR-EFSB-19; RR-EFSB-24(R1)(1) at 16-17).

Eversource stated that, based on both the cost and practical challenges associated with the development of an NTA in the Marlborough Subarea, any technically feasible NTA solution is inferior to the Project (Exh. EV-2, at 3-12 to 3-13; Tr. 15, at 2546).[37] Eversource maintained that, overall, the Project better meets the goal of providing a robust, secure, and reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost (Exh. EV-2, at 3-13).

2. Transmission Alternatives

The Company considered two transmission alternatives with distinct approaches to meeting the reliability needs of the Marlborough Subarea: (1) the Project, which would bring a new source of supply to the area; and (2) Transmission Alternative 2, which would upgrade existing transmission lines in the area (Exh. EV-2, at 3-2 to 3-4; Tr. 1, at 97-98).

As discussed above, the Project consists of a new approximately nine-mile-long 115 kV transmission line (the New Line), and improvements at the Sudbury and Hudson Substations

[37] In addition, Eversource stated that, unlike the Project, an NTA solution would not ameliorate potential contingencies that could cause loss of service to customers served by the Hudson Substation (Exh. EV-2, at 3-13). Reliability benefits associated with the Project are discussed in Section IV.B.2, below.

(Exhs. EV-2, at 3-2 to 3-3; EFSB-PA-1; Tr. 1, at 103-105).[38] According to the Company, necessary work within the Sudbury Substation would include the installation of two new 115 kV breakers and a 115 kV shunt reactor (Exh. EV-2, at 3-2, 5-5).[39] Three new 115 kV breakers, one new underground and two new overhead transmission line terminals, and reconfiguration of the existing substation into a ring bus design, would be required at the Hudson Substation (Exhs. EV-2, at 3-2 to 3-3; EFSB-HLP-6). Upon completion, the Project would provide a capacity increase of approximately 320 megavolt-amperes ("MVA")[40] into the Marlborough Subarea (Exh. EFSB-PA-29). Eversource estimated the total cost of the Project to be approximately $95.8 million (RR-EFSB-50(1)).

Transmission Alternative 2 would be undertaken primarily by National Grid, and would involve: (1) converting the recently refurbished X-24 Line from 69 kV to 115 kV between the Millbury No. 5 and the Northborough Road Substations (14.5 miles); (2) reconductoring the E-157 Line between the Millbury No. 2 and Centech Substations (5.8 miles); and (3) reconductoring the 455-507 Line between the West Framingham and Sherborn Substations (5.8 miles) (Exh. EV-2, at 3-3; Tr. 1, at 103-105). Conversion of the X-24 Line to 115 kV operation would require installation of larger diameter conductor along the length of the line, and replacement of all of the existing support structures (Exh. EV-2, app. 3-4, at 9, 18).[41] Relocation

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38 Eversource explained that the New Line could be built using either underground or overhead construction, but that in the Company's opinion an underground transmission line is preferable (Exh. EV-2, at 3-1, n.16). For the purpose of the Company's comparison of project alternatives, underground construction is assumed for the Project. See Section VI, below, for a detailed comparison of the environmental impacts, costs, and reliability of the New Line using underground versus overhead construction.

39 Eversource indicated that a shunt reactor and associated facilities would not be required at the Sudbury Substation if the New Line were constructed using an overhead design (Exh. EV-2, at 5-4 to 5-5).

40 MVA is total power, which includes real power (MW) and reactive power (megavolt-amperes-reactive).

41 According to National Grid, 233 new steel pole structures, with roughly 136 new reinforced concrete caissons, would be installed to support the upgraded X-24 Line (Exh. EV-2, app. 3-4, at 9).

of other transmission lines within the X-24 Line ROW, and upgrades at a number of National Grid substations would also be required (Exh. EV-2, at 3-3 to 3-4, and app. 3-4, at 9, 18).[42] Reconductoring the E-157 and 455-507 Lines would require National Grid and Eversource, respectively, to install larger diameter conductor and new support structures (Exhs. EV-2, at 3-3, app. 3-4, at 11-12; EFSB-PA-4).[43] Eversource would also need to complete upgrades at its West Framingham and Sherborn Substations (Exhs. EV-2, at 3-3; EFSB-PA-4).[44] All in, the various elements of Transmission Alternative 2 would require work in Millbury, Grafton, Shrewsbury, Westborough, Southborough, Framingham, Ashland, and Sherborn (Exh. EV-2, at 3-3 to 3-4, fig. 3-2). According to the Company, Transmission Alternative 2 would provide a 300 MVA transmission capacity increase into the Marlborough Subarea, and would cost approximately $116.1 million (Exhs. EV-2, at 3-4, 3-7; EFSB-PA-29).

Eversource indicated that, while both alternatives would meet the need, the Project would provide a greater increase in capacity at a lower cost, and would provide greater flexibility over the longer term (Exhs. EV-2, at 3-4 to 3-5, 3-7; EFSB-PA-29). Additionally, Eversource stated that the Hudson Substation is currently supplied radially from the Eversource system by a single

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42 National Grid stated that reconfiguration of the existing X-24 Line ROW to accommodate Transmission Alternative 2 would require the installation of 35 new structures and 29 new reinforced concrete foundations supporting transmission lines other than the X-24 Line within the ROW (Exh. EV-2, app. 3-4, at 9). An existing, retired, 69 kV line would also need to be removed (Exh. EV-2, app. 3-4, at 9). National Grid further stated that upgrades at the Millbury No. 2, Millbury No. 5, North Grafton, Westborough, and Northborough Road Substations would be required, and would involve, among other things, the installation of 115 kV autotransformers, 115 kV circuit breakers, and changes to existing relay equipment (Exh. EV-2, at 3-3 to 3-4, and app. 3-4, at 11-17).

43 National Grid stated that reconductoring the E-157 Line would require installation of twelve reinforced concrete foundations and in-kind replacement of 26 transmission support structures (Exh. EV-2, app. 3-4, at 11). Eversource stated that reconductoring the 455-507 Line would require replacement of 50 of the existing 97 transmission support structures (Exh. EFSB-PA-4).

44 Eversource stated that work at the West Framingham and Sherborn Substations would include replacing existing disconnect switches, small sections of cable buses, and resetting current transformers, relays, and meters (Exh. EFSB-PA-4).

double-circuit 115 kV transmission line; the construction of a new transmission line between the Sudbury and Hudson Substations would provide an additional source of supply and allow the Hudson Substation to remain in service following an N-1 contingency to this existing supply line (Exh. EV-2, at 3-5). The reliability of the Hudson Substation would also be enhanced through the reconfiguration of the substation to a ring bus design (Exh. EV-2, at 3-5; Tr. 14, at 2461-2465). Finally, Eversource stated that the Project would provide a new, geographically separate source of supply to the broader Marlborough Subarea, diversifying the transmission supply to the region and protecting against extreme contingencies, such as the loss of all of the transmission lines in a single ROW (Exh. EV-2, at 3-5; RR-EFSB-17). According to the Company, Transmission Alternative 2 (which would reinforce existing transmission lines) would not improve the reliability of the Hudson Substation, nor provide a new source of supply to the Marlborough Subarea (Exh. EV-2, at 3-4 to 3-5; RR-EFSB-17).

Eversource also identified implementation issues for Transmission Alternative 2, including a long development lead time, difficulties in scheduling necessary equipment outages, greater customer outage exposure during Project construction, and complex construction requirements, including the potential need for live line work (Tr. 1, at 142-147; RR-EFSB-17). Regarding cost, Eversource stated that the Project would be roughly $20 million less than Transmission Alternative 2 and would therefore be preferable (Exh. EV-2, at 3-4).

Finally, with respect to environmental impacts, Eversource stated that a direct comparison and determination of superiority is difficult due to the distinct types of environmental impacts associated with the Project and Transmission Alternative 2 (Exh. EFSB-PA-36(R-3)). Table 1, below, provides a summary of the environmental considerations assessed by the Company for the two transmission alternatives. The Company concluded that, overall, the two transmission alternatives are comparable with regard to the potential for environmental impact (Exh. EFSB-PA-36(R-3)). However, Eversource noted that impacts from the Project would be similar to those associated with construction of the MCRT as a standalone project by DCR (Exh. EFSB-PA-36(R-3)).[45] Eversource asserted that if development of the MCRT by DCR is assumed as a baseline, the incremental environmental

[45] See Section VI.D.9 for further discussion of the proposed MCRT.

impact attributable to the New Line component of the Project would be significantly reduced (Exh. EFSB-PA-36(R-3)).

Table 1. Comparison of Potential Environmental Impacts Associated with Transmission Alternatives 1 and 2 as Presented by the Company[46]

	Project	**Transmission Alternative 2**
Total Circuit Miles	9.0 miles	26.05 miles
Total Unique ROW Miles	9.0 miles	23.3 miles
Highway/Road Crossings	10	66
Water Body Crossings	11	41
Total Tree Clearing	23.9 acres	0.14 acres
Tree Clearing within Forested Wetland Areas	0 acres	0 acres
Permanent Fill within Vegetated Wetland Areas	<0.01 acres	0.14 acres
Temporary Fill within Vegetated Wetland Areas	0.05 acres	25.30 acres
NHESP Priority/Estimated Habitat	4.0 acres	1.45 acres
Disturbance within an Area of Critical Environmental Concern	0 acres	1.18 acres
Disturbance within Vegetated Wetlands Areas Classified as Outstanding Resource Waters	<0.01 acres	4.33 acres
Length within Mapped Public Water Supply Areas	6.49 miles	2.4 miles
Adjacent Residential Parcels	156	290
Adjacent Sensitive Receptors	3	4
Adjacent Environmental Justice Areas	0 miles	4.9 miles
Adjacent Conservation Land	3.7 miles	2.9 miles
MHC Cultural Resource Points	23	44
MHC Cultural Resource Areas	1.7 miles	2.5 miles

Sources: Exhs. EV-2, at 3-7; EFSB-PA-36(R-3); EV-18, at 20, 22-23. Tr. 1, at 159-162; RR-EFSB-12.

[46] The Company noted that the impact figures tabulated for the Project do not net out impacts that would otherwise be incurred for the proposed MCRT as a standalone project by DCR (Tr. 1, at 162-164).

C. Positions of the Parties

1. Town of Sudbury

The Town of Sudbury argues that the Company's NTA analysis is riddled with errors, pointing to a number of corrections made by the Company during the course of the proceeding, each showing a reduction in the needed scope of an NTA solution, and divergent estimates of load apportionment in the Marlborough Subarea among National Grid, Eversource, and municipal electric companies (Sudbury Brief at 28-30, 33-35). Additionally, Sudbury points out that the analysis by LEI did not readily produce a cost-optimized NTA solution (Sudbury Brief at 33-34). Based on the multiple changes to NTA size requirements, Sudbury calls into question whether Eversource has presented reliable and adequate information to the Board (Sudbury Brief at 29, citing Exh. SUD-5).

Further, Sudbury argues that the Company should not have dismissed an NTA of EE measures (e.g., a reduction on the order of 15 percent of load) on the basis that it would be more expensive than other measures, considering that Sudbury's witness testified that EE measures are "generally the least expensive resources and usually pay for themselves in energy and capacity savings, and reductions in market prices" (Sudbury Brief at 34, citing Exh. SUD-PLC-4, at 4).

Sudbury's witness, Paul Chernick, testified as to several NTA options (rate design, distributed solar and storage, and targeted load reductions) that could be implemented individually or in combination to reduce peak load. Mr. Chernick identified rate design options for time-varying rates for peak demand and time-of-use pricing (Sudbury Brief at 36, citing Exh. SUD-PLC-1, at 21, 28-33, 36-47). In particular, Mr. Chernick identified critical peak pricing ("CPP") and critical peak rebate ("CPR") programs, citing to the successful operation of CPR programs in Maryland (Sudbury Brief at 36, citing Exh. SUD-PLC-1, at 28-30). Mr. Chernick contends implementation of time-of-use pricing is a viable rate design option for the load pocket, with minimal costs for utilities, given the assumed installation of advanced metering equipment, which he asserts was encouraged by the Department in it its Grid Modernization docket (D.P.U. 12-76-B) and is supported by National Grid (Exh. SUD-PLC-1, at 21, 28-31).[47] Mr. Chernick also presented time-of-use pricing as an option to improve the

[47] The Siting Board notes that in D.P.U. 15-120/121/122, issued May 2018, the Department declined to preauthorize any customer-facing advanced metering investments. In the

reliability of the transmission supply to the load pocket (Exh. SUD-PLC-1, at 32-33). Sudbury acknowledges that Eversource serves a low proportion of the load in the Marlborough Subarea, but argues that this does not relieve the Company of achieving the load reductions necessary for an NTA (Sudbury Reply Brief at 9).[48]

Sudbury argues that Eversource could use a number of means, including advanced metering functionality, critical peak pricing and peak time rebates, to pursue EE and rate design NTAs in the Marlborough Subarea – either on its own or in concert with National Grid and/or the municipal light plants (Sudbury Reply Brief at 9-10).[49] Sudbury argues that Eversource has also chosen not to comply with the Department's directive to implement advanced metering functionality that provides for two-way communications (Sudbury Brief at 40-41, citing Tr. 4, at 591-597). Finally, Sudbury argues that Eversource has made no effort to assess rate design, DR, targeted EE, solar, or storage resources to address the identified reliability need (Sudbury Brief at 40).

Sudbury argues that Eversource did not substantiate its assumption that a local resource solution would need to be capable of operating for a minimum of twelve hours, as if load would remain at the 90/10 peak for all twelve hours (Sudbury Reply Brief at 8, citing

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Order, the Department weighed the significant costs associated with full achievement of advanced metering functionality using advanced metering infrastructure against the considerable uncertainty regarding benefits from reduced demand, capacity savings, and customer participation in time varying rates or other forms of dynamic pricing. While the Department confirmed that advanced metering infrastructure is an important tool in meeting grid modernization objectives, it determined that, currently, the benefits of a full deployment of advanced metering functionality do not justify the costs. Grid Modernization Order, D.P.U. 15-120/121/122, at 1-2 (2018).

[48] Sudbury argues that Eversource has failed to satisfy a Siting Board standard, noting that the Siting Board requires the Company to "strongly encourage" its customers to take full advantage of EE programs and explore "creative ways to use NTAs (individually or in combination) to avoid or delay the need for new transmission infrastructure" (Sudbury Brief at 33, referencing Mystic-Woburn at 25, n.28).

[49] Sudbury further argues that Eversource misrepresented the proportion of load served by the Company in the Marlborough Subarea (Sudbury Brief at 29-30). The Siting Board does not view the difference between 10 and 12.1 percent as having a bearing on the feasibility of EE as a project alternative.

RR-EFSB-24(R1)(1) at 4). Sudbury notes that when questioned about this assumption during the evidentiary hearing, Eversource told the Siting Board that the twelve-hour peak load assumption is a requirement of ISO-NE Planning Procedure 7 (Sudbury Reply Brief at 8, citing Tr. 15, at 2561). Sudbury argues that there is no specific ISO-NE planning guideline that addresses the technical requirements or operating specifications of an NTA solution and that, contrary to the Company's assertions, the twelve hours is related to the LTE rating for a transmission element, not an NTA solution (Sudbury Reply Brief at 8, citing Tr. 15, at 2561, 2599). Sudbury notes that the Company nevertheless continues to argue that "to compare transmission and non-transmission alternatives on a consistent basis," NTAs would need to satisfy a twelve-hour firm capacity requirement (Sudbury Reply Brief at 8, referencing Company Brief at 57, n.42). Sudbury submits that the Siting Board should treat this argument as baseless and reject it (Sudbury Reply Brief at 8).

Sudbury proposed a distributed solar-and-storage NTA consisting of approximately 250 MW of distributed solar PV, and 160 MW of energy storage capacity (capable of providing 638 megawatt-hours, or approximately four hours of peak output) within the Marlborough Subarea (Exh. SUD-PLC-1, at 36). This solution was designed to supplement firm transmission capacity in the Marlborough Subarea following the contingency of concern in the year 2023, and the combination of solar PV and storage would be dispatched to follow load (Exh. SUD-PLC-1, at 36-38; Tr. 16, at 2786). According to Sudbury, there is adequate space on rooftops within the Marlborough Subarea to achieve this level of installed solar PV capacity (i.e., rooftop space available for a total of approximately 565 MW of solar PV), and there is potential for additional generation from ground-mounted arrays (Exh. SUD-PLC-1, at 39-40). Sudbury maintains that peak load days have weather that is conducive to solar PV generation, because sunny weather leads to higher air conditioning load due to both higher ambient temperatures and increased direct radiant heating (Tr. 16, at 2747-2748).[50]

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[50] Meteorological data presented by the Company for evaluating solar PV production was from Bedford, Massachusetts; Sudbury argues that this location is not close to the Marlborough Subarea, and that the Company did not provide a rationale for its selection (Sudbury Brief at 38).

Sudbury argues that its proposed solar PV and storage solution would not require any significant enabling infrastructure, such as improvements to distribution hardware or controls (Sudbury Brief at 37). According to Sudbury, the solar PV component of the NTA would largely be paid for through the sale of renewable power to the grid (Exhs. SUD-PLC-1, at 44-45; EFSB-SUD-17). Similarly, Sudbury proposed that the accompanying storage facility could be deployed for electricity price arbitrage (i.e., not for local reliability) for most of the year, reducing the cost of the distributed solar and storage NTA (Exh. SUD-PLC-1, at 39). Sudbury asserted that behind-the-meter solar is currently cost effective and extrapolated that 250 MW of solar PV with 160 MW of storage would break even or yield modest profits (Exh. SUD-PLC-1, at 44). Sudbury concludes that, using a combination of NTAs, the feasibility of a creative, hybrid NTA solution is unassailable (Sudbury Brief at 37-38).

With respect to the Eversource's NTA evaluation, Sudbury maintains that it has clearly called into question the scale of the Company's NTA solution, and the reasonableness of the Company's analyses (Sudbury Brief at 41). Sudbury argues that while Eversource has avoided or obstructed any effort to consider NTAs, Sudbury has presented viable NTAs that withstand scrutiny, and therefore, the Siting Board must reject the Company's Petition (Sudbury Brief at 41).

With regard to the transmission alternative presented by the Company, Sudbury notes that National Grid would have been responsible for construction of Transmission Alternative 2, but that it was absent from the proceeding, and the record is therefore inadequate with respect to the costs and environmental impacts of that alternative (Sudbury Brief at 27, citing Exh. EV-2, at 3-3 to 3-4).[51] Sudbury argues that the record contains no support for National Grid's estimate of the cost of Transmission Alternative 2,[52] and asserts that Eversource was unable to provide an

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[51] Sudbury also notes that Eversource apparently did not to review National Grid's own published EE plans, despite knowing that National Grid serves a large portion of the load pocket (Sudbury Brief at 34-35, citing Tr. 14, at 2659).

[52] Sudbury cites to record evidence that the cost estimate for Transmission Alternative 2 was developed from a desktop review of line characteristics and historical costs from other projects; that no property surveys, evaluations of soil conditions, or environmental

opinion on what the actual cost of the alternative would be (Sudbury Reply Brief at 5, citing Tr. 1, at 124).[53] Given this stated deficiency, and some overlap between cost range estimates for the Project and Transmission Alternative 2, Sudbury argues that the Siting Board must find there is no reasonable explanation for Eversource's dismissal of Transmission Alternative 2 on the basis of cost (Sudbury Reply Brief at 5-6).

Sudbury also argues that impacts on an existing utility ROW are different in kind from impacts on the MBTA ROW, due in part to ongoing vegetation management practices along the route of Transmission Alternative 2 (Sudbury Brief at 32; Sudbury Reply Brief at 6). In contrast, the MBTA ROW, which has not had railroad service in over 40 years, is characterized by Sudbury as "a pristine, largely untouched wilderness that will face significant permanent damage from construction of the Project" (Sudbury Reply Brief at 6; citing generally Exh. SUD-DMD-1; EFSB-SUD-38(1)).[54] In addition, Sudbury argues that many of the Company's metrics (e.g., a count of road crossings) are not natural environmental impact considerations (Sudbury Brief at 32). Sudbury notes that its own experts easily concluded that the environmental impacts of the Project far exceed those of Transmission Alternative 2 (Sudbury Reply Brief at 6, citing Exh. SUD-MJN/RMG-1(R) at 11). Sudbury argues that, with no reasonable cost information and a specious environmental impact comparison, Eversource has failed to establish that the

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studies were conducted; and that details such as crew sizes and specific construction equipment were not presented (Sudbury Brief at 30, citing Exh. SUD-C-6(S-1)).

53 Oral testimony, cited by Sudbury, was that Eversource believes the expected cost of Transmission Alternative 2 of $116.1 million was calculated by National Grid using a -25%/+50% methodology; however, Eversource could not confirm the exact basis of National Grid's cost estimate (Tr. 1, at 124).

54 Sudbury argues that maintaining a cleared corridor on the MBTA ROW would have relatively high impacts on 3.7 miles of adjacent conservation land (Sudbury Brief at 32, citing Exh. SUD-DMD-1). In contrast, Sudbury argues that reconductoring an overhead utility line within an existing ROW would not impact adjacent conservation land because the ROW is already cleared and vegetation management is ongoing, suggesting that the Company should have included ongoing vegetation management as a factor when comparing environmental impacts (Company Brief at 32, citing Exh. SUD-DEIR-53).

Project is superior to Transmission Alternative 2, and therefore, that the Siting Board must deny Eversource's Petition (Sudbury Brief at 33).

2. Protect Sudbury

Protect Sudbury maintains it is "axiomatic that construction on an otherwise undeveloped parcel [the MBTA ROW] will have more impacts than construction under-street or on a developed utility right of way" (PS Brief at 7). Protect Sudbury argues that Transmission Alternative 2 poses no risk to groundwater or public water supplies, wildlife habitat, rare species, conservation land uses, nor to abutting historic or archeological resources (PS Brief at 9-10). Protect Sudbury argues that the Project would have dramatic short- and long-term environmental impacts, and that these impacts are much more significant than the environmental impacts of Transmission Alternative 2 (PS Brief at 7).

With respect to comparative costs, Protect Sudbury argues that conceptual estimates used by the Company are based on limited design or engineering information, and omit key assumptions regarding material and labor costs, production rates, and construction conditions (PS Brief at 29, citing Exh. Protect-RC/RH/ML/MO-1, at 5). Protect Sudbury argues that, with the wide range and variation of the competing projects (i.e., underground, overhead, and in-street), conceptual estimates are not helpful in evaluating cost estimates for project alternatives, particularly where the project estimates are relatively close together in range of costs (PS Brief at 30, citing Exh. Protect-RC/RH/ML/MO-1, at 6). Protect Sudbury suggests that underground construction especially poses risks of cost increases (PS Brief at 30-32). Protect Sudbury notes that the ranges associated with the Company's cost estimates for the Project and Transmission Alternative 2 overlap, arguing that further refinement is necessary in order to reasonably rank the alternatives by cost (PS Brief at 33, citing Exh. Protect-RC/RH/ML/MO-1, at 16). Protect Sudbury contends that the Company has not met its burden to demonstrate that the Project is the least costly, given the Company's use of inaccurate conceptual estimates (PS Brief at 27).

Protect Sudbury argues that ISO-NE did not, in fact, compare the Project with Transmission Alternative 2, but rather compared an overhead transmission line along the MBTA ROW (the MBTA Overhead Route) with the National Grid-led alternative (PS Brief at 10-12; PS Reply Brief at 2-4). Protect Sudbury argues that, by failing to update ISO-NE when it

became clear that an overhead transmission alternative was no longer the Company's preferred option, Eversource circumvented well-established ISO-NE procedures for stakeholder review of competing projects and comparative costs (PS Brief at 12). Protect Sudbury argues that a key function of ISO-NE's planning process is to keep stakeholders apprised of the initiation and on-going status of reliability planning studies, and that this is achieved, in part, through presentations to ISO-NE's Planning Advisory Committee ("PAC") (PS Brief at 13). Protect Sudbury argues that material changes to the cost and design of the New Line, resulting from the Company's decision to pursue the MBTA Underground Route, should have been subject to the PAC's confirmation that the Project was the cost-effective solution compared to alternative options (PS Brief at 13).[55] Protect Sudbury concludes that in the absence of a required ISO-NE review the Siting Board should reject the Company's Petition outright (PS Brief at 26). Protect Sudbury concludes that the Siting Board should reject the Company's proposed Project (PS Brief at 3).

3. HLPD

HLPD argues that, in addition to other system reliability benefits, the Project would provide significant reliability and cost benefits to HLPD customers, and that these benefits would not be achieved if any of the alternative approaches explored in this proceeding were pursued in place of the Project (HLPD Brief at 3). According to HLPD, the existing supply arrangement at the Hudson Substation leaves HLPD customers exposed to potential supply interruptions

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[55] Protect Sudbury also argues that the Siting Board "has correctly assumed that any transmission project proposal would be reviewed and evaluated by ISO-NE before it is submitted for its review" (PS Brief at 11, 20, citing East Eagle at 8-20). Protect Sudbury argues further that Eversource failed its obligation to keep ISO-NE informed about changes to the Project and that "Eversource failed to submit its Preferred Route for review by ISO-NE as required" (PS Brief at 20). In fact, the Siting Board has no statutory or regulatory requirement that transmission facilities must be approved by ISO-NE prior to filing with the Siting Board, nor is the Siting Board responsible for ISO-NE's interpretation of its procedures. Furthermore, the Siting Board performs its own evaluation between the Project and Transmission Alternative 2 and concludes that the Project is superior. See Section IV.D. Therefore, Protect Sudbury's argument is not addressed further.

following certain N-1 contingencies (HLPD Brief at 4). Following construction of the Project, an additional, geographically distinct, transmission supply would be brought to the Hudson Substation, eliminating the reliability risk associated with the substation's radial supply (HLPD Brief at 4, citing Tr. 14, at 2461-2462). In addition, a single contingency at the Hudson Substation would no longer result in the loss of more than one of the substation's three transformers (HLPD Brief at 4). According to HLPD, neither an NTA nor the type of existing transmission system reinforcement proposed as Transmission Alternative 2 would provide either of these reliability benefits (HLPD Brief at 4, citing Tr. 14, at 2465-2466). As such, HLPD urges the Siting Board to approve Eversource's Petitions, and to do so as soon as practicable (HLPD Brief at 4).

4. Company Response

Eversource argues that Sudbury's proposed NTAs are unrealistic and conceptual, and that all technically feasible NTAs are more costly than the Project (Company Reply Brief at 28, 33-36). The Company argues that Sudbury's NTA witness did not substantiate how its proposed alternatives could be implemented cost effectively, practically, or on an expeditious basis, to address the immediate reliability need in the Marlborough Subarea (Company Reply Brief at 28, citing Tr. 15, at 2544; RR-EFSB-24(R1)(1)). Further, the Company argues that it is not in a position of ensuring that NTAs such as those proposed by Sudbury would occur in a timely manner, if at all, whether by private project developers or end-use customers (Company Reply Brief at 28, citing Exh. EV-EL-1, at 4, 7).

The Company argues that it cannot force customers to participate more actively in EE, to buy advanced metering, to subscribe to different forms of time-of-use rates, to shift their consumption to off-peak periods, or add solar systems or related storage systems to their homes or businesses (Company Reply Brief at 29, citing Exh. EV-EL-1, at 7-8, RR-EFSB-101, at 3).[56]

[56] The Town of Sudbury objects to the Company's response to RR-EFSB-101, arguing that it was filed late, constitutes improper rebuttal testimony, and should be stricken from the record (Sudbury Brief at 40; Sudbury Reply Brief at 10-11). The Company contends that the response is not rebuttal testimony, but rather information relevant to the topic of the record request and as such there is no basis to strike it (Company Reply Brief at 35 n.22). As an initial matter, we note that the Board's regulations require that any objections to

The Company argues that it has a long history of successfully and aggressively implementing EE programs, and has implemented EE programs to the best of its ability and to the extent of customers' willingness to participate, receiving national recognition for these programs (Company Reply Brief at 30, citing Exh. SUD-N-26, Tr. 1, at 151, Tr. 4, at 587).

The Company reiterates that, even in the unlikely event that EE could achieve as much as a 15 percent peak load reduction around specific substation locations (above and beyond the EE reductions already included in the load forecast), it would not be sufficient to resolve the identified criteria violations (Company Reply Brief at 30-31, citing RR-EFSB-24(R1)(1) at 6). The Company maintains that achieving incremental EE gains, beyond what it is already implementing, and beyond what is already planned and included in the ISO-NE load forecast, would be far more expensive than the Project (Company Reply Brief at 31, citing Exh. EV-EL-1, at 7).

The Company argues that Sudbury failed to appreciate the cost and practical implementation impediments to its proposed rate design measures (Company Reply Brief at 32). Eversource states that the ability to respond to time-varying rate pricing signals is modest for most customers, and that the Company has historically found it difficult to sustain customer participation and response under time-varying rate programs (Company Reply Brief at 33, citing Exh. EV-BJR-1, at 4-5). Eversource submits that, based on its experience, the Company would not expect to achieve significant load reductions from a time-varying rate or CPP program (Company Reply Brief at 33, citing Exh. EV-BJR-1, at 4).[57]

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record requests responses be filed within seven days of the response. 980 CMR 1.06(6)(g). Notwithstanding the lateness of Sudbury's objection, a review of the Company's response indicates that pages 1-3 provide the information requested by the Siting Board, but that pages 3-11 include information beyond that required to respond to staff's request. While the information may be relevant to the general topic of the record request, it goes beyond the scope of the question. As such, the Siting Board does not rely on the out-of-scope information in the Company's response to RR-EFSB-101 (on page 3 starting with "We are concerned with Mr. Chernick…" and concluding on page 11).

[57] Eversource estimated a total peak demand reduction of less than one percent under expected program participation rates (Company Brief at 33, citing Exh. EV-BJR-1, at 4).

Regarding DR, Eversource argues that there has been a more than a 50 percent reduction in active DR between the 2013 CELT Report and the 2016 CELT Report because of recent changes in environmental regulations (Company Reply Brief at 32, citing RR-EFSB-5). The Company further argues that active DR is dispatched by ISO-NE only when required by system-wide conditions and cannot be counted upon when a load pocket may be lost under N-1-1 contingency conditions (Company Reply Brief at 32, citing RR-EFSB-6). The Company concludes that the need is far too big and immediate to be met by targeted load reductions (Company Reply Brief at 31-32).

With respect to the number of hours an NTA must be available, the Company asserts that, while Planning Procedure 7 does not specifically address the technical requirements of an NTA (because it is a transmission planning document), the procedure is grounded on the principle that a contingency could occur over an extended time frame when loads are high enough to require at least twelve hours of backup resources, and that this requirement is equally applicable to transmission and non-transmission alternatives (Company Reply Brief at 36-37, citing Tr. 3, at 448-450, 454, 461-463, 477; Tr. 15, at 2561-2562; RR-EFSB-24(R1)(1) at 4, 19).

The Company acknowledges that engineering for Transmission Alternative 2 was not advanced to the same degree as for the Project, but argues that the Siting Board is nevertheless able to compare alternatives, even when, as is typical, the confidence level of estimates for project alternatives is less than that for the proposed project (Company Reply Brief at 26). The Company argues that it used standard industry practices to develop its costs estimates, and that its estimates drew from the knowledge and expertise of design engineers and managers of prior construction projects (Company Reply Brief at 69-71).[58] Overall, Eversource argues that it has provided ample information showing that, on balance, the Project is superior to alternative approaches, including Transmission Alternative 2 (Company Reply Brief at 26).

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[58] Further, the Company submits that, although National Grid was not a party to this proceeding, National Grid's absence did not hamper the flow of information regarding the costs of Transmission Alternative 2, and that, as necessary, the Company contacted National Grid, which provided information in full (Company Reply Brief at 25, citing Exh. EFSB-PA-22).

D. Analysis and Findings on Alternative Approaches

The Company's assessment of alternative approaches to the proposed Project included a review of potential non-transmission and transmission alternatives. The Company argues that both of these options are inferior to the Project because they would provide a lower level of reliability at a higher cost. The Company described a centralized generation NTA solution to resolve the identified reliability needs; the Company's NTA solution would be less reliable and more costly than the Project.[59,60]

The Town of Sudbury proposes a different NTA solution, wherein the local utilities would somehow induce area customers to both provide for more of their own power consumption (e.g., with solar PV and storage), and to reduce their consumption at the time of a transmission system contingency. Eversource disputes that there is potential to sufficiently reduce customers' electricity consumption, or that such an approach would be reliable or cost-effective.

The record does not support Sudbury's contention that there are untapped, inexpensive measures readily available that would sufficiently reduce load in the Marlborough Subarea by more than 15 percent – beyond EE savings already included in the load forecast – either alone or in combination.[61] Without compelling evidence that a substantial cut in peak power demand in the Marlborough Subarea is feasible, and likely to occur, relying on such an expectation is not an

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59 The Siting Board notes that the Company's assessment of the amount of NTA resources required to address the identified reliability need shifted markedly over the course of the proceeding, necessitating an updated NTA assessment. Comments by parties helped identify the need for these refinements. The Siting Board recognizes that there are technical difficulties in establishing optimized NTA injection requirements; nonetheless, applicants should ensure that such technical details are resolved prior to filing with the Board.

60 None of the parties supported the Company's centralized generation NTA solution.

61 The Siting Board notes that the Department has no rate-setting authority for municipal light department customers, generally, or for a substantial portion of the Marlborough Subarea, and therefore has no mechanism to effect Sudbury's proposal to reduce peak load through rate-design.

appropriate response to the identified, and immediate, need.[62] Furthermore, the record does not support a conclusion that implementation of the combined decentralized solar PV and energy storage concept proposed by Sudbury is a feasible or cost effective alternative to the Project, especially in light of the time-sensitive nature of the reliability needs in the Marlborough Subarea.[63,64] The record shows that such an approach would require a significant mobilization of new infrastructure – including a means of incentivizing customer participation (e.g., new specific programmatic support), and a centralized system for monitoring and dispatching the DG resources – the costs, practicality and timing of which are unknown. The record does not include an assessment of when specific quantities of capacity would in fact be installed under Sudbury's approach, nor when control system infrastructure would be available. The solar plus storage solution offered by Sudbury appears to suffer from two additional critical deficiencies. First, this concept assumes that solar PV generation would be available during the contingency, or other times when the energy storage systems need to be charged to be prepared to withstand such a contingency. Given that solar PV is an intermittent technology, and not dispatchable, there can

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62 The CELT forecast reflects ISO-NE's estimate of peak load reductions, including reductions from EE programs that Eversource described as having received national recognition. Eversource noted that most customers have a limited ability to respond to electricity pricing signals and predicted a less-than-one-percent reduction in total peak demand from its time-varying rate programs. Eversource also noted that it cannot force customers to reduce or shift their electricity consumption. As such, the Siting Board concludes that incremental peak load reduction measures are not a practical element to a Project alternative in this instance.

63 Additionally, the record shows that reliability improvements to customers supplied by the Hudson Substation would not be achieved if an NTA solution, such as the one proposed by the Town of Sudbury, were implemented in place of the Project.

64 The Siting Board notes that the demand forecast underlying the Company's Updated Analysis includes ISO-NE's expectation of future solar PV uptake across New England, including the Marlborough Subarea. The Siting Board expects that significant amounts of uptake beyond this level would require additional programmatic and financial support, and notes that municipal light plant customers, which make up a significant portion of the Marlborough Subarea, are not eligible to participate in the Commonwealth's current solar PV incentive program (i.e., the Solar Massachusetts Renewable Target (SMART) Program). See Tr. 3, at 521.

be no such assurance, even though there may be a statistical likelihood that solar PV could serve this function. A key role of reliability planning is to address contingencies that may be statistically unlikely, but such significant threats to reliable energy supply that they necessitate a certain remedy. Solar PV does not provide the certainty necessary to obviate contingencies that can occur at any time.

Second, Sudbury presumes that energy storage systems are made more economical and competitive to the Project by means of their ability to perform "energy arbitrage" while also providing the capacity when needed during a system contingency. This too, is an unrealistic assumption. Absent perfect knowledge of when, and for how long, a system contingency will occur, there can be no assurance that energy storage systems that are part of a solution strategy will have sufficient energy reserves available at that time needed to respond to a contingency that threatens system reliability. Energy arbitrage activity could deplete a battery energy storage system to a low state-of-charge just prior to a system contingency and would therefore render that storage system an unreliable solution for that contingency. There may be remedies for this shortcoming, but Sudbury has not demonstrated what they are, or how they would affect the cost and feasibility of an energy storage solution. Given the reliability needs currently present in the Marlborough Subarea, the Siting Board concludes that the NTAs proposed by the Town of Sudbury are inferior alternatives to the Project.

The Company and the Town of Sudbury also disagree on the minimum duration of an NTA alternative. ISO-NE Planning Procedure 7 requires that transmission elements have a twelve-hour rating in the summer, or LTE rating, to provide the needed supply under various contingencies. The Siting Board has evaluated and accepted use of LTE ratings (which are a twelve-hour maximum rating) in gauging whether the system has the resilience to withstand one or more contingencies. The Company has proposed to continue use of this practice in this case, which the Siting Board continues to find an appropriate criterion when considering transmission solutions, like the Project.

However, with the advent of new and increasingly practical utility-scale NTA technologies, such as energy storage systems, the use of the twelve-hour, LTE-based, minimum duration requirement for the evaluation of NTA solutions warrants review. In this regard, the Siting Board is not wholly persuaded by the Company's argument that the necessary duration for

an effective energy storage system solution must be based on the twelve-hour definition of the LTE rating of a transmission line. In fact, to avoid loss of load, an NTA would only have to provide supplemental power for the actual number of hours that post-contingency transmission components would be insufficient. The Siting Board recognizes that such close alignment would require perfect information and foresight, along with considerable operator action to match changes in load for the duration of the outage with transmission capability and NTA output, the management of which is likely to have cost and reliability implications.

For planning purposes, it is the Board's view that a conservative approach on NTA adequacy is appropriate for ensuring reliability and is consistent with our past practice. Nevertheless, the record in this proceeding leaves open the question whether twelve hours of backup power is necessarily required for NTAs to reliably supplant typical transmission investments, as a general planning criterion. The Siting Board directs the Company to review its approach and develop a methodology for determining reasonable and appropriate duration requirements for use in future NTA assessments. Such a determination will need to address the unique circumstances of the applicable contingencies and system characteristics in study areas and could result in minimum required NTA durations that are either less than, or greater than, the current twelve-hour planning approach.[65]

Overall, the record shows that the NTA alternatives identified in the record are inferior to the Project with respect to reliability and cost. While at least some of the NTA alternatives may be preferable to the Project with respect to environmental impacts, on balance, considering environmental impacts, reliability and cost, the Siting Board finds that the Project is preferable to NTA alternatives.[66]

Regarding transmission alternatives, the Company showed that the Project, which would bring a new source of supply to the Marlborough Subarea and provide redundancy to HLPD's

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65 The Siting Board recommends that the Company confer with ISO-NE and other transmission utilities in developing its methodology.

66 The Siting Board continues to expect that Eversource will strongly encourage its customers, both existing and new, to take full advantage of EE programs. Eversource should also continue to explore creative ways to use NTAs (individually or in combination) to avoid or delay the need for new transmission infrastructure.

supply, overall, would provide more reliable electric service to the subarea than Transmission Alternative 2. While the cost estimate ranges for the two alternatives do overlap, the Company's best estimate of the cost of Transmission Alternative 2 is substantially higher than its best estimate of the cost of the Project, and it is unlikely that the ranking of the respective transmission alternative costs would reverse.[67] Thus, the Project would provide a more reliable and cost effective solution than Transmission Alternative 2.[68]

Eversource's position is that the environmental impacts of the Project and Transmission Alternative 2 are comparable. Because the type of work proposed for each alternative is different, it is difficult to directly assess the relative impacts of the two options, but the Project would require a considerably greater level of tree clearing and NHESP habitat disturbance. Furthermore, impacts along the existing active utility corridors used in Transmission Alternative 2 may be somewhat diminished due to differences in potential habitat disturbance. However, there are valuable environmental resources along these corridors that could be negatively impacted by new construction along these routes, and the scope of work required for Transmission Alternative 2 is significant. On this basis, the Siting Board finds that both transmission alternatives have the potential for environmental disruption, but that the Project has a somewhat greater potential for adverse environmental impacts than Transmission Alternative 2. Based on the enhanced reliability and likely lower cost of the Project compared to Transmission Alternative 2, the Siting Board finds that the overall benefits of the Project outweigh the environmental advantages of the alternative.[69]

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67 See also, Section VI.E, below.

68 The Siting Board accepts the evidence presented by Eversource on behalf of National Grid regarding the cost and environmental impacts of Transmission Alternative 2 as a reasonable basis for comparing the alternative transmission approaches. Siting Board staff and intervenors were able to seek information from National Grid through Eversource during the proceeding (see, for example, RR-SUD-6). While it would have been welcome, direct participation of National Grid is not necessary for the Board's review of the Project.

69 The Siting Board notes that if construction of the MCRT is assumed, many of the environmental impacts associated with the Project would occur regardless of Project construction. See Section VI.D.9., for discussion of the MCRT.

Based on its review of non-transmission and transmission alternatives, the Siting Board finds that the Project is superior to the other alternatives identified with respect to providing a reliable energy supply for the Commonwealth with minimum impact on the environment at the lowest possible cost.

V. ROUTE SELECTION

A. Standard of Review

G.L. c. 164, § 69J requires a petition to construct to include a description of alternatives to the facility, including "other site locations." Thus, the Siting Board requires an applicant to demonstrate that it has considered a reasonable range of practical siting alternatives and that its proposed facilities are sited in locations that minimize cost and environmental impacts while ensuring a reliable energy supply. To do so, an applicant must meet a two-pronged test. First, the applicant must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that, on balance, are clearly superior to the proposed route. Second, the applicant generally must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. Vineyard Wind LLC EFSB 17-05/D.P.U. 18-18/18-19 at 19 (2019) ("Vineyard Wind"); Needham-West Roxbury at 21; Woburn-Wakefield at 34-35. But see Colonial Gas Company d/b/a National Grid, EFSB 16-01, at 28 (2016), Colonial Gas Company d/b/a National Grid, EFSB 18-01/D.P.U. 18-30, at 40-41 (2019), where the Siting Board found the company's decision not to notice an alternative route to be reasonable.

B. Company's Approach to Route Selection

Eversource stated that its route selection methodology is an iterative approach that included the following steps: identifying a geographic study area (the "Study Area"); identifying viable routes and design options (the "Universe of Routes"); evaluating and scoring environmental and constructability constraints for the Universe of Routes; comparing estimated costs; and selecting as the candidate routes for further analysis: (1) the MBTA Underground Route as the Primary Route; (2) the MBTA Overhead Route as the Noticed Variation; and (3) the All-Street Route as the Noticed Alternative Route (Exh. EV-2, at 4-3).

The Company identified a Study Area by reviewing potential routes between the Sudbury and Hudson Substations, which included areas within the municipalities of Sudbury, Wayland, Framingham, Marlborough, Hudson, and Stow, roughly bounded to the north by Route 27 and to the south by U.S. Route 20 (Exh. EV-2, at 4-6). The Company stated that a majority of the land uses within its Study Area are conservation, recreation, agriculture, and water supply protection areas; however, there are residential and commercial areas at the eastern end of the Study Area in Sudbury, the western end of the Study Area in Hudson, and along the public roadways (Exh. EV-2, at 4-6).

The Company used United States Geological Survey maps, Massachusetts Geographic Information System data, aerial photography, and field reconnaissance to identify its Universe of Routes (Exh. EV-2, at 4-7). Eversource looked to site the Project in an existing linear corridor, such as an existing utility ROW (e.g., rail, gas, electric) or public roadway (Exh. EV-2, at 4-6). The Company met with federal, state, and municipal officials; Protect Sudbury; residents; business owners; and other stakeholders to discuss route options and to obtain input on the Universe of Routes (Exh. EV-2, at 4-4). Further, Eversource reported that it incorporated suggested routes from stakeholders into its Universe of Routes, specifically routes identified by the Town of Sudbury, Protect Sudbury, and Northeast Logistics, LLC (Exhs. EV-2, at 4-4, 4-6; EFSB-RS-3; EFSB-RS-4).

The Company stated that its initial Universe of Routes included 21 geographically distinct routes (Exh. EV-2, at 4-7). Eversource completed an initial screening that considered abutting land uses; proximity of wetlands, waterways, and rare species habitat; existing traffic patterns and volumes; constructability considerations such as bends or the presence of existing underground utilities; easements and property ownership; and feedback from stakeholders (Exh. EV-2, at 4-7). Based on its initial assessment, Eversource eliminated nine routes that it considered unsuitable for the Project (Exhs. EV-2, at 4-7 to 4-9; EFSB-RS-3).

The Company identified design variations and/or hybrid designs for five of the remaining twelve routes, yielding a total of 20 options along twelve unique route corridors (Exh. EV-2, at 4-7, 4-13 to 4-14). Of the twelve routes, six (and one design variation) would be located entirely within public roadways, providing geographically distinct routing alternatives; further, two were identified by the Town of Sudbury and two were identified by Protect Sudbury

(Exhs. EV-2, at 4-29; EFSB-RS-3).[70] The Company's scoring process consisted of the following: (1) identifying evaluation criteria to identify impacts of each route; (2) calculating a ratio score for each criterion for each route; (3) assigning individual weights to each criterion to reflect its potential for impact; and (4) determining a total raw ratio score and total weighted ratio score for each route (Exh. EV-2, at 4-15 to 4-16).

Eversource scored the 20 options based on 17 environmental and constructability criteria that fell into three categories: (1) developed environment criteria (seven criteria); (2) natural environment criteria (six criteria); and (3) constructability criteria (four criteria) (Exh. EV-2, at 4-15). Within the developed environment category, the criteria included a comparison of the existing conditions and impacts to residential land uses, sensitive receptors, traffic conditions, commercial and industrial land uses, scenic roadways, cultural resources, and the potential to encounter subsurface contamination (Exh. EV-2, at 4-16 to 4-20).[71] Criteria within the natural environment category included tree clearing, wetland resource areas, state-listed rare species habitat, public water supplies, conservation land uses, and public shade trees (Exh. EV-2, at 4-20 to 4-23). Criteria within the constructability criteria included trenchless crossings, existing utility density, length of route, and hard angles (greater than 30 degrees) (Exh. EV-2, at 4-23 to 4-25). The Company stated that the environmental and constructability criteria in this proceeding are similar to the criteria it has presented to the Siting Board in other transmission line proceedings; however, Eversource also developed three unique criteria for route scoring of the Project (i.e., scenic roadways, public water supplies, and conservation lands) (Exhs. EFSB-RS-1; EFSB-RS-7; EFSB-RS-10).

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[70] The six routes that would be located entirely within public roadways are: Routes 4, 5, 5A, 6, 7, 8, and 11 (Exh. EV-2, at 4-10 to 4-14; 4-31). Protect Sudbury proposed Routes 5A, and 11, and the Town of Sudbury proposed Routes 7 and 8 (Exh. EFSB-RS-3).

[71] The Company quantified the potential to encounter subsurface contamination based on the number of sites, on or adjacent to each route option, where a documented release of oil and/or hazardous materials occurred, or where past land uses have been documented as "Disposal Sites" under the Massachusetts Contingency Plan ("MCP") (Exhs. EV-2, at 4-20; EFSB-RS-11). Eversource indicated that, unless there was a documented release or disposal site in the MCP database, it did not include potential subsurface contamination in its route scoring approach (Exh. EFSB-RS-11; Tr. 5, at 791-792).

Next, the Company calculated ratio scores to reflect potential impacts (Exh. EV-2, at 4-16). Eversource assigned a value of "1" to the criterion on the route with the highest potential for the corresponding impact; other routes received a ratio score between "0" and "1" indicating their relative potential impact for the particular criterion (Exh. EV-2, at 4-16).[72] The Company added scores for each criterion together to get a total raw ratio score for each candidate route (Exh. EV-2, at 4-16).

The Company then selected weights (1 to 5) for each scoring criterion (with higher weights having greater impact), intended to reflect the Company's assessment of: (1) the potential temporary and permanent impacts that could result from construction; (2) the availability of best management practices or construction techniques to minimize these temporary or permanent impacts; and (3) public input (Exhs. EV-2, at 4-15, 4-16, 4-25; EFSB-RS-1; EV-MB-2, at 5-6). Table 2 presents the weights that the Company assigned to the 17 criteria.

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72 For example, if a hypothetical Route X with ten proximate residential structures has the highest potential residential unit impact, then the residential unit impact score of Route X is 10 structures/10 structures or "1" (Exh. EV-2, at 4-16). A hypothetical Route Y with five proximate residential structures has a residential structure impact score of 5 structures/10 structures or "0.5" (Exh. EV-2, at 4-16).

Table 2. Routing Analysis Criteria Weights Summary

	Criterion	Assigned Weight
Natural Environment	Public Shade Trees	1
	Tree Clearing Area	5
	Wetland Resource Area	5
	Public Water Supplies	3
	State-Listed Rare Species Habitat	5
	Conservation Land Use	3
Developed Environment	Residential Land Use	5
	Commercial/Industrial Land Use	4
	Sensitive Receptors	5
	Cultural Resources	2
	Scenic Roadways	4
	Potential for Traffic Congestion	5
	Potential to Encounter Subsurface Contamination	1
Constructability	Route Length	1
	Trenchless Crossings	3
	Utility Density	3
	Hard Angles	1

Source: Exh. EV-2, at 4-25.

Eversource stated that it assigned weights that are generally consistent with previous Siting Board cases for criteria such as residential land use, potential for traffic congestion, and commercial/industrial land uses (Exh. EFSB-RS-1). However, the Company increased the weights for the criteria of protected habitats, wetland resource areas, and trenchless crossings (Exh. EFSB-RS-1). Further, the Company chose to use a "1 to 5" scale, rather than a "1 to 3" scale as in previous proceedings, to provide more granularity in comparing the benefits and impacts of each option (Exh. EFSB-RS-1; Tr. 5, at 757-761). Eversource indicated that it designed its criteria and weights to reflect unique components of the Project and Study Area, and public feedback (Exhs. EFSB-RS-1; EFSB-RS-7).

Considering each option in turn, the Company multiplied the raw ratio score for each criterion by the assigned weight to develop a weighted score, then added the weighted scores of all the criteria to calculate a total weighted ratio score for each candidate route (Exh. EV-2,

at 4-16, 4-27 to 4-29). The lowest total weighted ratio scores indicate routes with the lowest potential impacts (Exh. EV-2, at 4-16).

For each of the remaining twelve geographic routes and related design options, the Company completed a reliability analysis and a conceptual (-25 percent/+50 percent) cost analysis (Exh. EV-2, at 4-33 to 4-35). Eversource determined that there were no substantial differences in the reliability risks of any of the options; and therefore, reliability was not a determining factor when comparing the Universe of Routes (Exh. EV-2, at 4-35). Table 3, below, provides weighted ratio scores and cost estimates along with the corresponding rankings for the twelve routes and their design variations. Following Table 3 is Figure 3 depicting the geographic location of each route.

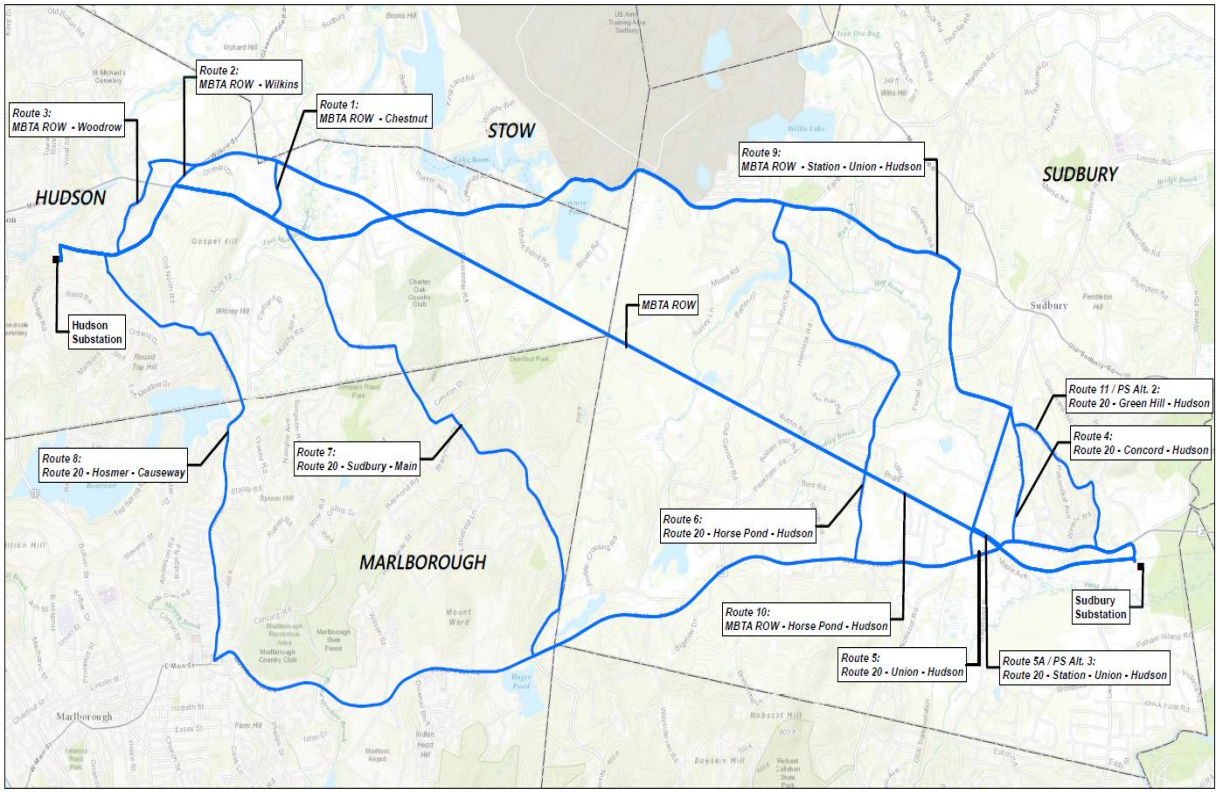
Table 3. Eversource Route Scoring Matrix

Route Options	Weighted Environmental Ratio Score	Weighted Env'l Ratio Ranking	Cost Estimate (Millions)*	Cost Ranking
1A: MBTA ROW Overhead to Chestnut	29.52	19	$50.5	3
1B: MBTA ROW Underground to Chestnut	20.76	4	$95.4	9
1C: MBTA ROW Hybrid to Chestnut	20.22	3	$88.1	6
2A: MBTA ROW Overhead to Wilkins ***(MBTA Overhead Route)***	29.03	16	$44.2	2
2B: MBTA ROW Underground to Wilkins **(*MBTA Underground Route)***	19.37	1	$91.0	7
2C: MBTA ROW Hybrid to Wilkins	20.83	5	$83.5	4
3A: MBTA ROW Overhead to Woodrow	29.27	17	$43.3	1
3B: MBTA ROW Underground to Woodrow	19.44	2	$94.5	8
3C: MBTA ROW Hybrid to Woodrow	20.91	6	$85.4	5
4: Route 20 to Concord to Hudson	25.49	8	$113.7	14
5: Route 20 to Union to Hudson	27.94	13	$119.7	17
5A: Route 20 to Station to Union to Hudson	26.45	11	$118.1	16
6: Route 20 to Horse Pond to Hudson	27.91	12	$120.2	18
7: Route 20 to Sudbury to Main	29.68	20	$127.0	19
8: Route 20 to Hosmer to Causeway	26.07	10	$132.9	20
9A: MBTA ROW Overhead to Station to Union to Hudson	29.43	18	$106.1	11
9B: MBTA ROW Underground to Station to Union to Hudson	28.09	15	$114.5	15
10A: MBTA ROW Overhead to Horse Pond to Hudson	27.99	14	$95.9	10
10B: MBTA ROW Underground to Horse Pond to Hudson	25.94	9	$109.4	12
11: Route 20 to Green Hill to Hudson ***(All-Street Route)***	25.41	7	$110.4	13

*costs do not include work at the Hudson Substation (approximately $5 million) (Exh. EV-2, at 5-84)

Source: Exh. EV-2, at 4-29, 4-34.

Figure 3. Universe of Routes



Source: Exh. EV-2, fig. 4-2.

Based on the consideration of environmental impacts, cost, and reliability, the Company selected Route 2B (the MBTA Underground Route) as its Primary Route for the Project (Exh. EV-2, at 4-36). Eversource stated that the MBTA Underground Route has the overall lowest weighted environmental score (Exh. EV-2, at 4-29). Eversource noted that Route 2A (MBTA Overhead Route) has a lower cost than the MBTA Underground Route, but greater potential for environmental impacts, so it selected the MBTA Overhead Route as a Noticed Variation to the Project (Exh. EV-2, at 4-36). The Company stated that, of the public roadway routes, Route 11 (the All-Street Route, using Route 20 to Green Hill to Hudson) has the lowest environmental score and the lowest conceptual cost (Exh. EV-2, at 4-29). This route – initially proposed by Protect Sudbury – was therefore selected as the Noticed Alternative Route (Exh. EV-2, at 4-37; EFSB-RS-3).

The Company indicated that in the early stages of the Project's development, the MBTA Overhead Route was presented to the towns and the public as the Company's preferred route for the Project (Tr. 5, at 823-829). Although it determined that the MBTA Underground Route had a lower environmental score compared to the MBTA Overhead Route, the Company initially selected the MBTA Overhead Route as its preferred route primarily on the basis of cost (Tr. 5, at 828-829). After meetings with towns and stakeholders, and further consideration of the greater environmental impacts of an overhead route, the Company decided to present the MBTA Underground Route as the Primary Route for the Project in its Petitions (Tr. 5, at 828-829).

C. Geographic Diversity

The Company stated that it developed and assessed a wide variety of routes within the Study Area (Exh. EV-2, at 4-37). Figure 3 shows the diversity of routes. The Company maintains that its selection of a route that follows the MBTA ROW and a route located entirely in public roadways represents geographically diverse alternatives (Exh. EV-2, at 4-2, 4-29).

D. Positions of the Parties

1. Town of Sudbury

The Town of Sudbury argues that the Company failed to demonstrate that it developed and applied a reasonable set of criteria for identifying and evaluating potential routes (Sudbury Brief at 41; Sudbury Reply Brief at 18). Sudbury states that the Company's route selection procedure is deficient in several ways (Sudbury Brief at 41).

First, Sudbury argues that during its initial screening, Eversource eliminated routes from its Universe of Routes prior to undertaking a quantitative assessment (Sudbury Brief at 41-42 citing Exh. EV-2, at 4-7, 4-9; Tr. 5, at 843-844). Sudbury asserts that the Company eliminated five routes based on "certain generalizations" of factors such as abutting land uses, historic resources, traffic conditions, and constructability constraints, and did not rely on a quantitative assessment or fixed procedures (Sudbury Brief at 43-44 citing Exh. EV-2, at 4-7; Tr. 5, at 771-772; RR-SUD-7). Further, Sudbury argues that the same factors that eliminated routes during the initial screening were quantitatively assessed during the second stage of the route selection process (Sudbury Brief at 43-44, citing Exh. EV-2, at 4-3; Tr. 5, at 843-844). The town

concludes that this approach subsequently affected the results of the route selection process by excluding routes with higher potential impacts, which it claims enabled the Company to control the strength of the criteria (Sudbury Brief at 42-43).

Second, Sudbury faults the Company's choice of criteria, and argues that constructability criteria should not be included as part of the route selection process (Sudbury Brief at 44). Citing the pre-filed testimony of Protect Sudbury, the town agrees that constructability criteria are temporary, site-specific factors that affect construction costs rather than environmental impacts (Sudbury Brief at 44, citing Exh. Protect-RC/RH/ML/MO-2). Sudbury contends that constructability factors should be included in the cost analysis of the routes, and not as a category in the environmental scoring process because they detract from a proper review of whether Eversource selected a route with minimal environmental impacts (Sudbury Brief at 44-45, citing Exh. Protect-RC/RH/ML/MO-2).

Additionally, Sudbury states that the design and weighting methods for the criteria are unreasonable (Sudbury Brief at 45). Sudbury claims that the Company's scoring unjustifiably treats impacts on the built environment as more important than impacts on the natural environment (Sudbury Brief at 45 citing Exh. EV-2, at 4-27). Specifically, Sudbury asserts that a weight of "3" for conservation land use does not reflect the permanent nature of impacts to the open space corridor (Sudbury Brief at 46, citing Exhs. EV-2, at 4-27; SUD-MJN/RMG-1, at 36). The town also states that calculating conservation land use by linear foot of frontage does not adequately quantify the impact to those resources (Sudbury Brief at 46, citing Exhs. EV-2, at 4-27; SUD-MJN/RMG-1, at 36). Sudbury argues that temporary impacts to the developed environment, such as traffic, are overstated by being assigned the highest weight of "5" (Sudbury Brief at 46, citing Exh. SUD-MJN-RMG-1(R) at 58). Further, Sudbury states that the four criteria that Eversource added to the routing analysis based on public input (scenic roadways, public water supplies, conservation lands, and tree clearing) did not result in a meaningful consideration of the stakeholder interests, as those criteria ranked poorly for the MBTA Overhead Route (Sudbury Reply Brief at 19, citing Exh. EV-2, at 4-27).

Sudbury outlines its concerns with the use of a ratio score (Sudbury Brief at 47). Sudbury presented exhibits during evidentiary hearings that it claimed illustrate how a ratio score allows the route with the highest environmental impact to skew the magnitude of the ratio scores

for the other routes within a category (Exhs. SUD-2; SUD-3; SUD-4; Tr. 5, at 856-875; Sudbury Brief at 47-50; Sudbury Reply Brief at 18). According to the town, this approach could result in routes with objectively equivalent environmental impacts scoring differently, or clearly superior routes being overlooked (Sudbury Brief at 47-50).[73]

Overall, on environmental grounds, Sudbury asserts that Eversource's scoring system: (1) fails to capture the intensity and importance of the permanent adverse impacts to the town; and (2) overstates the importance of impacts to the developed environment while understating the importance of permanent adverse impacts to the natural environment (Sudbury Brief at 46, citing Exh. Protect-RC/RH/ML/MO-2, at 12; Sudbury Reply Brief at 18, citing Exh. EV-2, Section 4). To illustrate its point, Sudbury asserts that the MBTA Underground Route would result in significant impacts to the natural environment, such as rare species and wildlife habitat, water resources, vernal pools, and conservation land, and argues that the scoring fails to reflect the route's impact to those types of natural resources (Sudbury Brief at 45-46, citing Exh. SUD-DMD-1).

Sudbury concludes that the Company's route selection methodology is unsound, unreliable, and fatally flawed, and that the Siting Board should deny the Project because the Company has not demonstrated that it minimized environmental impacts or ensured that clearly superior routes were not overlooked during the route selection process (Sudbury Brief at 50-51; Sudbury Reply Brief at 18).

2. Protect Sudbury

Protect Sudbury asserts that the Company's routing analysis is biased and that Eversource manipulated the weights and criteria, such that the All-Street Route, which Protect Sudbury

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[73] Sudbury suggests two alternatives to the Company's scoring approach (Sudbury Brief at 50). Rather than using the maximum data observed in each category as the denominator, Sudbury proposed either the use of the median or the lowest non-zero observation as the denominator, both resulting in the MBTA Underground Route scoring substantially lower/less impactful (Sudbury Brief at 50). Sudbury attached to its brief a chart purporting to show the resulting rankings using its alternative methods. To the extent that Sudbury is including evidence or analysis not included in the record of this matter, the Siting Board will not rely on such extra-record evidence. 980 CMR 1.06.

claims has virtually no environmental impacts, receives a worse score than the MBTA Underground Route (PS Brief at 38, 47). Protect Sudbury contends that the Company's route analysis unreasonably included constructability factors, failed to distinguish between short-term and long-term impacts, and failed to consider stakeholder input, and therefore, should be rejected by the Siting Board (PS Brief at 38-39, citing Exh. Protect-RC/RH/ML/MO-2, at 7-8; PS Reply Brief at 4-6, 11-12).

Protect Sudbury contends that constructability criteria are temporary, site-specific construction considerations that: (1) primarily impact cost; and (2) are already included in the conceptual cost estimates used in the route selection evaluation (PS Brief at 39, citing Exh. Protect-RC/RH/ML/MO-2, at 7-8). By including the constructability criteria within the environmental scoring component of the route selection analysis, Protect Sudbury contends that Eversource, in effect, double counts these costs in its evaluation (PS Brief at 39).[74] Protect Sudbury also argues that Eversource's analysis overstates construction considerations and places less weight on true environmental impacts of the routes by diluting the importance of the other environmental criteria it regards as valid (PS Brief at 39-40, citing Exh. Protect-RC/RH/ML/MO-2, at 8-9). Protect Sudbury concludes that there is no basis for including constructability as a subset of the environmental scoring analysis (PS Brief at 39, citing Exh. Protect-RC/RH/ML/MO-2, at 8-9).

Protect Sudbury also argues that Eversource's scoring does not adequately distinguish between temporary, short-term impacts and long-term, post-construction impacts (PS Brief at 41; PS Reply Brief at 11). Protect Sudbury asserts that the Company overstated temporary impacts and undervalued permanent impacts by: (1) assigning the same numerical weight ("5") to temporary, construction-phase disturbances (e.g., traffic, residential land use, sensitive receptors) as to permanent, natural environment disturbances (e.g., tree clearing); and (2) assigning

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[74] As an example, Protect Sudbury points to the trenchless crossing criteria (included in the constructability category), which includes trenchless crossings in wetland resource areas; however, in the natural environment category, there is also a separate criterion for wetland resources (PS Brief at 39). Therefore, Protect Sudbury states that trenchless crossings should be included only in the wetland resource category rather than also being included as a construction category (PS Brief at 39, citing Exh. Protect-RC/RH/ML/MO-2, at 7-8).

unjustifiably low weighting values for impacts associated with long-term impacts (e.g., "1" for subsurface contamination, "3" for conservation land use) (PS Brief at 41, citing Exhs. Protect-RC/RH/ML/MO-2, at 11-15; Hudson-PH-1, at 3-7).[75]

Protect Sudbury conducted its own route scoring calculations to demonstrate the influence of the constructability criteria and to develop a method it views as more accurately reflecting potential long-term impacts. Table 4, below, summarizes the three different approaches that Protect Sudbury used in its route scoring calculations and the results.[76]

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75 Protect Sudbury characterizes the potential impacts to conservation land and potential impacts from subsurface contamination as permanent due to what it believes to be the permanent loss of open space, and a permanent risk of contamination and associated impacts, respectively (PS Brief at 41).

76 In Protect Sudbury Analysis III, two underground routes that follow a portion of the MBTA ROW ranked lower (less impactful) than the MBTA Underground Route (Routes 9B and 10B, and their overhead variations, 9A and 10A, respectively) (Exh. Protect-RC/RH/ML/MO-2). Route 9 (A or B) would leave the MBTA ROW at the intersection of Route 20 and Station Road in Sudbury, follow Union Avenue and Old Lancaster Road to Hudson Road, where it would then follow the same route as the All-Street Route (Exh. EV-2, at 4-11). Route 10 (A or B) would leave the MBTA ROW at Horse Pond Road in Sudbury, and follow Horse Pond Road, Pratts Mill Road, and Dutton Road to Hudson Road, where it would then follow the same route as the All-Street Route (Exh. EV-2, at 4-11).

Table 4. Protect Sudbury's Routing Analyses

	Description of Analysis	Results Compared to Eversource's Analysis
Protect Sudbury Analysis I	• Removed constructability criteria	• Reduced all total ratio scores and weighted scores • Environmental Rankings: 1: All-Street Route 2: MBTA Underground Route 19: MBTA Overhead Route See Exh. Protect-RC/RH/ML/MO-2, at 10, Table CEI-3
Protect Sudbury Analysis II	• Removed constructability criteria • Adjusted the weight of the residential, commercial/industrial land use, sensitive receptors, traffic impacts, and scenic roadway categories to be "0" for only the MBTA Underground and All-Street Routes to reflect the assumption that those categories would have minimal or no post-construction impacts to develop a "representative long-term impact" score. For the MBTA Overhead Route, only traffic impacts were assigned a "0" • Characterized Eversource's weighted ratio score as a "representative short-term impact" score • Developed a duration impact weighting for short-term impacts (5%) and long-term impacts (95%) based on Protect Sudbury's classification of the duration of construction activities and service life of the Project[77] • Multiplied the representative long-term and short-term scores by the percentage above to obtain weighted scores, and then added the short-term and long-term weighted scores to arrive at a total weighted score	• Protect Sudbury only conducted this analysis on the MBTA Underground Route, MBTA Overhead Route, and the All-Street Route, and therefore did not provide a revised ranking of all the routes • Stated that the total environmental score would be lower for the All-Street Route compared to the MBTA Underground Route • Protect Sudbury stated that by creating two separate scores, one for short-term impacts and one for long-term impacts, the analysis could represent a "trade-off" and balance between short-term and long-term impact • Protect Sudbury argued that the weights (5% and 95% in its example) could be adjusted to reflect stakeholder interests See Exh. Protect-RC/RH/ML/MO-2, at 13-14, 16, 17, Tables CEI-4, CEI-5

[77] Protect Sudbury refers to these as "duration impact weighting factors." Mathematically, Protect Sudbury calculated weights for long-term impacts (at 40 years) relative to short-term impacts (at two years) yielding a relative long-term impact weighting of 95 percent versus a short-term impact weighting of 5 percent (or a 19-to-1 ratio of long-term to short-term impact weightings) (PS Brief at 43).

	Description of Analysis	Results Compared to Eversource's Analysis
Protect Sudbury Analysis III	• Removed constructability criteria • Developed a duration impact weighting factor (1 to 5 scale) based on a 40-year project life-cycle • Multiplied each criteria by the weighting factor based on Protect Sudbury's assumption of the duration of impacts, while keeping all other weights from Eversource's analysis the same	• Increased all total weighted scores; changed the relative ranking of the routes • Environmental Ranking: 1: All-Street Route 14: MBTA Underground Route 19: MBTA Overhead Route See Exh. Protect-RC/RH/ML/MO-2, at 6, 19-20, Table CEI-7

Source: Exhs. Protect-RC/EH/ML/MO-2; EV-PS-8.

Protect Sudbury concludes that the modifications it performed to the Company's route scoring approach present a more accurate reflection of short-term and long-term impacts (PS Brief at 43-44, citing Exh. Protect-RC/EH/ML/MO-2). Protect Sudbury asserts that its analysis demonstrates that the All-Street Route would better mitigate short-term and long-term environmental impacts compared to either the MBTA Underground Route or the MBTA Overhead Route (PS Brief at 43-45, citing Exh. Protect-RC/EH/ML/MO-2). Protect Sudbury argues that selection of the All-Street Route would be consistent with previous Siting Board findings that underground projects in existing roadways avoid long-term environmental impacts and are a preferred approach (PS Brief at 44-45, citing East Eagle at 146).

Protect Sudbury states that the Company did not present a specific comparison of the environmental impacts of Transmission Alternative 2 to the routes included in the Universe of Routes (PS Brief at 46, citing Tr. 5, at 929). Further, Protect Sudbury argues that impacts of Transmission Alternative 2 should be considered incrementally, since Transmission Alternative 2 would be constructed in an existing utility ROW, which would reduce the severity of environmental impacts (PS Brief at 46, citing Exh. Protect-RC/EH/ML/MO-2, at 21). Protect Sudbury states that the Company's assertion that the Project compares favorably to Transmission Alternative 2 is without merit because the Company did not accurately consider the difference in short-term and long-term impacts between the two routes (PS Brief at 47, citing Exhs. EFSB-PA-36(R-2); Protect-RC/EH/ML/MO-2, at 21-23).

Finally, Protect Sudbury argues that the Company's assertion of "extensive community outreach" and its determination of "clear advantages of constructing the Project underground along the MBTA corridor" ignores the fact that, in Protect Sudbury's opinion, there is no

community support for the Project (PS Brief at 48-49; PS Reply Brief at 4-5). Protect Sudbury asserts that this shows that the Company has totally disregarded the community and minimized stakeholder participation in its decision-making process (PS Reply Brief at 4-5).

3. Company Response

The Company contends its route selection process was rigorous, thorough, and objective, and supports its selection of the MBTA Underground Route (Company Brief at 79). The Company states it developed and assessed a wide array of potential routes and design variations, developed and applied a reasonable set of criteria to analyze impacts, and identified a Primary Route, Noticed Variation, and Noticed Alternative Route that balance environmental impacts, cost, and reliability (Company Brief at 84-86, citing Exh. EV-2, at 4-37; Company Reply Brief at 39). The Company's responses to specific arguments on aspects of the route selection process are outlined below.

a. Initial Screening Process

In response to the Town of Sudbury's arguments that the initial screening process was flawed, the Company states that it evaluated a variety of factors before it eliminated routes for further consideration during the initial screening process (Company Reply Brief at 40). Eversource states that the routes eliminated during the initial screening process had a variety of negative attributes and were therefore unsuitable for the Project, and "did not possess any positive attributes over any of the alternatives that were not eliminated" (Company Reply Brief at 40-41, citing Exhs. EV-2, at 4-6 to 4-8; EV-MB-2, at 3; Tr. 5, at 836). The Company argues that its initial screening process is consistent with Siting Board precedent, and that it did not overlook or eliminate any clearly superior routes (Company Reply Brief at 41, citing Woburn-Wakefield at 34-65; East Eagle at 63-76; Mystic-Woburn at 26-31; Walpole-Holbrook at 32-37).

b. Constructability Factors

Both Protect Sudbury and the Town of Sudbury expressed concerns regarding the use of constructability criteria in the Company's scoring analysis. The Company states that

constructability criteria provide a measurable factor to differentiate between the duration and magnitude of impacts along a given route that are not otherwise captured (or duplicated) in the environmental or cost categories (Company Brief at 76 n.53; Company Reply Brief at 42, citing Exhs. EV-MB-2, at 11; EV-DAS/DB-1, at 2).[78]

Specifically, the Company asserts that constructability factors identify components of a route that may lead to a longer construction period (i.e., a longer period of impact to abutting land uses) and a greater amount of disturbance (e.g., wider width of trench for underground lines, or increased number of splice vaults) (Company Reply Brief at 43, citing Exh. EV-MB-2, at 12). Eversource argues that the constructability criteria it selected represent factors that would result in increased impacts to the environment and abutting land uses along a route (Company Reply Brief at 43-44, citing Exh. EV-MB-2, at 12). Contrary to the Town of Sudbury and Protect Sudbury assertions, Eversource maintains that not all impacts flowing from constructability issues can be accounted for as impacts to the natural and developed environment, and that constructability should not be eliminated as an individual criterion (Company Reply Brief at 43). Finally, the Company argues that it routinely includes constructability criteria in its route selection process, and the Siting Board has previously found these criteria to be appropriate (Company Reply Brief at 44, citing Woburn-Wakefield at 39, 65; East-Eagle at 65, 74; Mystic-Woburn at 29, 32).

c. Evaluation Criteria

The Company argues that it selected criteria that allow for an appropriate analysis of the different variables, corridors, environmental features, and designs of its candidate routes

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78 The Company notes several examples of how its constructability factors can influence the duration and magnitude of environmental impacts: (1) trenchless crossings can result in a prolonged period of impact to abutting uses, and greater disturbance to abutters at exit and entry pits; (2) existing utilities, and their density, can affect construction duration and resulting impacts to abutters; (3) length of a route is closely related to construction duration and corresponding impacts to abutters; and (4) hard angles produce bends in the cable that can increase construction difficulty, require additional splice vaults, increase land areas of land disturbance, and increase construction duration (Company Reply Brief at 43).

(Company Reply Brief at 46, citing Exh. EV-MB-2, at 4-5). Eversource states that its criteria are designed to reflect natural and developed environmental characteristics in the Study Area, while also identifying temporary and permanent impacts, and differentiate between construction methods (Company Reply Brief at 46-47, citing Exh. EV-MB-2, at 4-5). The Company dismisses the Town of Sudbury and Protect Sudbury criticisms, and contends that their approach "overlooked the need for certain criteria and the need to evaluate both temporary and permanent impacts from construction along each of 20 route options" (Company Reply Brief at 47, citing Exh. EV-MB-2, at 4-5).

The Company adds that it included several additional criteria specifically recommended by stakeholders including: Scenic Roadways; Public Water Supplies; Conservation Lands; and Tree Clearing (Company Reply Brief at 47, citing Exh. EV-MB-2, at 4-5). However, the Company takes issue with Protect Sudbury's use of an additional "impact duration criterion" claiming the Company already properly accounted for the duration of temporary and permanent impacts in its choice of criteria and weights (Company Brief at 76 n.54; Company Reply Brief at 44).

In sum, Eversource states that the criteria it selected appropriately characterize and quantify relevant potential temporary and permanent impacts of each route (Company Reply Brief at 45-46). Eversource contends that the criteria it used allowed for an appropriate analysis of all the different variables encountered in a diverse array of route options, with different types of project designs, and that many of the criteria it used are consistent with the criteria reviewed and approved by the Siting Board in past projects, including other recent Greater Boston Area projects (Company Reply Brief at 46-47, citing Exhs. EFSB-RS-1; EV-MB-2, at 4-5).

d. Weighting and Scoring of Routes

The Company asserts that the criteria weights it selected and its use of ratio scoring are also consistent with past Siting Board cases (Company Brief at 78 n.55, citing East Eagle at 66-68, 74; Mystic-Woburn at 29-32; New England Power Company d/b/a National Grid, EFSB 12-1/D.P.U. 12-46/12-47 (2014) at 45; NSTAR Electric Company, EFSB 10-2/D.P.U. 10-131/10-132 (2012) at 55-57; Western Massachusetts Electric Company, EFSB 08-2/D.P.U. 08-105/08-106 (2010) at 44-47; Needham-West Roxbury;

Woburn-Wakefield; Company Reply Brief at 39). Eversource states that the selected weights for each criterion serve to represent the importance of each criterion (Company Reply Brief at 47, citing Exh. EV-MB-2, at 14).

For example, the Company notes that categories of tree clearing, public shade trees, wetland resource areas, and state-listed rate species habitat identify anticipated areas of disturbance that are permanent, and therefore given the highest level of importance with an assigned weight of 5 (Company Brief at 76 n.54, citing Exh. EV-MB-2, at 7-8). Further, the Company maintains, the following two criteria reflect temporary impacts: traffic congestion and potential for subsurface contamination, and while traffic is accorded a high level of importance with a weighting factor of 5, the Company used a weighting factor of 1 for sub-surface contamination (Company Reply Brief at 45, citing Exh. EV-MB-2, at 15-17). The Company also contends that it applied certain criteria, such as adjacent conservation lands, in a context-specific manner, with no impacts assumed for in-road construction, in contrast with inclusion of these areas (and a weighting factor of 3) for the MBTA ROW routes (Company Brief at 76 n.54, citing Exh. EV-MB-2, at 7-8).

In response to Protect Sudbury's argument that assigning a weight of "5" to construction-related impacts such as traffic, residential land use, and sensitive receptors is unreasonably high, the Company contends that Protect Sudbury completely ignores the relevance of impacts from construction and dismisses them as insignificant, overlooking the reality that construction impacts are not inconsequential to an abutting business, residence or sensitive receptor (Company Reply Brief at 48, citing Exh. EV-MB-2, at 13).

In response to Protect Sudbury's argument that a weight of "1" undervalues that long-term impacts of the potential to encounter subsurface contamination, Eversource argues that: (1) each candidate route has the potential to encounter undocumented or unknown sources of hazardous materials; and (2) the Company's extensive experience managing and monitoring potential hazardous materials, in coordination with regulatory frameworks, would minimize the potential risk of hazardous materials (Company Reply Brief at 50-51, citing Exh. EV-MB-2, at 18-19).

In response to Sudbury's argument that assigning a weight of "3" to adjacent conservation land is insufficient, Eversource argues that there would be no direct impact to or

loss of conservation land, as the MBTA ROW is not protected open space (Company Reply Brief at 48-50, citing Exhs. EV-2, at 5-43; EV-MB-2, at 15-16). In fact, Eversource contends that, rather than causing any long-term adverse impacts to adjacent conservation land, the co-development of the DCR's MCRT with the Project would greatly enhance the ROW's open space character with associated recreational attributes, and improved regional connectivity to adjacent conservation lands for greater public use, enjoyment, and appreciation (Company Reply Brief at 50, citing RR-SUD-10).[79] The Company acknowledges that there could be some potential indirect impacts to adjacent conservation lands during construction and tree-clearing in the MBTA ROW, but notes that an undisturbed buffer would remain intact between the edge of Project construction and the boundary between the MBTA ROW and adjacent conservation lands (Company Reply Brief at 50, citing RR-SUD-10). In view of these considerations, the Company argues that a weighting of 3 for this criterion is reasonable and appropriate (Company Reply Brief at 50).

With respect to the Town of Sudbury's and Protect Sudbury's arguments regarding the Company's scoring method, the Company contends that the arguments illustrate their "self-interest in the route selection process" and that different stakeholder's views on appropriate criteria and weighting would inevitably differ (Company Reply Brief at 51-52). With regard to Protect Sudbury's route scoring analyses, the Company maintains that the results differ from the Company's given that Protect Sudbury is "injecting its own subjectivity into these [criteria] assignments" (Company Reply Brief at 50, n.27). Eversource argues that Protect Sudbury's routing analysis, scoring, and matrices are unbalanced and do not reflect input from the full group of stakeholders within the Project area (Company Reply Brief at 52). In particular, the Company criticizes Protect Sudbury's elimination of constructability criteria, and use of a duration weighting factor, which the Company argues does not consider the balanced input of all stakeholders within the Project area and does not constitute an "objective, data-driven route selection process" (Company Reply Brief at 52). The Company asserts that Protect Sudbury's

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[79] The Company also notes that it did not include abutting conservation land uses in its evaluation of in-street routes, which means that only conservation land abutting the MBTA ROW is considered (Company Reply Brief at 48-50).

revised scoring matrices should be give no weight; instead, Eversource argues that its scoring approach should be accepted by the Siting Board, as it properly identifies the relative importance of each individual criterion, is appropriate, reasonable, and consistent with its past practices approved by the Siting Board (Company Reply Brief at 50-53, citing Woburn-Wakefield at 67).

e. Stakeholder Engagement

The Company asserts that it developed and supplemented its routing analysis with significant feedback from identified stakeholders (Company Reply Brief at 54-55, citing Exhs. EV-2, at 1-10 to 1-12, 4-4 to 4-5; EFSB-RS-1; Tr. 5, at 839; Protect-21; Protect-2-80; Protect-2-118). Eversource states that beginning in January 2014, it conducted more than 48 meetings with federal, state, and municipal officials; residents and business owners; and other stakeholders such as Protect Sudbury (Company Reply Brief at 54, citing Exhs. EV-2, at 1-10 to 1-12, 4-4 to 4-5; EFSB-RS-1; Tr. 5, at 839; Protect-21; Protect-2-80; Protect-2-118).[80] The Company asserts that it used input from those meetings to add routes to the Universe of Routes, increase the weight of existing criteria, add new criteria, expand the visual impact assessment, conduct an analysis of potential impacts to public water supplies, and add local historic sites to its site evaluation (Company Reply Brief at 54-55). Eversource notes that several routes within the Universe of Routes were proposed by either the Town of Sudbury or Protect Sudbury and that feedback from municipal officials significantly modified its route selection process (Company Reply Brief at 54-55). In conclusion, the Company argues that its route selection process comprehensively addresses the Siting Board's standards and that the record demonstrates that Eversource has "developed and applied a reasonable set of criteria for identifying and evaluating alternative routes" (Company Reply Brief at 55).

[80] The Siting Board notes that the Company has made references to both "more than 48 meetings'" and "almost 60 outreach meetings" when describing its outreach efforts in its brief. See Company Reply Brief at 54, 81.

E. Analysis and Findings on Route Selection

The Siting Board requires that applicants consider a reasonable range of practical siting alternatives and that proposed facilities are sited in locations that minimize cost and environmental impacts. In past decisions, the Siting Board has found various criteria to be appropriate for identifying and evaluating route options for transmission lines and related facilities. These criteria include natural resource impacts, land use impacts, community impacts, cost and reliability. Needham-West Roxbury at 21; Woburn-Wakefield at 64; Boston Edison Company d/b/a NSTAR Electric, EFSB 04-1/ D.P.U. 04-5/04-6 (2005) at 43-44. The Siting Board has also found the specific design of scoring and weighting methods for chosen criteria to be an important part of an appropriate route selection process. Needham-West Roxbury at 21; Woburn-Wakefield at 65; Boston Edison Company, EFSC 89-12A, at 34-38 (1989).

The Company developed a broad area to evaluate its routing options for a 115 kV transmission line between the Sudbury and Hudson Substations, and looked for existing linear corridors, such as rail, gas, and electric ROWs, and public roadways, which appeared feasible for construction of a new line and would provide a reasonably direct route between the two substations. The resulting Universe of Routes, which included several routes proposed by stakeholders, such as the Town of Sudbury and Protect Sudbury, consisted of 21 geographically distinct routes. The Company used an initial qualitative screening process to eliminate nine of these route alignments as inferior for a variety of reasons, leaving twelve route options, plus variations, for more detailed evaluation. The route options comprise a diverse mix including overhead and underground use of the MBTA ROW, use of a variety of public roadways, and combinations thereof.

Eversource's initial qualitative screening process considered potential impacts such as abutting land uses; proximity of wetlands, waterways, and rare species habitat; existing traffic patterns and volumes; constructability considerations; easements or other property requirements; and feedback from stakeholders. The Town of Sudbury argues that this initial screening, completed without quantitative scoring and costing analysis across routes, could skew the comparison between routes later in the route selection process. The Company asserts that the routes eliminated in its initial screening were not suitable and did not exhibit any positive attributes compared to routes that were advanced.

The Siting Board does not concur with the assertions of the Town of Sudbury that the Company's qualitative initial screening process was designed to skew route scoring more favorably towards the Company's Preferred Route. Rather, the record shows that the Company used appropriate siting considerations and established Siting Board precedent, in winnowing down the Universe of Routes to a more manageable number for rigorous quantitative analysis in its route selection process. Moreover, none of the routes eliminated in this initial screening phase demonstrated any particular advantages not otherwise captured by one or more of the remaining routes under consideration. Accordingly, the Siting Board considers the Company's process for developing its Universe of Routes, and its initial qualitative screening, to be appropriate, and notes that these initial steps for route selection are consistent with the criteria, outreach process, and analytical approaches the Siting Board has previously found acceptable.[81] See Needham-West Roxbury at 21; Woburn-Wakefield at 65.

The Company then developed and applied a quantitative scoring system for ranking the routing options. Based on its evaluation of environmental impacts, cost, and reliability, the Company selected: (1) the MBTA Underground Route as the Primary Route; (2) the MBTA Overhead Route as the Noticed Variation; and (3) the All-Street Route as the Noticed Alternative Route. The Town of Sudbury and Protect Sudbury raised various concerns about the Company's route scoring approach, including its inclusion of constructability and other criteria, weightings, and the use of ratio scores.[82]

With respect to the use of constructability criteria, the Town of Sudbury and Protect Sudbury argue that they should not be included as part of the route selection process. Both the town and Protect Sudbury view constructability criteria as temporary, site-specific factors that primarily affect construction costs rather than environmental impacts, and, in any event, would already be captured in other specific environmental criteria. Both parties contend that

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81 The Siting Board notes that the Company evaluated routes proposed by the Town of Sudbury and Protect Sudbury during its initial evaluation, with four of those intervenor-suggested routes moving on to be scored as a part of the route options.

82 The Siting Board notes that the Company added several criteria to respond to concerns raised during its stakeholder outreach process.

constructability factors detract from a proper environmental review, given that they result in less weight given to "true environmental impacts." They further argue that the use of constructability criteria essentially double counts cost in the evaluation of routes.

The Company argues that constructability issues are not adequately captured within the environmental criteria, and that constructability criteria are more granular and address the duration and magnitude of key impacts to abutting land uses. The Siting Board notes the importance of consideration of constructability in the choice of routing a needed facility. The Siting Board concurs with the Company's view that constructability criteria help inform the review of the magnitude and duration of impacts – a unique characteristic that is neither strictly cost-related nor environmental impact-related – and capture a unique attribute of construction impacts to abutters and area residents. Moreover, the Siting Board has accepted the use of constructability criteria in numerous past cases, and the logic and value of this method is well established. See Lowell-Tewksbury at 36, 40; Needham-West Roxbury at 22, 25; Woburn-Wakefield at 36, 65.

With respect to the selection of the scoring criteria and weights, there is general agreement with the principle that the proper use of weighting methods for chosen criteria is an important part of an appropriate site selection process in order to reflect the relative importance of the various criteria. However, the Town of Sudbury and Protect Sudbury argue that the weights selected by the Company unjustifiably treat impacts to the built environment as more important than impacts on the natural environment, and that impacts to the built environment are temporary while those to the natural environment are persistent.

The weighting method used by the Company, contrary to the criticisms of the Town of Sudbury and Protect Sudbury, provides a balanced consideration of both impacts to the natural and built environments, and places greater emphasis on the more impactful criteria, whether these are related to short-term or long-term effects. While the Town of Sudbury and Protect Sudbury assert that greater weight should be accorded to natural rather than built environment impacts, construction impacts, such as traffic, noise, and other disturbances, can be highly disruptive, and a source of great concern to abutters and area residents – even if limited in duration. Moreover, we do not view the Company's weighting system as neglecting or short-changing concern for the natural environment. In fact, Eversource's weighting system for

the natural and built environment criteria categories included three top-weighted criteria (that is, a weighting of 5) in each category.[83]

Furthermore, the Siting Board notes that there is not a strict distinction between natural and built environment criteria, and that a number of the criteria identified as "built environment impacts" in fact relate to the natural environment. For example, the Company's scenic roads criteria is categorized as a built environment criteria; however, the Company stated that this criteria reflects potential impacts from tree clearing and stone wall removal, which the Siting Board views as relevant to the natural environment.

The Siting Board does see some merit in the Town of Sudbury's and Protect Sudbury's arguments that certain weighting factors (such as conservation land along the routes) could have been more heavily weighted. However, we note that the Company did not evaluate conservation land along the in-street routes, which, to a great degree, offsets any under-weighting of this criterion for the routes using the MBTA ROW.[84]

With respect to ratio scoring, the Town of Sudbury states that this method could result in routes with equivalent environmental impacts scoring differently, or clearly superior routes being overlooked. The Siting Board does not agree with this assessment. First, ratio scoring serves an essential quantitative purpose, by transforming disparate measurement scales used across the various criteria into a comparable metric – a ratio of raw data for a particular criterion for a specific route (the numerator) compared to the raw data for the worst route for that criterion (the

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83 The relative importance of the natural and built environment categories in route scoring is a function of both the criteria used and their weights. In this case, the natural environment category included six criteria, with a weighting factor total of 22, while the built environment category included seven criteria, with a weighting factor total of 26. Neither the Town of Sudbury nor Protect Sudbury suggested adding or deleting any criteria used by the Company in either category.

84 A drawback of this approach is that if one in-street route is adjacent to more conservation land than another in-street route, the Company's route selection analysis would have not distinguished between them. The Siting Board notes that the record identifies a number of conservation properties abutting various in-street routes (Exhs. EV-1, figure 5-7; EFSB-LU-14). Accordingly, we conclude that the Company's route selection process would have benefitted from the inclusion of conservation land abutting in-street routes in the route selection evaluation criteria.

denominator). By achieving a normalized metric, across all routes and all criteria, ratio scoring enables the appropriate comparison and weighting of factors. Second, the use of a similar ratio scoring method, where the denominator is the maximum data observed in each category, was recently considered in Woburn-Wakefield, and, as in that decision, the Siting Board continues to find that the use of ratio scoring is appropriate. See Woburn-Wakefield at 67-68.

Protect Sudbury provided three different methods of route scoring that illustrate its criticisms of the Company's approach. In all three methods, Protect Sudbury eliminated the Company's constructability criteria. Protect Sudbury also developed two methods of impact duration weighting, which it applied following the elimination of the constructability criteria. The results of each of these methods ranked the All-Street Route with a lower environmental score than the MBTA Underground Route, and in the two methods for which Protect Sudbury provided rankings, the All-Street Route ranked as the route with the lowest (i.e., least impactful) environmental score. Protect Sudbury concluded that its analysis more accurately reflects long-term impacts and demonstrates the biasing influence of constructability criteria.

With respect to Protect Sudbury's proposed elimination of the constructability criteria, the Siting Board notes that, as discussed above, constructability criteria assist in the evaluation of the magnitude and duration of impacts and provide valuable insights. For this reason, among others, the Protect Sudbury route scoring analyses are deficient. The impact duration factors developed by Protect Sudbury in support of its Analysis III resulted in a change to the relative ranking of all the route options.[85] The Siting Board does not find the use of an impact duration factor to be warranted or an improvement to the Company's route scoring approach. Impact duration is, indeed, a relevant concern with regard to natural and built environment impacts. However, the use of weighting factors alone is a more practical and inclusive way of assessing the overall importance of a criterion's impact, including its duration, magnitude, and other

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[85] For Protect Sudbury Analysis III, the All-Street Route received the lowest environmental score and the MBTA Underground Route ranked 14th. Two routes along the MBTA ROW (Routes 9 and 10, as either underground or overhead options) score lower than the MBTA Underground Route. However, Routes 9 and 10 follow the same roadways as the All-Street Route in Stow and Hudson, and at least a portion of the All-Street Route in Sudbury and would not provide the necessary geographic diversity to the All-Street Route.

qualitative and quantitative considerations. The Siting Board further notes that, while there are certainly differences in the duration of impacts, contrary to the Town of Sudbury's and Protect Sudbury's views, a short-term impact does not necessarily equate to a less-severe impact.

The Town of Sudbury and Protect Sudbury contest various aspects of the Company's route scoring methodology and are correct that it inherently reflects certain subjective assessments – upon which the Company and the Town of Sudbury and Protect Sudbury differ sharply. However, the significance of any such differences and scoring outcomes is largely mooted by fact that in Section VI below, the Siting Board undertakes a detailed comparison of the routing choices favored by the Company and the Town of Sudbury and Protect Sudbury, respectively: the All-Street Route (favored by the Town of Sudbury and Protect Sudbury); the MBTA Underground Route (favored by the Company); and the MBTA Overhead Route, (originally preferred by the Company, but not currently favored by any party). There is no record evidence that another route would be clearly superior to all three routes analyzed in detail below, on the basis of environmental, cost, and reliability, nor that the Company precluded any party's preferred route from receiving a comprehensive review.[86] Based on the considerations above, the Siting Board concludes that the route selection process used by the Company did not overlook or eliminate any clearly superior routes.

The Siting Board encourages project applicants to engage with stakeholders early in its route selection process, in order to identify additional routes and criteria that are important to stakeholders, and to incorporate feedback into its analysis. As noted in its findings in Woburn-Wakefield, the Siting Board also encourages the applicants to pursue a good faith effort to consult jointly with affected communities and stakeholders in its route selection process. See Woburn-Wakefield at 71.

The Siting Board notes that the Company has undertaken extensive outreach, including holding 48 separate meetings with various stakeholders, and sought a collaborative approach with stakeholders in this proceeding. In fact, several of the routes in the Company's Universe of

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[86] Protect Sudbury argued that its revisions to the route selection analysis would reorder the ranking of the routes, not that the Company overlooked any specific routes that would have been superior.

Routes were suggested by stakeholders, including the Town of Sudbury and Protect Sudbury. The Siting Board notes that the Company's Noticed Alternative Route, the All-Street Route, was originally presented to the Company by Protect Sudbury. Further, the Company added evaluation criteria, such as public water supplies and conservation land, to reflect the concerns of stakeholders. The Company stated that it selected the MBTA Underground Route as its Primary Route, despite its higher cost, based on the importance of the environmental factors; a decision it claims was partially influenced by public feedback. While parties in this proceeding argued that consultation with the community and stakeholders was insufficient, the Siting Board concludes that the Company engaged with stakeholders early in its route selection process and incorporated significant public input into its analyses.

With respect to Protect Sudbury's argument that the Company did not compare Transmission Alternative 2 to the Universe of Routes, the Siting Board notes that the Transmission Alternative 2 was presented by the Company as a transmission alternative as part of the alternative project approach analysis. See Section IV.B.2. In Section IV.D, the Siting Board found that a transmission line between the Sudbury and Hudson Substations is the best project approach for meeting the identified need. In its route selection analysis, the Company is tasked with evaluating siting alternatives for the preferred project approach. Accordingly, the selected project approach is carried forward to the route selection analysis, and this did not and should not include Transmission Alternative 2 based on the findings above.

With regard to geographic diversity, the Company identified a Noticed Alternative Route (aka the All-Street Route) which utilizes a significantly different linear corridor, located completely within public roadways, between the Sudbury and Hudson Substations. The Siting Board concludes that the All-Street Route is geographically diverse from the MBTA Underground and Overhead Routes.

Based on the route selection process described above, the Siting Board finds that the Company has: (1) developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are on balance clearly superior to the proposed Project; and (2) identified a range of transmission line routes with some measure of geographic diversity. Therefore, the Siting Board finds that the Company has demonstrated that it examined a reasonable range of practical siting

alternatives and that its proposed facilities are sited in locations that minimize cost and environmental impacts while ensuring a reliable energy supply.

VI. ANALYSIS OF THE MBTA UNDERGROUND AND OVERHEAD ROUTES AND THE ALL-STREET ROUTE

In this section, the Siting Board analyzes the MBTA Underground Route, the MBTA Overhead Route and the All-Street Route based on environmental impacts, cost, and reliability. Based on the evidence and findings presented below, the Siting Board concludes that the MBTA Underground Route is superior to the MBTA Overhead Route and the All-Street Route with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

A. Standard of Review

In implementing its statutory mandate under G.L. c. 164, §§ 69H, 69J, the Siting Board requires a petitioner to show that its proposed facility is sited at a location that minimizes costs and environmental impacts while ensuring a reliable energy supply. To determine whether such a showing is made, the Siting Board requires a petitioner to demonstrate that the proposed route for the facility is superior to the alternative route on the basis of balancing environmental impact, cost, and reliability of supply. Vineyard Wind at 35; Needham-West Roxbury at 32; Woburn-Wakefield at 71.

The Siting Board first determines whether the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures to enable the Siting Board to make such a determination. The Siting Board then examines the environmental impacts of the proposed facilities and determines: (1) whether environmental impacts would be minimized; and (2) whether an appropriate balance would be achieved among conflicting environmental impacts as well as among environmental impacts, cost, and reliability. Finally, the Siting Board compares the routes to determine which is superior with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. Vineyard Wind at 35; Needham-West Roxbury at 32; Woburn-Wakefield at 71.

B. Description of the MBTA Underground and Overhead Routes, and the All-Street Route

1. MBTA Underground Route

The Company's MBTA Underground Route starts at the Sudbury Substation, located off of Route 20 in Sudbury, and travels northwest within an existing MBTA ROW for approximately 7.6 miles through the municipalities of Sudbury, Stow, Marlborough, and Hudson (Exh. EV-2, at 5-3). At the intersection of the MBTA ROW and Wilkins Street (Route 62) in Hudson, the MBTA Underground Route leaves the MBTA ROW and proceeds southwest beneath Wilkins Street and Forest Avenue for approximately 1.4 miles before terminating at the Hudson Substation on Forest Avenue (Exh. EV-2, at 5-3).

2. MBTA Overhead Route

The MBTA Overhead Route follows the same approximately nine-mile route as the MBTA Underground Route, but would use an overhead transmission design rather than underground construction along the MBTA ROW (Exh. EV-2, at 5-3).[87] As with the MBTA Underground Route, the MBTA Overhead Route would use an underground, in-street transmission design for approximately 1.4 miles in Hudson, between the intersection of the MBTA ROW and Wilkins Street, and the Hudson Substation (Exh. EV-2, at 5-3).

3. All-Street Route

The Company's All-Street Route consists of an approximately 10.3-mile-long in-street underground transmission line (Exh. EV-2, at 5-4). Beginning at the Sudbury Substation, the All-Street Route travels west under Route 20 for 1,400 feet, turns north onto Green Hill Road for 2,300 feet, and then west onto Old Lancaster Road (and a short section of Concord Road), for approximately two miles (Exh. EV-2, at 5-4; RR-EFSB-51). At the intersection of Old Lancaster Road and Hudson Street, the All-Street Route turns west onto Hudson Road, which becomes

[87] The Company would use underground transmission line construction from terminals in the Sudbury Substation to the nearby MBTA ROW, where the New Line would transition to an overhead design (Exh. EV-2, at 5-3).

Sudbury Road in Stow, and then continues west onto State Road, which becomes Main Street in Hudson, for a total of approximately 6.2 miles (Exh. EV-2, at 5-4, figure 5-3 sheet 10 of 17; RR-EFSB-51). At the intersection of Main Street and Forest Avenue in Hudson, the All-Street Route turns southwest for approximately 1.2 miles and terminates at the Hudson Substation (Exh. EV-2, at 5-4; RR-EFSB-51).

4. Substation Upgrades

A common feature of the Project, regardless of route, is that it would require upgrades at Eversource's Sudbury Substation and HLPD's Hudson Substation (Exh. EV-2, at 5-4, 5-8 to 5-9). The Company described a number of modifications to the Sudbury Substation that would be required to accommodate the Project, including the installation of 115 kV breakers, an air-core shunt reactor, surge arrestors, and a 100-foot-tall shielding mast (Exh. EV-2 at 5-5).[88] According to the Company, modifications at the Sudbury Substation would not require expansion of the existing substation fenceline regardless of whether the MBTA Underground or Overhead Routes, or the All-Street Route was selected (Exh. EV-2, at 1-6, 5-5).

Regarding the Hudson Substation, Eversource stated that modifications would include the installation of three new 115 kV circuit breakers, changes to existing bus work, and retermination of the existing H-160 and N-166 transmission lines (Exhs. EV-2, at 5-8 to 5-9; EFSB-HLP-6). The fenced enclosure at the Hudson Substation would be expanded by approximately 10,000 square feet to accommodate this work (Exh. EFSB-HLP-6). The modifications proposed at the Hudson Substation would be identical regardless of the route selected (Exh. EV-2, at 5-8; Tr. 14, at 2469-2470).

C. General Description of Project Construction

Eversource described the construction methods that would be used for the MBTA Underground Route and the MBTA Overhead Route (together the "MBTA Routes"), the

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88 Eversource stated that the shunt reactor would be required to compensate for the reactive power produced by the New Line and would not be necessary if overhead construction were used (as proposed under the MBTA Overhead Route) (Exh. EV-2, at 5-7; Tr. 1, at 99).

All-Street Route, and the two substations. While different approaches would be required for underground and overhead transmission line construction along the MBTA ROW, all three routes would use the same construction methods for the in-street portions of the New Line.

1. Underground Construction Along the MBTA ROW

Eversource indicated that underground transmission line construction along the MBTA ROW would proceed in six phases: (1) vegetation removal; (2) implementation of erosion and sedimentation controls; (3) steel rail and wooden tie removal, and access road subgrade construction; (4) construction of the duct bank and splice vault system; (5) cable pulling and splicing, testing, and commissioning; and (6) access road final grading, and site restoration (Exh. EV-2, at 5-11 to 5-13).

The MBTA ROW is generally 82.5 feet wide (Exh. EFSB-C-12(R1)(2) at 4). To prepare the MBTA ROW for its use, Eversource would remove trees from an approximately 22-foot-wide corridor along the MBTA Underground Route (Exhs. EV-2, at 5-11; EV-18, at 6). A 22-foot-wide construction platform would be established within this cleared area, consisting of a 14-foot-wide access road for construction vehicles, space for the four-foot-wide transmission duct bank (offset from the access road by two feet), and an additional four feet of space to facilitate installation of the New Line (Exh. EV-2, at 5-13; Tr. 8, at 1343).[89] Grading and leveling would be completed as necessary along the MBTA ROW to achieve final grades appropriate for the Company's access road (Exh. EV-2, at 5-12). Eversource stated that any excess soil would be removed from the construction area and transported to a temporary construction laydown area, or, following soil characterization, would be disposed of off-site (Exhs. EV-2, at 5-12; EV-16, at 375; Tr. 8, at 1400-1403).

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89 A wider construction platform would be necessary at each splice vault location, where the Company stated it would increase the width of cleared area to approximately 40 to 50 feet, for a linear distance of 50 feet (Exh. EV-2, at 5-13). Additionally, Eversource stated that in certain narrow portions of the MBTA ROW the transmission duct bank would be installed underneath the Company's access road, and an 18-foot-wide construction platform would be used (Exh. EFSB-LU-29; Tr. 8, at 1355; Tr. 9, at 1485).

Figure 4. Cross-Section of the MBTA Underground Route along the MBTA ROW (showing potential MCRT)

Source: Exh. EFSB-G-16(2).

Eversource stated that three existing bridges along the MBTA ROW would require upgrades to accommodate installation of the New Line (Exhs. EFSB-CM-2; EV-16, at 377). Of the two bridges over Hop Brook in Sudbury, one would be rehabilitated (Bridge 128), and one would be replaced with a new single-span bridge, with the new abutments landward of the existing abutments (Bridge 127) (Exh. EV-18, at 8). In addition, a new single-span bridge would be constructed in the same location as the existing Fort Meadow Brook Bridge in Hudson (Exh. EV-18, at 8; Tr. 8, at 1349-1351).[90,91] The Company provided drawings showing

90 Eversource stated that bridge rehabilitation work would include the installation of new decking and guardrails, and some other minor repair work (Tr. 8, at 1350).

91 According to the Company, some bridge refurbishment activities (including the installation of new decking and rails) may be performed by DCR as part of the MCRT project (Exh. EV-16, at 97).

installation of the conduits underneath the bridges, but indicated that final designs had yet to be determined (Exh. EV-16, at 96-99; Tr. 8, at 1396-1397).

Actual installation of the New Line would begin with construction of the splice vaults (aka manhole vaults) (Exh. EV-2, at 5-13). According to the Company, manhole vaults are approximately 24 feet long by eight feet tall by eight feet wide and would be installed approximately every 1,500 to 1,800 feet along the MBTA ROW, for a total of 25 manhole vaults along the ROW portion of the MBTA Underground Route (Exhs. EV-2, at 5-13 to 5-14; EFSB-CM-9; Tr. 8, at 1312). Eversource stated that each manhole vault would take approximately five to seven days to install (Exh. EV-2, at 5-14).

Underground duct banks for the Project would be installed using open-cut trenching; the Company would use a backhoe to excavate a trench, and then install 300- to 400-foot segments of conduit and backfill with thermal concrete (Exhs. EV-2, at 5-14; EFSB-CM-12; EFSB-CM-16). At a typical residence or business along the route, there would be roughly three or four weeks of trench-related construction activities, including trench excavation, duct bank installation, and final grading and restoration of the access road (RR-EFSB-99).

Following conduit installation, the Company would pull cables through the conduits between consecutive manhole vaults (Exh. EV-2, at 5-15). Adjacent cable sections would then be spliced together inside the manhole vaults (Exh. EV-2, at 5-15). Eversource stated that cable pulling would typically take three eight-hour days for each pair of manholes, while cable splicing would typically take four to five extended workdays (up to twelve hours each) to complete (Exh. EV-2, at 5-15).[92] Finally, Eversource would stabilize any soils disturbed during construction of the Project with an appropriate seed mixture and/or mulch in coordination with DCR (Exh. EV-2, at 5-16).

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92 Eversource indicated that splicing solid-dielectric cables does not require continuous 24-hour activity; rather, typical work hours for Project cable splicing would be 7:00 a.m. to 7:00 p.m. (Exhs. EFSB-NO-2(S1); EFSB-NO-10; Tr. 13, at 2354-2360).

2. Overhead Construction Along the MBTA ROW

Should overhead construction along the MBTA ROW be selected, the Company indicated that such construction would proceed in seven phases: (1) vegetation removal; (2) implementation of erosion and sedimentation controls; (3) steel rail and wooden rail tie removal, and access road subgrade construction; (4) work pad preparation; (5) tower foundation and structure installation; (6) conductor and shield wire installation; and (7) access road final grading, and site restoration (Exh. EV-2, at 5-17).

The Company's construction methods for vegetation removal, the installation of erosion and sedimentation controls, and construction of the access road would be similar to those proposed for the MBTA Underground Route, except that a larger area of trees would be cleared (Exh. EV-2, at 5-16 to 5-18; Tr. 8, at 1300-1302, 1343). According to the Company, trees would be removed from the full width of the MBTA ROW (approximately 80 feet) for the length of the Project in order to maintain safe clearances for the overhead transmission line (Exh. EV-2, at 5-17).

Work pads measuring approximately 75-feet-long by 75-feet-wide would be established at each of the 90 transmission tower locations (Exh. EV-2, at 5-17 to 5-18). Following preparation of the access road and work pads, Eversource would install concrete foundations for the steel monopole transmission structures (Exh. EV-2, at 5-17 to 5-18). Eversource stated that the foundations would typically be drilled piers, which range from six feet to eight feet in diameter, and 15 to 30 feet deep, depending on the height and load specifications of a specific structure (Exh. EV-2, at 5-18). Steel monopoles would be delivered in sections and assembled on site using a crane (Exh. EV-2, at 5-19). Eversource estimated that it would take roughly four days to complete the installation of each transmission line structure (RR-EFSB-99).

Eversource stated that following the erection of the steel monopoles, the Company would install conductors and shield wire in sections ranging between one mile and three miles in length (Exhs. EV-2, at 5-19; EFSB-CM-15). A section of lightweight line known as a "pilot" or "lead" line would be installed first using either bucket trucks or helicopter installation (Exh. EFSB-CM-15). A pulling winch would be used to pull this pilot line, and then a higher strength "pulling line," through the tower section (Exh. EFSB-CM-15). The conductor would then be attached to the pulling line and a winch would be used to pull the conductor through the

section (Exh. EFSB-CM-15). Eversource stated that conductor would be installed under tension, and would not be permitted to come into contact with the ground (Exh. EFSB-CM-15). The Company would use guard structures at locations such as road crossings and distribution line crossings to protect against any potential cable falls (Exh. EFSB-CM-15). Finally, Eversource would complete the same access road grading, and site restoration activities as would be necessary for the underground alternative (Exh. EV-2, at 5-19).

3. Underground Construction Within Public Roadways

All three routes would involve some in-street construction of underground transmission line (Exh. EV-2, at 5-21). According to the Company, construction in public roadways would proceed in five phases: (1) implementation of erosion controls; (2) splice vault installation; (3) trench excavation, duct bank installation, and temporary pavement restoration; (4) cable pulling, splicing, and testing; and (5) final pavement restoration (Exh. EV-2, at 5-21 to 5-22).

The Company would install splice vaults in a similar manner to that proposed for the MBTA ROW portion of the MBTA Underground Route, with four manhole vaults for the in-street portion of the MBTA Underground Route, and 31 in-street manhole vaults along the entire All-Street Route (Exhs. EV-2, at 5-22; EFSB-CM-9). Eversource estimated that each in-street splice vault would take approximately seven to ten days to install – longer than for manhole vaults along the MBTA ROW because of construction restrictions associated with traffic and work hour limitations along streets (Exh. EV-2, at 5-22). Manhole vault installation could take longer at locations with high utility density (Exh. EV-2, at 5-22 to 5-23).

The underground duct banks for the New Line would be constructed using open-cut trenching, where the Company would cut the pavement with a saw, excavate the trench to the required depth by backhoe, then install conduit in approximately 200- to 300-foot segments, and backfill with thermal concrete and soil; the road surface would then be restored for travel (Exhs. EV-2, at 5-23; EFSB-CM-12). At a typical residence or business location along this route, there would be roughly two to three weeks of trench-related construction activities, including pavement sawing, trench excavation, duct bank installation, and temporary pavement patching (Exh. EV-2, at 5-24; RR-EFSB-99). Eversource indicated that the pace of construction may be slower in areas of higher existing utility density, where the Company encounters

unanticipated obstructions, where the depth of the trench increases, or in areas with higher traffic volumes (Exh. EV-2, at 5-24).

After conduit installation, sections of the solid-dielectric transmission cable would be installed within the conduits between consecutive manhole vaults and spliced using the same methods described for the MBTA Underground Route (Exh. EV-2, at 5-25). Eversource stated it would restore all roadway surfaces affected by the Project to pre-construction condition or better (Exh. EV-2, at 5-25).

4. Substation Upgrades

According to the Company, work at the Sudbury and Hudson Substations would take place over a roughly one-year period (Tr. 8, at 1364-1365). At the Sudbury Substation, Eversource would begin by installing equipment foundations, and then proceed with the installation of new electrical equipment (Tr. 8, at 1364). Cable pulling and splicing work to complete installation of the New Line would also be required (Tr. 8, at 1364). Work at the Hudson Substation would consist of expanding the area of the Substation, followed by installation of foundations and new electrical equipment (Tr. 8, at 1364-1365; Tr. 14, at 2474-2475).

D. Environmental Impacts

1. Land Use and Historic Resources

a. Company Description

As discussed above, much of the MBTA Routes is proposed within an existing MBTA ROW running through the towns of Sudbury, Stow, and Hudson and the City of Marlborough (Exh. EV-2, at 5-3). Eversource stated that the MBTA ROW measures approximately 82.5 feet across and contains an intact, but unused, railroad track, approximately eight to nine feet wide, consisting of steel rails, treated ties, and rock ballast (Exhs. EV-16, at 7-3; EFSB-C-12(R1)(2) at 4). According to the Company, vegetation has re-established itself in many areas of the MBTA ROW since rail service ended in the early 1970s, with 50- or 60-year-old trees in some locations (Exh. EV-16, at 7-3; Tr. 9, at 1477). Eversource indicated that an informal, user-created path adjacent to the railroad track is used by the public for hiking, running, walking,

mountain biking, and horseback riding (Exh. EV-16, at 7-3). The Company would remove the rails and ties in order to construct the Project, and work in coordination with DCR to ultimately transform the Project's gravel access road into a segment of the MCRT, a regional rail trail (Exhs. EV-2 at 1-1, 5-11; EV-16, at 2-30; Tr. 8, at 1379-1380).

Two land use agreements relate to the MBTA ROW: (1) a 2017 Option Agreement Between the MBTA and NSTAR Electric Company d/b/a Eversource Energy for a Transmission Line Easement on Central Mass Branch Right of Way Located in Hudson, Stow, Marlborough and Sudbury, Massachusetts ("Option Agreement"); and (2) a 2010 Alternative Transportation Corridor Lease Agreement by and between the MBTA and the Commonwealth of Massachusetts by and through its Department of Conservation and Recreation ("DCR Lease") (Exh. EFSB-C-12(R1)(2)).

In the Option Agreement, the MBTA agrees to grant Eversource the right and option to acquire a permanent, non-exclusive, subsurface easement, approximately 8.63 miles long by 82.5 feet wide, along the MBTA ROW for the purposes of constructing, operating, and maintaining the proposed Project (Exh. EFSB-C-12(R1)(2) at 62). In the Option Agreement, the MBTA reserved the right, among other things, to "relocate all or any portion of [the Project] to another location within the [easement] any time after the expiration of twenty (20) years from the date hereof, if in MBTA's opinion, the [Project facilities] unreasonably interfere with then present or future use of MBTA's ROW for the operation of its transportation system (and for no other purpose)." (Exh. EFSB-C-12(R1)(2) at 64). Further, the Option Agreement specifically acknowledges the pre-existing DCR Lease, which grants DCR, for 99 years, access to a portion of the MBTA ROW to construct a multiuse path for bicycle, pedestrian, and other non-motorized public transportation and recreation uses (Exh. EFSB-C-12(R1)(2) at 3, 90-91). The Option Agreement states that Eversource must not materially interfere with or disturb the DCR's use of its leased premises; shall cooperate with DCR in connection with the future operation, use, and maintenance of the multiuse path; and shall negotiate a memorandum of understanding ("MOU") (or similar instrument) with DCR regarding Eversource's and DCR's obligations, liabilities, and commitments to each other regarding the DCR Lease, the Option Agreement, and the easement itself (Exh. EFSB-C-12(R1)(2) at 3).

Eversource indicated that the MBTA Underground Route would necessitate a 22-foot-wide clearing for the Project corridor within the MBTA ROW and a 40- to 50-foot-wide clearing at each proposed splice vault location (Exhs. EV-18, at 16, 93, 116-117; EV-2, at 5-40).[93] The Company stated that the MBTA Underground Route would require approximately 23.9 acres of tree clearing in total (Exh. EV-18, at 23). The Company stated that the MBTA Overhead Route would necessitate clearing the full width of the 82.5 foot ROW, constituting approximately 70 acres of tree clearing in total (Exh. EV-2, at 5-40, 5-44, 5-46). Eversource stated that no tree clearing would be required for the All-Street Route, except for possible selective trimming of branches in some locations (Exh. EV-2, at 4-21, 5-63). The Company affirmed that all vegetation removal would be conducted in accordance with its approved Vegetation Management Plan ("VMP"), DCR's Trail Guidelines and Best Practices Manual ("DCR Trail Manual"), and all applicable state and local laws, bylaws, and regulations (Exh. EV-2, at 4-21, 5-12).

Eversource stated that it would cut tree trunks as close to the ground as possible and would leave the stumps and roots in place to regrow, except in areas where grading would require their removal (Exh. EV-2, at 5-11 to 5-12; Tr. 9, at 1477). Large tree trunks, limbs, and brush would be chipped and removed from the MBTA ROW (Exh. EV-2, at 5-12). To avoid disturbing saturated soils and/or to provide habitat for wildlife after construction of the New Line, the Company may leave some felled trees to decompose in place (Exh. EV-2, at 5-12). Eversource stated that cutting of trees and vegetation along stream banks would be selective to minimize disturbance of bank soils and limit the potential for erosion (Exh. EV-2, at 5-12).

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93 In the FEIR, submitted July 2, 2018, the Company indicated that it has reduced the typical width of tree clearing for the MBTA Underground Route from 30 feet to 22 feet; 22 feet is the width of the construction platform (Exh. EV-18, at 16). The Siting Board notes that some of the receptor information in this section is based on the original 30-foot-wide clearing.

The Company stated that, following construction of the MBTA Underground Route, the MBTA corridor would be maintained to a width of 22 feet, including a 14-foot access road[94] and an approximately four-foot-wide strip of maintained herbaceous and low-growing shrubby vegetation on each side of the access road (Exh. EV-16, at 7-5).[95] For the MBTA Overhead Route, the corridor would be maintained to a width of 30 feet centered on the overhead transmission line and would be managed to allow low herbaceous or low growing woody vegetation not exceeding 15 feet in height; the remainder of the MBTA ROW would be allowed to revegetate to varying heights (Exh. EV-2, at 5-63; RR-EFSB-93; RR-EFSB-94).

The Company stated that it expects to finalize an MOU with DCR, currently in draft form, regarding vegetation management on the MBTA ROW, with DCR ultimately carrying out maintenance activities such as mowing and trimming within the maintained area of the MBTA ROW (Exh. EV-2, at 5-16). The Company anticipates that DCR would undertake vegetation management responsibilities once construction of the rail trail begins; the Company would assume responsibility for vegetation management prior to that (Tr. 9, at 1498, 1500).[96] Eversource has developed a Corridor Management Plan ("CMP") that lays out the responsibilities of DCR once the MCRT is constructed (Exh. EV-18, app. 6-1). Eversource stated that vegetation management carried out by DCR would conform with the DCR Trail Manual and electric utility best management practices (Exh. EV-2, at 5-16).

Land uses along the entire length of the three alternative routes include residential, commercial, and industrial, with recreation and open space areas and sensitive receptors such as schools, daycare facilities, hospitals, and elder care facilities (Exh. EV-2, at 5-51 to 5-53). Residential land uses consist of single- and multi-family housing units, such as apartments and

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94 Of the 14-foot wide gravel access road, ten feet would be paved by DCR for the rail trail with a two-foot-wide seeded and loamed shoulder on each side (Exh. EV-18, at 59, 206 fig. 2-4).

95 According to the draft MOU between Eversource and DCR, no trees or woody shrubs or plantings can be planted within the estimated 22-foot wide corridor (Exh. EV-18, app. 2-4, at 287 of 382).

96 The Company indicated that construction of the MCRT is anticipated to begin within one year of the completion of the Project (Exh. EV-18, at 20).

condominiums, with a total of 315 residential units with properties abutting the MBTA Routes and 549 residential units adjacent to the All-Street Route (Exh. EV-2, at 5-51).[97] The Company identified three sensitive receptors adjacent to the MBTA Routes and nine sensitive receptors adjacent to the All-Street Route – each within 50 feet of the limits of Project work areas (Exh. EV-2, at 5-53; RR-EFSB-90). The Company identified 90 commercial or industrial entities abutting the MBTA Routes and 61 commercial or industrial entities abutting the All-Street Route (Exh. EV-2, at 5-52). Eversource noted that, while there are more commercial/industrial entities adjacent to the MBTA Routes than the All-Street Route, the All-Street Route would result in a higher potential for construction-related disruption of vehicle access and parking for commercial and industrial properties because the All-Street Route would be installed entirely within roadways (Exh. EV-2, at 5-52).

Eversource indicated that there are three man-made recreational land uses (e.g., playgrounds, ball fields, and golf courses) along each of the proposed routes (Exh. EV-2, at 5-54). Additionally, there is undeveloped land conserved for the protection of natural resources such as wetlands, waterways, wildlife habitat, and open space (Exh. EV-2, at 5-55). The Company identified 14 conservation properties bordering the MBTA Routes, totaling 3.7 miles of abutting length (Exh. EV-2, at 5-55). For the All-Street Route, the Company identified nine bordering conservation properties, totaling approximately three miles of abutting length (Exh. EV-2, at 5-55). Eversource reported that neither the MBTA Routes nor the All-Street Route would involve the use of protected conservation land and would not require Article 97 approval (Exhs. EV-16, at 2-10; EFSB-LU-40).[98,99] Temporary trail closures would

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97 According to the Company, 16 residential units are located within 50 feet of the proposed work area along the MBTA Underground Route, compared to 108 and 61 for the MBTA Overhead Route and All-Street Route, respectively (Exh. EV-2, at 5-71 to 5-75).

98 Article 97 lands are protected conservation lands that require legislative action for use under Article 97 of the Constitution of the Commonwealth of Massachusetts.

99 Eversource noted that the MBTA ROW does abut several Article 97 properties: four Town of Sudbury parcels; three Sudbury Valley Trustees parcels; three City of Marlborough parcels; three Town of Hudson parcels; and one Commonwealth of Massachusetts parcel (which is listed as owned by "Commonwealth of Massachusetts Environmental Management" on the assessor maps) (Exh. EV-16, at 2-10; Tr. 9, at 1540;

be necessary along the MBTA Routes where existing recreational paths cross the Project ROW (Tr. 13, at 2337-2339). Eversource indicated that it would work with the towns to develop appropriate detours for these closures (Tr. 13, at 2339).

The Company used NHESP Priority and Estimated Habitat maps to identify areas of protected habitat for state-listed rare species along each alternative route (Exh. EV-2, at 5-47 to 5-50). The Company identified three areas mapped as protected habitat for state-listed rare species along the All-Street Route (Exh. EV-2, at 5-49). Eversource stated that it assumed no impacts to those protected habitat areas, as the transmission line would be installed entirely within the paved limits of the public roadways, and the proposed installation would be exempt from NHESP review (Exh. EV-2, at 5-49 to 5-50). Eversource stated that the MBTA Routes pass through one Priority/Estimated Habitat area for the eastern box turtle, the eastern whip-poor-will, Gerhard's underwing moth, and the coastal swamp metarranthis moth (Exh. EV-16, at 7-2).

The Company initiated field studies to identify box turtles within the Priority/Estimated Habitat area along the MBTA Routes (Exh. EV-16, at 7-2). The Company reported that construction of the New Line could result in potential adverse effects to turtle habitat from the removal of vegetation and leaf litter, and turtle mortality due to movement within the construction areas (Exh. EV-18, at 117). Due to its current informal trail uses, the Company stated that the MBTA corridor is not a potential nesting habitat for whip-poor-will, nor suitable foraging habitat (Exh. EV-16, at 7-4; Tr. 9, at 1437). The Company reported that potential adverse effects for the whip-poor-will involve removal of vegetative cover (Exh. EV-16, at 117). The Company indicated that NHESP's primary concerns are vegetative management practices, future use of the corridor, and protection of habitat (Exh. EV-16, at 7-4; Tr. 9, at 1436-1437).

With regard to the MBTA Underground Route, the Company stated that impacts to protected habitat would include tree clearing and permanent loss associated with construction of the access road (Exhs. EV-2, at 5-49; EV-16, at 7-5). Specifically, the Company estimated approximately two acres of permanent habitat loss due to the 14-foot access road, and

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RR-EFSB-65(1) at 1). A parallel assessment of Article 97 properties adjacent to the All-Street Route was not provided.

approximately four acres of habitat conversion from forested to shrub/herbaceous vegetation in other areas (Exh. EV-18, at 22).

For the MBTA Overhead Route, mapped habitat impacts would include 1.1 acres of temporary disturbance caused by the placement of work pads for access of construction equipment, 13.2 acres of habitat conversion due to tree clearing, and 2.5 acres of permanent habitat loss associated with construction of the access road and the transmission structures (Exh. EV-2, at 5-49). For both MBTA Routes, Eversource noted that the 14-foot-wide access road would not be regarded as suitable habitat for the state-listed rare species following construction of the Project (Exh. EV-16, at 7-5).[100]

The Company indicated that in areas where the Project would traverse rare species habitat, it would set up strategic exclusion fencing at the onset of construction to avoid turtle nesting areas and have a field biologist on site to do a search and relocation of the relevant turtle species prior to the start of construction each day (Tr. 9, at 1449-1450). Specifically, the Company has developed a Turtle Protection Plan ("TPP") in conjunction with NHESP and DCR that included protection methods for turtles and their nests both during and after construction (Exh. EV-18, at 118, app. 6-2). The TPP includes the following time-of-year restrictions and directives: (1) vegetation clearing and earth moving between November 1 and March 31 only; (2) no-work zones within 100-feet of known hibernation locations between November 1 and March 31; (3) construction monitoring between April 1 and October 31; and (4) post-construction vegetation management between April 1 and November 1 only (Exh. EV-18, at 118-119; Tr. 9, at 1451). In addition, to protect the whip-poor-will, no construction would occur during the breeding season from May 1 through August 1 (Exh. EV-18, at 119; Tr. 9, at 1451).

Eversource testified that, as part of the MESA checklist, it would map host plant communities to determine the potential for the two moth species to be located within the limits of the Project (Tr. 9, at 1433). The Company stated that it has been working with NHESP to develop avoidance, minimization and mitigation measures described above, and that following

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100 The Company stated that in its assessments the area surrounding the MBTA ROW, but not the MBTA ROW itself, was identified as potential suitable foraging, migration, mating, and nesting habitats (Exh. EV-16, at 7-4).

the submission of the Project Review Checklist, additional or revised measures may be required (Exh. EV-18, at 118).

On October 19, 2018, NHESP issued a determination concluding that, subject to conditions – including implementation of the Company's TPP and CMP – the Project along the MBTA Underground Route would not result in a "take" of state-listed species (Exh. EFSB-LU-7(S2)(1)). On November 8, 2018, Protect Sudbury challenged this determination (Exh. EFSB-LU-7(S3)). On April 12, 2019, the Director of the Massachusetts Division of Fisheries and Wildlife issued a Final Decision confirming the conditional no-take determination (Exh. EFSB-LU-7(S4)).

Eversource stated that it would use several practices to limit the spread of invasive species along the Project route (Exh. EFSB-LU-32). For example, seed-free erosion controls would be used; soil stabilization and restoration would be done with weed-free seed mix; and vehicles and equipment used for Project construction would be cleaned each day prior to entering the MBTA ROW in order to reduce the transport of off-site seed (Exh. EFSB-LU-32).

Eversource coordinated with the Commonwealth Heritage Group, Inc. ("CHG") to identify cultural, historic, and archaeological resources within a quarter-mile radius of each route (Exhs. EV-2, at 5-59; EV-16, at 12-1). Along the MBTA Routes, the Company identified 20 archaeological sites, 22 historically significant buildings, and eight additional areas of interest (Exh. EV-2, at 5-60). Along the All-Street Route, the Company identified 22 archaeological sites, 16 historically significant buildings, and three additional areas of interest (Exh. EV-2, at 5-60). The Company noted that the MBTA Routes would be subject to review under Section 106 of the National Historic Preservation Act and would require a permit from the US Army Corps of Engineers ("USACE"), and would also be subject to a review by the Massachusetts Historical Commission ("MHC") (Exh. EV-2, at 5-60).

Eversource does not anticipate impacts to known archaeological sites within the MBTA ROW due to the previously disturbed nature of the corridor (Exh. EV-16, at 12-2). Eversource stated that it would coordinate with the USACE, the MHC, and local historic commissions through the MEPA process to avoid or minimize adverse impacts to any applicable historic

resource or archaeological resource (Exhs. EV-2, at 5-60; EV-16, at 12-3).[101] Further, Eversource affirmed that where practical, in coordination with CHG, it would take measures to avoid historic or archaeological resources as the Project design advances and that any unanticipated discoveries during construction would be addressed as part of its construction management plan (Exhs. EV-2, at 5-61; EFSB-EIR-22).[102] Eversource stated that construction along the All-Street Route would not result in any impacts to abutting historic or archaeological resources (Exhs. EV-2, at 5-61; EV-16, at 12-2; Tr. 9, at 1471).

Eversource noted that a combination of laydown areas, temporary storage areas, and staging areas would be needed to support Project construction along any of the three routes (Exh. EV-2, at 5-10). The Company testified that its designated contractor would be responsible for selecting the laydown areas and therefore the locations have not yet been selected (Exh. EV-2, at 5-10; Tr. 13, at 2377). However, the Company indicated that a project of this size is anticipated to require four to five laydown areas of one to two acres each, ideally located as close as possible to the Project but they could be as far as five to six miles away (Exhs. EV-16, at 5-6; EV-18, at 83). Eversource emphasized that license or lease agreements for such sites would contain terms and conditions designed to minimize the impact of the use of the sites on surrounding properties (Exh. EV-2, at 5-10).

b. Positions of the Parties

i. Town of Sudbury

Sudbury argues that construction and operation of the Project would substantially affect the unique natural environment along the MBTA ROW in Sudbury (Sudbury Brief at 51).

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101 The Company explained that as part of its investigation, the USACE would consult with Native American Tribes that express an interest in the cultural resources that may be affected by the portions of the routes subject to USACE and MHC jurisdiction (Exhs. EV-2, at 5-60; EV-16, at 12-3; EFSB-LU-35).

102 Eversource noted if certain resources could not be avoided, specific minimization and mitigation measures such as research, photography, archaeological testing, and preparation of an interpretive panel would be established through consultation with USACE, MHC, and other parties (Exh. EFSB-EIR-22).

Sudbury argues that the Project would cross or abut an expanse of protected land and restricted land areas such as streams, marshes, swamps, forest, recreational open space, vernal pools, wellhead protection areas, NHESP priority and estimated habitat, Article 97 lands, local water districts, historic properties, and local historic districts (Sudbury Brief at 51-52, citing Exhs. EV-2 at Table 3-1, Table 4-3 and 4-20; EFSB-SUD-42(1)).[103] The town further notes that that MBTA ROW is currently used by the public for walking, hiking, and other passive recreational uses (Sudbury Brief at 51, citing Exhs. SUD-DMD-1, at 3; EV-2, at 1-5). Sudbury argues that it is committed to the preservation of open land for conservation purposes, and that over 3,000 acres of permanently protected lands are contained within properties directly abutting the MBTA ROW (Sudbury Brief at 52-53).

Sudbury challenges Eversource's claim that the MBTA ROW is an already-disturbed area, emphasizing that, despite its prior rail use, the corridor has been used solely for passive recreation for over 40 years (Sudbury Brief at 51, 70, citing Exhs. SUD-DMD-1, at 3, 5; EV-2 at 1-5; Tr. 12, at 2186). Thus, the town argues that existing wildlife habitats would be disrupted and destroyed if the Project were constructed along the ROW (Sudbury Brief at 70, citing Exh. SUD-DMD-1, at 5; Tr. 12, at 2186). Sudbury notes that there are small species, such as snakes and turtles, and larger ones, such as coyote, fox, and bobcat that use the corridor; it contends that the impact on each species would vary (Sudbury Brief at 71, citing Tr. 12, at 2196). Sudbury states that some species use the MBTA ROW in a linear fashion and others cross the corridor to access habitat on either side (Sudbury Brief at 71, citing Tr. 12, at 2196). Sudbury concludes that Eversource has not accounted for the fact that the Project would have a harmful effect on wildlife habitat currently located along the MBTA corridor (Sudbury Brief at 71).

Sudbury argues that the Company's project plans do not allow for a full evaluation of the Project and its effects on existing environmental conditions along the MBTA ROW, and that the plan set issued on December 22, 2017 was submitted after the close of the evidentiary hearings on environmental topics (Sudbury Brief at 56-57). The town lists numerous deficiencies with the

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[103] Sudbury's concerns related to vernal pools, wellhead protection areas, and local water districts are discussed further in Section VI.D.2, below.

latest Project plans and contends that it was not afforded due process with respect to review of these Project plans or the revised environmental impact summary based on the plans (Sudbury Brief at 57). Sudbury contends that proper mitigation measures or quantitative information regarding proposed mitigation have not been identified by Eversource (Sudbury Brief at 61).

Sudbury notes that although Eversource has stated it has a system-wide VMP, the Company would not apply that plan to the MBTA ROW because DCR is expected to undertake vegetation management (Sudbury Brief at 64, citing Exhs. EV-2, Appendix 5-4; SUD-VM-5). Sudbury questions Eversource's contention that all vegetation management would be the responsibility of DCR, including a responsibility to work with NHESP regarding vegetation management practices related to priority habitat in the area (Sudbury Brief at 64). Sudbury asserts that since currently there is no final executed MOU between Eversource and DCR on the record – and DCR does not yet have the funds to proceed with work on the MBTA ROW – there is an open question as to which party is responsible for specific mitigation measures related to vegetation management and protection of priority species (Sudbury Brief at 64-65, citing Exh. SUD-G-20(S3); Tr. 9, at 1441-1444).

Further, Sudbury asserts that proper mitigation would require that surface contours and vegetation be substantially restored wherever construction activities related to splice vault and duct bank installation take place (Sudbury Brief at 65, citing Exh. SUD-MJN/RMG-1(R) at 40). Sudbury reports that Eversource plans to seed unstable soils outside the 14-foot gravel access road with a seed mixture and/or mulch (Sudbury Brief at 65, citing Exh. SUD-DEIR-4). The town insists that this is not proper mitigation, as the surface vegetation and contours of the temporary construction area would not be substantially restored in accordance with the Massachusetts WPA regulations, and that simple seeding or mulching would not restore the vegetation that provides food, shelter, and breeding areas for existing native wildlife, or shade for the coldwater fisheries (Sudbury Brief at 65; Exh. SUD-MJN/RMG-1(R) at 40-41).

Sudbury further argues that the Siting Board cannot determine that the Project would have no adverse effect on rare species habitat because Eversource has not presented a mitigation plan, nor has it completed the required wildlife habitat evaluations under the Massachusetts WPA, or the site-specific assessments of habitat quality as required by NHESP (Sudbury Brief at 65, citing Exh. SUD-MJN/RMG-1(R) at 27). Sudbury asserts that without a completed

evaluation, the Company has not overcome the presumption inherent under 310 CMR 10.61(1) that the Project would have an adverse effect on wildlife habitat (Exh. SUD-MJN/RMG-1, at 27; Sudbury Brief at 65).

Sudbury argues that the construction of the All-Street Route within existing roadways would have no impact on wetland resource areas, groundwater, public water supplies, coldwater fisheries, wildlife habitat, rare species, conservation land use, and abutting historic or archaeological resources (Sudbury Brief at 71). Further, Sudbury claims that the mitigation required for a route along the MBTA ROW would be significantly greater than mitigation required for the All-Street Route (Sudbury Brief at 71-72). The town asserts that the Company has failed to demonstrate that the MBTA Underground Route is superior to the All-Street Route on the basis of balancing environmental impacts and should be denied by the Siting Board (Sudbury Brief at 72).

Sudbury challenges the MBTA's authority to grant Eversource rights to construct, operate, and maintain a transmission line along the MBTA ROW (Sudbury Brief at 84-85). The Town filed a lawsuit with the Land Court alleging that, without statutory authorization, the MBTA does not have the right to modify the use of the MBTA ROW to one that is not consistent with the prior public railroad use by the MBTA (Sudbury Brief at 85, citing Complaint, Exhibit A to Motion for Stay). The Town emphasizes that if the MBTA is restricted from leasing the ROW to Eversource, the Company would not be able to continue to seek approval for the Project on the basis of its Petition with the Siting Board (Sudbury Brief at 85).

ii. Protect Sudbury

Protect Sudbury contends that the Project, using the MBTA ROW, would be sited "as close to a wilderness area as [one] can find in Boston Metrowest" on "one of the largest and most pristine natural resource areas…with over 3,000 acres of permanently preserved land" (PS Brief at 8). Protect Sudbury argues that the Project would have short- and long-term environmental impacts that would be more significant than those of the All-Street Route (or the NEP Alternative; see Section IV.D) (PS Brief at 7).

Protect Sudbury contends that the Project would permanently disturb rare species, protected conservation land or open space, scenic roads, coldwater fisheries, and vernal pools

(PS Brief at 8). Protect Sudbury voices alarm that the Project would result in the permanent loss of mature forest land and vegetation, increase the risk associated with flooding and pollution, and would be in close proximity to abutting homes and businesses (PS Brief at 8). Protect Sudbury asserts that the All-Street Route has none of the environmental impacts associated with the Project, such as impacts to rare species, cultural or historic resources, conservation lands, trees and vegetation, wildlife habitat, wetlands, groundwater or public water supplies, nor does it pose the risk of contamination from hazardous materials (PS Brief at 9, citing Exh. SUD-MJN/RMG-1, at 10-11, 52-53). In contrast, Protect Sudbury notes that most of the impacts of the All-Street Route would be caused primarily by traffic disruption and temporary inconveniences (PS Brief at 9, citing Exh. SUD-MJN/RMG-1, at 10-11, 52-53). Protect Sudbury argues that Eversource failed to acknowledge that the traffic disruptions from construction of the All-Street Route are temporary while the impact of the Project on the natural environment would be "significant" or "permanent" (PS Brief at 9, citing Exh. SUD-MJN/RMG-1, at 10-11, 52-53).

Protect Sudbury argues that the probable impacts to property values from the Project should have been included as an additional consideration in the Environmental Analysis (PS Brief at 48, citing Tr. 12, at 2018-2083). Protect Sudbury claims the record confirms that transmission lines generally negatively impact property values, the Project would likely have such impacts, and some definitive determination should be made with respect to the possible impacts on property values from the Project as compared to the Noticed Alternative and NEP Alternative Routes (PS Brief at 48, citing Exhs. Protect-C, D, E; Tr. 12, at 2109-2114).[104]

iii. Town of Hudson

Hudson argues that the MBTA Underground Route has significantly greater environmental impacts than outlined in the Company's Petition (Exh. Hudson-PH-1, at 3).

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[104] On September 15, 2017, the Presiding Officer issued a Scoping Order regarding Property Values, which stated that "evidence concerning potential property value impacts associated with the Company's proposed transmission facility in this case may be presented by the parties for the limited purpose of the Siting Board's review of the general public interest relating to the Company's Section 72 and G.L. c. 40A, § 3 petitions" (September 15, 2017 Ruling at 4). Accordingly, the property value issue raised by Protect Sudbury, although related to land-use, is addressed in Section X below.

Hudson states that construction of the MBTA Underground Route would result in permanent damage to the natural environment, including loss of habitat, trees, and conservation land (Exh. Hudson-PH-1, at 4, 6). Specifically, the town notes that the MBTA Underground Route bisects one of the largest and most pristine natural resource areas remaining in Hudson and surrounding communities, which includes the Assabet River National Wildlife Refuge, the Desert Conservation Area, Marlborough-Sudbury State Forest, and conservation lands in Sudbury (Exh. Hudson-PH-1, at 6-7). Further, Hudson states that the MBTA Underground Route passes close to at least 15 vernal pools and upland areas around vernal pools, which are critical to the survival of numerous species, and provide habitat for several rare and endangered species (Exh. Hudson-PH-1, at 7, 10, 11). Hudson argues that the Project would result in the clearing of over one million square feet of mature forestland in Hudson, which would have an impact on wildlife, soils, and microclimate, and would increase the potential for invasive plant species to take root (Exh. Hudson-PH-1, at 8).

iv. Company Response

The Company argues that it has provided substantial evidence that it has minimized environmental impacts of the Project consistent with the Siting Board's statutory mandate (Company Reply Brief at 57). Eversource argues that following construction of the Project, the MBTA ROW would continue to offer suitable habitat for species, as tree clearing and vegetation maintenance along the MBTA ROW would be considered habitat conversion rather than habitat loss (Company Brief at 110, citing Exhs. EV-2, at 5-50; EFSB-LU-21). Moreover, the Company contends that once the old railroad track is removed, there would no longer be a physical barrier to movement for reptiles like eastern box turtles (Company Brief at 110, citing Exh. EV-16, at 7-5). Eversource confirmed that based on discussions with NHESP, it has initiated field studies to identify eastern box turtles within the priority/estimated habitat area (Company Brief at 109, citing Exhs. EFSB-EIR-15; EV-16, at 7-2).

The Company argues that it plans to provide the best suitable habitat for wildlife along the MBTA corridor after construction by minimizing the width of the maintained corridor, promoting the growth of native plant species, removing the railroad track, and consulting with

managers of protected land, and local, state, and federal agencies (Company Brief at 110, citing Exhs. EV-16, at 7-6; EFSB-LU-21).

Lastly, the Company states that the Project would be designed and constructed to incorporate best management practices, to comply with federal, state, and local laws and regulations, and that Eversource would provide mitigation for any impacts that may not be avoided (Company Brief at 91, citing Exh. EV-2, at 5-83). For these reasons, Eversource argues that it has properly minimized impacts to rare species (Company Brief at 111).

The Company challenges the arguments presented by the intervenors regarding the status of Project plans and the description of the environmental impacts and mitigation (Company Reply Brief at 58). Eversource argues that the level of detail and design it has presented for the Project, the extent of the evidentiary record, and the information on mitigation provide a "substantially accurate and complete" description of environmental impacts (Company Reply Brief at 58-59). Further, the Company argues that the considerable amount of information presented in this case is typical for a Siting Board proceeding, and that there is no requirement for the Company to present a fully designed Project (Company Reply Brief at 58-59). Lastly, Eversource contends that throughout the proceeding it has refined and improved its mitigation plans (Company Reply Brief at 60). The Company asserts that it will finalize reasonable mitigation measures with local Conservation Commissions as Project design is finalized (Company Reply Brief at 62). Eversource concludes by arguing that construction impacts associated with the Project would be minimized and mitigated (Company Reply Brief at 63).

In response to Sudbury's claim that the MBTA could reestablish the corridor for transportation purposes, the Company argues that it could relocate its facilities elsewhere within the ROW, without causing a reliability impact, and that the town's argument is therefore baseless (Company Reply Brief at 22 and 57, citing Exh. EFSB-C-12(R1)(2) at 5; Protect-2-14; Tr. 7, at 1002). Likewise, the Company argues that the lawsuit by the town challenging the MBTA's authority to convey an easement on the MBTA ROW is speculative and that, if any presumption is to be made, it should be that the MBTA has a clear understanding of its rights and obligations with respect to the prior public use doctrine and its own enabling legislation (Company Reply Brief at 56). Further, the Company argues that site control is not a prerequisite in project permitting before the Siting Board, and that a project proponent is not required to secure any

necessary interests in land prior to filing its petitions with the Siting Board or the Department (Company Reply Brief at 56).

c. Analysis and Findings on Land Use and Historic Resources

The parties to this proceeding have described the MBTA ROW in a variety of ways – a former transportation corridor that has been historically disturbed, a valuable transportation corridor that can be used for a future rail trail, and an area that has been restored to its natural condition, connecting important conservation lands. The Siting Board views the corridor as a combination of the above and recognizes its multiple attributes and values as a regional transportation and recreational resource, a regional energy transmission corridor, and a linear location with ecological and natural resource value.

Within the category of Land Use and Historic Resources, the Siting Board considers a diverse range of impacts to the built and natural environments, leaving other specific impacts, such as water and wetlands, noise, traffic, and visual, for separate review. With respect to the built environment, the record in this case shows that in comparison with the All-Street Route, abutters to the MBTA Routes include 234 fewer residential units and six fewer sensitive receptors, although there are 29 more commercial/industrial entities. Each of the three route options is located adjacent to three man-made recreational uses. The record further shows that for those most affected by Project construction – residences and sensitive receptors within 50 feet of Project work areas – the MBTA Underground Route has the fewest abutters (16 residences and three sensitive receptors), the All-Street Route has three to four times as many (61 residences and nine sensitive receptors), and the MBTA Overhead Route has the most (108 residences and three sensitive receptors). Finally, the record shows that a total of 50 historically significant sites are located along the MBTA Routes, whereas 41 such sites would be located along the All-Street Route. No direct impacts to historic resources or archeological sites are anticipated from Project construction along any of the three routes considered.

In view of the number and proximity of abutters to the various route locations, the Siting Board concludes that the MBTA Underground Route has the lowest potential impact to the built environment from a land use perspective, followed by the All-Street Route, and last, by the MBTA Overhead Route.

With regard to natural environment land use impacts, the Siting Board notes that, although the MBTA ROW is situated adjacent to significant expanses of ecologically sensitive, protected natural resource areas, the MBTA ROW itself is not classified as protected open space. It has, however, been over 40 years since there was active rail service on the MBTA ROW, and the corridor has significantly filled in with trees and other vegetation that provide important habitat and ecological value. Over the course of this proceeding the Company has reduced the width of the corridor along the MBTA Underground Route that would be cleared of trees and vegetation during construction. These changes help to preserve the natural resources in the MBTA ROW that have flourished since rail service ended. The Siting Board expects that recreational use of the ROW is likely to continue following Project construction, regardless of whether the rail trail is ultimately constructed.[105]

The MBTA Overhead Route would require the most vegetation removal for construction, and therefore it has the highest potential impact to wildlife and rare species habitat and adjacent conservation lands. The reduced amount of tree clearing and the lack of above-ground structures associated with the MBTA Underground Route make this option much less impactful to the natural environment than the MBTA Overhead Route. Further, NHESP has determined that, subject to conditions (described below), construction of the Project along the MBTA Underground Route would not result in a "take" of protected species. The All-Street Route has the lowest potential land use impacts to the natural environment given the fact that it is an existing roadway and would not require any habitat loss or conversion.

In view of the above, the Siting Board finds that, on balance, the MBTA Underground Route and the All-Street Route have impacts that are different in nature, but are comparable with respect to land use and historic resource impacts. As noted above, the All-Street Route is preferred with regard to natural environment impacts, while the MBTA Underground Route is

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105 This recreational use may, in fact, be improved with construction of the Project. For example, in the expanded Environmental Notification Form Certificate issued by the Secretary for the MCRT, the Secretary noted that the existing informal trail lacks user access consistent with the requirements of the Americans with Disability Act and does not discourage encroachment on the MBTA ROW. See Exh. EFSB-LU-36(2) at 4. Removal of the existing rail and ties and construction of the Company's gravel access road would result in a more accessible and clearly defined trail.

advantageous with regard to impacts to the built environment. Both the MBTA Underground Route and the All-Street Route are preferable to the MBTA Overhead Route from a land use perspective.

With respect to mitigating environmental impacts, Eversource emphasized that it would design the Project to minimize the overall disturbance from construction and to minimize habitat loss along the length of the MBTA Underground Route. To further mitigate Project impacts to rare species, the Company committed to implementing mitigation measures including time-of-year restrictions, temporary barriers, avoiding nesting areas, and conducting surveys in advance of construction. The Company has received a final "no-take" determination from NHESP for the Project, conditional on compliance with these commitments. Eversource would limit the spread of invasive species along the MBTA ROW by, among other things, using weed-free seed mixes and cleaning vehicles and equipment used for Project construction each day prior to entering the ROW.

The Company committed to coordinate with USACE and the MHC to avoid and/or minimize adverse effects to any eligible historic and archaeological resources. To avoid impacts to historic districts or specific historic uses, Eversource would consult with MHC and the local historic commissions to ensure that it identifies any necessary avoidance and/or timing of mitigation-related measures that would need to be implemented during the construction phase.

The Siting Board does not agree with the Town of Sudbury that Eversource's latest Project plans are deficient with respect to existing environmental conditions and mitigation, nor with the town's complaint that these plans were filed after the close of evidentiary hearings on environmental topics. The Siting Board notes that the permitting process for a transmission line is iterative and that as a project design advances more information becomes available. The Siting Board encourages proponents to actively engage with all permitting and regulatory agencies early in its design process so that adequate and up-to-date information is available for the Siting Board's review. However, the Siting Board does not require a proponent to have produced final design plans before a decision can be issued, nor is it the Siting Board's view that the record is incomplete without the final design plans. See e.g., Needham-West Roxbury, Ruling on Motion to Reopen Evidentiary Hearings (April 13, 2018) (town not entitled to any specific degree of design-plan completeness … either during or after hearings). Further, as

discussed in Section I.C, above, Intervenors in this case were afforded a full and fair hearing, consistent with the MAPA. The Siting Board notes that the Company actively consulted with agencies, such as NHESP, local conservation commissions, and MEPA, and that each requires mitigation as part of its regulatory process.[106] In sum, the Company has produced adequate information for the parties in this proceeding, and the Siting Board, to evaluate the Project's potential environmental impacts and the Company's proposed mitigation and minimization plans for purposes of the approvals sought in this docket.

With respect to the Company's MOU with DCR regarding vegetation management, the Company stated throughout the proceeding that an MOU would be developed and that it would file a copy of the MOU with the Siting Board. Therefore, the Siting Board directs the Company to file, prior to construction, the executed MOU between DCR that outlines vegetation management along the MBTA ROW.

The Siting Board recognizes and appreciates the concerns of the towns and Protect Sudbury relating to the proximity of the Project to conservation and open land (e.g., Assabet River National Wildlife Refuge, Marlborough-Sudbury State Forest, Desert Conservation Area).[107] Impacts to wildlife habitat and conservation lands, including habitat disturbance and temporary closures to recreational trails, are anticipated as a result of Project construction. The Company's efforts to reduce the size of Project work areas along the MBTA ROW, as well as its commitments to (i) leave stumps and roots in place where possible along the ROW to encourage vegetation recovery; (ii) to perform only selective vegetation removal along stream banks; and (iii) to potentially provide new habitat for wildlife by leaving felled trees to decompose in place, will limit the extent of these impacts. The Company has also committed to providing signage to

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106 For example, during the local wetlands permitting process (specifically, the Abbreviated Notice of Resource Area Delineation ("ANRAD") application), the Company will provide current design plans and Sudbury will have further opportunity to review the environmental mapping for the Project with a focus on mitigating potential wetland impacts.

107 The Town of Sudbury's concerns with respect to construction activities in wetland areas (e.g., the Project's compliance with Massachusetts Wetlands Protection Act ("WPA") regulations) is addressed in Section VI.D.2, below.

notify the public of trail closures and to work with the towns to arrange detours to minimize construction-related impacts to recreational users.

In furtherance of this goal, the Siting Board directs the Company, in consultation with the owners/managers of bordering conservation land – Sudbury, Hudson, Marlborough, Sudbury Valley Trustees, DCR, and the U.S. Department of the Interior – to develop an access plan that details: (1) the time of year that access would be limited along the MBTA ROW; (2) alternative access points to specific conservation areas if applicable; (3) guidelines for communicating with all owners/managers of such conservation lands; and (4) a complaint and resolution process regarding any issues arising from construction that impact the bordering conservation land.

The Town of Sudbury questions the validity of the Option Agreement between the MBTA and the Company, arguing in the Massachusetts Land Court that the MBTA cannot allow its ROW to be used by Eversource for the Project absent statutory authorization. The Siting Board notes that since the submission of briefs in this proceeding the legal processes relating to the town's lawsuit have advanced. On December 22, 2017, the MBTA filed a Motion to Dismiss with the Land Court; on February 26, 2018 Eversource joined the Motion to Dismiss. On September 28, 2018, the Land Court ruled allowing the defendants' motion to dismiss. Subsequently, the Town of Sudbury appealed this decision, and on May 16, 2019, the Supreme Judicial Court ("SJC") took jurisdiction of the appeal sua sponte. Briefing is complete and oral arguments in the SJC proceeding were heard on October 1, 2019.

As the Company noted, site control is not a prerequisite in project permitting, particularly before the Siting Board. Nothing in either G.L. c. 164, § 69J or § 72 requires that a project proponent secure any necessary interests in land prior to filing its petitions with the Siting Board or the Department. G.L. c. 164, §§ 69J, 72. Rather, the SJC has explicitly found that a project proponent has standing to pursue its petitions before the Siting Board even if the proponent lacks necessary property rights. Town of Andover v. Energy Facilities Siting Bd., 435 Mass. 377, 395 (2001). See Company Reply Brief, at 56. Nevertheless, the Company's legal rights to install the Project within the MBTA ROW will ultimately be determined by the SJC. Should the SJC rule in favor of the town, specific legislation would be required to permit construction of the Project along the MBTA ROW. To limit the potential for impacts while the status of the Company's Option Agreement is in dispute, the Siting Board directs that the Company cannot commence

construction of the Project along the MBTA Underground Route until the question of whether the MBTA can enter into the Option Agreement is resolved and the Company's rights to install the New Line along the MBTA ROW are thereby confirmed. Given the implementation measures proposed by the Company and the above conditions, the Siting Board finds that land use impacts from the Project along the MBTA Underground Route would be minimized.

2. Water and Wetlands

a. MBTA Underground Route and MBTA Overhead Route

i. Wetlands and Waterbodies

The Company reported that construction along the MBTA ROW would result in permanent and temporary impacts to wetland resources areas including bordering vegetated wetlands ("BVW"), bordering land subject to flooding ("BLSF"),[108] riverfront areas, vernal pools, and buffer zones (Exh. EV-2, at 5-29 to 5-30). Eversource estimated that no impacts to wetland resource areas would occur along the in-street portion of the MBTA Routes, and therefore only presented impacts along the MBTA ROW (Exh. EFSB-W-10). Eversource identified the following construction activities that would result in wetland resource impacts: development of the construction platform and access road; tree clearing; grading; construction and installation of the underground transmission line and splice vaults; installation of new bridge abutments at Hop Brook; and excavation for overhead structure foundations (Exhs. EV-2, at 5-32; EV-18, at 95; SUD-W-28; RR-SUD-10). Table 5, below, provides the Company's total estimated impacts to wetland resource areas.[109,110] In addition, the Project would result in

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108 The Company stated that the Massachusetts WPA develops BLSF limits based on the Federal Emergency Management Agency ("FEMA") Zone A floodplain; and therefore, the terms BLSF and floodplain can be used interchangeably (Tr. 10, at 1743).

109 As noted above, the Company reported the impacts to several types of wetland resources. The Company indicated that the Massachusetts WPA regulations include performance standards for permanent fill of BVW and BLSF, which are the impacts that are presented in Table 5 (Exh. EV-2, at 5-33).

110 Eversource reported that its estimates of wetland resource impacts have been reduced as engineering has advanced because it has been able to include mitigation such as retaining

1,500 square feet of permanent wetland fill at the Hudson Substation regardless of which of the routes is chosen (Exhs. EFSB-PA-36(R-3)(1); EFSB-HLD-1). HLPD indicated that this wetland is a drainage swale that was created during construction at the Hudson Substation (Tr. 14, at 2478). HLPD further indicated that it would hire and consult with a wetlands expert to analyze the resource, and if necessary, determine with the Hudson Conservation Commission any necessary mitigation (Tr. 14, at 2460, 2476-2480). The work at the Hudson Substation is the same for all three routes and is not reflected in Table 5 (Exhs. EFSB-PA-36(R-3)(1); EFSB-HLD-1).

Table 5. Estimated Impacts to Wetland Resource Areas (in square feet)

Route	Permanent Fill within BVW	Temporary Fill within BVW	Tree Clearing within BVW	BLSF Impacts[111]
MBTA Underground Route	284	2,234	0	Total: 34,314
MBTA Overhead Route	1,059	17,519	195,755	Permanent: 29,333 Temporary: 24,002 Tree clearing: 278,784
All-Street Route	0	0	0	0

Sources: Exhs. EV-18, at 30-31; EFSB-PA-36(R-3)(1); RR-SUD-10.

The Company stated that these wetlands impacts would be jurisdictional to regulations and bylaws enforced by USACE, MassDEP, and the conservation commissions of Hudson, Sudbury, and Stow (Exhs. EV-2, at 5-33; EFSB-W-1; Tr. 10, at 1711-1714). For permanent, unavoidable impacts to BVW, depending on the location and jurisdiction of the wetland

walls and rip-rap in its design and to locate its work areas outside wetlands (Exhs. EFSB-EIR-29; EFSB-EIR-30).

111 The BLSF impacts for the MBTA Underground and Overhead Route are not directly comparable since for the MBTA Overhead Route tree clearing activities that would occur outside the limits of grading were not calculated (Exhs. EFSB-W-7; EV-16, at 2-7; EV-18, at 30-31).

resource, compensation would be required at a minimum of 1:1 ratio or up to 20:1 (Exh. EV-2, at 5-33; Tr. 10, at 1742, 1776).[112] The Company stated that any fill within BLSF would require compensatory flood storage at the same incremental elevation as the proposed fill (Exh. EV-2, at 5-33; Tr. 10, at 1741-1742). Eversource filed its ANRAD applications with the Hudson and Sudbury Conservation Commissions in November 2017, beginning the local wetland permitting process (Exhs. EFSB-EIR-28(S1); EFSB-EIR-28). Further, Eversource stated that it would file a Notice of Intent for geotechnical borings and construction activities after the Project's final design is completed (Exh. EV-16, at 2-10). Eversource stated it would minimize impacts to wetlands to the extent practicable in consultation with the appropriate jurisdiction (Exh. EFSB-W-9).

Eversource stated that it continues to work with all regulatory entities to establish mitigation, but it has not reported the location, or types of wetland replication or compensatory flood storage it would implement (Exh. EFSB-EIR-8; Tr. 10, at 1741-1742, 1746). The Company proposed to provide replication for unavoidable permanent impacts to BVW and isolated vegetative wetlands at a 2:1 ratio (Exh. EV-18, at 51, 96). The Company reported it would develop mitigation plans that would include wetland replication and compensatory flood storage due to permanent fill of BVW and BLSF resources when the final design is complete (Exhs. EV-2, at 5-33 to 5-34; EFSB-W-9). The Company noted that it confirmed one location requiring compensatory flood storage along the MBTA Underground Route, which it has designed to provide the appropriate storage, and reported an additional location that may require compensatory flood storage, which would depend on further engineering and topographic information (Exhs. SUD-DEIR-30; SUD-DEIR-31; Tr. 10, at 1745, 1747).

The Company stated that it would minimize impacts to wetland resource areas by designing the access road and construction platform to be located outside of wetland resource areas wherever possible, and by reducing the size of the construction platform to 18 feet across

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112 Among the host communities, only Sudbury has a local wetlands protection bylaw, which could require wetland replication up to a 3:1 ratio (Exh. EV-2, at 5-33; Tr. 10, at 1776; Tr. 12, at 2143-2144). The USACE recommends a compensation ratio of at least 2:1 and up to 20:1, depending on the type of resource area impacted and the proposed mitigation (Exh. EV-2, at 5-33).

(compared to 22 feet for the rest of the ROW) in locations near vernal pools (Exh. EV-2, at 5-33; Tr. 8, at 1354).[113] Eversource stated it would further minimize impacts to wetland resource areas through the use of erosion and sedimentation controls, and by excluding vehicle refueling from wetland protection and buffer zones (Exh. EV-2, at 5-35 to 5-37; Tr. 10, at 1685).

Eversource indicated that the New Line would cross several perennial and intermittent streams, including Hop Brook, Dudley Brook, Fort Meadow Brook, and several existing unnamed culverts (Exh. EFSB-W-2). With respect to the MBTA Underground Route, the Company stated that the duct bank would be attached to bridge structures and installed over existing culverts (Exhs. EV-2, at 5-14; EFSB-W-2). The Company stated that it does not anticipate impacts to wetland resources or waterbodies due to bridge rehabilitation (Exh. SUD-W-6).

ii. Public Water Supplies

The Company reported that the Project would be located in the vicinity of wellhead protection areas regulated by MassDEP and water supply protection overlay districts regulated by local zoning authorities (together, "public water supplies") (Exhs. EV-2, at 5-35; EFSB-W-11).[114] Eversource stated that the MBTA Overhead and Underground Routes would cross 6.5 linear miles of public water supplies, including three Zone II wellhead protection areas (two in Hudson and one in Sudbury) and three local water supply protection overlay districts (Exh. EV-2, at 5-35 to 5-36). The Company provided the distance between the Project along all three routes and each municipal well in Sudbury and Hudson (Exhs. EFSB-W-13; EFSB-W-15). See Table 6, below.

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113 With respect to vernal pools, Eversource committed to avoiding construction within 450 feet of vernal pools during the migratory breeding period from March 1 to May 14 (Exh. EV-18, at 137). Further, the Company conducted an analysis of existing and proposed flows to vernal pools, confirming that the Project would not affect the annual recharge of these resources (Exh. EV-18, at 137).

114 The Company stated that there are no known private drinking wells within 100 feet of the MBTA ROW (Exh. EV-16, at 8-2).

Table 6. Distance Between Closest Municipal Well and Project Features for All Route Alternatives

Well Name	Distance to MBTA Underground Route Duct Bank	Distance to MBTA Overhead Route Structure	Distance to All-Street Route Duct Bank
GP Well 2A (Sudbury)	1,820 feet	1,840 feet	5,312 feet
Cranberry Bog Well (Hudson)	713 feet	700 feet	3,209 feet
GP Well 4 (Sudbury)	3,458 feet	3,443 feet	5,131 feet
Kane Well (Hudson)	1,031 feet	1,017 feet	646 feet

Sources: Exhs. EFSB-W-13; EFSB-W-15.

The Company stated that it engaged a professional hydrogeologist to complete a groundwater hydrology assessment for public water supplies in Sudbury and Hudson (Exhs. EV-2, at 5-35 to 5-36, app. 5-6, app. 5-7; EV-16, app. 8-1, app. 8-2; Tr. 10, at 1655). The assessments evaluated the potential for the Project features (e.g. duct bank, concrete foundations) to affect the flow and quality of water within the public water supplies and identified locations along the MBTA ROW where the duct bank, manholes, or overhead structure foundations would extend into the groundwater table, which is presented in Table 7, below (Exhs. EV-2, at 5-35 to 5-36; EV-16, app. 8-1, app. 8-2; RR-EFSB-73).[115]

[115] The Company asserted that it considered relocating manholes that would extend into the groundwater table, however, it subsequently determined that relocation would be infeasible based on: (1) the distance required between manholes, which is limited by the length of cable segments (between 1,500 and 1,900 feet), and (2) natural features within the ROW, such as wetland resource areas (Tr. 10, at 1661-1671; RR-EFSB-71).

Table 7. Project Features Within Groundwater Table

Town	Project Features	Total Locations	Maximum Depth of Project Below Groundwater Level (feet)
Sudbury	Duct Bank	7	15
	Manhole	3	14
	Structure Foundation	18	30
Hudson	Duct Bank	4	10
	Manhole	2	6
	Structure Foundation	19	25

Sources: Exhs. EV-16, app. 8-1, at 7, and app. 8-2, at 6; RR-EFSB-72; RR-EFSB-73.
Note: The Company assumed that the duct bank would be buried approximately five feet below grade, manholes would be buried at a maximum of 14 feet below grade, and structure foundations would require excavation to a depth of 30 feet (RR-EFSB-72; RR-EFSB-73).

Eversource noted that: (1) the underlying aquifers are composed of highly permeable sand and gravel; and (2) the Project features would extend into a shallow portion of the 100-foot-deep aquifer, allowing groundwater to flow under and around each feature (Exh. EV-16, app. 8-1, app. 8-2; Tr. 10, at 1658-1661, 1683). Eversource concluded that the placement of duct banks, manholes, or structure foundations within the aquifer would not impact flow rate, flow direction, or quantity of groundwater flow (Exh. EV-16, app. 8-1, at 7-8, app. 8-2, at 6-7; Tr. 10, at 1659-1660, 1683). The Company stated that any potential Project impacts to public water supplies would be limited to contamination from spilled fuels, lubricants, or other potentially hazardous materials (Exh. EFSB-W-19). Eversource noted that, with respect to the potential for Project construction to encounter subsurface contamination, it may encounter currently unidentified contamination from the MBTA ROW's previous use as an active railroad corridor (Exh. EV-2, at 5-58). See Section VI.D.6. The Company stated that in a meeting with MassDEP about the MCRT, MassDEP did not express any specific concerns regarding groundwater and contamination from construction along the railroad corridor, given that the railroad has inactive for roughly 50 years and any leaching would have already occurred (Tr. 10, at 1693).

The Company asserted that it would minimize impacts to public water supplies by developing a Stormwater Pollution Prevention Plan ("SWPPP") and implementing spill

protection controls and countermeasures, including prohibiting equipment refueling within 100 feet of wetland or waterbodies, locating contractor staging and storage areas within existing developed and impervious areas, and requiring contractors to have spill containment and prevention equipment available (Exh. EV-2, at 5-35 to 5-37; Tr. 10, at 1685).[116]

As noted above in Section VI.D.1, DCR would be responsible for ROW maintenance and vegetation management once construction of the MCRT starts, and the Company stated that it expects that DCR's practices would comply with applicable best management practices and regulatory standards to ensure no impacts to public water supplies (Exh. EV-2, at 5-37; Tr. 10, at 1689). For the MBTA Overhead Route, DCR would be responsible for vegetation maintenance within its easement, and the Company would be responsible for maintenance outside of the DCR easement required for safe operation of the overhead transmission line (Tr. 9, at 1511; Tr. 10, at 1689). For any vegetation maintenance areas under Eversource's responsibility, the Company stated that it would adhere to its established VMP and Yearly Operating Plan to avoid adversely affecting groundwater (Exhs. EV-2, app. 5-4, app. 5-5; EFSB-W-12; EFSB-W-20; SUD-W-22; Tr. 10, at 1685-1686). Eversource stated that it does not use herbicides during construction and maintains a no-spray zone within 400 feet of public drinking water wells and 50 feet from private drinking wells after construction (Exh. EFSB-W-12).

iii. Coldwater Fisheries

The MBTA ROW crosses Hop Brook, a MassDEP and Massachusetts Division of Fisheries and Wildlife ("MassDFW") designated coldwater fishery, at two locations (Exh. EV-2, at 5-39).[117] Eversource indicated that tree removal and bridge rehabilitation could impact Hop

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116 The Company stated its SWPPP would be drafted during its detailed engineering phase, completed when the Company selects its construction contractor, and filed with the U. S. Environmental Protection Agency ("USEPA") prior to construction (Exh. EFSB-W-4).

117 The Massachusetts WPA defines waters as coldwater fisheries if: (1) the mean of the maximum daily temperature over a seven-day period generally does not exceed 68ºF; and (2) ecological factors are capable of supporting a year round population of coldwater aquatic life (Exh. EV-2, at 5-39). MassDFW designates waters as coldwater fishery resources when there is evidence that a coldwater fish population and suitable habitat (e.g., streamside vegetation) exists (Exh. EV-2, at 5-39). Hop Brook is one of several

Brook by causing erosion and sedimentation and removing vegetative cover (e.g., shade trees, tall grasses, shrubs, aquatic plants) from banks (Exhs. EV-2, at 5-40 to 5-41; EFSB-W-21).

The Company reported that it would minimize impacts to coldwater fisheries by retaining tree canopy along and on top of the banks, minimizing shrub removal and soil disturbance, and avoiding removal of logs, stumps, and woody debris (Exhs. EFSB-W-21; EFSB-EIR-4; Tr. 10, at 1727-1728). The Company determined that the main source of shading along Hop Brook, which could be impacted by construction, is dense shrubby vegetation beneath trees and along the banks (Exh. EFSB-W-21; Tr. 10, at 1728-1729). However, Eversource noted that this vegetation provides limited shading, as the branches do not hang directly over the brook, and that any shading realized occurs in the morning and afternoon hours rather than at the hottest time of the day (Exh. EFSB-W-21). The Company stated that new bridge decking would provide shading (Tr. 10, at 1728-1729).

Eversource reported that the Project would require a total of 287 linear feet of tree removal along banks, including along Hop Brook (Exh. EV-18, at 10, 85). Eversource stated it would restore vegetation along banks where tree removal would be required to the extent practicable (Exhs. EFSB-W-21; EFSB-EIR-4). The Company also noted that measures in its SWPPP would minimize the risk of erosion and would contain standard best management practices ("BMPs") to protect water quality and coldwater fisheries (Exhs. EV-2, at 5-41; EV-16, at 6-4). Eversource stated that the duct bank for the MBTA Underground Line would be attached to the bridges; however, temporary impacts to wetland resources would result from the installation of sheeting to support the new bridge abutments, and timber mats to support the cranes for the bridge work (Exhs. EV-18, at 85; EFSB-EIR-4). The Company stated that no active in-stream work would be performed in both Hop Brook locations from October 1 through June 30 to avoid potential impacts to the coldwater fishery resource (Exh. EV-18, at 137).

Eversource stated that it consulted with MassDFW staff regarding impacts to coldwater fisheries and measures to avoid, minimize and mitigate such impacts (Exh. EV-18, at 90). MassDFW indicated that the proposed work is not anticipated to result in impacts to coldwater

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nearby brooks, including Cranberry Brook and Trout Brook that are classified as coldwater fisheries (Exh. EFSB-W-21).

fisheries resources, given that a large portion of Hop Brook is already flowing through wet open meadows and the Company would be replanting appropriate and compatible vegetation (Exh. EV-18, at 90).[118] The Company reported that Sudbury's Wetlands Administration Bylaw and Regulations establishes performance standards for vegetated riverfront areas, which would include the banks of Hop Brook (Exhs. EV-16, at 2-27; EFSB-EIR-4; Tr. 10, at 1729). Under this bylaw, if the Company removes trees within 80 feet of coldwater fisheries, Eversource would be required to complete a wildlife habitat evaluation to identify key habitat features and develop an avoidance and restoration plan (Exh. EV-16, at 2-27; Tr. 10, at 1728-1730). The Company stated that it would work with all applicable regulatory agencies and landowners to adhere to coldwater fishery regulatory standards to the maximum extent practicable, and that it would minimize impacts to coldwater fisheries (Exh. EFSB-W-21).

iv. Stormwater

The Company stated that it would design and construct the stormwater management system for the MCRT (Tr. 10, at 1720). Eversource stated that it is designing the access road to comply with MassDEP stormwater standards applicable to its future use as a multi-use path and impervious surface (Exh. SUD-DEIR-3; Tr. 10, at 1722-1723).[119] The Company stated it would develop a SWPPP that details how stormwater discharges are controlled and would include adequate soil erosion, sediment, and turbidity control plans to prevent the migration of soil and sediment to adjacent wetlands and waterbodies (Exh. EV-18, at 31).

b. All-Street Route

The Company stated that the All-Street Route would not have permanent or temporary impacts to wetland resource areas, public water supplies, or coldwater fishes since the All-Street

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118 As discussed above, the Company received a final conditional "no-take" determination from NHESP of the MassDFW on October 19, 2019.

119 Eversource noted that it would design its stormwater system to be in full compliance with the stormwater standards for rail trails, which it indicated are more stringent that what the Project would be subject to as an electric transmission line (Tr. 10, at 1720-1723; Tr. 11, at 1888-1890).

Route would be located entirely within public roadways (Exh. EV-2, at 5-33, 5-36, 5-41).[120] Accordingly, the All-Street Route would not require any jurisdictional filings with USACE, MassDEP, or local municipalities, or mitigation due to wetland fill (Exh. EFSB-W-8).

c. Positions of the Parties

i. Town of Sudbury

The Town of Sudbury argues that Project construction will cause significant adverse impacts to wetlands resources and that the impacts to wetland resources and coldwater fisheries would be more serious and extensive than demonstrated by Eversource (Sudbury Brief at 56, 59, 66). Sudbury states that it has identified numerous errors, omissions, and inconsistencies in the Company's design plan sets throughout the proceeding, including in the Company's most recent filing on December 22, 2017 (Sudbury Brief at 57-58). According to Sudbury, these errors, omissions, and inconsistencies relate to wetland delineations, limits of work and construction disturbance, and topography (Sudbury Brief at 57-58).

Sudbury asserts that the Company's inadequate design plans make it impossible to quantify the temporary and permanent impacts to wetland resources, vegetation, and coldwater fisheries located along the MBTA ROW, specifically related to bridge repair and culvert replacement (Sudbury Brief at 56-57, 59-61, 63-64). Among other deficiencies, the town notes that BLSF impacts are only identified at 50-foot intervals on the cross-section sheets with no impacts identified between those intervals; wetland impacts for BVW and bank at culverts are not identified; and that there are three locations of BVW alteration shown on the plans which do not align with the impacts shown in a record request response (Sudbury Brief at 58, citing RR-SUD-10(3)). Moreover, Sudbury questions Eversource's delineation of bank in certain sensitive areas categorized as coldwater fisheries resources (Sudbury Brief at 58, citing Tr. 12, at 2172-2173). According to Sudbury, the total impact to bank in the final approved ANRAD

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120 Although Eversource asserted the All-Street Route would not impact wetland and water resources due to its location in a previously developed roadway, it reported that the All-Street Route would: (1) pass through BVW buffer zones, BLSF buffer zones, and riverfront areas; (2) traverse 6.63 miles of public water supplies; and (3) cross two coldwater fisheries (Exh. EV-2, at 5-33, 5-35 to 5-36, 5-41).

Plans may be significantly more than reported in RR-SUD-10; and thus, the wetlands boundaries on the December 22, 2017 plans and the reduced quantities of impact to wetlands resource areas reported in RR-SUD-10 are only approximations (Sudbury Brief at 58-59, citing Tr. 12, at 2152). Therefore, Sudbury concludes that there is no way to utilize the December 22, 2017 plans to confirm or replicate Eversource's most current summary of wetlands impacts (Sudbury Brief at 58).

Sudbury also asserts that the Company's mitigation measures are inadequate and that the Company has not provided any quantitative information on its proposed mitigation measures (Sudbury Brief at 61-62, 64). Sudbury specifies that Eversource has not identified a mitigation plan for sensitive environmental areas in the vicinity of the bridges, such as wetlands, and that a VMP would be essential for protecting the functions of wetlands and priority species (Sudbury Brief at 64). Sudbury states that proper mitigation is important to the protection of the values and function of wetlands and species (Sudbury Brief at 64). Sudbury contends that the Draft Environmental Impact Report ("DEIR") contains no mitigation measures or specific locations for mitigation measures (Sudbury Brief at 62, citing Exh. EV-16). Sudbury states that it does not allow the use herbicides or pesticides on any property that has been subject to a wetlands order of conditions (Tr. 11, at 2147).

Sudbury argues that the environmental impacts of the Project will be more significant than claimed by Eversource (Sudbury Brief at 66). Specifically, the town expresses concern regarding water resources such as wetlands and floodplains (Sudbury Brief at 66-69). With respect to wetlands, Sudbury states that tree clearing along banks of coldwater fisheries, construction activities within wetland resource areas, and bridge and culvert improvements would lead to significant adverse impacts (Sudbury Brief at 66). Sudbury argues that without adequate project design, construction specifications, and a wildlife habitat evaluation, the Company cannot accurately estimate the impact of the Project (Sudbury Brief at 66, 68).[121] Sudbury notes that its environmental experts, based on their experience on similar projects

[121] Specific project design features and construction specifications that the town claims are inadequate include slope stabilization measures, geotechnical investigations, and hydraulic analysis of floodplain fill (Sudbury Brief at 66-69).

within the town, expressed concerns about additional impacts which would be realized during construction (Sudbury Brief at 66, citing Exh. SUD-MJN/RMG-1(R) at 56).

Further, Sudbury argues that the Company has inadequately described the extent and the benefit of shading along banks to coldwater fisheries and failed to report woody and aquatic plant species that provide shading along adjacent banks (Sudbury Brief at 66-67). Sudbury asserts that removal of trees and shrubs along Hop Brook would eliminate shading to the underlying coldwater fisheries (Sudbury Brief at 66-67). With respect to vernal pools, the town argues that despite the Company's assertion that there would be no direct impact to vernal pools, there would be secondary effects of construction activities (Sudbury Brief at 67).

Sudbury argues that impacts to floodplains, including discharge of floodwater and obstruction of flow, would be realized through permanent fill and encroachment of construction activities and bridge features on BLSF (Sudbury Brief at 68-69, citing Exh. SUD-MJN/RMG-1(R) at 25-26; Tr. 11, at 2041-2046; Tr. 12 at, 2158-2061; RR-SUD-10). Sudbury argues that the Company failed to provide details of the stormwater best management practices that it would implement to comply with applicable stormwater standards (Sudbury Brief at 62). The town argues that the Company incorrectly stated it would be responsible for stormwater standards developed for foot paths, bike paths, and other pedestrian paths; rather, it claims that the Company would be responsible for stormwater standards for a vehicular access road (Sudbury Brief at 63).

ii. Protect Sudbury

Protect Sudbury asserts that the Project as proposed would impact environmentally sensitive and protected areas including bordering vegetative wetlands, bordering land subject to flooding, riverfront areas, and 100-foot buffer zones (PS Brief at 8, citing Exh. EFSB-W-7(1), SUD-MJN/RMG-1, at 10-11). Further, Protect Sudbury asserts that, in addition to the impacts to wetland resource areas listed above, the Project would permanently affect rare species, coldwater fisheries, vernal pools and public water supplies (PS Brief at 8, citing Exhs. SUD-DFN/WFO-1 at 7; Hudson-ER-1 at 3-7; SUD-MJN/RMG-1 at 18-48). Protect Sudbury concludes that Eversource cannot hide the long-lasting extensive damage to fragile wetlands, public water supplies, and coldwater fisheries resulting from the Project (PS Reply Brief at 11).

iii. Town of Hudson

Hudson stated its belief that use of the MBTA corridor for the proposed Project has significantly greater environmental impacts than identified by the Company in its Petition (Exh. Hudson-PH at 3). Specifically, Hudson asserted that the Company did not consider the cost of lost environmental services or the potential increased flooding and pollution due to the loss of stormwater absorption from tree clearing and wetland fill; Hudson also argued that the Company did not evaluate climate change implications of the Project (Exhs. Hudson-PH at 4, 6; EFSB-HUD-4). Hudson notes that the MBTA Routes traverse two Zone II protection areas and are in close proximity to, or within, one or more Zone I protection areas associated with Hudson's five town wells, which serve over 20,000 residents (Exhs. Hudson-PH at 4-5, 7, 10; Sudbury-ER at 3). Hudson asserts that construction along the MBTA corridor would negatively impact the town's water supply due to disturbance of soil likely contaminated by historic train operations (Exhs. Hudson-ER, at 4; Hudson-PH at 10).[122]

Hudson also points to the use of herbicides following construction as likely to contaminate surface water and groundwater, thereby affecting public drinking water wells (Exh. Hudson-ER-5). Hudson prefers the use of mechanical means of vegetation management versus herbicides in sensitive areas such as Zone I, Zone II, and other wetland resource areas (Tr. 11, at 2000-2002). Hudson states that in the Watershed Protection District, herbicide use is allowed by special permit only, and that as a general practice, special permits in this district prohibit such use (RR-EFSB-76). Hudson notes that based on the Company's groundwater hydrology assessments completed for the Project, soil in the area of the MBTA ROW is highly permeable, heightening the vulnerability of its public water supplies (RR-EFSB-76).

Hudson also notes that the clearing of vegetation could have serious adverse impacts on fish (and other wildlife) that depend on a limited range of water temperatures for living and

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122 The Siting Board received two comment letters from the Town of Hudson reiterating its concerns relating to its public water supplies. In these letters, the town describes contamination of drinking water from a near-by industrial source. See March 28, 2019 letter from Thomas Moses, Executive Assistant of the Town of Hudson and March 29, 2019 letter from Pam Helinek, Town of Hudson Conservation Agent.

breeding, such as the native brook trout in the Hop Brook in Sudbury (Exh. Hudson-PH, at 8). With regard to wetlands, Hudson asserts that wetland replication is extremely difficult and fails more than it succeeds (Exh. Hudson-PH at 9). Finally, Hudson notes that routes using the MBTA corridor are near at least 15 certified vernal pools (Exh. Hudson-PH at 11).

iv. Company Response

The Company states that it has improved and updated its information regarding wetlands, coldwater fisheries, and stormwater runoff throughout this proceeding (Company Brief at 100 n.70; Company Reply Brief at 61-62). The Company acknowledges that information such as final bridge and culvert design would be addressed during the local permitting process (Company Reply Brief at 61-62). Eversource notes it will continue to work collaboratively with the conservation commissions in each town to identify reasonable mitigation measures while presenting advanced and refined Project designs at the local permitting level (Company Brief at 101; Company Reply Brief at 61-62).

The Company asserts that it has made significant commitments to mitigate wetland resource impacts through consultations with USACE, MassDEP, NHESP, and local conservation commissions (Company Brief at 100-101; Company Reply Brief at 65-66). The Company commits to continue to design the Project to avoid permanent floodplain fill (Company Brief at 100). Eversource asserts it would develop reasonable compensatory mitigation plans for wetland and floodplain impacts when final design is complete (Company Brief at 101; Company Reply Brief at 66).

The Company states that, in accordance with FEMA requirements, it would complete a hydrologic and hydraulic analysis, and that by providing necessary compensatory flood storage, the Project would not result in increased flood levels (Company Reply Brief at 80, citing Exh. SUD-DEIR-34; Tr. 8, at 1394-1397). The Company states that the installation of the Project would not have any appreciable impact on groundwater flow or public water supplies (Company Brief at 102-103). Eversource states that underground Project components would only impinge on a small fraction of the aquifer, which it claims is highly permeable, and that water would be able to flow under and around any underground Project components (i.e., duct banks, splice vaults, structure foundations) (Company Brief at 102-103). Further, the Company

contends that its spill protection controls and counter measures, as well its vegetation management practices, would ensure no impacts to water quality from Project construction (Company Brief at 103-104).

Eversource asserts it has adequately described the anticipated environmental impacts to Hop Brook from bridge construction and identified minimization measures applicable to that construction activity (e.g. minimizing tree clearing, completing wildlife habitat evaluations) (Company Reply Brief at 65). The Company contends that such action would minimize impacts to Hop Brook (Company Reply Brief at 65).

d. Analysis and Findings on Water and Wetlands

The Siting Board agrees with the Town of Sudbury that wetlands in the vicinity of the MBTA ROW are valuable and sensitive environmental resources that necessitate careful Project planning and mitigation measures. The Siting Board notes that as the Company's engineering and design plans for the Project have advanced, the Company has significantly reduced the Project's anticipated wetland resource impacts. The record shows that the Company continuously modified its design plans to minimize and avoid wetland resource impacts, including vernal pools; however, as final project design has not yet been completed, the Company has not presented its final plans for wetland replication and compensatory flood storage. Contrary to the Town of Sudbury's assertions, the Company's compliance with FEMA's National Flood Insurance Program, including required hydrologic and hydraulic analyses, will protect against any potential for increased flooding during a 100-year storm event following construction of the Project.

Comparing the routes, with respect to construction along the MBTA ROW, the MBTA Underground Route would have fewer impacts than the MBTA Overhead Route, primarily due to decreased tree clearing in wetland areas. Construction of the in-street portions of the MBTA Routes would minimize water and wetland resource impacts along both routes. The All-Street Route, given its exclusive use of public roadways, would not have any water and wetland resource impacts. Accordingly, with regard to wetland resources, the Siting Board finds that the All-Street Route is preferable to both the MBTA Underground and Overhead Routes, and that the MBTA Underground Route is preferable to the MBTA Overhead Route.

Eversource asserted it would meet all mitigation requirements, to the extent possible, identified by USACE, MassDEP, and local conservation commissions. Further, the record shows that the Company would complete wildlife habitat assessments and develop an avoidance and restoration plan for coldwater fishery resources. In addition, the Company has committed to avoid all in-stream work in both Hop Brook locations from October 1 to June 30 to further limit potential impacts to coldwater fisheries. The Siting Board directs the Company to file the following documents applicable to a particular community prior to the start of construction in that community: final mitigation plans for wetland replication and compensatory flood storage; completed wildlife habitat assessments; final avoidance and mitigation plans; and each Order of Conditions from the local conservation commissions. The Company shall not be precluded from commencing construction in a particular community if it is fully permitted to proceed in that community.

The record shows that the Project would cross public water supplies in Sudbury and Hudson, and that construction of the Project would not negatively affect these resources or groundwater flow. To minimize the potential for spills and other sources of groundwater contamination such as migration of contaminates from excavated soils into adjacent wetlands, Eversource would develop a SWPPP, and would not allow equipment fueling within 100 feet of wetlands and waterbodies. See Section VI.D.6.

The record shows that the MBTA ROW crosses a designated coldwater fishery at two locations. Construction activities could lead to erosion, sedimentation, and the removal of vegetative cover, but that the Company would minimize potential impacts to these resources through identified best management practices, adherence to its VMP, and consultation with MassDFW. The Siting Board directs the Company to report on any future consultations with MassDFW and provide any additional mitigation or best practices that will be implemented prior to construction of the Project.

The Siting Board notes that the towns have expressed concerns regarding vegetation management along the MBTA ROW and potential impacts to water supplies, and further that the Project would be located in a Hudson Watershed Protection District and a Sudbury Water Resource Overlay District (see Section VIII). The Siting Board directs Eversource to utilize mechanical vegetation management along the MBTA ROW. Further, if Eversource finalizes an

MOU with DCR for vegetation management along the MCRT, Eversource shall incorporate the same provision in the MOU. If DCR does not agree to the inclusion of this provision in the MOU, Eversource shall submit a report to the Siting Board describing DCR's objections for the Board's consideration.

Given the Company's ongoing consultations with the local conservation commissions, USACE, and MassDFW, and the wetland replication and compensatory flood storage that would be required for the MBTA Underground Route, and with the implementation of the above conditions, the Siting Board finds that wetlands and water resource impacts of the Project along the MBTA Underground Route would be minimized.

3. Noise

a. Company Description

The Company stated that noise from construction of the Project would result in localized, short-term increases in noise levels near work sites during construction (Exh. EV-2, at 5-69). Construction-related noise would occur as a result of the operation of heavy equipment, construction vehicles, backhoe excavations, dump truck loading, concrete truck operations, drilling rigs, and cranes, among other equipment (Exhs. EV-2, at 5-69; EV-18, at 115). According to the Company, typical Project construction equipment would produce sound levels along the MBTA Routes of 60 dBA to 98 dBA at a distance of 50 feet (Exhs. EV-2, at 5-72, 5-74; EV-16, at 13-5).[123] Project sound would be louder closer to construction, so along the MBTA ROW, where Eversource reported that the closest residence to the MBTA Underground Route is 34 feet from the proposed construction, sound levels would be from 63 dBA to 101 dBA (Exhs. EV-2, at 5-71 to 5-74; EV-16, at 13-5). For the MBTA Overhead Route, the closest residence is eleven feet from the proposed construction, where construction sound levels were estimated to be between 65 dBA to 111 dBA (Exhs. EV-2, at 5-71 to 5-74; EV-16, at 13-5). The Company estimated that construction sound levels at the closest residence along the roadway

[123] According to the Company, Project sound levels inside a building would typically be reduced by about 27 dBA in the winter months with windows closed, and by 17 dBA in the summer with windows open, relative to Project sound levels outside the building (Exh. EFSB-EIR-26).

portion of the MBTA Routes in Hudson, 28 feet from the limit of work, would be from 63 dBA to 93 dBA (Exhs. EV-2, at 5-72; Tr. 10, at 1711).

For the All-Street Route, sound levels from typical construction equipment would produce sound levels of 60 dBA to 90 dBA at a distance of 50 feet (Exhs. EV-2, at 5-75). Eversource reported that the closest residence to the All-Street Route is twelve feet from the proposed construction, where construction sound levels were estimated to be between 73 dBA to 103 dBA (Exh. EV-2, at 5-75).

The Company indicated that the noisiest activity of construction would be vegetation removal along the MBTA ROW (98 dBA at 50 feet), which would take two to three months for the MBTA Underground Route and three to four months for the MBTA Overhead Route, and would require bulldozers, grapple trucks, mowers, and chain saws, among other equipment (Exh. EV-2, at 5-72; 5-74; Tr. 13, at 2362-2363). Splice vault installation and trench excavation would be the noisiest activities associated with in-street construction (Exh. EV-2, at 5-74 to 5-75). Eversource stated that pavement saws, pneumatic hammers, and other heavy equipment would be used to complete this work (Exh. EV-2, at 5-74 to 5-75).

Table 8 below summarizes the range of construction noise levels at 50 feet and at the closest point to residences associated with all three routes, and the total number of residential units located along all three routes.

Table 8. Construction Noise Impacts

	Number of Residential Units at 50 Feet[124]	Sound Levels at 50 Feet	Sound Levels at Nearest Residence	Total Number of Residential Units Along Route
MBTA Underground Route	16	60 to 98 dBA	63 to 101 dBA (at 34 feet)	315
MBTA Overhead Route	108	60 to 98 dBA	65 to 111 dBA (at 11 feet)	315
All-Street Route	61	60 to 90 dBA	73 to 103 dBA (at 12 feet)	549

Source: Exh. EV-2, at 5-51, 5-72, 5-74, 5-75, 5-76.

The Company's proposed construction hours are Monday through Friday, 7:00 a.m. to 7:00 p.m., and Saturdays from 9:00 a.m. to 5:00 p.m. (Exh. EFSB-NO-2). Sudbury's Zoning Bylaw allows construction from Monday to Friday from 7:00 a.m. to 6:00 p.m. (Exhs. EFSB-NO-4(2); EFSB-Z-7). The Company is seeking an exemption from Section 3423 of the Sudbury Zoning Bylaw for allowed hours and days of construction (Exh. EV-3, at 15, 16) (See Section VIII).[125]

Eversource stated that extended work hours may be proposed beyond the normal construction hours due to schedule delays, inclement weather, business impact mitigation, or activities that must be performed continuously such as cable splicing (Exh. EFSB-NO-2). The Company explained that other activities that could occur outside of typical work hours may

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124 Number of residences and sound levels are measured at 50 feet from the construction activity (Exh. EV-1, at 5-73).

125 The Company is seeking an exemption from Section 3.8.13 of the Stow Zoning Bylaw from sound in excess of three decibels in sound increase beyond the property line (Exh. EFSB-NO-4(3)). There are no designated hours and days of construction (Exh. EFSB-NO-4(3)). Stow does not object to the exemption based on its application to construction activities only (Stow Brief at 4). Section 33 of the Hudson Town Bylaw limits loud noise between the hours of 11:00 p.m. and 7:00 a.m. (Exh. EFSB-NO-4(1) at 10).

include night work for installations of the cable within the roadway, which may be a preference of Hudson in order to minimize traffic impacts during the day (Exh. EFSB-NO-13).[126] Eversource proposed to perform work that requires continuous operation until completion on a limited time on evenings, Sundays, and holidays (Exh. EV-2, at 5-26, 5-76). Eversource stated that if it would need to extend construction hours, it would notify the municipality of the need for extended work hours one week prior to the needed date, and it would notify nearby property owners three to five days in advance (Exh. EV-18, at 114). For extended hours for unexpected work, it would notify the municipality at the time the need is identified and would notify abutters with door-to-door notifications (Exh. EV-18, at 114).

The Company stated that it would be willing to adjust its work hours to alleviate daytime impacts to businesses located along the ROW (Tr. 13, at 2382). Eversource explained that if any businesses along the ROW would benefit substantially from different construction hours, the Company would communicate with the businesses and the applicable town to identify construction work hours amenable to all parties (Tr. 13, at 2382).

Noise sources from underground cable splicing and pulling would include a generator, air conditioner, and splicing van (Exh. EV-2, at 5-72). The Company anticipates that cable splicing would require twelve hours of continuous work once started and may need to be performed outside typical work hours if the allowable workday has fewer than twelve hours (Exh. EFSB-NO-10; Tr. 13, at 2356). Eversource emphasized that during cable splicing the location of the generator would be strategically placed to minimize noise impacts to abutters (Tr. 13, at 2368). The Company affirmed that it would use low noise generators during cable pulling, splicing, and testing (RR-EFSB-91). Eversource maintained that low noise generators

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126 Eversource explained that Hudson would prefer nighttime construction at the intersection of Wilkins and Main Street due to heavy daytime traffic in that area (Tr. 13, at 2375). The Company stated that overnight construction hours could occur from 7:00 p.m. to 5:00 a.m., and Hudson confirmed that the Company can request approval for construction work beyond 11:00 p.m. (Tr. 11, at 1978; Tr. 13, at 2377).

are rated to produce sound levels of 60 dBA at a distance of 50 feet (Exh. EV-18, at 116; RR-EFSB-91).[127]

The Company explained that it would commence activities that require continuous work as early in the day as possible to minimize the number of hours needed beyond normal work hours (Exh. EFSB-NO-9; Tr. 13, at 2357, 2360). Outside of emergency situations, Eversource asserted that no construction has been identified that would require planned, around-the-clock work (Exh. EFSB-NO-5). Specifically, for the MBTA Overhead Route, the Company stated that foundation drilling associated with the overhead structures would have potential for requiring extended work hours in the event of a mechanical issue or if bedrock is encountered (Tr. 13, at 2360-2361).

Eversource proposed the following mitigation for noise impacts associated with construction of the Project: (1) the Company would minimize engine noise by ensuring that only necessary equipment would be running during construction; (2) the Company would require its contractors to use equipment that is in good working order and meets all regulatory requirements; (3) portable generator units would be placed as far away from sensitive receptors as possible and the exhaust would be pointed away from the receptors; (4) portable generators would be placed on solid, padded bases and on top of a vibration dampening pad; (5) a sound dampening enclosure or barrier would be placed around the generator units; (6) the Company would limit vehicle idling to no more than five minutes, per state law and MassDEP regulations, and job site supervisors would be responsible for full enforcement of this rule; (7) the Company would comply with all applicable local noise ordinances; and (8) the Company would request additional access points to the MBTA ROW from industrial or commercial abutting property owners in order to minimize its use of public road crossings, minimizing vehicle access noise to nearby residents (Exhs. EV-18, at 115, 116; EV-2, at 5-75 to 5-76; EV-16, at 13-5; EFSB-NO-4; EFSB-NO-6; EFSB-NO-11; EFSB-NO-16; Tr. 13, at 2368; RR-EFSB-91). In addition,

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[127] Eversource estimated that maximum noise impacts from cable splicing without the use of a low noise generator would be approximately 63 to 87 dBA at the closest residence to the Project (Exh. EV-2, at 5-72).

Eversource affirmed that it would consult with municipalities on a case-by-case basis during the permit application process for a suggested work schedule (Exh. EFSB-NO-16).

Eversource stated that it would have specific community outreach staff available during construction of the Project that would communicate with abutters and municipal officials by going door-to-door, distributing flyers, using email and phone, addressing noise-related concerns and providing advance notice of any modifications to construction (Exh. EV-2, at 5-76; Tr. 13, at 2385-2386). The Company reported that it would maintain a toll-free phone line for the public to contact project staff (Exh. EV-2, at 1-8). Eversource maintained that it would work directly with its construction contractors to address and mitigate specific concerns brought up by the public (Tr. 13, at 2386-2387). Further, the Project will maintain a field office in the area of the Project and Company staff would attend weekly meetings with the towns (Tr. 13, at 2384-2386).

With regard to operational noise, Eversource conducted a sound study to assess potential noise impact from the proposed installation of the shunt reactor and associated switching and protection equipment at the Sudbury Substation (Exh. EV-2, App. 5-1, at 1). The study indicated that the proposed shunt reactor and related equipment would not cause sound levels in excess of MassDEP or Town of Sudbury regulations (Exh. EV-2, at 5-6; App. 5-1, at 8). Specifically, the future sound levels would increase by 0.3 to 0.4 dBA at the three closest residential receptors from the Sudbury Substation, and no pure tone condition would be produced (Exhs. EV-2, at 5-6; EV-3, at App. 5-1, at 5, 8, 10; EFSB-NO-15). Eversource stated that as the MBTA Overhead Route would not require the installation of a third shunt reactor at the Sudbury Substation, there would be no additional operational sound (Exh. EFSB-NO-1). HLPD confirmed that no noise producing equipment would be installed at the Hudson Substation (Exh. EFSB-HLP-9).

Eversource stated that typical construction sound levels would be similar for all three proposed routes (Tr. 13, at 2389). The Company explained that the All-Street Route would have the highest potential for construction noise to disturb residents because more residential units are located along the All-Street Route (Tr. 13, at 2389-2390). However, Eversource noted that the MBTA Overhead Route would be the noisiest route for construction because it would involve extensive tree clearing (Tr. 13, at 2391).

b. Analysis and Findings on Noise

There would not be an increase in existing noise levels associated with operation of the proposed Project. Construction of the Project, however, would have considerable, though temporary, noise impacts along all three routes. The record shows that Project construction noise could be as high as 98 dBA along both of the MBTA Routes and 90 dBA along the All-Street Route at a distance of 50 feet from the construction activity, and higher at the closest residences. The impact of construction-related noise along all the routes depends on the construction equipment used for each phase of construction, the specific construction activity, and the proximity of residents, businesses, and sensitive receptors along each route.

The record shows that the MBTA Overhead Route has the greatest potential for construction-related noise impacts of the three routes proposed. The MBTA Overhead Route has the greatest number of residences within 50 feet of construction (108), involves the most vegetative clearing (the loudest construction activity proposed), and would result in the highest maximum noise level at an abutting residence (111 dBA). While the All-Street Route does not require vegetation clearing, the record shows that it has the greatest total number of nearby residential units of the three routes (549 versus 315 for the MBTA Routes) and that it has the second highest number of residences within 50 feet of construction (61 versus 91 for the MBTA Overhead Route and 16 for the MBTA Underground Route). Additionally, the All-Street Route has the second highest maximum noise level at the closest residential abutter (103 dBA for the All-Street Route versus 111 dBA for the MBTA Overhead Route and 101 dBA for the MBTA Underground Route). Overall, the Siting Board finds that with respect to noise impacts the MBTA Underground Route is preferable to the All-Street Route and that both are preferable to the MBTA Overhead Route.

Locations that would have the longest duration of construction noise impacts would likely be adjacent to manhole locations, where cable splicing activities would involve about twelve hours of continuous work. In order to minimize sound impacts from cable splicing operations, the Siting Board directs the Company to use the quietest low-noise generators reasonably available. In addition, Eversource proposed to place portable generator units as far from sensitive receptors as possible and to use solid, padded bases. The Siting Board directs

Eversource to place any additional stationary equipment that emits loud noise as far as practicable from residences and other sensitive receptors during construction.

Hudson indicated that it would prefer nighttime work to minimize traffic concerns. The Siting Board requests that the Company work collaboratively with Hudson to alleviate the town's concerns and to minimize noise impacts of nighttime construction through appropriate mitigation measures. The Company is directed to provide a filing with the Siting Board describing nighttime construction noise mitigation measures that will be implemented during Project construction.

The Siting Board notes that the Sudbury Zoning Bylaw allows construction from Monday to Friday from 7:00 a.m. to 6:00 p.m., with no construction on Saturday and Sundays. The Company has requested construction hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. The Siting Board recognizes that construction in close proximity to residential areas would have noise impacts and requires certain limitations. To alleviate noise disturbances to residents, the Siting Board will allow Saturday work at the Sudbury and Hudson Substations, but it shall be limited to large equipment deliveries and to quiet assembly and testing activities. Because Project construction is in close proximity to many residential areas along the proposed route, including some where homes are within 50 feet of the ROW, the Siting Board directs the Company to limit construction of the New Line in residential areas to Monday through Friday from 7:00 a.m. to 6:00 p.m., with the exception of in-street work as requested by the Town of Hudson. Work requiring longer continuous duration than normal construction hours allow, such as cable splicing, is exempted from this condition.

Should the Company need to extend construction work beyond the above-noted hours and days, with the exception of emergency circumstances on a given day necessitating extended hours, the Siting Board directs the Company to seek written permission from the relevant municipal authority before the commencement of such work, and to provide the Siting Board with a copy of such permission. If the Company and municipal officials are not able to agree on whether such extended construction hours should occur, the Company may request prior authorization from the Siting Board and shall provide the relevant municipality with a copy of any such request.

The Company shall inform the Siting Board and the relevant municipality within 72 hours of any work that continues beyond the hours allowed by the Siting Board. The Company shall also send a copy to the Siting Board, within 72 hours of receipt, of any municipal authorization for an extension of work hours. Furthermore, the Company shall keep records of the dates, times, locations, and duration of all instances in which work continues beyond the hours allowed by the Siting Board; if a municipality grants the Company extended work hours in writing, the Company shall keep records of work that continues past allowed hours, and must submit such records to the Siting Board within 90 days of Project completion.

With regard to community outreach, the Siting Board also directs the Company to provide a Project-specific phone number, staffed during all daytime construction hours, for the public to raise concerns with respect to Project construction impacts. Further, the Siting Board directs the Company to develop a Project-specific website, which should at a minimum contain contact information for Company public affairs personnel, the Project-specific phone number, all communications regarding local construction impacts, a Project map, traffic management plans ("TMPs"), and a construction timeline. The Company shall provide the Siting Board with the phone number and website address when created.

The Siting Board directs the Company, in consultation with the towns, to develop a separate, comprehensive outreach plan for the Project for each municipality. Each outreach plan should describe the procedures to be used to notify the public about: (1) the scheduled start, duration, and hours of construction in particular areas; (2) the methods of construction that will be used in particular areas (including any use of nighttime construction); and (3) anticipated street closures and detours. Each outreach plan should also include information on complaint and response procedures; Project contact information; the availability of web-based project information; and protocols for notifying the schools of upcoming construction.

With the implementation of the above noise conditions, the Siting Board finds that noise impacts of the Project along the MBTA Underground Route would be minimized.

4. Traffic

a. MBTA Underground Route and Overhead Route

The Company stated that 84 percent of the MBTA Underground and Overhead Routes would be along the MBTA ROW and, therefore, traffic impacts would be limited to the six locations where the MBTA ROW crosses public roadways and along the 1.3 miles of in-street construction in Hudson (Exhs. EV-2, at 5-65 to 5-68; EFSB-T-8). Eversource indicated that all traffic impacts would be temporary and construction-related (Exh. EV-2, at 5-68).

With respect to the MBTA Underground Route, the Company stated that trenching of roadways crossings along the MBTA ROW would require either: (1) temporary road closures and traffic detours for narrow road widths, or (2) alternating two-way traffic for wider road widths (Exh. EV-2, at 5-65). Roadway crossings required for the MBTA Overhead Route would require a temporary traffic stop during the conductor stringing process (Exh. EV-2, at 5-66). The Company stated that roadway crossings during construction along the MBTA ROW would not impact abutters, such as residences, businesses, public safety facilities, health care facilities, and schools as there are not any existing access points to these land uses along the MBTA corridor (Exh. EFSB-T-8). With respect to school bus stops within the proposed construction zone identified by Sudbury, Eversource committed to avoiding in-street construction during school bus hours identified by Sudbury (7:00 a.m. to 9:00 a.m. and 2:30 p.m. to 5:00 p.m.) (Exhs. SUD-DFN/WFO-1, at 8; EFSB-SUD-27; Tr. 14, at 2511-2513; RR-EFSB-80).[128]

The Company anticipated that road closures in the form of one-way alternating traffic would be required for construction along the in-street portion of the MBTA Underground and Overhead Routes (Exhs. EFSB-T-5; EV-16, at 11-1). At locations with high daytime traffic volumes and congestion, adjacent commercial or industrial land uses or, as requested by authorities, the Company would construct at night (Exh. EFSB-T-11). For instance, MassDOT may require night work along Route 20 and Hudson may also prefer night work at the

[128] Sudbury presented pre-filed testimony and witnesses which identified concerns related to traffic impacts. See e.g. Exh. SUD-DFN/WFO-1. The town's witnesses stated that Sudbury would work with Eversource to address issues such as the construction schedule and road closures (Tr. 11, at 2028-2038).

intersection of Wilkins Street and Forest Street (Exh. EFSB-T-11; Tr. 13, at 2376-2377).[129] Eversource stated that it would consult with the towns and MassDOT to identify specific locations for night work (Tr. 13, at 2375-2377).

Eversource would seek to locate laydown areas and construction-worker parking areas within five miles of the MBTA ROW (Tr. 13, at 2377-2378). Eversource would work with its construction contractor to select these areas, and coordinate with the towns to identify locations outside of environmentally sensitive and residential areas (Exh. EV-2, at 5-10; Tr. 13, at 2377-2378). The Company stated that workers would park personal vehicles within designated parking areas and travel to the work site in Company work trucks (Tr. 13, at 2379-2380).

The Company outlined its public outreach process for notifying abutters of traffic-related issues such as nighttime and weekend construction (Tr. 13, at 2384-2386). In general, Eversource would notify abutters prior to the entire Project construction and follow up with notifications three to five days in advance of construction in the proximity of a specific location (Tr. 13, at 2384-2386). For more details on community outreach, see Section VI.D.3, above.

The Company stated that it would develop a construction TMP with each municipality prior to construction (Exh. EV-2, at 5-67). Eversource described the following components as items that may be included (but are not limited to) in its TMPs: (1) coordination with police and fire departments; (2) provisions for emergency vehicle access; (3) timing and delivery of equipment and materials; and (4) and work schedules and duration of lane closures (Exh. EV-2, at 5-68). Eversource stated that its TMPs would be developed as part of its final design process, and once complete, would be posted publicly (Exhs. EFSB-T-1; EFSB-T-6). In general, the Company asserted that a majority of its traffic management efforts are contingent upon final design, which include coordinating with MassDOT, municipalities, police and safety personnel; identifying plans and schedules for material delivery, locations of staging, storage, and laydown

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129 Hudson presented pre-filed testimony and witnesses to support its concerns related to traffic impacts. See e.g. Exh. Hudson-ER-1. During cross-examination, the Hudson Director of Public Works stated that the DPW would collaborate with the Company to address concerns such as locations of staging areas and scheduling of nighttime construction (Tr. 11, at 1972-1981).

areas; and developing traffic control measures for road crossings, and therefore more specific information is not yet available (Exhs. EFSB-T-3; EFSB-T-5; EFSB-T-8; EFSB-T-9; Tr. 14, at 2514-2518). Finally, the Company indicated it would be providing curb-to-curb repaving along all of the roadways for all three routes (RR-EFSB-47; Tr. 7, at 1092).

b. All-Street Route

The Company stated that the entire ten-mile length of the All-Street Route would be constructed within public roads of varying degrees of traffic volumes, with significantly more residential abutters than the MBTA Routes (Exhs. EV-2, at 5-51, 5-66 to 5-67; EFSB-T-8). For the All-Street Route, 1.3 miles of the ten miles follows the same route in Hudson as both of the MBTA Routes (Exh. Ev-2, at 4-14). As noted above, the Company anticipated that most in-street construction would require one-way alternating traffic (Exh. EV-16, at 11-1).[130] Eversource noted that it would only draft a TMP for the All-Street Route if it reached a final design plan (i.e., if the All-Street Route was approved by the Siting Board as the preferred route) (Exh. EFSB-T-6). The Company claimed it has not identified specific locations of nighttime work along the All-Street Route, with the exception of work at the Wilkins Street and Forest Street intersection in Hudson, but anticipated nighttime work would be required (Exhs. EFSB-T-11; Tr. 13, at 2376-2377). Eversource concluded that the All-Street Route would have a higher potential for traffic impacts, compared to the MBTA Underground or Overhead Routes (Exh. EV-1, at 5-69).

c. Analysis and Findings on Traffic

Construction of either of the MBTA Routes along the MBTA ROW would result in temporary traffic impacts at locations where the ROW crosses public roads and along the 1.3 miles of in-street construction. At road crossings and for the in-street portions, coordination with municipal and state authorities to identify the need for road closures, or one-way alternating

130 During evidentiary hearings, Sudbury responded to the Company's characterization of the existing traffic volumes along the All-Street Route, and identified several stretches of roadway for which Sudbury would recommend road closures and detours based on the town's perception of existing traffic volumes (Tr. 11, at 2033-2037).

traffic, would mitigate the traffic impacts of construction. Eversource would consult with Hudson and MassDOT to identify locations where night construction would best mitigate traffic impacts. Additionally, the Company would work with each municipality to develop TMPs designed to minimize traffic impacts.

The All-Street Route would be constructed directly in roadways for approximately ten miles, resulting in direct, albeit temporary, impacts to abutting residential and commercial development. The Siting Board finds that the MBTA Underground Route and MBTA Overhead Route are comparable, and both routes are preferable to the All-Street Route with respect to construction-related traffic impacts, given the additional traffic impacts associated with in-street construction for the All-Street Route.

In addition to the TMPs, Eversource would develop an outreach plan to notify abutters of traffic-related impacts such as nighttime construction and road closures. In order to ensure adequate notice is received by the community, the Siting Board directs the Company to alert abutters a minimum of two weeks in advance of anticipated local construction activities, when possible. With the implementation of the conditions imposed above and in Section VI.D.3 (related to community outreach), the Siting Board finds that traffic impacts of the Project along the MBTA Underground Route would be minimized.

5. Visual

a. Company Description

i. MBTA Underground Route

Eversource stated that the primary visual impact associated with the Project would result from tree clearing along the MBTA ROW (Exhs. EV-2, at 5-61, app. 5-7; EV-16, at 2-12). The Company reported that for the MBTA Underground Route, a 22-foot-wide corridor cleared of trees and other vegetation would be required to facilitate the installation of the transmission line (Exhs. EV-2, at 5-11, 5-40, 5-43; EV-18, at 6). To accommodate the installation of splice vaults, including the use of cranes and other specialized equipment, Eversource would temporarily expand the clearing to a width of 40 to 50 feet for a length of approximately 50 feet at each proposed splice vault location (Exh. EV-2, at 5-11, 5-13, 5-40, 5-43). The Company estimated that post construction, the entire corridor would be maintained at a 22-foot width consisting of

the access road, duct bank, and a shoulder consisting of low-growing vegetation (Exhs. EV-2, at 5-16; EV-18, at 6).[131] Eversource stated that areas of the MBTA corridor outside of the defined work area would not be impacted by construction of the Project (Exh. EV-2, at 5-44). As noted above in Section VI.D.1, the Company estimated that approximately 23.9 acres of forested land within the MBTA corridor would be cleared for the Project (Exh. EV-18, at 13).

The Company stated that along the MBTA ROW, the average amount of existing tree buffer between the property line of the average residential abutter and the centerline of the existing railbed is 40 feet (Exh. EFSB-V-8; Tr. 13, at 2417). Following tree clearing, the average remaining tree buffer would be a minimum of 23.5 feet each side for the MBTA Underground Route (Exh. EFSB-V-8; Tr. 13, at 2417). Eversource noted that there are some residential areas along the MBTA ROW where the post-construction tree buffer within the ROW would be much less than 23.5 feet (RR-EFSB-93). The Company estimated, however, that in those areas, there is existing vegetation on the abutting residential property that would still provide some tree buffer (RR-EFSB-93). For all areas, depending on the season and the amount of vegetative buffer on the property after construction, the views from residential properties would consist of trees on the far side of the MBTA ROW or the access road itself (Tr. 13, at 2420-2421).[132] The cleared portion of the MBTA ROW would be visible at all road crossings (Exh. EV-2, at 5-62).

Eversource indicated its intention to allow the MBTA ROW to revegetate naturally post-construction, with the exception of the 14-foot-wide access road, which would remain permanently without vegetation and an approximately four-foot-wide strip on each side of the access road, which would consist of maintained herbaceous and low-growing shrubbery

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131 The Company stated that in absence of the Project, the proposed MCRT would require a 19-foot-width of clearing on the MBTA ROW, consisting of a 10-foot-wide paved trail, two feet of grassed shoulders on either side of the trail, and native plantings within the remaining five feet of the platform (RR-EFSB-98).

132 The Company stated that at many of the abutting commercial and industrial locations, there is already less than 23.5 feet of existing vegetative buffer between the property boundary and the existing rail, therefore post-construction conditions would not be much different (RR-EFSB-93).

(Exh. EV-16, at 7-5; RR-EFSB-93). The Company presented a visual impact assessment to examine the visual, aesthetic, and recreational resources within an area extending out to 0.5 miles from the Project centerline and the potential visual impact on these resources (Exh. EV-2, app. 5-8, at 3). The visual impact assessment included a viewshed analysis, photo simulations, and artist renderings to illustrate post-construction views from abutting landowners and sensitive receptor locations such as historic places, state forests and parks, and other designated scenic areas (Exh. EV-2, fig. 5-29; app. 5-6; 5-8). Based on the viewshed analysis, the Company concluded that the MBTA Underground Route would have minimal visual impact (Exh. EV-3, app. 5-8, at 20).

Eversource estimated that approximately twelve public shade trees would be removed for construction of the MBTA Underground Route (Exh. EV-2, at 5-28). The Company stated that all twelve trees are at locations where the MBTA ROW intersects public roadways (Exh. EV-2, at 5-28). The Company indicated that no public shade trees would be removed along the public roadway portion of the Project, as the transmission line would be entirely within the limits of the paved roads (Exh. EV-2, at 5-28). The Company stated it would work with tree wardens in each municipality and/or MassDOT to identify proper protection for remaining public shade trees, which may include temporary fences around individual trees (Exh. EV-2, at 5-29).

For visual mitigation measures, the Company proposed to work with any abutting landowners, on an individualized basis, that may experience a material change in their view due to tree clearing related to the Project to determine a reasonable and practical screening option that could be provided on their properties, as long as such mitigation would not interfere with the safe and reliable operation of the Project (Exhs. EV-2, at 5-63; EFSB-V-2; Tr. 13, at 2444-2445). Eversource stated that screening options would be in the form of vegetation and/or fencing (Exhs. EV-2, at 5-63; EFSB-V-2; EFSB-V-9; EFSB-LU-3). Further, Eversource asserted that it plans to work cooperatively with the municipalities, DCR, and the MBTA to advance the details of a landscaping plan on the MBTA ROW that would be compatible with the MCRT and the proposed transmission line (Exhs. EV-2, at 5-63 to 5-64; EFSB-V-2).

ii. MBTA Overhead Route

The Company indicated that the MBTA Overhead Route would have the greatest visual impact as it would require the greatest width of vegetation clearing on the MBTA ROW, in addition to the new aboveground transmission infrastructure (Exh. EV-2, at 5-82). Eversource indicated that for the MBTA Overhead Route, it would clear trees entirely from the 80-foot width of the ROW to maintain overhead transmission line safety clearances, but it would allow low-growing woody vegetation to remain outside of the active work area (Exh. EV-2, at 5-17, 5-40, 5-44; RR-EFSB-95). Eversource estimates that approximately 70 acres of forested land would be cleared from the MBTA ROW for construction of the MBTA Overhead Route, or 47 more acres of clearing than for the MBTA Underground Route (Exhs. EV-2, at 5-44; 5-46; EV-18, at 13).

The MBTA Overhead Route would require 90 steel monopole transmission structures ranging from 75 feet to 105 feet in height, with an average height of 87.5 feet (Exhs. EV-2, at 5-17; EFSB-V-6(1)). The viewshed analysis mapped by the Company shows the greatest amount of visibility would occur in residential areas, adjacent open fields, parking lots, and commercial areas (Exhs. EV-2, at 5-62, figs. 5-30 to 5-33; EV-3, app. 5-8). The Company indicated that the MBTA Overhead Route would result in permanent visual impacts to abutting land uses that would have a direct line of sight to the proposed vertical transmission line elements due to the anticipated tree clearing (Exh. EV-2, app. 5-8, at 20). Eversource stated that the overhead transmission line infrastructure and wires would also be directly visible to users of the MCRT (Exh. EV-2, app. 5-8, at 20).

Eversource indicated that it would maintain vegetation at varying heights for the MBTA Overhead Route (Exh. EV-2, at 5-19). In particular, an area approximately 30 feet wide centered on the overhead transmission line (directly under the wires and extending to 15 feet on each side), known as the wire zone, would be maintained to allow herbaceous and low woody vegetation to grow to a mature height of up to, but not exceeding, 15 feet (Exh. EV-2, at 5-19 to 5-20, 5-40, 5-44; RR-EFSB-94).[133] All other portions of the MBTA ROW, or the peripheral

[133] Within the wire zone, the access road and shoulders would be maintained the same as described above for the MBTA Underground Route (RR-EFSB-94).

zone, would be managed by the Company to allow for growth of native woody vegetation, tall shrubs, and low-growing trees that have a mature height of up to, but not exceeding, 25 feet (Exh. EV-2, at 5-20, 5-40, 5-44; RR-EFSB-94).

Eversource stated that for the MBTA Overhead Route, it would remove 47 public shade trees at points along the route where the MBTA ROW crosses public roadways (Exh. EV-2, at 5-28; Tr. 13, at 2443). The Company would not remove public shade trees along the in-street portion of the MBTA Overhead Route (Exh. EV-2, at 5-28). As noted above for the MBTA Underground Route, the Company stated that it would work with tree wardens or MassDOT to identify proper mitigation for remaining public shade trees (Exh. EV-2, at 5-29).

Eversource affirmed that mitigation measures for the MBTA Overhead Route would be similar to the MBTA Underground Route as discussed in Section VI.D.5.a.i, above (Exh. EV-2, at 5-63). Eversource does not anticipate that the installation of a transmission line in public roadways in Hudson would result in any permanent visual impacts (Exh. EV-2, app. 5-8, at 21).

The Company concluded that of all three proposed routes, the MBTA Overhead Route would result the greatest potential for visual impacts due to the proposed aboveground transmission structures and extensive vegetative clearing (Exh. EV-3, app. 5-8, at 21).

iii. All-Street Route

The Company indicated that there would be minimal visual impacts for the All-Street Route, as it would install the transmission line entirely underground within the existing limits of public roadways (Exh. EV-2, at 5-46, 5-63). The Company does not anticipate the need to cut any public shade trees along the All-Street Route; however, it may selectively trim tree branches to facilitate construction at specific locations such as splice vaults (Exh. EV-2, at 4-21, 5-63; Tr. 13, at 2443-2444). The Company would implement the same practice to protect public shade trees regardless of the route selected (Exh. EV-2, at 5-28). Upon completion of construction, the Company would restore roads to pre-existing conditions (Exh. EV-2, at 5-63). Eversource does not anticipate visual mitigation measures to be necessary with the All-Street Route because visual impacts would be minimal (Exh. EV-2, at 5-64; Tr. 13, at 2415). The Company concluded that even with visual mitigation along the MBTA Underground and Overhead Routes, the All-Street Route would result in lower visual impacts (Exh. EV-2, app. 5-8, at 21).

iv. Substations

Eversource stated that visual impacts at the Sudbury and Hudson Substations would result regardless of which alternative is constructed (Exh. EV-2, at 5-61). The Company noted that visual impacts at the Sudbury Substation would be minimal, as the new structures would be similar in height to existing structures at the Substation, shielded by the existing vegetative buffer, and integrated with similar existing structures within the Substation (Exhs. EFSB-V-4; EFSB-V-4(1)-(5)). The Company would also install a 100-foot shielding mast at the Sudbury Substation as part of the Project (Exh. EFSB-V-4). The Company noted that except for areas where the ROW emerges, the Sudbury Substation is surrounded by trees approximately 60 feet high, creating a visual buffer for the proposed and existing equipment (Exh. EFSB-V-4). Eversource noted that the Sudbury Substation is largely surrounded by vacant land and that the nearest building is an indoor sports dome with no windows approximately 325 feet to the northeast of the Substation (Exh. EV-2 app. 5-8, at 5).

Eversource reported that the existing lighting illuminates the equipment at ground level and the overhead switches, but is only kept on continuously during periods of night work at the Substation or at the request of law enforcement agencies (Exh. EFSB-V-3). For the MBTA Overhead Route, the MBTA Underground Route, and the All-Street Route, some additional lighting would be required for the breaker, line and terminal disconnect switches; the MBTA ROW routes would also require lighting for equipment associated with the proposed shunt reactor and relocated capacitor bank (Exh. EFSB-V-3).

The Company stated that it would be necessary to expand the limits of the existing fence line at the Hudson Substation in order to install the equipment necessary to support the new transmission line, but that there would be no additional removal of vegetation (Exh. EV-2, at 5-8). HLPD stated that any new equipment would not be taller than existing equipment (Exh. EFSB-HLP-6, at 2; HLPD Brief at 6). HLPD explained that the expansion would not result in any adverse visual impacts to the residents of condominiums to the south of the substation parcel, closest to the expansion area, largely because the portion of the condominium complex that is closest to the substation was designed and developed with the objective of avoiding views of the existing substation (Tr. 14, at 2484; HLPD Brief at 6-7).

b. Analysis and Findings on Visual

The MBTA Overhead Route would result in the highest potential for visual impacts as a result of the newly built overhead transmission line and associated structures. In addition, the MBTA Overhead Route would require the greatest amount of tree clearing, as the entire 80-foot wide limit of the MBTA ROW would be cleared.

For the MBTA Underground Route, the immediate visual impact would be the increased visibility of the MBTA ROW from abutting landowners and land uses due to the 22-foot wide vegetation clearance on the MBTA ROW. Following construction, a 14-foot width of the 22-foot clearance would remain cleared as the access road, and would be loam and seeded on the remaining eight feet. Thus, following revegetation, the long-term visual impacts would be the increased visibility of the permanently cleared 22-foot corridor.

The All-Street Route would have little to no visual impacts, as there would be no above-ground transmission structures built and no permanent vegetation removal is expected. The Company proposes selective cutting or trimming of branches and would allow such vegetation to regrow following construction. For all three routes, the visual impacts at the two Substations would be minimal, as both Substations would not require additional tree clearing. The only additional visual impacts of Sudbury Substation may be limited views of the 100-foot lightning mast; and the Hudson Substation expansion area would be screened by design measures already in place for the residential area closest to the expansion area. Thus, the Siting Board finds that with respect to visual impacts, the All-Street Route is preferable to both the MBTA Underground Route and the MBTA Overhead Route, and the MBTA Underground Route is preferable to the MBTA Overhead Route.

In several recent transmission line cases, the petitioners have been directed to implement off-site screening programs consisting of vegetative plantings and/or other screening. See e.g., Needham-West Roxbury at 62; Woburn-Wakefield at 120. The Company stated that it would work with abutting landowners that may experience a material change in their view of the MBTA ROW to determine a reasonable and practical screening option that could be provided on their properties on a case-by-case basis. Eversource acknowledged that for the MBTA Underground Route or the MBTA Overhead Route, abutters' view of the ROW could change

due to tree clearing and/or the new transmission line structures. Therefore, as Eversource has agreed, the Siting Board directs Eversource, upon request of any person or entity owning property located directly abutting the MBTA ROW whose view has materially changed due to construction of the Project, to provide appropriate and reasonable off-site screening. Such screening may include shrubs, trees, window awnings, and fences, provided that operating and maintenance requirements for the transmission line are met. Upon completion of construction, the Company shall notify all owners of property located on or abutting the MBTA ROW in writing of the option to request that the Company provide off-site mitigation. The Company shall honor all reasonable and feasible requests for mitigation that it receives from property owners within six months of receipt of the Company's written notification.

Based on the Company's proposed visual mitigation measures and with the conditions summarized above, the Siting Board finds that potential visual impacts of the Project along the MBTA Underground Route would be minimized.

6. Hazardous Waste

a. Description

Eversource stated that hazardous substances including hydraulic oil, greases, and construction equipment fuels, both gasoline and diesel, would be used during Project construction (Exh. EFSB-HW-1). The Company indicated that equipment refueling would occur outside of wetlands and buffer zones to the extent feasible (Exh. EFSB-HW-1). The Company and its contractors are required to have spill response materials available at all times (Exh. EFSB-HW-1). In the event of a spill along any of the routes, the Company stated it would activate its Oil and Hazardous Material Spill Release/Notification Contingency Plan Policy and Procedure ("Spill Response Protocol") (Exhs. EFSB-HW-1; EFSB-HW-3(1)). The Company stated that the risk of a hazardous material spill would also be reduced by compliance with the Company's USEPA National Pollutant Discharge Elimination System Construction General Permit and the SWPPP (Exh. EV-2, at 5-35 to 5-36). The Company stated that a contracted environmental inspector would conduct weekly inspections of the Project to enforce compliance with the Company's best management practices manual ("BMP Manual") and permit conditions (Exhs. EFSB-CM-5; EFSB-CM-6).

The Company stated that after the construction is complete, operation of the New Line would not produce any hazardous waste, noting that the New Line would not require circulating coolant or other hazardous materials that could leak or spill (Exhs. EFSB-HW-2; EV-2, at 5-35). The Sudbury Substation as it exists today contains mineral oil dielectric fluid ("MODF") in transformers and sulfuric acid in batteries (Exh. EFSB-HW-2).[134] A release of MODF would be contained by a secondary containment structure around each transformer (Exh. EFSB-HW-2). The batteries are located inside a building at the Sudbury Substation; any release of acid would be contained by an existing acid-resistant berm equipped with specialty pillows designed to neutralize acid (Exh. EFSB-HW-2). The Company stated its Spill Response Protocol would remain in effect after construction and would be activated in the event of a hazardous materials release at the Sudbury Substation (Exh. EFSB-HW-2).

The Company reported that, due to the commercial and industrial uses of nearby properties and the developed nature of the MBTA Underground Route, MBTA Overhead Route, and All-Street Route, there is a potential along all three routes to encounter subsurface contamination that would require special handling and management during construction (RR-EFSB-66(1) at 12). The Company reported that the MassDEP Best Management Practices for Controlling Exposure to Soil During the Development of Rail Trails guidance document ("MassDEP Rail Trail BMP") details the most commonly reported contaminants along rail lines to include metals, pesticides, petroleum compounds, coal ash, creosote, and polycyclic aromatic hydrocarbons ("PAHs") (Exh. EV-16, at 9-4). The Company explained that it does not anticipate these contaminants to be prevalent beyond the topmost layer of soil given that metals and PAHs are relatively immobile contaminants and more mobile contaminants would have leached out of soil during the intervening decades since active rail use on the corridor (Tr. 10, at 1623-1624). The potential for contamination along the ROW may vary by location, as further described further below. The Company also stated that non-point sources of contaminants along roadways such as the historic use of leaded gasoline and fill material used for road construction

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134 Gas insulated switching equipment containing sulfur hexafluoride gas ("SF_6") is also located at the Sudbury Substation. See Section VI.D.7.b.

could increase the likelihood of encountering previously undocumented hazardous material on the All-Street Route (Tr. 10, at 1630-1633).

The Company asserted that in its meeting with the MassDEP, the agency indicated that following MassDEP Rail Trail BMP would be appropriate because the proposed project would facilitate the conversation of the ROW to a rail trail (Tr. 10, at 1622). Furthermore, commenting on the DEIR, MassDEP stated that the Company should consult the MassDEP Rail Trail BMP "for measures to limit to exposure to workers and adjacent residents/trespassers" (Exh. EV-16, app. 15-2, at 841). Following the MassDEP Rail Trail BMP, the Company identified areas of the ROW that may, based on available information, have a higher potential for contamination due to railroad operations and/or adjacent land uses (RR-EFSB-66(1) at 33-34). The Company identified the locations of former railroad stations, known historic rail car collision locations, and industrial areas which may have contamination extending to the ROW unrelated to the former railroad use (RR-EFSB-66(1) at 33-34). The Company proposes to complete geotechnical soil borings and soil characterization at identified locations with a higher potential for contamination and throughout the industrial areas (Tr. 9, at 1593-1595; Tr. 10, at 1649-1650). The Company stated that its field investigation would be consistent with a Massachusetts Contingency Plan ("MCP") Phase I investigation and that results of the investigation would be incorporated into the soil and groundwater management plan (Tr. 9, at 1604-1606; Tr. 10, at 1648).

The Company stated that if contaminated soils or other regulated materials are discovered in excess of regulatory thresholds along any of the routes, they would be managed pursuant to the Utility-Related Abatement Measure ("URAM") provisions of the MCP (Exhs. EV-2, at 5-23; EV-16, at 5-12; EFSB-LU-5; RR-EFSB-66). Eversource explained that the URAM provisions are specific to subsurface utility installation work; the Company stated that it has been advised by MassDEP that URAM provisions would be applicable to the Project notwithstanding the addition of the rail trail component, whereas if the rail trail was constructed without the Project, a URAM might not be applicable (Tr. 9, at 1599). The Company has contracted with a Licensed Site Professional ("LSP") to be responsible for managing and overseeing activity pursuant to the MCP, including use of the URAM provisions (Exh. EV-2, at 5-23). The Company stated that the LSP has also been engaged to support construction planning and to ensure compliance with the

BMP Manual and other Company policies (Exhs. EFSB-HW-11; EV-2, at 5-58 to 5-59; SUD-CMM-10).

The Company expects that construction along either of the MBTA Routes would result in excess soil (Exh. EV-16, at 5-5). The Company stated it would develop a comprehensive soil and groundwater management plan describing how soils would be managed for reuse or disposal once the Project design is finalized, based on due diligence results and the MassDEP Rail Trail BMP (Exhs. EFSB-HW-8; EFSB-HW-10; Tr. 10, at 1647-1648). The Company stated that the maximum depth of excavation would be 15 feet below surface grade for the MBTA Underground Route and 22 to 28 feet for the MBTA Overhead Route (RR-EFSB-66(1) at 11). Eversource stated that, compared to the MBTA Overhead Route, the MBTA Underground Route would require a wider excavation corridor and a greater volume of excavated soil and, therefore, would have an increased potential for encountering undocumented subsurface contamination (Exh. EFSB-HW-5).

The Company stated that excess soil would remain on the ROW until soil testing and coordination of offsite transportation are completed (Exh. EV-16, at 5-5). Eversource stated it would manage soil stockpiles in accordance with its BMP Manual, which stipulates that stockpiles be located outside sensitive areas to the extent practical and managed to prevent erosion and sedimentation of adjacent areas (Exh. EV-16, at 5-5). The Company stated that its cut and fill analysis for the proposed access road on the MBTA ROW accounted for the amount of soil expected to require off-site disposal, the amount of soil expected to be reused in grading, and the amount of new soil to be required for capping (Exh. EV-DAS/DMB-1, at 10-11). Eversource stated that soil contaminated at levels above MCP thresholds would not be reused as fill along the ROW, and that new soil brought onsite for capping would be clean fill (Exhs. EV-16, at app. 2-3; EV-DAS/DMB-1, at 10; Tr. 10, at 1640, 1643). The Company explained that the 14-foot wide access road would be constructed of eight inches of clean gravel on top of a woven geotextile fabric (Tr. 10, at 1639-1640). The Company stated that, together, the geotextile and gravel would serve as a cap, thereby minimizing future exposures to contaminants in soil (Tr. 9, at 1601)

Eversource assessed the potential to encounter subsurface contamination from on-site or abutting sources along the MBTA Underground Route, the MBTA Overhead Route, and the

All-Street Route (RR-EFSB-66). The Company stated that its assessment would inform the development of its soil and groundwater management plan and in identifying appropriate BMPs to protect public health and the environment during and after construction (RR-EFSB-66(1) at 1). According to the Company, the assessment was a desktop review that followed the MassDEP Rail Trail BMP and the database review methods contained within the American Society for Testing and Materials ("ASTM") standard for due diligence (Tr. 9, at 1608; RR-EFSB-66(1) at 3, 23).

Specifically, the Company relied on methods from ASTM 1527-13: Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, which stipulates the use of an Environmental Risk Information Services ("ERIS") database search report, as well as the review of MassDEP records and other available historical information (RR-EFSB-66; RR-EFSB-66(1) at 23; Tr. 9, at 1608). In the assessment, the Company tallied state-listed disposal sites (i.e., MCP sites) within the limits of the three routes, identifying five MCP sites along the MBTA Routes and eight along the All-Street Route (RR-EFSB-66(1) at 11). For each route, the Company also enumerated the "sites of concern," which included active and closed MCP sites and other sites identified by the ERIS database report deemed to have elevated environmental risk inferring from historical uses and other information available to the Company (RR-EFSB-66(1) at 20-21).[135] Eversource stated that the two MBTA routes have 35 total sites of concern, and the All-Street Route has 25 sites of concern (RR-EFSB-66).[136]

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135 The ERIS database report includes "sites of concern" based on factors including, but not limited to, the presence of underground storage tanks, use for an environmentally sensitive industry (gas stations, drycleaners, automotive repair), and status as hazardous waste generator (RR-EFSB-66(1) at 20-21).

136 The Company's briefs did not specifically compare the routes with respect to impacts related to hazardous waste (see Company Brief at 93-99; Company Reply Brief at 57-66).

b. Position of the Parties[137]

i. Town of Sudbury

Citing the MassDEP Rail Trail BMP, Sudbury submits that the Company should expect to encounter residual levels of lead, arsenic, and petroleum when working in the MBTA ROW (Exh. SUD-MJN/RMG-1(R) at 50). Sudbury points out that the Company has identified that residual oil and or hazardous material associated with past use of the railroad ROW includes metals, pesticides, and PAHs (Exhs. SUD-MJN/RMG-1(R) at 50; EV-16, at 665). Sudbury cautions that, if improperly managed, potentially contaminated soil excavated during construction of the access road, duct bank, and splice vaults could lead to human and environmental exposures (Sudbury Brief at 69, citing Exh. SUD-MJN-RMG-1(R) at 51-52). Sudbury also suggests that dust from construction, stormwater runoff during the construction period, and effluent from excavation dewatering could cause the migration of contaminants to adjacent coldwater fishery resources, vernal pools, and wetland resources areas containing important wildlife habitat (Sudbury Brief at 70).

Sudbury argues that the Company's disposal costs or level of management of disposal activities cannot be confirmed as the Company has not characterized the soil that would be disposed of during construction (Sudbury Brief at 70). Specifically, Sudbury asserts that there would be a significant volume of soil displaced when the duct banks and splice vaults are installed (more than 50,000 tons), which Sudbury expects to be contaminated (Exh. SUD-MJN/RMG-1(R) at 49; Tr. 8, at 1404). Sudbury argues that the MassDEP Rail Trial BMP guidance applies to the limited disturbance from excavating at or near the surface for construction of rail trails alone, rather than excavation for electric transmission lines that are coupled with rail trails (Sudbury Reply Brief at 17; Exh. SUD-MJN/RMG-1(R) at 52). Sudbury argues that the MassDEP Rail Trail BMP recommends minimizing soil disturbance and that the soil disturbance associated with the Project far exceeds the volume typically estimated for rail trail construction (Sudbury Reply Brief at 17, citing Exh. EV-2, at app. 5-3).

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137 The Siting Board notes that the Town of Hudson's concerns relating to potential contamination of drinking water supplies are described in Section VI.D.2, above.

ii. Protect Sudbury

Protect Sudbury notes that the Company acknowledges the inherent contamination risks associated with historic railroad ROWs, such as metals, pesticides, petroleum constituents, lead, coal ash, and creosote (PS Brief at 32, citing Exh. EFSB-HW-6(S-1)(1) at 2). Protect Sudbury further notes that the Company has identified five state-listed contamination sites directly within the limits of the MBTA Routes and an additional nine state-listed sites in the vicinity of the MBTA Routes (PS Brief at 32, n. 23, citing Exh. EFSB-HW-6(S-1)(1) at 12).

Protect Sudbury argues that the Company should not have relied on the MassDEP Rail Trail BMP in evaluating the potential presence of hazardous soils along the MBTA Underground Route (Exh. Protect-RC/RH/ML/MO-1, at 10). Specifically, Protect Sudbury asserts that the Project involves an underground utility installation with far greater potential to expose contaminated soils and create new environmental impacts, compared to a typical rail trail project that is the subject of the guidance document (Exh. Protect-RC/RH/ML/MO-1, at 10). Thus, Protect Sudbury argues that relying on the MassDEP Rail Trail BMP for this Project may result in the Company significantly underestimating the potential impact of contaminated soils on Project cost (Exh. Protect-RC/RH/ML/MO-1, at 11-12). Protect Sudbury argues that Eversource should be required to conduct an MCP Phase 1 level of investigation (310 CMR 40.0483) to further evaluate subsurface contamination along the railroad ROW (Exh. Protect-RC/RH/ML/MO-1, at 11). Protect Sudbury asserts that, given the availability and advantages of the All-Street Route, the uncertainties, risks, and costs associated with contaminated soils along the MBTA Routes are needless (PS Brief at 32, citing Exh. Protect-RC/RH/ML/MO-1, at 12-13).

iii. Company Response

Eversource argues that environmental impacts, including hazardous waste impacts, would be similar for construction of the Project compared to the construction of only the MCRT (Company Reply Brief, at 61 citing RR-EFSB-98). Furthermore, the Company states that the Project would facilitate clean-up of any existing hazardous material that is encountered during construction, thereby improving the MBTA ROW in this regard (Company Reply Brief at 63 n. 32, citing RR-EFSB-66; RR-EFSB-66(1)). The Company asserts that its cost estimate

for the Project reflects the quantities of soil expected to be: (1) removed from the ROW; (2) reused on the ROW; and (3) brought onto the ROW for capping (Company Reply Brief at 71-72, citing Exh. EV-DAS/DMB-1, at 10).[138] The Company further asserts that this level of design detail affords a substantial reduction in soil management cost uncertainty (Company Reply Brief at 72, citing Exh. EV-DAS/DMB-1, at 10).

The Company states that it did not consider undocumented sources of hazardous materials in its comparison of the three routes because all of the routes have inherent potential to encounter previously undocumented hazardous materials and, therefore, the potential to encounter undocumented subsurface contamination would not provide any differentiator for each route in the analysis (Company Reply Brief at 51, citing Exh. EV-MB-2, at 18-19). While the Company acknowledges that based on the number of sites of concern, "one could infer that there is a greater potential for contamination" along the MBTA Routes than the All-Street Route, it notes that there is a risk of encountering additional contamination along any route until existing conditions are confirmed through soil and groundwater testing (RR-EFSB-66).

Eversource reiterates that, regardless of which route is selected, the Company expects to encounter contaminated soils and would perform pre-characterization to determine its regulatory obligations and avoid or eliminate the risk presented by those materials (Company Reply Brief at 51, citing Exh. EV-MB-2, at 18-19; Tr. 5, at 794). The Company points out that, in an attempt to refine its soil management plan, it sought approval from the Sudbury Conservation Commission to conduct subsurface work including soil characterization (Company Reply Brief at 62-63).[139]

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138 For the MBTA Underground Route, the Company estimates that approximately 66,000 tons of excess material would need to be removed during construction, including work at the Sudbury Substation, the MBTA ROW, and the portion of the project in Wilkins Street in Sudbury (Tr. 10, at 1635-1636).

139 The Siting Board notes that Eversource received permission to conduct subsurface work including soil characterization from the Sudbury Conservation Commission on August 20, 2018. See Sudbury Conservation Commission Meeting Minutes.

c. Analysis and Findings on Hazardous Waste

The record shows that, for all potential routes, construction will require the use of hazardous substances including hydraulic oil, greases, and construction equipment fuels. Risk related to the use of the use of hazardous substances during construction would be adequately mitigated by the following measures: (1) fueling equipment outside of wetlands and buffer zones to the extent feasible; (2) compliance with the Company's Spill Response Protocol; (3) the availability of on-site spill response materials; and (4) weekly inspections conducted by a contracted environmental inspector.

The record shows that operating the New Line after construction is complete would not generate any hazardous wastes. At the Sudbury Substation, the risk of a release of MODF stored in transformers and acid stored in batteries is mitigated by secondary containment structures and the Company's Spill Response Protocol.

The record shows that the MBTA Underground Route, MBTA Overhead Route, and the All-Street Route traverse commercial, industrial, and rural environments and, as such, the Project may encounter hazardous materials including contaminated soil and contaminated groundwater. While Sudbury and Protect Sudbury point out that the MBTA Routes are more likely to contain certain contaminants associated with the former use as a railroad ROW, the All-Street Route is not inherently lower risk since roadways also have a potential to contain hazardous materials specific to that type of land use. For example, while the MBTA Routes are more likely to contain contaminants such as metals, pesticides, petroleum compounds, coal ash, creosote, and PAHs, roadways may be contaminated from the historic use of leaded gasoline and urban fill materials.

MCP sites are documented sources of contamination, and the likelihood of encountering such subsurface contamination is likely related to the total number of MCP sites along a route. The Company identified a greater number of MCP sites along the All-Street Route than the MBTA Routes (eight versus five). Eversource enumerated what it described as "sites of concern," including active and closed MCP sites and other sites it considered to have elevated environmental risk along the proposed routes; both MBTA Routes have the same 35 total sites of concern, while the All-Street Route has 25 total sites of concern. It bears noting that the MCP sites document releases of hazardous materials in specific locations, whereas sites of concern

include properties that have elevated potential to contain hazardous materials, which have not been confirmed through observation or testing.

Although Sudbury argued that it was not appropriate for Eversource to utilize the MassDEP Rail Trail BMP and Protect Sudbury argued that the Company should be required to conduct a MCP Phase 1 level of investigation, the record shows that MassDEP concurs with the use of the MassDEP Rail Trail BMP and that the Company would conduct a field investigation consistent with the requirements of a MCP Phase 1 investigation. The field investigation would focus on higher risk areas identified by the environmental due diligence report, include environmental and geotechnical soil borings and soil characterization, and be completed prior to the start of construction. Results of the field investigation would be incorporated into the Company's soil and groundwater management plan, thereby reducing the overall risk and uncertainty associated with soil management in the MBTA ROW. Construction of the access road with a woven geotextile fabric and eight inches of gravel would serve as a barrier for potentially contaminated soil not removed from the ROW as part of project construction.[140]

The MBTA Underground Route has an increased potential for encountering subsurface contamination due to the wider excavation and greater volume of excavated soil compared to the MBTA Overhead Route. The MBTA Routes have fewer MCP sites within the limits of the route than the All-Street Route; however, the All-Street Route traverses fewer "sites of concern." The Siting Board ascribes greater significance to the count of MCP sites, given that each is a documented instance of contamination. Therefore, the Siting Board finds that the MBTA Underground Route and the All-Street Route are comparable with respect to hazardous waste impacts. The Siting Board also finds that due to the greater volume of excavation required for the MBTA Underground Route, the MBTA Overhead Route is preferable to both the MBTA Underground Route and the All-Street Route with respect to hazardous waste impacts.

The record shows that impacts from hazardous materials along the MBTA Underground Route would be minimized. Eversource will develop a comprehensive soil and groundwater management plan to address handling of contaminated media encountered during construction.

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140 Should DCR complete the access road as a paved rail trail, a pavement covering, such as asphalt, would enhance the path's function as a cap.

Compliance with permit conditions and the Company's BMP Manual would be monitored by weekly inspections from a contracted environmental inspector. Eversource has provided assurance that its construction will comply with: (1) the Company's BMP Manual; (2) the forthcoming soil and groundwater management plan; (3) expected environmental permit conditions; and (4) all applicable environmental regulations. Specifically, any contaminated soil or other regulated materials encountered during Project construction would be managed in accordance with the URAM provisions of the MCP.

The combination of complying with the URAM provisions of the MCP in conjunction with the MassDEP Rail Trail BMP would address the potential for environmental impacts from encountering existing hazardous materials along the MBTA ROW portion of the Project. Compliance with the URAM provisions is enforced through the MCP. The Siting Board directs the Company to provide an interim report at the mid-point of construction and a final report at the completion of the Project describing how the Company followed the MassDEP Rail Trail BMP. The record shows that the Company has established procedures to guard against both spreading of existing contamination and new releases of hazardous materials. On this basis, the Siting Board finds that, with implementation of the above condition, hazardous waste and soil management impacts from the Project along the MBTA Underground Route would be minimized.

7. Safety and Air

a. Safety

Eversource maintained that, regardless of the route selected, construction safety would be addressed through adherence with all federal, state, and local regulations, as well as industry standards and guidelines established for protection of the public (Exhs. EV-2, at 6-1 to 6-2; EFSB-S-1). Eversource stated that it would establish traffic control plans for the Project, and that it would restrict public access to work areas (Exhs. EV-2, at 6-1 to 6-2; EFSB-S-1; EFSB-RR-87; Tr. 13, at 2336).

For work proposed along the MBTA ROW, Eversource would post signs at road crossings, nearby trail entrances, and regularly used ROW entrances detailing the ROW closure and ongoing construction (RR-EFSB-87). Temporary fencing would be used to secure the

construction site and deter unauthorized access (RR-EFSB-87). During working hours, open trenches would be monitored by construction personnel (Exh. EFSB-S-1). During non-working hours, trenches would either be fenced, covered with plates, or backfilled (Exh. EFSB-S-1; Tr. 13, at 2336; RR-EFSB-87). With regard to the proposed substation work, Eversource stated that construction activities at both the Sudbury and Hudson Substations would be performed within a fenced area that would be monitored by onsite construction staff while work is performed and locked during non-working hours (Exh. EFSB-S-1; Tr. 13, at 2340; Tr. 14, at 2474-2476).

b. Air

Regardless of route chosen, the Company indicated it would control dust at construction sites by placing water trucks with misters in or near work areas during construction activities (Exh. EV-2, at 5-9). The Company indicated that it would also comply with state laws concerning limited vehicle idling (Exh. EV-2, at 5-10; Exh. EFSB-A-1). To minimize air emissions from equipment operation, the Company would direct its contractors to retrofit any diesel-powered, non-road construction equipment rated 50 horsepower or above, whose engine is not certified to USEPA Tier 4 standards, and that will be used for 30 days or more over the course of the Project, with USEPA-verified (or equivalent) emission control devices (Exh. EV-2, at 5-10). The Company stated that its own diesel-powered construction equipment would use ultra-low-sulfur diesel ("ULSD") fuel and that it would require its contractors to use ULSD fuel in their diesel-powered construction equipment used for the Project (Exh. EV-2, at 5-10).

The Company indicated that at the Sudbury Substation it would add two SF_6 circuit breakers, each containing approximately 80 pounds of SF_6 (Exh. EFSB-HW-2). According to the Company, the new switchgear would be designed for an annual emission rate of 0.1 percent, which the Company stated would be in compliance with MassDEP's standard of not more than 1.0 percent per year, as set forth in 310 CMR 7.72 (Exhs. EFSB-A-3; EV-16, at 10-3). The Company has installed cameras at the Sudbury Substation to help detect any small leaks of SF_6 gas (Exh. EV-18, at 112). If a SF_6 leak is detected, the Company indicated it would switch the equipment out of service as soon as system and weather conditions allow (Exh. EV-G-16, at 10-3).

c. Analysis and Findings on Safety and Air

The Company committed to following all relevant safety laws and regulations during construction, regardless of the route selected. Accordingly, the Siting Board finds the three routes to be comparable on the basis of safety. Based on the Company's proposed safety mitigation measures, the Siting Board finds that potential safety impacts from Project construction along the MBTA Underground Route would be minimized.

Based on the above, the Siting Board finds that the air impacts are comparable regardless of the route selected. The Company commits to implementing dust control measures during Project construction, such as spraying water at worksites. The Company would comply with the standard Siting Board diesel retrofit provisions referencing the MassDEP Diesel Retrofit Program and follow the Massachusetts anti-idling law and regulations that limit vehicle idling to five minutes.

The Company would purchase new switchgear for the Sudbury Substation that contain SF_6, and the Company commits to complying with MassDEP regulations for SF_6. With the proposed measures to minimize dust and air emissions from construction equipment and the Company's selection of low-leakage SF_6 containing equipment, the Siting Board finds that potential air impacts from construction and operation of the Project along the MBTA Underground Route would be minimized.

8. Magnetic Fields

a. Background

A magnetic field is present whenever electrical current flows in a conductor (Exh. EV-2, at 5-77). Strengths of magnetic fields depend on the amount of current, the distance to conductors and, where there are multiple phases, the distance between conductors; field strength decreases rapidly as distance from the source increases (Exh. EV-2, at 5-77).

Over the years, some epidemiology studies have reported statistical associations between power-frequency magnetic fields and diseases such as childhood leukemia (Exh. EV-2, at 5-78, app. 5-9, at viii to ix). In 2007, the World Health Organization ("WHO") concluded that the evidence of a causal relationship is limited and that magnetic field exposure limits based upon epidemiological evidence are not recommended, but some precautionary measures are warranted

(Exh. EV-2, at 5-78; app. 5-9, at 1-2). When reviewing magnetic fields in past proceedings, the Siting Board, in recognition of public concern about magnetic fields and in keeping with WHO guidance, has encouraged use of low-cost measures that would minimize magnetic fields along transmission ROWs. Woburn-Wakefield at 121; New England Power Company d/b/a National Grid, 20 DOMSB 129; EFSB 13-2/D.P.U. 13-151/13-152 (2014) ("Salem Cables") at 88.

b. Company Description

The Company's consultant, Exponent, modeled above-ground 60-hertz magnetic field strengths from annual average and annual peak projected line loadings for the year 2023 (Exh. EV-2, at 5-78 to 5-79, app. 5-10, at 10-11). The Company modeled the expected magnetic fields above the centerline of an underground transmission line, above a manhole, and beneath an overhead conductor; the Company also modeled fields at various lateral distances from these centerlines (Exh. EV-2, app. 5-10, at 10-11). Further, the Company reported potential exposures to magnetic fields by future users of the MCRT (Exh. EFSB-MF-2; RR-EFSB-31). Table 9, below, provides the Company's modeled magnetic field values in milligauss ("mG"), based on average annual loadings projected for each route.[141]

[141] Exponent noted that average annual loads for all-underground options (MBTA Underground Route and All-Street Route) are higher than the predominately overhead MBTA Overhead Route (Exh. EV-2, app. 5-10, at 11-12). The average annual loads correspond to the lower impedance of underground cables, and translate to higher maximum electric currents and higher maximum magnetic field levels directly over the underground duct bank centerline (Exh. EV-2, app. 5-10, at 11-12).

Table 9. Average Annual Modeled Magnetic Field Values (in mG)

		Maximum on Street/ROW	Maximum at 25 feet from Centerline	Closest Edge of Rail Trail	Center of Rail Trail
MBTA Underground Route	Along cable route (MBTA ROW and in-street)	24	3.4	19 (5 feet from duct bank centerline)	11 (10 feet from duct bank centerline)
	At manholes	28	4.4		
MBTA Overhead Route	Along overhead portion	6.8	4.4	6.1 (18 feet from conductor)	5.5 (23 feet from conductor)
	In-street portion	13	1.8		
	At manholes along in-street portion	15	2.4		
All-Street Route	Along cable route	26	3.6	N/A	
	At manholes	29	4.7		

Source: Exhs. EV-2, app. 5-10, at 15; EFSB-MF-1; RR-EFSB-31; RR-EFSB-97.

The Company stated that the proposed delta configuration of underground conductors, with limited spacing, minimizes potential magnetic field impacts (Tr. 4, at 684-688). The Company stated that it does not expect any health impacts from magnetic fields created by any part of the Project along any of the three potential routes (Tr. 4, at 682-683, 686).[142] The Company noted that the predicted magnetic field levels are well within guidelines of the WHO and further characterized the potential magnetic field levels for the MBTA Underground Route, MBTA Overhead Route, and the All-Street Route as similar to each other (Exh. EV-2, at 5-81 to 5-82).

142 With respect to the potential for a future rail trail along the MBTA ROW, Eversource indicated that trail use, like appliance use or walking under a transmission line, would not constitute a long-term exposure and that the modeled values "are not outside the range that one could encounter in many places in our environment" (Tr. 4, at 682-683).

c. Analysis and Findings on Magnetic Fields

The record shows that, in the context of health-based guidelines, magnetic field strengths along the MBTA Underground Route, MBTA Overhead Route, and All-Street Route are not substantially different. Therefore, the Siting Board finds that the MBTA Underground Route, MBTA Overhead Route, and All-Street Route are comparable with respect to magnetic field impacts.

Consistent with WHO recommendations, the Siting Board continues to look for low-cost measures that would minimize exposures to magnetic fields from transmission lines. In prior Siting Board decisions, the Siting Board has recognized public concern about magnetic fields and has encouraged the use of practical and low-cost design to minimize magnetic fields along transmission ROWs. See, e.g., Salem Cables at 88. The Siting Board requires magnetic field mitigation which, in its judgment, is consistent with minimizing cost. The Company's average annual modeled magnetic field values, as indicated in above, show that the underground transmission line design and close positioning of the phases provides mitigation of magnetic fields.

The Siting Board finds that magnetic field impacts of the Project along the MBTA Underground Route would be minimized.

9. Massachusetts Central Rail Trail

a. Description

The Company stated that use of the MBTA ROW for construction of the MBTA Underground or MBTA Overhead Route would allow the Company to partner with the MBTA and DCR to develop a 7.63-mile portion of DCR's proposed MCRT, resulting in significant cost savings to DCR (Exh. EV-2, at 5-83; Company Reply Brief at 4).[143] The MCRT is a 104-mile-long proposed multi-use path between Boston and Northampton on the former Central

[143] DCR provided the Siting Board with a comment letter on April 18, 2017 in support of the MBTA Underground Route to facilitate DCR's planned development of the MCRT from downtown Sudbury to the Assabet River Rail Trail in Hudson, and the planned Bruce Freeman Rail Trail (Lowell to Sudbury). See Exh. EFSB-5.

Massachusetts Railroad corridor, including a 23-mile segment on inactive railroad ROW between Waltham and Berlin now owned by the MBTA, and leased to DCR (Exh. EFSB-LU-36(1) at 1; RR-EFSB-60). DCR serves as the project proponent for development of the MCRT on the 23-mile MBTA segment, including sections in the municipalities of Waltham, Weston, Wayland, Sudbury, Stow, Hudson, Bolton, and Berlin (Exh. EFSB-LU-36(1) at 2; RR-EFSB-60).[144] As noted in Section IV.D.1, the Company would maintain the access road, with respect to vegetation management and safety, to ensure it remains in appropriate condition until DCR's construction of the MCRT, whereupon DCR would manage the rail trail, including post-construction vegetation management (RREFSB-61).[145]

The Company argues that the majority of the construction impacts of the Project would be incurred if the MCRT were constructed absent the Project (RR-EFSB-98; Company Reply Brief at 60-61). As noted above in Section IV.B.2, the Company also argues that the impacts from the Project would be similar to those associated with the development of the MCRT, and further, if development of the rail trail is assumed, the incremental impact of construction of the Project is significantly reduced (Exh. EFSB-PA-36(R-3); Company Reply Brief at 60). In Section IV.D, the Siting Board noted that if construction of the rail trail is assumed, many of the environmental impacts associated with the Project would occur regardless of Project construction.

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144 Eversource, in consultation with DCR, reported on the status of the proposed MCRT (RR-EFSB-60). According to the Company, DCR has identified the Waltham to Berlin section of the MCRT as a priority project for the DCR (RR-EFSB-60). DCR's plans entail construction of the MCRT in partnership with communities and private and public entities (RR-EFSB-60). Some segments of the MCRT have already been constructed and some are presently under construction (RR-EFSB-60). DCR has developed funding and construction plans for the MCRT between Waltham and Hudson (17 miles); although the six-mile long section west of Wilkins Street in Hudson through Berlin is part of the MCRT scope, as reflected in the ENF filing with MEPA, DCR has not yet identified a source of funding or developed construction plans for that segment (Exh. EFSB-LU-36(1); RR-EFSB-60).

145 According to Eversource, following completion of the Project, DCR would add fine gravel, compact the existing access road, and finish with top surface or pavement (RR-EFSB-61).

The Company quantified the incremental environmental impacts between construction of the MCRT as a standalone project, and the Project coupled with the MCRT, as proposed by Eversource, and supported by DCR and the MBTA (Tr. 9, at 1512; RR-EFSB-98). The Company noted that since the MCRT has not been fully engineered, the only information available for this comparison are alignment sheets provided in DCR's 2013 ENF filing with MEPA (Exh. EFSB-LU-36(1); RR-EFSB-98; Tr. 9, at 1517). Eversource stated this conceptual information provides typical construction details, such as the width of the construction platform, but does not identify exact limits of clearing and grading (RR-EFSB-98).[146] Table 10, below, presents the Company's comparison of the environmental impacts based on the noted limitations of the data.

[146] Specifically, the Company stated that DCR's conceptual design for the MCRT described a 19-foot-wide flat platform, consisting of a 10-foot-wide paved trail, two feet of grassed shoulders on either side of the trail, and native plantings within the remaining five feet of the platform (RR-EFSB-98). Eversource posited that the impacts would decrease as DCR advanced final design of the MCRT (RR-EFSB-98).

Table 10. Eversource Comparison of Environmental Impacts of the Project & the MCRT

	MBTA Underground Route and Rail Trail	MBTA Overhead Route and Rail Trail	Rail Trail
Tree Clearing (acres)	27.96	70.05	17.39
Permanent Wetlands (sq. ft.)	1,179	1,059	2,058
Visual	Permanent corridor: 22 ft.	Permanent corridor 80 ft.	Permanent corridor: 19 ft.
Hazardous Waste	Potential for impacts are similar – excavation of duct bank and overhead foundations would not result in additional disturbance of potential containments. Construction within MBTA ROW would require MassDEP guidance for rail trails construction.		
Rare Species, Wildlife, and Habitat	Potential for impacts are similar – removal of existing railroad infrastructure would eliminate a barrier to movement of existing species and tree clearing would remove existing habitat. The potential tree clearing is the greatest for the MBTA Overhead Route, which also would have the least amount of revegetation following construction.		
Historic Resources	Potential for impacts are similar – construction of the access road would have similar visual impacts from abutting historic properties. Tree clearing required for the transmission lines could lead to visual impacts on abutting properties; however at least 31 feet of visual buffer would remain. The increased depth of excavation required for the underground duct bank and overhead structure foundations could lead to the discovery of archeological resources. Any potential impacts would be handled with MHC.		
Traffic	MBTA Underground Route would require one-way traffic, detours, or road closures due to trenching of pavement for installation of underground transmission line at grade crossings.	MBTA Overhead Route would require brief road closures during conductor stringing.	Rail trail may require one-way traffic to install roadway edge and pavement markers at crossings, requiring the shortest amount of traffic disruption.
Noise	In addition to standard construction equipment required for the access road, duct bank, and rail trail, the MBTA Underground Route would require specialized equipment such as generators, air conditioners, and a splicing van.	In addition to standard construction equipment required for the access road, structure foundations, and rail trail, the MBTA Overhead Route would require specialized equipment for conductor stringing.	Rail trail construction would require standard construction equipment for vegetation removal, erosion and sedimentation control installation, and construction of access road.

Sources: Exhs. EFSB-PA-36(R-3); EFSB-LU-36(1); RR-EFSB-98.

Note: For consistency, impacts associated with the MBTA Overhead Route and Project have not been updated to reflect more recent refinements made by the Company – i.e., a reduction in anticipated tree-clearing and wetland impacts associated with the Project as identified in the Company's FEIR filing with MEPA.

Eversource maintains that the Project would involve similar construction activities and equipment, and would result in similar impacts to wetland resource areas, traffic, noise, hazardous waste, historic resources, rare species, and wildlife and habitat, as the MCRT construction (Company Reply Brief at 61). The Company states that the amount of tree clearing would differ between the Project and the rail trail alone, but concluded that the visual impacts would be similar (Company Reply Brief at 61, citing Exh. RR-EFSB-98).

Eversource estimated the cost savings to DCR to be in the range of $6 to $10 million due to Eversource's completion of the access road, which would serve as the base of the rail trail (Exh. EV-1, at 5-33; RR-EFSB-18; Company Reply Brief at 66). Eversource attributed those savings to the cost of removal and disposal of rail ties; clearing and grubbing; grading for the access road, rail trail, and shoulders; erosion and sedimentation controls; excavation and removal of contaminated soils; and laying of the gravel access road (RR-EFSB-18).[147] Further, the Company stated that it agreed to complete bridge rehabilitation work, regardless of which route along the MBTA ROW is selected (underground or overhead), to facilitate the Company's inspections of tower structures and the development of the access road to be used as the base for the rail trail (Tr. 8, at 1301-1303).

The towns of Sudbury and Hudson have contemplated construction of the MCRT, and in response to Siting Board record requests, provided information regarding various town votes concerning the MCRT, dating back to 1997 (Tr. 12, at 2210-2216; RR-EFSB-83; RR-EFSB-84). In April 1997, Sudbury Town Meeting approved Article 50, a non-binding resolution expressing support for development of a bicycle and pedestrian trail along the Massachusetts Central Railroad ROW, and requesting that the Massachusetts Department of Environmental Management (now DCR) and the Massachusetts Highway Department design and construct the trail (RR-EFSB-83(1) at 1-2). In September 2014, Sudbury Special Town Meeting "indicated strong support" for the MCRT, including Phase I (from Union Avenue to Dutton Road in Sudbury) and the "full trail" length in Sudbury (RR-EFSB-83(1) at 5). At Town Meeting in

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147 Conversely, the Company reported that it would benefit from annual cost savings of approximately $5,000 per year from DCR's vegetation management of the MBTA ROW following completion of the MCRT (RR-EFSB-63).

December 2014, Sudbury voters considered two MCRT-related articles: Article 3, which sought town approval to raise and appropriate funding for engineering design and construction bid documents for the 1.8-mile-long Phase I segment of the MCRT (indefinitely postponed as the Finance Committee had already voted to transfer Reserve Funds to prepare design specifications for the MCRT); and Article 4, a non-binding resolution advising the "Board of Selectmen to support a paved travel surface on the MCRT," which passed overwhelmingly (RR-EFSB-83(1) at 10-14). On May 11, 2015, Sudbury Town Meeting voters rejected Article 55, which called for $1,000,000 to be raised by taxation for the engineering and construction of "greenway style" multi-use recreation trail that would have a "rolled stone dust finish layer" (RR-EFSB-83(1) at 27).[148] With regard to the Town of Hudson, in May 1997, the Hudson Board of Selectmen unanimously approved a resolution in support of the MCRT (RR-EFSB-84).[149]

b. Positions of the Parties

The Company asserts that in addition to DCR's avoided costs described above, the rail trail would provide public benefits by extending public open space areas, promoting regional connectivity between towns, developing opportunities for outdoor recreation and pollution-free transportation, and providing environmental and historical educational opportunities (Exh. EV-2, at 1-7; Tr. 2, at 333-334). Eversource concluded that the Project would help implement DCR's vision for the MCRT and would effectively reduce the overall cumulative impact of the Project (Exh. EV-2, at 5-85; Company Brief at 93).

The Town of Sudbury and Protect Sudbury oppose the Company's assertion that construction of the Project (including the MCRT) would have comparable environmental

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148 Concerns expressed at Sudbury Town meeting in opposition to Article 55 included the durability and accessibility of a stone dust trail surface, and competing demands at the time for capital projects by the town (RR-EFSB-83(1) at 29-31).

149 Hudson's witness, Ms. Helinek (Conservation Commission Agent/Planner), expressed her view that that the 1997 Select Board approval does not necessarily indicate "whether there is currently public support from Hudson residents for the Massachusetts Central Rail Trail" (RR-EFSB-84; RR-EFSB-84(1)).

impacts to the MCRT alone.[150] Sudbury argues that there would be no public benefit or consistency with the public interest by developing the Project and the MCRT in tandem (Sudbury Brief at 3; Sudbury Reply Brief at 14). Sudbury argues that construction of the MCRT absent the Project would have far less permanent environment impacts (Sudbury Reply Brief at 14). The town notes that the wider construction platform and tree clearing required for the Project would go beyond the "minor alterations" that would be required for just the rail trail (Sudbury Brief at 99, citing Exh. SUD-MJN/RMG-1(R) at 38). Specifically, Sudbury states that for the rail trail, DCR would not need to alter embankments along Hop Brook, and therefore would not impact BVW, vernal pools, waterbodies, or coldwater fisheries along banks (Sudbury Brief at 99, citing Exh. EFSB-LU-10(2)). The town further argues that the MCRT would have less impact to wildlife due to decreased tree clearing and would require less excavation and soil disturbance (Sudbury Brief at 99, citing Exh. EFSB-LU-10(2); Sudbury Reply Brief at 17).

Protect Sudbury argues that the Company has not demonstrated that the rail trail would provide any benefit to the Project, such as reliability or system need (PS Brief at 49-50). Protect Sudbury contends that the host communities should be allowed to decide independently about the development of the MCRT, without any consideration of the Project (PS Brief at 49-50). Further, Protect Sudbury claims that the advantages of a rail trail are fewer than the negative impacts of the Project (PS Brief at 50, citing Exh. SUD-MJN/RMG-1 at 41-43; PS Reply Brief at 7). Protect Sudbury claims that the MCRT, combined with the Project, would impact more of the natural environment than the rail trail alone (PS Reply Brief at 7-8). Protect Sudbury concludes that the Siting Board should not consider the MCRT as part of its evaluation of the Project (PS Brief at 50).

c. Analysis and Conclusions

Construction of the MCRT would further the Commonwealth's stated intention to provide greater access to natural resource areas and create corridors that are pedestrian and

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[150] In a comment letter to MEPA on the Company's ENF and in a letter to the Siting Board, the Stow Conservation Commission indicated its support for the MBTA Underground Route and noted the opportunity to advance construction of the MCRT (Exh. EFSB-G-1(3) at 340; Tr. 9, at 1508-1509).

cyclist friendly. See Exh. EFSB-3. As DCR has stated, development of a multi-use rail trail along the MBTA ROW would provide the missing link in the regional MCRT, from downtown Sudbury to the Assabet River Rail Trail in Hudson, and the Bruce Freeman Rail Trail between Lowell and Sudbury. The rail tail is a unique opportunity to provide public open space, promote regional connectivity and local commerce, and to encourage outdoor recreation and the health benefits derived therefrom. Construction of the Project along the MBTA ROW would also provide significant cost savings to DCR and assist in DCR's goal of completing the MCRT.

If it is assumed that the MCRT would be constructed on the MBTA ROW, many of the environmental impacts associated with the MBTA ROW section of the Project would occur regardless of whether the Project itself is constructed. The record shows that the greatest difference in environmental impacts between the MCRT as a standalone project and the Project with the MCRT would be land use, coldwater fisheries, and visual impacts related to the increase in the width of the corridor required for the Project with either an underground or overhead transmission line. Otherwise, environmental impacts would be similar for construction of the Project along the MBTA Underground Route and the MCRT, as a standalone project.

Notwithstanding the stated opposition of Sudbury, Protect Sudbury, and Hudson to the Project in this proceeding, the record shows that on multiple occasions since 1997, elected officials and voters in both communities have shown support for the MCRT. As recently as December 2014, Sudbury Town Meeting voters approved Article 4, a non-binding resolution advising the Board of Selectmen to support a paved travel surface on the MCRT. These past expressions of support for the MCRT are consistent with the Company's view (shared by DCR) that the MCRT would provide important public benefits.

Nevertheless, in making a judgment on the merits of the Project, the Siting Board elects not to net out the prospective impacts from construction of the MCRT in its evaluation of the impacts for the Project. In this manner, the analysis used by the Siting Board places the full weight of environmental and cost impacts on the Project in comparison with alternatives. We do this despite the fact that the parts of the MCRT are already moving forward in the neighboring communities of Weston and Wayland, and that the Secretary issued a Certificate in 2014 on DCR's Expanded ENF for the MCRT on the MBTA ROW (including the section used by the

Project). This conservative approach severs consideration of the development of the MCRT as a "baseline condition" from the Siting Board's findings on Project impacts.

10. Summary of Environmental Impacts

The Siting Board finds that the information the Company provided regarding the Project's environmental impacts is substantially accurate and complete. A summary of the Siting Board's findings regarding the relative environmental impacts of the three routes is provided in Table 11, below.[151]

Table 11. Ranking of the Three Routes with Respect to Environmental Impacts (1 lowest impact, 3 highest impact)

Environmental Impacts	MBTA Underground Route	All-Street Route	MBTA Overhead Route
Land Use and Historic Resources	1	1	3
Water and Wetlands	2	1	3
Noise	1	2	3
Traffic	1	3	1
Visual	2	1	3
Hazardous Waste	2	2	1
Safety	1	1	1
Air	1	1	1
Magnetic Fields	1	1	1
Total Impact Ranking	**12**	**13**	**17**

On balance, the Siting Board finds that environmental impacts for the MBTA Underground Route are comparable with those of the All-Street Route; and that the MBTA Overhead Route has the highest environmental impact of the three routes proposed.

151 The numbers in Table 11 reflect the comparisons presented in the individual environmental analyses above. For example, in the Land Use category, the Siting Board found that the MBTA Underground Route and the All-Street Route were both preferable to the MBTA Overhead Route, and as such the MBTA Underground Route and the All-Street Route are both ranked first and the MBTA Overhead Route is ranked third.

E. Cost

1. Company Description

In its initial petitions, Eversource provided conceptual-level cost estimates (i.e., -25%/+50%) for the MBTA Underground Route, the MBTA Overhead Route, and the All-Street Route (Exh. EV-2, at 5-84). The Company reported that these conceptual grade estimates were calculated using recent costs of similar materials and construction activities and include overhead items such as costs related to design and permitting, and allowance for funds used during construction (Exh. EV-2, at 5-84). Subsequently, Eversource provided a more refined planning grade cost estimate (-25%/+25%) for the MBTA Underground Route and made related updates to its conceptual grade estimates for the MBTA Overhead Route and the All-Street Route (Exh. EV-2, at 5-84; Tr. 7, at 1118-1119; RR-EFSB-50). Eversource stated that it uses the same cost estimate methodology across all projects and that this methodology is consistent with Attachment D of the ISO-NE's Planning Procedure No. 4 (pool-supported transmission facility cost review) ("PP-4") (Exh. SUD-C-1).[152]

The Company's planning grade cost estimate for the MBTA Underground Route is $95.8 million (RR-EFSB-50). By comparison, the Company's conceptual level cost estimates

[152] Eversource indicated that its cost estimate for the Project was developed using a bottom-up approach, aggregating the estimated costs of each component of the Project in accordance with widely accepted industry standards, such as the American Society of Professional Estimators Standard Estimating Practice (Exh. SUD-C-1; Company Reply Brief at 70; RR-EFSB-50). Eversource stated that, where applicable, standard base-level inputs are used, such as the depth of the duct bank and the number of test pits per mile, to ensure consistency and uniformity across estimates (Exh. SUD-C-1). The Company's cost estimate for the Project does not include annual lease payments associated with the MBTA ROW of approximately $425,000 per year for 20 years, which the Company considered operational costs rather than capital costs, for a total of $9,358,077 (Tr. 8, at 1285-1286; Exh. EFSB-C-12(R-1)).

for the Project are $67.5 million using the MBTA Overhead Route and $114.2 million for the All-Street Route, as detailed in Table 12, below (RR-EFSB-50).[153,154]

Table 12. Total Estimated Cost of the MBTA Underground Route, MBTA Overhead Route, and All-Street Route

Route	Sudbury Substation	Hudson Substation	Transmission Line	Total Estimated Cost
MBTA Underground Route	$3.8 million	$5 million	$87 million	$95.8 million (+/- 25%)
MBTA Overhead Route	$3.1 million	$5 million	$59.4 million	$67.5 million (-25%/+50%)
All-Street Route	$3.9 million	$5 million	$105.3 million	$114.3 million (-25%/+50%)

Source: RR-EFSB-50.

Based on the above, the Company estimated that the MBTA Overhead Route is the lowest cost route, followed by the MBTA Underground Route, with the All-Street Route being the most expensive (RR-EFSB-50).

2. Positions of the Parties

a. Town of Sudbury

Sudbury maintains that Eversource has not substantiated its contention that the MBTA Underground Route is superior to the All-Street Route in terms of cost (Sudbury Brief at 73).

153 The Company's initial conceptual level cost estimate for the MBTA Underground Route was $96 million (including $6.7 million for work at Sudbury Substation, and $5 million for work at the Hudson Substation) (Exh. EV-2, at 5-84). By comparison, the Company's initial conceptual level cost estimate for the MBTA Overhead Route was $49.2 million (including $4.2 million for work at the Sudbury Substation, and $5 million for work at the Hudson Substation), and $115.4 million for the cost of the All-Street Route (including $6.8 million for work at the Sudbury Substation and $5 million for work at the Hudson Substation) (Exh. EV-2, at 5-84).

154 With respect to cost allocation, Eversource indicates that, should the Siting Board approve the Project along the MBTA Underground Route, the Company would submit an application to ISO-NE seeking to regionalize the costs of the Project, including the incremental cost of underground construction, across New England (Company Reply Brief at 24-25, citing Tr. 4, at 718; Tr. 7, at 1000, 1257).

According to Sudbury, the Company failed to provide a coherent cost analysis necessary for the Siting Board's review, and the record is "completely devoid of substantial evidence to support the cost estimates" for the MBTA Underground Route and the noticed alternatives (Sudbury Brief at 73). Sudbury maintains that the Company's cost figures cannot be relied upon because evidence suggests that "the estimates are manipulated" by the Company (Sudbury Brief at 73). Even if not manipulated, Sudbury maintains that the costs of the MBTA Underground Route and the All-Street Route "are not meaningfully different at the level of precision used," and that the Company's cost estimates do not adequately consider "the high level of environmental mitigation" that would be required along the MBTA ROW (Sudbury Brief at 73-74).

Sudbury contends that the Company has not filed a reliable cost analysis "and has withheld the calculations and assumptions used for its estimates, in violation of the Town's due process rights" (Sudbury Brief at 73-74). Sudbury argues that, notwithstanding the Company's production of a basic table showing a breakdown of materials, labor, ROW costs, engineering/permitting, financing/AFUDC, and escalation for the proposed line along the MBTA Underground Route and at the Sudbury Substation, the Company refused to produce the workpapers, spreadsheets, and related cost documentation underlying this information (Sudbury Brief at 74, citing Exhs. EFSB-C-6; EFSB-C-13; SUD-C-17(S-1) at 1). Sudbury contends that it was "forced to proceed with an inadequate record, in clear violation of its due process right to review reasonable information supporting the Company's cost estimation process" (Sudbury Brief at 75). Sudbury notes that after the end of evidentiary hearings, the Company filed entirely new itemization tables professing to include a planning grade estimate for the MBTA Underground Route, but still including a conceptual grade estimate for the MBTA Overhead Route and All-Street Route (Sudbury Brief at 76, citing RR-EFSB-50(1)). Noting numerous cost changes made to all three routes in the updated estimates, the town argues that many of the changes were made without accompanying explanation and that parties have not had an opportunity to cross-examine the Company on the changes, in violation of their due process rights (Sudbury Brief at 76).

Sudbury argues that the Company's cost estimates are biased and unreliable (Sudbury Brief at 77). Sudbury asserts that the Company's original cost information contained data entry errors, included costs that were not properly applicable to the All-Street Route, and omitted the

$425,000 annual fee that must be paid to the MBTA for use of the ROW (Sudbury Brief at 77, citing Tr. 7, at 1017). The town argues that this annual fee is an incremental cost of the MBTA Underground Route and should have been included in a fair cost comparison between the alternatives (Sudbury Brief at 77). Sudbury maintains that, in the aggregate, the cited examples of errors give cause to seriously question the trustworthiness of the information provided by the Company (Sudbury Brief at 77-78).

Sudbury notes that estimates of Project costs associated with bridge repairs, tunnel installations, clearing and grubbing, and soil management all increased after the filing of the DEIR and cross-examination, arguing that these increases show that the Company's cost estimates are unreliable (Sudbury Brief at 78, citing Exh. SUD-C-17(S2)(1); RR-EFSB-50(1)). Sudbury notes that these changes initially narrowed the gap between the MBTA Underground Route costs and the All-Street Route cost estimate, but maintains that the Company "made up for these changes by systematically decreasing or removing" MBTA Underground Route costs while increasing All-Street Route costs in other categories, in most cases without explanation (Sudbury Brief at 78, citing RR-EFSB-50(1)(confidential)).

Sudbury maintains that the difference in costs between the All-Street Route and the MBTA Underground Route is "further distorted" by the Company's use of escalation and contingency multipliers, which Sudbury contends are not appropriate for use if a project is not yet fully designed and the cost estimates already involve "a high level of guesswork" (Sudbury Brief at 79).

Sudbury contends that even if the Company's cost estimates are taken at face value, the estimated cost differences between the All-Street Route and the MBTA Underground Route "are meaningless when considering the imprecision of the estimates" (Sudbury Brief at 82). According to Sudbury, the $20 million difference between the two routes is not a reliable statistic because the bandwidth of error associated with conceptual grade estimates is $87 million for the All-Street Route and $72 million for the MBTA Underground Route (Sudbury Brief at 82).[155]

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[155] According to Sudbury, narrowing the range for the MBTA Underground Route to -25%/+25% still results in a potential range of error equal to $50 million, which is greater than the difference between the Company's cost estimate for the MBTA Underground Route and the All-Street Route (Sudbury Brief at 82).

According to Sudbury, given the level of overlap between the cost estimates, "there is a likelihood that costs associated with the [MBTA Underground Route] would be equal to or more costly than" the All-Street Route, and that the Siting Board cannot reasonably demonstrate through sufficient evidence that the All-Street Route would be the more expensive route (Sudbury Brief at 82).

Sudbury also contends that the Company's cost estimates fail to recognize the sensitive nature of the MBTA ROW and assign appropriate mitigation costs to the Company's MBTA Underground Route (Sudbury Brief at 83, citing Exh. EV-16). Sudbury maintains that there are significant environmental sensitivities along the Company's proposed route (e.g., Project construction near jurisdictional wetland resource areas, excavation of contaminated soils, etc.) and that at the time of evidentiary hearings, the Company had undertaken only about half of the environmental survey work necessary for the MBTA Underground Route (Sudbury Brief at 83, citing Tr. 7, at 1165-1166). Sudbury describes what it believes to be the "absurd" result that the Company is currently estimating that the All-Street Route, which is located entirely in public roadways, would involve 44 percent higher environmental and mitigation costs compared to the MBTA Underground Route (Sudbury Brief at 83, citing RR-EFSB-50(1))(confidential).[156]

b. Protect Sudbury

Protect Sudbury argues that the Company's conceptual grade cost estimates are inherently inaccurate (PS Brief at 28-31). According to Protect Sudbury, conceptual estimates are a highly-variable, rough order of magnitude estimates, used principally to establish the feasibility of a project or to screen alternative project designs early in the planning process (PS Brief at 29, citing Exh. Protect-RC/RH/ML/MO-1, at 5). Protect Sudbury maintains that,

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156 The Siting Board notes that the mitigation costs presented by the Company for the All-Street Route consist solely of the additional cost of curb-to-curb repaving (RR-EFSB-47). The mitigation costs presented for both MBTA Routes consist of wetland replication, land preservation, and meeting environmental performance standards for tree restoration, wildlife habit, and coldwater fisheries, as well as curb-to-curb repaving for the in-street portion of these routes also (RR-EFSB-47). Soil management was included as a separate line item in the Company's cost estimates in addition to mitigation (RR-EFSB-50).

generally, these estimates are prepared using only basic criteria such as generic unit cost factors (PS Brief at 29, citing Exh. Protect-RC/RH/ML/MO-1, at 5, 14).

Protect Sudbury asserts that conceptual grade estimates do not include significant information such as material costs, labor costs, production rates, construction conditions, and overall competitiveness of the construction industry, nor soil characteristics, potential hazardous materials, and "specialty construction" areas, such as directional drilling, river and highway crossings (PS Brief at 29-30, citing Exh. Protect-RC/RH/ML/MO-1 at 5, 7-8). Protect Sudbury contends that if conceptual estimates are used, it would be more accurate to compare the cost ranges of the candidate routes, rather than the specific cost estimates, in any evaluation (PS Brief at 30, citing Exh. Protect-RC/RH/ML/MO-1, at 7).

Protect Sudbury specifically criticizes the Company's use of conceptual cost estimates on the grounds that such estimates would understate demonstrated risks relating to site conditions and contamination along the MBTA ROW (PS Brief at 31-32, citing Exh. EFSB-HW-6(S-1)(1) at 2).[157] Protect Sudbury asserts that despite the Company's acknowledgement of contamination risks associated with railroad ROWs (and the MBTA Underground Route, specifically), costs associated with these risks have not been included in the conceptual estimates (PS Brief at 32, citing Exh. EFSB-HW-6(S-1)(1)). Protect Sudbury maintains that the level of significant contamination along the MBTA Underground Route will likely increase costs beyond the upper range of the Company's conceptual cost estimate (PS Brief at 32, citing Exh. Protect-RC/RH/ML/MO-1, at 11-12). Protect Sudbury notes that elements of uncertainty may vary between projects and may increase the cost estimate of the MBTA Underground Route or decrease the cost estimate of another candidate route and argues that the absence of detailed information at this stage of the proceeding makes it difficult to determine whether there is enough relevant information to accurately rank the cost estimates (PS Brief at 31). Protect Sudbury argues that the Siting Board should "give more weight to the inherent inaccuracy of the estimates used in this case" because the proposed Project along the MBTA Underground Route was not vetted by ISO-NE as part of a Solutions Study or Proposed Plan Application ("PPA")

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157 The Siting Board notes that the final cost estimate submitted by the Company for the Project is a planning grade estimate, rather than a conceptual grade estimate.

process; rather, the lower-cost MBTA Overhead Route was evaluated by ISO-NE (PS Brief at 11-12, 27-28).

Beyond its concerns about the use of conceptual cost estimates, Protect Sudbury argues that the MBTA Underground Route is the more costly choice, as compared to the All-Street Route (PS Brief at 34). Protect Sudbury maintains that, in reaching a contrary conclusion, the Company erroneously compares the alternative routes based on the single conceptual cost estimate, rather than on the complete cost-range for any given candidate route (PS Brief at 34).

Finally, Protect Sudbury argues that, even if the Project along the MBTA Underground Route were the least cost alternative, the Siting Board should reject the Project and determine that another alternative is preferable (PS Brief at 36). Protect Sudbury submits that the Siting Board has previously determined that a more expensive route was, on balance, preferable to the alternatives because it had fewer environmental impacts and strong community support (PS Brief at 36, citing New England Power Company, EFSB 97-3, at 71-72 (1998)).

c. Company Response

The Company acknowledges that the MBTA Overhead Route is the least cost route (Company Reply Brief 67). Eversource contests criticisms of its cost estimates by the Town of Sudbury and Protect Sudbury (Company Reply Brief at 67-77). According to the Company, cost issues have been the subject of thorough cross-examination and exhaustive discovery, and the Company has established that the estimated cost of the MBTA Underground Route is lower than the cost of the All-Street Route (Company Reply Brief at 67). The Company argues that: (1) it has provided accurate and detailed cost estimates; (2) the Company's cost estimation process is consistent with industry practice and ISO-NE procedures; (3) the Company's updated cost estimates for the MBTA Underground Route and alternatives were appropriately developed (including inclusion of mitigation costs); (4) it was appropriate for the Company to include contingency allowances and escalation factors in its cost estimates; (5) current cost estimates appropriately reflect changes over time; and (6) the Company's cost estimates provide a sufficient basis for an informed review by the Siting Board (Company Reply Brief at 67-77). Finally, the Company emphasizes that the costs in the record for the MBTA Underground Route, the MBTA Overhead Route and the All-Street Route are the most current estimates available,

and that the MBTA Underground Route cost estimate has an accuracy of -25%/+ 25% (Company Reply Brief at 67, citing RR-EFSB-50).

The Company maintains that all the underlying estimates, assumptions, and subcomponents for its cost estimates have been provided and that its costs have not only been broken out by component (overhead transmission, underground transmission, and substation), but also by category (materials, invoices and labor) (Company Reply Brief at 68, 69 citing RR-EFSB-44; RR-EFSB-45; RR-EFSB-46; RR-EFSB-47, RR-EFSB-48; RR-EFSB-49; RR-EFSB-50). While costs of the route alternatives were not established at the same level of precision as costs of the MBTA Underground Route, the Company argues that: (1) its cost estimating methods were consistent across the three transmission route alternatives; and (2) the scope of cost-related information in this case "far exceeds" what is typical in Siting Board proceedings (Company Reply Brief at 68). In addition, the Company argues that its detailed set of cost submissions negates Sudbury's argument that the Company withheld workpapers and underlying calculations (Company Reply Brief at 69). Eversource argues further that the Company's approach accords with cost estimating methods used in recent Siting Board cases (Company Reply Brief at 68, citing Woburn-Wakefield at 46; East Eagle at 34).

Eversource contests Protect Sudbury's argument that conceptual level estimates are inherently inaccurate and should be rejected by arguing that the development of its Project cost estimates follows standard industry practice, both in terms of timing and level of accuracy (Company Reply Brief at 69, citing Exhs. EV-DAS/DMB-1, at 5; Protect-14). The Company cautions that the intervenors are seeking a level of precision in the Company's cost estimates that is not available at this stage of project design and engineering (Company Reply Brief at 72). The Company argues that it would be impractical to take every alternative to its complete engineering conclusion for the purpose of providing more certain comparative cost estimates because of the time and expenditures that would be required (Company Reply Brief at 69, citing Exh. EV-DAS/DMB-1, at 18). The Company suggests that Sudbury fails to recognize that the cost figures in the record reflect the current stage of Project design, that additional discovery would not bring forth final cost figures, and that the Company's cost estimates provide a range of precision typically accepted by the Siting Board (Company Reply Brief at 72).

Eversource disagrees with Sudbury's assertion that the Company has "withheld from the record critical information that will significantly increase the Project's environmental impacts and add to its cost" – for example, on costs relating to items such as bridge repair, culvert improvements, and soil disposal costs (Company Reply Brief at 71). The Company maintains that it has included costs for mitigation, taking into consideration unique elements and associated specific cost estimates for each alternative route (Company Reply Brief at 71). According to the Company, the record reflects consideration of the following elements: (1) specialized crossings, including bridge crossings; (2) the assumed extent of utility congestion and need for utility relocations; (3) the potential extent of contamination that may be present, the volume of soils that need to be transported off-site, and the amount of soil needed to be brought on-site for capping; and (4) the extent of necessary erosion control (Company Reply Brief at 71-72, citing Exh. EV-DAS/DMB-1, at 10). The Company argues that it has performed sufficient analysis of potential environmental mitigation to enable the Company to reduce uncertainties associated with its environmental mitigation costs (Company Reply Brief at 72).

The Company contests Sudbury's argument that contingency and escalation factors should not be used in the development of the Company's cost estimates, and maintains that it was appropriate to include both contingency and escalation in its cost estimates, and in accordance with Attachment D of ISO-NE's PP-4 (Company Reply Brief at 72-73, citing Exh. EFSB-1). The Company argues that it is appropriate to include higher contingency factors for the alternative routes because there has been less engineering work completed for these route options and therefore greater uncertainty (Company Brief at 73-74). The Company agrees with Sudbury that it had originally used different escalation factors for the MBTA Underground Route and All-Street Route and that it had corrected the discrepancy (Company Reply Brief at 74, citing RR-EFSB-50(1)(confidential).

The Company dismisses Sudbury's assertion that line-item cost changes made by the Company during the course of the proceeding are indicative of Company bias or manipulation or indicate the cost estimates are unreliable (Company Reply Brief at 74-75, citing East Eagle at 61; Exhs. EV-DAS/DMB-1, at 5; EFSB-1). Instead, the Company maintains that updates to its cost estimates reflect the Company's process of refining estimates as the Project design progresses, which, by definition, is an iterative process involving extensive internal review and refinement

prior to finalization (Company Reply Brief at 75). Eversource indicates that this is standard practice for transmission companies in the ISO-NE control area and is in accordance with PP-4 (Company Reply Brief at 70, citing Exhs. PROTECT-83; EFSB-1). The Company contends that Sudbury's argument concerning bias and manipulation are unsupported by the record (Company Reply Brief at 75).

The Company defends its use of a single-point cost estimate (versus using a comparison of the potential lowest and highest end of the range of a cost estimate) as both appropriate and in accordance with Siting Board precedent (Company Reply Brief at 69, citing Woburn-Wakefield at 18, East Eagle at 28, Walpole-Holbrook at 16, Mystic-Woburn at 18). The Company disputes arguments of Sudbury and Protect Sudbury that, given the overlap between cost estimates ranges, there is a likelihood that costs associated with the MBTA Underground Route would be equal to or more costly than the All-Street Route (Company Reply Brief at 75). The Company maintains that there is no rationale or factual basis to assume that similar cost items that exist across project alternatives will deviate in opposite directions for the MBTA Underground Route and its alternatives; while actual costs may change from estimates over time, the Company argues that the direction of cost changes will be consistent over time for all alternatives for the clear majority of cost items (e.g., labor, materials, overheads, etc.) (Company Reply Brief at 76, citing Exh. EV-DA/DMB-1, at 7). Further, although all three project alternative estimates are bounded at the bottom by -25 percent, the Company argues that the MBTA Underground Route's planning grade estimate is the only one of the three alternative cost estimates that now has a more limited +25 percent upper confidence limit, compared to the +50 percent confidence limits for the MBTA Overhead Route and the All-Street Route and that, therefore, the cost advantage of the MBTA Underground Route, relative to the All-Street Route, is even stronger when comparing the upper bounds of the cost estimate ranges (Company Reply Brief at 75-76). The Company further argues that its single point cost estimate approach is consistent with the procedures required in ISO-NE's PP-4 (Company Reply Brief at 69-70).

3. Analysis and Findings on Cost

The Siting Board requires the petitioner to demonstrate that the proposed route for the transmission facility is superior to the alternative route(s) on the basis of balancing

environmental impact, cost, and reliability of supply. G.L. c. 164, § 69J. Further, because G.L c. 164, § 69J provides that "no state agency shall issue a construction permit for any such facility unless the petition to construct such facility has been approved by the [Siting Board]," the Siting Board's balancing of environmental impact, cost, and reliability of supply takes place at a relatively early stage in the engineering design of a particular project. As a result, project cost estimates are typically developed only to an intermediate level of precision. Furthermore, applicants typically do not develop engineering design of alternatives to the same level of detail, so cost estimates for alternatives are necessarily less precise. See East Eagle at 60-61.

Sudbury's overarching complaint is that the Company failed to meet its burden to provide a coherent cost analysis of the MBTA Underground Route and its alternatives, and that the record is "devoid of substantial evidence to support the cost estimates for the Project." Following a motion by Sudbury to compel responses to discovery seeking, inter alia, workpapers used to develop the Company's line-item cost estimates, at the Siting Board's direction, the Company filed additional information (Exh. SUD-C-17(S-2)). This supplemental response provided some additional back-up information to support the Company's cost information for each of the three alternative transmission routes, but Sudbury argues that the Company did not produce its "actual workpapers."

At the December 5, 2017, evidentiary hearing, Siting Board staff as well as counsel for Sudbury and Protect Sudbury asked extensive questions of the Company's cost witnesses, and Siting Board staff issued a number of detailed record requests to obtain additional back-up documentation and explanations of the Company's cost estimates (see RR-EFSB-34 through RR-EFSB-49). Responses to these record requests provide substantial information on the underlying basis and rationale for the Company's cost estimates. Accordingly, the Siting Board does not accept Sudbury's contention that the record is devoid of substantial evidence supporting the Company's cost estimates.[158] To the contrary, the Siting Board concludes that the record

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158 The Siting Board also rejects the Town of Sudbury's contention that the Company's updated planning grade estimate was devoid of explanation. In many cases, the information contained in the updated cost schedule (RR-EFSB-50(1)(confidential) was derived and explained in separate response to record requests, such as RR-EFSB-44 (the cost of trenchless crossings), RR-EFSB-45 (costs of underground transmission pavement restoration costs), RR-EFSB-46 (costs of underground transmission materials),

contains extensive cost information, that taken together, constitute substantial evidence on the issue of Project cost. The Siting Board is entitled to rely upon this substantial body of evidence to conclude that the cost of the All-Street Route is likely to be greater than either of the MBTA Routes.

The Siting Board notes that the Company's responses to record requests concerning the cost of the MBTA Underground Route and its two alternatives contain a number of corrections from earlier Company cost estimate elements, including consistent per-foot pavement restoration costs and duct bank material costs, and vegetation clearing and grubbing costs for access roads.[159] Contrary to Sudbury's assertions, the substantial detail and explanations provided by the Company provide a sufficient basis to conclude that the Company's cost estimates, including soil management and environmental mitigation, are reliable.

In PP-4, ISO-NE anticipates different grades of estimates to be developed as planning for a project proceeds (e.g., conceptual estimates, planning estimates, etc.) and that the level of detail in the estimate will increase as the project develops. ISO-NE's PP-4 also requires project proponents to include escalation and contingency in their cost estimates for transmission projects, regardless of the grade of the estimate (Exh. EFSB-1, Attachment D, at 8-13). The Siting Board considers this approach to be reasonable and reflective of the uncertainty associated with cost estimation practices. Accordingly, the Siting Board sees no reason to diverge from the cost estimating process adopted by

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RR-EFSB-47 (mitigation costs for the three alternatives), RR-EFSB-48 (the costs of clearing and grubbing/access road), and RR-EFSB-49 (further support and explanation for costs associated with traffic control, flagger & police, the costs of unspecified trenchless crossings, the cost of plating, and the development and backup for the cost associated with soils management). Although not every change that the Company made to its cost estimate that was submitted with its updated planning grade estimate was explained, sufficient basis and explanation was provided to support the new planning grade estimate for the MBTA Underground Route and for revisions to estimates for the MBTA Overhead Route and All-Street Route.

159 The Siting Board rejects Sudbury assertion that its due process rights were violated by the Siting Board's long-standing practice of allowing parties to submit information not available at hearings in the form of record request responses. See 980 CMR 1.06(6)(g). See also Section I.C.

ISO-NE and is not persuaded by Sudbury's argument that escalation and contingency factors are inappropriate for conceptual and planning grade estimates.

With respect to the argument by Sudbury that it was unreasonable to assign different contingency factors for different routes, the Siting Board accepts the Company's explanation that because it had conducted more extensive engineering of the MBTA Underground Route, and therefore had a more detailed understanding of the Project compared to the All-Street Route and the MBTA Overhead Route, it was reasonable for the Company to use a lower contingency for the Project compared to the alternative routes. This is consistent with past Siting Board precedent (see e.g., East Eagle at 60-61), as well as PP-4, Attachment D, at 10, which suggests that contingency levels are expected to be reduced as a given cost estimate advances from an early preliminary cost estimate to a more detailed cost estimate.[160]

The record shows that the Company did not include annual lease payments to the MBTA in its estimates for the MBTA Routes on the grounds that these are operational costs, not capital costs. The Siting Board agrees that this is consistent with past Company practice and that including a selective operational cost associated with the MBTA Routes (as proposed by Sudbury) would create an inconsistent comparison. See e.g., New England Power Company d/b/a National Grid EFSB 09-1/D.P.U. 09-52/D.P.U. 09-53, at 64 (2011).

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[160] The Town of Sudbury correctly notes that the amount of contingency has increased for the All-Street Route in both actual and percentage terms under the updated cost estimate in RR-EFSB-50. The contingency for the All-Street Route increased by 77 percent and the contingency for the MBTA Underground Route increased by five percent (RR-EFSB-50(1)(confidential)). Although the Siting Board does not find it unreasonable for the contingency factor applied to the estimated costs of the All-Street Route to be higher than the contingency factor applicable to the MBTA Underground Route (given the greater level of uncertainty associated with the All-Street Route, as discussed above), it is unclear why the contingency for the All-Street Route has increased by approximately 77 percent, compared to the contingency for the same cost element as originally identified by the Company. Nevertheless, this difference does not materially alter the conclusion that the MBTA Underground Route is substantially less expensive than the All-Street Route.

The record shows that the cost estimate ranges for the MBTA Underground Route and the two alternative routes overlap. That is, the low end of the estimated cost range for the MBTA Underground Route is lower than the high end of the range for the MBTA Overhead Route, and the high end of the cost range for the MBTA Underground Route is higher than the low end of the All-Street Route. The Siting Board notes that there is a greater confidence level associated with the Company's estimate of the cost of the MBTA Underground Route than that of the MBTA Overhead and All-Street Routes. The Siting Board accepts the Company's position that the direction of any cost changes from the estimates would tend to be consistent for the majority of cost items over time, including increases or decreases in the cost of labor, materials, and overhead. As such, it is unlikely that, in the event of construction, actual costs of the MBTA Overhead Route would exceed those of the MBTA Underground Route under the same external conditions – or that the All-Street Route would become less expensive than the MBTA Underground Route. This view is reflected in ISO-NE's practices, which compare the cost of projects on a point-estimate basis.

The record identifies the MBTA Overhead Route as the least cost alternative, with an estimated cost of approximately $67.5 million compared to the MBTA Underground Route estimated cost of approximately $95.8 million. The All-Street Route, with an estimated cost of approximately $114.3 million, is the highest cost of the three noticed route alternatives. Based on the Company's cost estimates, the Siting Board finds that the MBTA Overhead Route is preferable to the MBTA Underground Route with respect to cost and that both the MBTA Overhead Route and MBTA Underground Route are preferable to the All-Street Route with respect to cost.[161]

F. Reliability

The Company evaluates several factors when assessing the reliability of transmission projects, including the location of the transmission facilities, total exposure to faults (length), the

[161] The Siting Board notes that this relative ranking of costs remains unchanged even if costs associated with annual lease payments to the MBTA for the MBTA Routes are included.

type of transmission structures, and maintenance and repair accessibility (Tr. 2, at 283-284). According to the Company, while both overhead and underground transmission lines are reliable, historical performance on the Eversource system indicates that underground transmission lines experience fewer outages than overhead lines since they are protected from exposure to weather (Exh. EFSB-R-1). However, Eversource states that the duration of outages on overhead transmission lines is generally less than 24 hours, while the duration of outages on underground transmission lines is significantly longer, typically 30-60 days (Exh. EFSB-R-1). Considering both the frequency and duration of outages, the Company believes there is no meaningful difference between the reliability of the underground and overhead routing alternatives considered (Exh. EFSB-R-1). Furthermore, the Company does not consider the shorter length of the MBTA Underground Route (approximately nine miles) to provide a material advantage in reliability over the All-Street Route (approximately ten miles) (Exh. EV-2, at 1-1, 1-6; Tr. 2, at 284-285).

Sudbury argues that complications associated with the Company's decision to pursue underground construction of the Project, after initially proposing overhead construction in the ISO-NE planning process, creates a reliability concern that should be considered by the Siting Board (Sudbury Brief at 85-86). According to Sudbury, additional ISO-NE process would be required if the Board were to approve the Company's proposed MBTA Underground Route – specifically, a revised PPA to ensure that no material adverse impacts would result from construction of the Project (Sudbury Brief at 86). Sudbury also notes that the Option Agreement between Eversource and the MBTA contemplates underground construction only and does not allow overhead construction as proposed under the MBTA Overhead Route (Sudbury Brief at 86, citing Tr. 2 at 343). Finally, Sudbury argues that termination rights established in the Option Agreement allow the MBTA to terminate the Company's lease for railroad use or other transportation purposes, at which point Eversource would need to relocate its facilities along the MBTA ROW, creating additional reliability concerns (Sudbury Brief at 87, citing Exhs. SUD-G-19(1); Protect-2-14).

In response to Sudbury's arguments that a revised PPA is necessary, Eversource maintains that it has performed an analysis to verify that the proposed underground configuration of the Project will not adversely affect the existing transmission system (Company Reply Brief

at 20, citing Exh. EFSB-C-4). The Company will seek formal PPA approval from ISO-NE following a decision by the Siting Board (Company Reply Brief at 20-21, citing Exh. EFSB-C-4). Eversource dismisses Sudbury's concerns relating to its Option Agreement with the MBTA, stating that the Company is not precluded from constructing the transmission line overhead along the ROW,[162] and that in the unlikely event that the MBTA were to terminate its lease with Eversource, the Company's facilities would be relocated within the easement, and that such a relocation would be coordinated to ensure no reliability impact (Company Reply Brief at 22, 57, citing Exhs. EFSB-C-12(R1)(2) at 5; Protect-2-14; Tr. 7, at 1002).

The Siting Board is persuaded by the Company's testimony that the proposed underground construction of the Project would not adversely affect the existing transmission system and notes that the Project will be subject to formal ISO-NE review to confirm this fact following issuance of the Board's decision. Furthermore, Eversource has affirmed that, in the unlikely event that the MBTA restores rail service along the MBTA ROW or elects to use the ROW for other transportation purposes, the Company would be able to relocate its transmission facilities within the ROW without any detrimental impacts to system reliability.[163] Thus, the Siting Board concludes that the terms of the Option Agreement are not likely to have a significant impact on the reliability of the New Line. Accordingly, the Siting Board finds that the MBTA Underground and Overhead Routes, and the All-Street Route are comparable with respect to reliability.

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162 The Company stated that if overhead construction along the MBTA ROW were to go forward, an amendment to the Option Agreement would be pursued with the MBTA (Company Reply Brief at 22).

163 The Siting Board notes that if relocation of the New Line within the MBTA ROW were to become necessary, under the Option Agreement the MBTA is required to give Eversource no less than five years notice in order to allow Eversource sufficient time to complete construction of the relocated facilities prior to removal of the existing facilities and without disruption to the Project's operation (Exh. EFSB-C-12(R1) at 64).

G. Conclusion on Analysis of the MBTA Underground and Overhead Routes and All-Street Route

The Siting Board is charged with ensuring jurisdictional facilities approved for construction in the Commonwealth achieve an appropriate balance between environmental impacts, reliability, and cost. As discussed above, the Siting Board finds that the MBTA Underground Route, the MBTA Overhead Route, and the All-Street Route are comparable with respect to reliability. The Siting Board further finds that the MBTA Underground Route is comparable to the All-Street Route with respect to environmental impacts and preferable with respect to cost, and that the MBTA Overhead Route is preferable to the MBTA Underground Route and the All-Street Route with respect to cost.

While the MBTA Overhead Route is the lowest cost route alternative, the record shows that this route has the greatest potential for environmental impact. Construction of the MBTA Overhead Route would, among other things, require substantial tree clearing, the loss of valuable wetland resources, the highest level of construction-related noise impacts, and permanent visual impacts that would result in meaningful change to the natural environment and residential areas along the MBTA ROW. The record shows that these impacts can be avoided, or significantly, reduced through the use of underground construction techniques, as proposed in the MBTA Underground Route. On balance, therefore, the Siting Board concludes that the additional expenditure of $28.3 million associated with construction of the MBTA Underground Route rather than the MBTA Overhead Route is warranted in this instance.[164] While the specific environmental impacts associated with the MBTA Underground Route and the All-Street Route differ, on balance, the Siting Board has found them comparable. As such, the Siting Board concludes that the additional expenditure of $18.5 million to construct the All-Street Route rather than the MBTA Underground Route (or a total increase of $46.8 million over the least-cost route alternative) is not warranted in this instance.

The Siting Board therefore finds that the MBTA Underground Route is superior to the MBTA Overhead Route and the All-Street Route with respect to providing a reliable energy

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[164] The Siting Board notes that DCR "fully supports" the MBTA Underground Route, as this route would "best facilitate DCR's plans to develop a multi-use rail trail along that portion of the MBTA property" (Exh. EFSB-5 at 1).

supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

Based on review of the record, the Siting Board finds that the Company provided sufficient information to allow the Siting Board to determine whether the Project has achieved a proper balance among cost, reliability, and environmental impacts. The Siting Board finds that with the implementation of the specified conditions and mitigation presented above, and compliance with all applicable local, state, and federal requirements, the environmental impacts of the Project along the MBTA Underground Route would be minimized. The Siting Board finds that the Project along the MBTA Underground Route would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability, and cost.

VII. CONSISTENCY WITH POLICIES OF THE COMMONWEALTH

A. Standard of Review

G.L. c. 164, § 69J requires the Siting Board to determine whether plans for construction of the applicant's new facilities are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. Vineyard Wind at 127; Needham-West Roxbury at 74; Woburn-Wakefield at 136.

B. Positions of the Parties

1. Town of Sudbury

Sudbury asserts that the Siting Board cannot conclude that Eversource's plan for construction of the Project is consistent with the Commonwealth's health, environmental protection and resource use and development policies, and therefore the Siting Board should deny the Petition (Sudbury Brief at 96-97).

Sudbury argues that the Project would have adverse impacts to jurisdictional wetland resource areas, adversely affecting interests that are protected by the Massachusetts WPA, such as the private or public water supply, ground water, flood control, wildlife habitat, and fisheries (Sudbury Brief at 88-89, citing G.L. c. 131, § 40). The town also maintains that the Company's Project is inconsistent with the Commonwealth's policy to avoid adverse impacts on coldwater

fisheries (Sudbury Brief at 88-89). Sudbury notes that the Company has not yet been able to demonstrate that the Project does not impact rare species habitat, as the Company has not yet completed its NHEPSP rare species evaluation (Sudbury Brief at 89-90).[165]

Sudbury alleges that the Company's Project is an affront to the State's longstanding commitment to preserve and enhance open spaces under the jurisdiction of Article 97, noting that there are 14 parcels of Article 97 land abutting the Project route (Sudbury Brief at 90, citing Exh. SUD-MJN/RMG-1(R) at 34; RR-EFSB-65(1)). Further, Sudbury argues that, in accordance with state law, the town has adopted a master plan that includes a "[n]atural and cultural resources element which provides an inventory of the significant natural, cultural and historic resource areas of the municipality, and policies and strategies for the protection and management of such areas" (Sudbury Brief at 90, citing G.L. c. 41, §81D). The town asserts that Eversource's preferred route along the MBTA ROW is in conflict with Sudbury's master plan, which preserves the Hop Brook landscape in Sudbury (Sudbury Brief at 90-91, citing G.L. c. 41, §81D).

Sudbury refers to Governor Baker's Executive Order 569, which recognizes that the generation and consumption of energy continues to be a significant contributor to greenhouse gas ("GHG") emissions in the Commonwealth, and the need to assess vulnerabilities and adopt strategies to increase the resiliency of the state's infrastructure (Sudbury Brief at 91). According to Sudbury, the Company's current design to compensate for flood storage, which will lower the elevation of the railroad platform surface at the Bridge #130 (Fort Meadow Brook) to below the 100-year flood plain elevation, would promote additional flooding and decrease resiliency (Sudbury Brief at 91-92; citing RR-SUD-10; RR-SUD-10(1)). Further, Sudbury argues that adding an additional transmission line to the Marlborough Subarea does not further the state's goal under the Global Warming Solutions Act ("GWSA") and Executive Order 569 to diversify the Commonwealth's energy portfolio (Sudbury Brief at 92).

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165 The Siting Board notes that, as discussed in Section VI.D.1, above, since the filing of briefs the Company has received a conditional "no-take" determination from NHESP, including a Final Decision signed by the Director of the Division of Fisheries and Wildlife denying an appeal petition filed by Protect Sudbury (see Exh. EFSB-LU-7(S2)(1); EFSB-LU-7(S4)(1)).

Sudbury argues that the Project is in contravention to the Commonwealth's Smart Growth/Smart Energy policy's Sustainable Development Principles #4, #5, and #9: Protect Land and Ecosystems; Use Natural Resources Wisely; and Promote Clean Energy, respectively (Sudbury Brief at 92-93). According to Sudbury, the Company's plan to construct the Project along the "ecologically sensitive" MBTA ROW, "and its failure to reasonably consider NTAs such as energy efficiency and renewable energy," are inconsistent with the Commonwealth's sustainable development goals (Sudbury Brief at 93).

Finally, the Sudbury takes issue with the Company's decision to address the identified need with a transmission project, which the town maintains is inconsistent with the Company's statutory mandate under the Green Communities Act ("GCA") and subsequent Department decisions, thereby avoiding any meaningful effort to consider NTAs that would satisfy the claimed need for the Project (Sudbury Brief at 93-96).

2. Protect Sudbury

Protect Sudbury argues that the Project is inconsistent with and violates the Commonwealth's Smart Growth/Smart Energy policy's Sustainable Development Principles and Siting Board past directives to evaluate whether a proposed project, among other things, has the support of local officials who have assisted in the development of the route as well as in a construction mitigation plan (PS Brief at 50-51, citing New England Power EFSB 09-1/D.P.U. 09-52/09-53 ("Worcester") at 63 (2011)).[166] According to Protect Sudbury, the Project: (1) has not been designed and conditioned to avoid or minimize impacts to natural and cultural resources by being placed underground in city streets and within existing underground rights of way; (2) would significantly affect undisturbed property; (3) does not have the support of local

[166] The Siting Board notes that the citation referenced by Protect Sudbury does not provide the cited information. In Worcester at 67, the Siting Board did not state that local officials supported the project, but noted "local officials and community groups played a significant role in developing the route for the [p]roject as well as construction mitigation plans."

officials; and (4) is located in a "mapped habitat" and is "likely to impact water or historic resources" (PS Brief at 51, citing East Eagle at 146; Worcester at 63).[167]

3. Company

Eversource argues that, in addition to satisfying the requirements of the Siting Board's statue under G.L. c. 164, § 69J, the Project is consistent with other state energy policies as articulated in the Electric Utility Restructuring Act of 1997, the GCA (Chapter 169 of the Acts of 2008), the Energy Diversity Act (Chapter 188 of the Acts of 2016), and the GWSA (Chapter 298 of the Acts of 2008) (Company Brief at 126, citing Exh. EV-2, at 6-1).

According to the Company, the Project will be consistent with applicable health policies because it will improve the reliability of the regional transmission system, ensuring a reliable supply of electricity to customers in the Marlborough Subarea – a matter, which Eversource submits, greatly affects public health and safety (Company Brief at 126, citing Exh. EV-2, at 6-1).[168] Further, the Company maintains that the more robust transmission system will enable the connection of various future energy resources that may be developed in response to the Energy Diversity Act, and a more efficient and flexible operation of the electric grid, consistent with the GCA (Company Brief at 131, citing Exh. EV-2, at 6-4 to 6-5).

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167 Protect Sudbury filed a Notice of Claim with the Division of Fisheries and Wildlife ("Division") contending that Eversource improperly segmented the construction of the Project, which resulted in a "gross underestimation" of the impacts on state-listed species and the total acreage of disturbance within Priority Habitats" (Exh. EFSB-LU-7(S3)(1) at i-2). Both the Division and Eversource filed separate Motions to Dismiss the Petitioner's appeal for lack of standing (Exh. EFSB-LU-7(S4)(3) at 1-2). Subsequent to the filing of these motions to dismiss, a Ten Citizen Group filed a Motion to Intervene in the Petitioner's appeal pursuant to M.G.L. c. 30A, § l0A (Exh. EFSB-LU-7(S4)(3) at 1-2). In a Final Decision, the Director of the Division granted the respective Motions to Dismiss by the Division and Eversource based on a determination that the Petitioner Protect Sudbury, Inc. does not have standing to appeal the Division's Conditional No-Take Determination, and that the Ten Citizen Group's Motion to Intervene is therefore moot (Exh. EFSB-LU-7(S4)(1)).

168 The Company further states that it will design, build, and maintain the Project so that the health and safety of the public are protected (Company Brief at 126, citing Exh. EV-2, at 6-1).

Eversource submits that it has compared a range of alternative projects and proposed specific plans to carefully mitigate environmental impacts associated with the construction, operation and maintenance of the Project, consistent with cost minimization, and that, as such, the Project is consistent with the environmental policies of the Commonwealth (Company Brief at 128-129, 1 citing Exh. EV-2, at 6-2 to 6-3). Further, Eversource states that the Project will be constructed and operated in accordance with all relevant federal, state and municipal regulations and environmental policies, and that it will have no adverse climate change impacts or negative effects on sea levels (Company Brief at 129, 132, citing Exhs. EV-2, at 6-3, 6-5, 6-7, Table 6-1; EV-16, at Table 2-3, Table 2-4 and Table 2-5). Thus, the Project is consistent with the GWSA and will contribute to a reliable, low cost, diverse energy supply for the Commonwealth while avoiding, minimizing, and mitigating environmental impacts to the maximum extent practicable (Company Brief at 129, citing Exh. EV-2, at 6-3).

Finally, Eversource argues that the Project is consistent with, and furthers, the Commonwealth's policies regarding resource use and development because no previously undisturbed property will be affected by construction of the Project (Company Brief at 132-133, citing Exh. EV-2, at 6-5 to 6-6).

In response to Sudbury's assertions that the Project is not consistent with policies of the Commonwealth because it will impact certain resource areas, Eversource argues that Sudbury has failed to acknowledge that the Company is required to obtain all environmental approvals and permits required by federal, state, and local agencies, and that the Project would be constructed and operated to fully comply with those permits and approvals, as well as all relevant federal, state, and municipal regulations and environmental polices (Company Reply Brief at 77, citing Exhs. EV-2, at 6-3, 6-7, Table 6-1; EV-16, at Table 2-3, Table 2-4 and Table 2-5.). According to the Company, the essence of a project that meets the Commonwealth's policies is reflected by meeting such approvals and permits, including the Certificate from the Secretary of Energy and Environmental Affairs under MEPA relating to the Company's FEIR (Company Reply Brief at 77-78, citing Exhs. EV-2, at 6-3, EV-16, at 2-8 to 2-30, RR-EFSB-104).

With respect to Article 97 land protection, the Company responds that the Project does not trigger the need for Article 97 approval, and that the Project would be constructed on an existing railroad transportation corridor and that previously undisturbed Article 97 land would be

largely unaffected by the siting, construction or operation of the Project (Company Reply Brief at 78, citing Exhs. EV-2, at 6, EFSB-LU-40, Tr. 9, at 1540-1541).

The Company rejects Sudbury's argument that the design of the Project at Bridge #130 is inconsistent with strategic approaches to climate change, or that the resiliency of the Company's infrastructure would be at risk because of increased flooding (Company Reply Brief at 80). According to the Company, potential increased flooding resulting from climate change would not impact the resiliency of the Company's Project because the New Line is designed such that, even if fully submerged, water would be unable to penetrate the conduits, protecting the cables from damage (Company Reply Brief at 80, citing Exh. SUB-DEIR-34; Tr. 8, at 1394-1397).[169] Further, the Company maintains that the Project would not cause additional significant environmental impact to the surrounding area, as maintained by the town, because the Project would comply with the FEMA National Flood Insurance Program regulations and the Massachusetts WPA regulations (Company Reply Brief at 80, citing Exh. SUB-DEIR-34; Tr. 8, at 1394-1397).[170]

The Company disagrees with Sudbury's contention that the Project reflects a bias by the Company not to undertake any meaningful effort to consider NTAs that would satisfy the asserted need for the Project (Company Reply Brief at 80-81). To the contrary, the Company argues that it thoroughly evaluated the feasibility and cost of implementing NTAs in lieu of the Project, but determined that the practical challenges to development of conventional fossil-fuel or renewable generation in the Project area make technically feasible NTAs inferior to the Project (Company Reply Brief at 81, citing Exh. EV-2, at 3-8 to 3-12, Appendix 3-5; RR-EFSB-24(R1); RR-EFSB-24(R1)(1)).

In response to the argument made by Protect Sudbury that the Project is inconsistent with and violates the Commonwealth's Sustainable Development Principles, and does not meet Siting

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169 Eversource stated that sections of conduit would be fuse-welded together, which prevents water entry (Tr. 8, at 1396).

170 According to the Company, where the Project encroaches upon a regulatory floodway, the Company would demonstrate through a hydrologic and hydraulic analysis that the Project would not result in any increase in flood levels within the community during a 100-year flood (Company Reply Brief at 80, citing Exh. SUD-DEIR-34).

Board precedent, the Company argues that the Project has been designed and conditioned to avoid or minimize impacts to natural and cultural resources by being placed underground on an existing transportation corridor where it would promote the development of an extension of the Commonwealth's rails to trails program (Company Reply Brief at 79). The Company notes that the Project would be located entirely within the existing infrastructure of the MBTA ROW or roadways, and therefore, the siting, construction, and installation of the Project would not affect undisturbed property (Company Reply Brief at 79). Further, the Company maintains that because the Project supports the development of the MCRT, it also supports Sustainability Principle #4, by increasing "accessibility of open spaces and recreational opportunities" (Company Reply Brief at 79-80).

C. Analysis and Findings

1. Health Policies

In Section 1 of the Electric Utility Restructuring Act of 1997, the Legislature declared that "electricity service is essential to the health and well-being of all residents of the Commonwealth" and that "reliable electric service is of utmost importance to the safety, health, and welfare of the Commonwealth's citizens." See St. 1997, c. 164. In Section VI.G, above, the Siting Board found that the Project would improve the reliability of electric service in Massachusetts. Reliable electricity service is essential to the health and well-being of residents of the Commonwealth; therefore, an improvement in electric service reliability will also help contribute to the health and well-being of Commonwealth's residents.

The Project has received an FEIR Certificate from the Secretary affirming the Project's consistency with MEPA requirements that all Project-related impacts to the environment have been properly and adequately identified, minimized, and mitigated. In Section VI.D, the Siting Board finds that the Project's land use, wetland and water resource impacts, noise, traffic, visual impacts, hazardous waste, safety, air, and magnetic fields impacts have been minimized. In addition to the Siting Board's conditions, the Company is required to obtain all environmental approvals and permits required by federal, state, and local agencies and must be constructed and operated according to those permits and approvals. Accordingly, subject to the Company's specified mitigation and the Siting Board's conditions set forth in Section VII, below, the Siting

Board finds that the Company's plans for construction of the Project are consistent with current health policies of the Commonwealth.

2. Environmental Protection Policies

The Global Warming Solutions Act, enacted in August 2008, is a comprehensive statutory framework to address climate change in Massachusetts. St. 2008, c. 298. The GWSA mandates that the Commonwealth reduce its GHG emissions by 10 to 25 percent below 1990 levels by 2020, and by at least 80 percent below 1990 levels by 2050. G. L. c. 21N, §3(b). The GWSA obligates administrative agencies, such as the Siting Board, to consider reasonably foreseeable climate change impacts and related effects when reviewing permit requests. G.L. c. 30, § 61. Pursuant to the GWSA, the Secretary issued the Massachusetts Clean Energy and Climate Plan for 2020 on December 29, 2010 (the "2020 CECP") and an update dated December 31, 2015 (the "2020 CECP Update"). In a determination accompanying the 2020 CECP, the Secretary set the 2020 state-wide GHG emissions limit at 25 percent below 1990 levels. In 2016, Governor Charles D. Baker issued Executive Order 569, titled "Establishing an Integrated Climate Change Strategy for the Commonwealth," and in 2017, MassDEP issued final regulations in accordance with the GWSA. In 2016, Massachusetts Governor Charles D. Baker signed into law "An Act to Promote Energy Diversity". St. 2016, c. 188. The Energy Diversity Act requires utilities to procure additional renewable energy resources including offshore wind, hydroelectric generation, and new Class I RPS eligible resources. St. 2016, c. 188, § 12.

The Siting Board notes that the transmission line portion of the Project would have minimal GHG emissions as it is an underground transmission line and would not create direct emissions from a stationary source or indirect emissions from energy consumption. The new 115 kV circuit breakers at the Sudbury Substation will require the use of SF_6 gas, a potent GHG (Exh. EFSB-G-3(S1)(2) at 11). The Secretary's Certificate on the FEIR notes that the annual emissions rate for these circuit breakers of 0.1 percent is the lowest commercially available, and that the potential for SF_6 emissions at the substation is minimal (Exh. EFSB-G-3(S1)(2) at 11).

With regard to increasing use of renewable energy resources, by improving the reliability of the regional transmission system, the Project will help facilitate the integration of these renewable energy resources. The Sudbury Substation currently has the capability to interconnect

distributed renewable energy resources and there are no changes that could be implemented in conjunction with the Project to enhance this capability (Exh. EFSB-G-3(S1)(2) at 11-12). The record also shows that an NTA solution consisting of combined battery storage facilities and solar PV was fully considered by the Company, as described in Section IV, above, and the Siting Board found that the Project is preferable to such an alternative.

The Company has shown that construction of the Project would have no adverse climate change impacts or suffer negative effects relating to sea level rise. As discussed in Section VI.D.2., above, the Siting Board does not agree with Sudbury's assessment that the Company's current design to compensate for flood storage would promote flooding in the area or change the hydrology either upstream or downstream of Fort Meadow Brook. In addition, any potential increased flooding that occurs due to climate change has not been shown to jeopardize any components of the Project. The underground construction of the Project does not need to be installed above surface water elevations, as sections of the conduit are fuse-welded together, which prevents water from penetrating and damaging it. Accordingly, the Siting Board finds that the Project is consistent with the Commonwealth's climate change and resiliency policies.

In Section VI.D, above, the Siting Board reviewed how the Project would meet other state environmental protection requirements. The Siting Board also: (1) considered the Project's environmental impacts, including those related to land use, historic resources, wetlands and water resources, coldwater fisheries, rare species habitat, wildlife habitat, noise, traffic, visual, hazardous waste, safety, air, and magnetic fields impacts; and (2) concluded that, subject to the specified mitigation and conditions set forth below, the Project's environmental impacts have been minimized. Accordingly, we reject Sudbury's argument that the Project is inconsistent with the Commonwealth's efforts to protect coldwater fisheries and rare species habitat. We also reject Sudbury's argument that construction of the Project is at odds with the Commonwealth's policy to protect, preserve, and enhance all open space areas covered by Article 97, as the Project would not be constructed on any Article 97 lands, and no undisturbed property would be directly impacted by the siting, construction, and operation of the Project. Moreover, the Project would be constructed on a pre-existing and already disturbed railroad corridor. As discussed in Sections VI.D.1 and VI.D.2, impacts to the Hop Brook landscape or other open space that has

been designated by the 2001 Sudbury Master Plan to preserve critical natural resources and wildlife habitat would be minimized.

The Project does not trigger enhanced public participation or enhanced analysis of impacts and mitigation under either the Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs issued on January 31, 2017 ("2017 EJ Policy"), or the prior EJ Policy issued in 2002 and in effect at the time the Company filed the Petitions (see Company Brief at 130). Further, consistent with established Siting Board practice and language access considerations, the Siting Board staff examined the linguistic composition of the affected Project area, and determined that additional outreach, in languages other than English, was neither required, nor specifically requested by members of the public.

Subject to the specified mitigation and conditions set forth in this Decision, the Siting Board finds that the Company's plans for construction of the Project are consistent with the current environmental protection policies of the Commonwealth.

3. Resource Use and Development Policies

In 2007, pursuant to the Commonwealth's Smart Growth/Smart Energy policy, the Executive Office of Energy and Environmental Affairs established Sustainable Development Principles. Among the principles are: (1) supporting the revitalization of city centers and neighborhoods by promoting development that is compact, conserves land, protects historic resources and integrates uses; (2) encouraging reuse of existing sites, structures and infrastructure; (3) protecting environmentally sensitive lands, natural resources, critical habitats, wetlands and water resources and cultural and historic landscapes; and (4) increasing the quantity, quality, and accessibility of open spaces and recreational opportunities. In Section V, the Siting Board reviewed the process by which the Company selected the MBTA Underground Route for the Project. The Project has been designed and conditioned to avoid or minimize impacts to natural and cultural resources by being constructed underground, primarily in an existing ROW linking the existing Sudbury and Hudson Substations.

As discussed in Section IV.D, above, given the reliability needs currently present in the Marlborough Subarea, NTAs are inferior to the Project. Accordingly, the Siting Board does not agree with Sudbury's argument that siting the Project along the MBTA ROW contradicts the

Commonwealth's Sustainable Development Principles, including the principle to promote clean energy. Indeed, the Project would further a more robust transmission system that is better positioned to support the objectives of the Energy Diversity Act.

The Siting Board also does not agree with Sudbury and Protect Sudbury that the Project is inconsistent with or violates the Commonwealth's Smart Growth/Smart Energy policy or past Siting Board practice on the subject. As discussed in Section VI.D, above, the Project's environmental impacts have been minimized, with applicable imposed conditions; its construction would be in compliance with all applicable federal, state and local laws and regulations, and would not significantly impact natural or cultural resources. The Project would be located within the existing infrastructure of the MBTA ROW and existing streets, and therefore, the siting, construction, and installation of the Project would not affect undisturbed property. Further, the Project supports the development of the MCRT, and therefore supports Principle #4, which seeks to increase the quantity, quality, and accessibility of open spaces and recreational opportunities. Contrary to Protect Sudbury's arguments, there are no legal or policy requirements that there be no mapped habitat in the vicinity of a project or that a project has the support of local officials.

Subject to the specific mitigation and the conditions set forth in this Decision, the Siting Board finds that the Company's plans for construction of the Project are consistent with the current resource use and development policies of the Commonwealth.

VIII. ANALYSIS UNDER G.L. C. 40A, § 3 - ZONING EXEMPTIONS

Pursuant to G.L. c. 40A, § 3, the Company filed a petition ("Zoning Petition") seeking individual and comprehensive zoning exemptions from the zoning bylaws of the Towns of Sudbury, Hudson, and Stow for the Company's Project.

A. Standard of Review

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

> Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [Department] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine

> the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public . . .

Thus, a petitioner seeking exemption from a local zoning bylaw under G.L. c. 40A, § 3 must meet three criteria.[171] First, the petitioner must qualify as a public service corporation. Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667, 677 (1975) ("Save the Bay"). Second, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. Vineyard Wind at 132; Woburn Wakefield at 140; NRG Canal 3 Development LLC, EFSB 15-06/D.P.U. 15-180, at 140-141 (2017) ("NRG"). Finally, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. Vineyard Wind at 132; NRG at 141; Tennessee Gas Pipeline Company, D.T.E. 01-57, at 3-4 (2002).

Additionally, the Siting Board favors the resolution of local issues on a local level whenever possible, to reduce concern regarding any intrusion on home rule. The Siting Board believes that the most effective approach for doing so is for a petitioner to consult with local officials regarding its project before seeking zoning exemptions pursuant to G.L. c. 40A, § 3. Vineyard Wind at 132; Woburn Wakefield at 140; Russell Biomass LLC, EFSB 07-4/D.P.U. 07-35/07-36, at 61-62 (2009) ("Russell"). Thus, the Siting Board encourages petitioners to consult with local officials, and in some circumstances, to apply for local zoning permits, before seeking zoning exemptions from the Department under G.L. c. 40A, § 3. Vineyard Wind at 132; NRG at 141; Russell at 68.

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[171] G.L. c. 40A, § 3 applies to the Department. The Department refers zoning exemption cases to the Siting Board for hearing and decision pursuant to G.L. c. 25, § 4. In accordance with G.L. c. 164, § 69H, when deciding cases under a Department statute, the Siting Board applies Department and Board standards "in a consistent manner." Thus, the Siting Board the Department implement G.L. c. 40A, § 3 using consistent standards of review, and this Decision cites to both Siting Board decisions and Department orders interpreting G.L. c. 40A, § 3.

On April 27, 2017, the Chair of the Department referred the Company's Zoning Petition to the Siting Board for review and decision pursuant to G.L. c. 25, § 4.

B. Public Service Corporation

1. Standard of Review

In determining whether a petitioner qualifies as a "public service corporation" ("PSC") for the purposes of G.L. c. 40A, § 3, the Massachusetts 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. at 680; Woburn-Wakefield at 141; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997) ("Berkshire Power").[172]

2. Analysis and Conclusion

The Company is an electric company as defined by G.L. c. 164, § 1 and, as such, qualifies as a public service corporation. Woburn Wakefield at 141. Accordingly, the Siting Board finds that the Company is a public service corporation for the purposes of G.L. c. 40A, § 3.

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[172] 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. Berkshire Power at 30; Save the Bay, 366 Mass. at 685-686; Town of Truro v. Department of Public Utilities, 365 Mass. 407, 410 (1974) ("Town of Truro"); Exelon West Medway at 135 n.117; New England Power Company d/b/a National Grid, D.P.U. 15-44/15-45 at 5-6 (2016) ("MVRP"). 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; MVRP at 6; see also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59B/95-80/95-112/96-113, at 6 (1998). The Department has determined that it is not necessary for a petitioner to demonstrate the existence of "an appropriate franchise" in order to establish PSC status. Berkshire Power at 31; MVRP at 6; NSTAR Electric Company, D.P.U. 15-02 (2015) at 4-5.

C. Public Convenience or Welfare

1. Standard of Review

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 685; Town of Truro, 365 Mass. at 407. 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) ("NY 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, 366 Mass. at 685; NY Central Railroad, 347 Mass. at 592.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Department examines: (1) the need for, or public benefits of, the present or proposed use; (2) the present or proposed use and any alternatives or alternative sites identified;[173] 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. Vineyard Wind at 136-137; Woburn-Wakefield at 142; Tennessee Gas Company, D.T.E. 98-33, at 4-5 (1998).

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

2. Analysis and Findings

With respect to the need for, or public benefits of, the Project, the Siting Board found in Section III that additional energy resources are needed for reliability in the Project area. In Section IV the Siting Board analyzed different project approaches including transmission and non-transmission alternatives, that the Company might use to meet the reliability need and concluded that the proposed approach is superior to other approaches. The Siting Board also reviewed the Company's route selection process in Section V, and has found that the Company demonstrated that it: (1) examined a reasonable range of practical siting alternatives and (2) identified locations which would minimize cost and environmental impacts while ensuring a reliable energy supply. The Siting Board also compared the impacts of the MBTA Underground Route, the MBTA Overhead Route and the All-Street Route. Based on that review, the Siting Board has concluded that the MBTA Underground Route is superior to the MBTA Overhead and All-Street Routes in providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

Finally, regarding Project impacts, in Section VI.D, the Siting Board evaluated the environmental impacts of the Project and found that, although the Project may result in some local adverse impacts, the environmental impacts of the proposed Project would be minimized with the implementation of mitigation measures directed by the Siting Board and described in this Decision. Based on the foregoing, the Siting Board finds that the need for the Project on balance outweighs identifiable adverse local impacts associated with the construction and operation of the Project. Accordingly, the Siting Board finds that the proposed Project is reasonably necessary for the convenience or welfare of the public.

D. Individual Exemptions Required

1. Standard of Review

In determining whether an exemption from a particular provision of a zoning bylaw is "required" for purposes of G.L. c. 40A, § 3, the Department determines whether the exemption is necessary to allow construction or operation of the petitioner's project. Vineyard Wind at 139; Woburn Wakefield at 143-144; Tennessee Gas Company, D.P.U. 92-261, at 20-21 (1993). The

Petitioner bears the burden to identify the individual zoning provisions applicable to the project and 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 [G.L.] 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.

Vineyard Wind at 139; Woburn Wakefield at 143-144; New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995).

2. Description

a. Exemptions

Tables 13, 14, and 15, below, summarize: (1) each of the specific provisions of the Sudbury, Hudson, and Stow Zoning Bylaws from which the Company seeks exemptions; (2) the relief available (if any) under the bylaws; and (3) the Company's argument as to why it cannot comply with the identified zoning provision and/or why the available zoning relief is inadequate.

Table 13. Requested Individual Exemptions from the Sudbury Zoning Bylaw – Summary of Company's Position

Section of the Sudbury Zoning Bylaw	**Available Relief**	**Why Exemption is Required: Company's Position**
Principal Use Regulations Section 2230	Special Permit	The provision requires a special permit for Essential Services (e.g., services provided by a public service corporation) in all zoning districts. The Company maintains that grant of a special permit is discretionary and, even if granted, would be susceptible to appeal.
Dimensional Requirements Section 2600	Variance	The provision limits height of structures to 35 feet, which would require a variance for the proposed 100-foot shielding mast at the Sudbury Substation. Eversource maintains that variances are a legally disfavored form of relief and, even if granted, are susceptible to appeal.
Performance Standards	Variance	The provision limits construction activity to weekdays from 7:00 a.m. to 6:00 p.m. A variance would be

Section of the Sudbury Zoning Bylaw	Available Relief	Why Exemption is Required: Company's Position
Noise Section 3423		required to allow the Company's proposed construction hours. Additionally, the Company asserts that the provision's prohibition of excessive noise may require a variance to the extent that construction activities would not meet the noise standard included in the provision. Eversource maintains that variances are a legally disfavored form of relief and, even if granted, are susceptible to appeal.
Performance Standards **Vibration, odor, glare, etc.** Section 3425	Variance	The Company argues that it cannot ensure that its construction activities would meet the requirements of this provision, which prohibit detectable vibration without instruments at any lot line, and that dust shall be confined to the premises. Eversource maintains that variances are a legally disfavored form of relief and, even if granted, are susceptible to appeal.

Section of the Sudbury Zoning Bylaw	**Available Relief**	**Why Exemption is Required: Company's Position**
Performance Standards **Site Development Criteria** Section 3427 subpart (a) (Natural Features Conservation); subpart (c) (Siting of Structures); subpart (f) (Outdoor Lighting); subpart (g) (Other Site Features)	Variance	*Section 3427(a)* provides that changes to the natural topography be kept "to an absolute practical minimum" and that where tree coverage has been removed, new plantings may be required. The Company maintains that compliance with the topography standard is "subjective" and that some trees will need to be permanently removed in connection with the Project. *Section 3427(c)* provides that the siting of all structures minimize disruption of the topography, facilitate natural surface drainage, and be properly designed for particular site conditions. The Company argues that construction of the access road and transmission line placement may change topography, and that the topography standard is "subjective." *Section 3427(f)* provides standards for outdoor lighting and requires that all glare and light spilling onto neighborhood properties be avoided. The Company states that it will need to employ temporary outdoor lighting in connection with its construction activities during extended work hours. Lighting will also be required for nighttime repairs during operation of the Sudbury Substation. The Company contends that a variance would be required to the extent that these provisions apply to the Project, and the lighting necessary for the Project is not in compliance. *Section 3427(g)* requires that all utility structures and facilities be located or visually screened so as not to create hazards or visual or other nuisances. The Company argues that the application of this provision to the Sudbury Substation, as modified, is "subjective." For each provision where the available relief is a variance, Eversource maintains that variances are a legally disfavored form of relief and, even if granted, are susceptible to

Section of the Sudbury Zoning Bylaw	**Available Relief**	**Why Exemption is Required: Company's Position**
Erosion Control Section 3430 Section 3431 (Final slopes >15 percent) Section 3432 (Topsoil and vegetative cover requirements) Section 3433 (Vegetation Clear-stripping or Filling) Section 3436 (Vegetative Cover Requirements)	Variances	Section 3430 requires various conditions be met for site design, materials, and construction processes to avoid erosion damage, sedimentation, or uncontrolled surface water runoff. According to the Company, the Project has not advanced sufficiently to ensure that it will meet Sections 3431 and 3432 with respect to the grading of slopes, nor to determine whether the vegetative cover requirements of Section 3436 will be met. The Company further argues that the term "hillside" in Section 3436 is undefined and therefore it is unclear whether the provision applies to the Project. The Company maintains that the Project will not be able to comply with section 3433, as work along the ROW will involve removal of vegetation to construct the access road and duct bank. For each bylaw provision where available relief is a variance, Eversource maintains that variances are a legally disfavored form of relief and, even if granted, are susceptible to appeal.
Excavation Abutting Roads Section 3440	Zoning Board of Appeals ("ZBA") Approval	Excavation within 50 feet of a road may not be below the grade of the road without ZBA approval. The Company maintains that the design of the Project is not sufficiently advanced to ensure its ability to meet the excavation requirements.
Flood Plain Overlay District Section 4100 et seq.	Special Permit or None Available	Section 4140 generally prohibits filling, excavation and construction in the Flood Plain Overlay District. The Company maintains that construction of the Project would require a use variance, which is not an available form of relief for the Project under the bylaw. Section 4166 provides the Board of Appeals the authority to grant a special permit under certain circumstances. The Company maintains that grant of a special permit is discretionary and, even if granted, would be susceptible to appeal.

Water Resource Protection Overlay District Section 4200	Use Variance or None Available	The provision allows uses in the Water Resource Protection Overlay District only if such uses are allowed in the underlying zoning district. According to the Company, to the extent that this provision applies to uses allowed by special permit (and not just to those allowed as-of-right), a use variance would be required for construction of the New Line along the MBTA ROW in the Water Resource Protection Overlay District. The Company maintains that use variances are allowed in limited circumstances, but that none of the limited circumstances apply in this case. Eversource argues that because there is no local relief available an exemption from the requirements of Article 4200 are per se required.
Section 4243(c) Section 4253(b) Section 4260 Section 4261(a) Section 4261(b) Section 4261(c) Section 4261(f)	Special Permits	Eversource indicates that the application of a starter fertilizer along with seed is common practice for the stabilization of disturbed soils following the construction of large linear projects. Sections 4243(c) and 4253(b) require a special permit for the application of fertilizers for non-domestic or non-agricultural uses in Zone II and III wellhead protection areas. Eversource maintains that the conditions required for the grant of a special permit are subjective and that a special permit, if granted, is susceptible to appeal. Section 4260 specifies the procedures and conditions for the grant of a special permit for excavation in the Water Resource Protection Overlay District. The Company maintains that because excavated material may be re-used at different locations along the duct bank, or removed from site as excess material, the Project may not comply with Section 4260. Further, the Company argues that the Project will not be able to meet the special conditions found in Section 4261 that are required for the grant of a special permit because (1) they are inconsistent with the Company's access road or transmission line design requirements, or (2) because this requirement does not conform with MassDEP's "Best Management Practices for Controlling Exposure to Soil During the Development of Rail Trails," which the Company maintains allows for the reuse of materials along the corridor. Additionally, Eversource maintains that Section

Section of the Sudbury Zoning Bylaw	Available Relief	Why Exemption is Required: Company's Position
		4261(f) of the bylaw states that "[f]ill material shall contain no solid waste, toxic or hazardous materials or hazardous waste" and the town relies on the plain English definition of these words to interpret this provision. Eversource seeks an exemption from Section 4261(f) in part because the provision does not reference or rely on the definitions and/or characteristics of the terms "soil waste" "toxic or hazardous materials" or "hazardous waste" as specified in applicable regulations. Further, Eversource argues that the conditions required for the grant of a special permit are subjective and that a special permit, if granted, is susceptible to appeal.

Sources: Exhs. EV-3, at 18-19; EFSB-Z-4; EFSB-Z-7; EFSB-Z-15; EFSB-Z-16; EFSB-Z-17; EFSB-Z-19; Tr. 10, at 1688; RR-EFSB-69.

Table 14. Requested Individual Exemptions from the Hudson Zoning Bylaw – Summary of Company's Position

Section of the Hudson Zoning Bylaw	Available Relief	Why Exemption is Required: Company's Position
Residential District Allowed Uses Section 5.2	None Available	The Company maintains that Section 5.2 does not authorize electric transmission lines in Residential Districts and that the Hudson Zoning Bylaw does not authorize the granting of a Use Variance.
Watershed Protection District Section 3.3.10[174]	None Available	The Company contends that because the proposed transmission line is not a permitted use within the Single Residence District, the use is also not permitted within the Watershed Protection District. According to the Company, the Hudson Zoning Bylaw does not authorize the granting of a Use Variance.

Sources: Exhs. EV-3, at 21; EFSB-Z-6.

[174] Hudson bylaw Section 3.3.10(V)(4) states that the application of pesticides for non-agricultural uses in combination with inter alia erosion and sedimentation control plans may be allowed by special permit (Exh. EV-3, exh. B at 18; RR-EFSB-76). The Town of Hudson notes that although herbicide use is permitted by special permit, the

Table 15. Requested Individual Exemptions from the Stow Zoning Bylaw – Summary of Company's Position

Section of the Stow Zoning Bylaw	Available Relief	Why Exemption is Required: Company's Position
Table of Principal Uses Section 3.10	None Available	Pursuant to Section 3.10, Public Service Corporation use is allowed in the Residential District "in accordance with the provisions of M.G.L. Ch. 40A, Section 3." To the extent that the intent of the provision is to allow public utility use only after the Department's grant of an exemption, a use variance would be required, unless an exemption by the Department is granted. According to the Company, the Stow Zoning Bylaw does not authorize the granting of use variances.
Noise Section 3.8.1.3	Variance	Section 3.8.1.3 prohibits sound levels greater than three decibels above the natural ambient sound level, with exceptions not relevant to the Project. To the extent that construction activities would not meet this standard, a variance would be required. Eversource maintains that variances are a legally disfavored form of relief and, even if granted, are susceptible to appeal.

Sources: Exhs. EV-3, at 21-22; EFSB-Z-5.

b. Consultation with the Municipalities

Prior to filing its Zoning Petition, the Company conducted outreach to both local residents, special interest groups, regulatory agencies, and local officials in the affected municipalities (Exhs. EV-2, at 1-9 to 1-12, Table 1-1; EFSB-G-6). Eversource stated that it participated in numerous meetings with officials from Sudbury, Hudson, and Stow, and participated in Board of Selectmen meetings in Sudbury on October 26, 2016, Stow on November 9, 2016, and Hudson on November 14, 2016 (Exhs. EV-2, at 1-10 to 1-12;

ZBA generally conditions special permits to prohibit that use (RR-EFSB-76). Hudson also notes that utilities are granted an exemption under Section 3.3.10(IV)(12) of the Hudson Zoning Bylaws with respect to earth disturbance in the Watershed Protection District (RR-EFSB-76).

EFSB-G-6). Overall, the Company reports that it conducted more than 48 meetings with various stakeholders prior to filing its Petitions with the Siting Board (Company Reply Brief at 54, 81, citing Exhs. EV-2, at 1-9 to 1-12, 4-4 to 4-5; EFSB-G-6; EFSB-RS-1; Tr. 5, at 839; Protect-21; Protect-2-80; Protect-2-118).

In addition, the Company met with Hudson and Stow zoning officials to discuss the Company's approach to zoning on September 14 and September 15, 2017, respectively (roughly five months after filing its Zoning Petition) (Exh. EFSB-Z-2(S-2)). Eversource stated that it reviewed the zoning exemptions that were requested and the rationale for making the requested exemptions (Exh. EFSB-Z-2(S-2)). According to the Company, neither Hudson nor Stow zoning officials expressed concerns specific to the zoning requests at these meetings (Exh. EFSB-Z-2(S-2)). With respect to Sudbury, the Company reported that it did not meet with Sudbury zoning officials prior to filing its Zoning Petition, but did meet on February 14, 2018 to discuss pending permit applications and ongoing project-related issues (RR-EFSB-69; Company Brief at 146; Company Reply Brief at 81-82).

3. Position of the Parties

a. Town of Sudbury

Sudbury states that it "is not prepared to support" the individual and comprehensive zoning exemptions Eversource is seeking in this case (Sudbury Brief at 101). Sudbury objects to the lack of "detailed information" on Eversource's final design of the Project (e.g., location of equipment staging areas, parking areas, detailed erosion and sedimentation controls specific to sensitive areas along the Project route, best management practices for stormwater management, etc.) (Sudbury Brief at 101, citing RR-EFSB-81; Exh. SUD-MH-1, at 4). Sudbury opines that were the Project required to proceed through the ZBA, the town would have the opportunity to learn more about the details of the Project, engage in a public dialogue with the Company, and impose reasonable conditions on any zoning relief to address concerns such as buffering, landscaping, and water runoff (Exh. SUD-MH-1, at 3).

Sudbury expresses concerns relating to the Company's request for exemptions from Sections 3423 and 4200 of the Sudbury Zoning Bylaw (Exh. SUD-MH-1, at 5-7).[175] With respect to Section 3423, Sudbury argues that this provision "prohibits any use from causing a nuisance or hazard to persons by reason of excessive noise generated therefrom," and that construction of the Project along the MBTA Underground Route could result in a significant disturbance for the town's residents, especially where the route travels through a residential area (Exh. SUD-MH-1, at 5). With respect to Section 4200, the Water Resource Protection Overlay District, Sudbury argues that Eversource's Zoning petition does not address important issues that could impact this sensitive area, such as storage of fuel and hazardous materials, use of herbicides, and extent of increased water runoff (Exh. SUD-MH-1, at 7; RR-EFSB-81).[176]

Sudbury also argues that the Company's failure to consult with town zoning officials before filing its Petition is inconsistent with the Siting Board's directive in Russell that applicants not seek a zoning exemption "without first consulting with the municipality" (Sudbury Brief at 100). Sudbury states that the Zoning Petition was filed in April 2017, and the Company did not seek to consult with Sudbury zoning officials until September 2017 (Sudbury Brief at 101). Moreover, Sudbury maintains that the Company's requested zoning relief from the Town of Sudbury should be denied because the Project "does not serve the public convenience and is not consistent with the public interest" (Sudbury Brief at 101).

In its reply brief, Sudbury argues further that Eversource is now seeking certain relief from the Sudbury Zoning Bylaw that was not included in the Company's original Zoning Petition or in the Siting Board's Notice of Adjudication and Notice of Public Comment Hearing (Sudbury Reply Brief at 22-23). According to Sudbury, while the Company's original Zoning

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175 Sudbury initially expressed concerns with Eversource's request for an exemption from Section 2600 of the Sudbury Zoning Bylaw, which limits the height of structures to 35 feet in the Single Residence "A" zoning district (Exh. SUD-MH-1, at 6). However, during evidentiary hearings the town's building inspector and zoning enforcement agent, Mr. Herweck, indicated that the Company's proposed location for its 100-foot-tall shielding mast limited this concern (Tr. 11, at 2060-2062).

176 Sudbury's concerns with potential water-related impacts from construction and operation of the Project are described in Section VI.D.2, above.

Petition clearly requested an exemption from that portion of the Sudbury performance standards contained in Section 3423 (noise), the Zoning Petition made no reference to the Sudbury performance standards in Sections 3425 (detection of vibration, odor, glare, etc.); 3427 (site development criteria); 3430-3433 (erosion control); 3436 (vegetative cover of hillside areas); or 3440 (excavation of abutting roads), which Sudbury maintains the Company references in its initial brief (Sudbury Reply Brief at 22-23). According to Sudbury, although the Company cites to its response to Exhibit EFSB-Z-19 to support its request for these additional zoning exemptions, the town contends that the Company's response to an information request response during discovery "cannot remedy its failure to include reference to these exemptions" in the Company's initial Zoning Petition (Sudbury Reply Brief at 22-23). In addition, Sudbury notes that the Company's reference to Section 4100 (flood plain overlay district) and 4166 (conditions for filling and excavating in a flood plain overlay district) were identified by the Company for the first time in its initial brief, and cannot be found in either the Company's Initial Petition or in a Company response to discovery (Sudbury Reply Brief at 22-23).

Sudbury argues that the zoning exemption statute, G.L. c. 40A, § 3, expressly requires public notice, as does Section 11(1) of the MAPA (parties must have sufficient notice of the issues "to afford them reasonable opportunity to prepare and present evidence and argument,") and that such notice was not provided in the Siting Board's May 4, 2017 Public Hearing Notice (Sudbury Reply Brief at 23). According to Sudbury, the Siting Board cannot consider additional zoning relief "after the fact" because to do so violates the intervenors' due process rights (Sudbury Reply Brief at 23). Sudbury argues that the Siting Board should, therefore, "strike or otherwise give no consideration" to the Company's additional requests for relief from the Sudbury Zoning Bylaw (Sudbury Reply Brief at 23).

b. Town of Stow

The Town of Stow maintains that the Project "may properly be exempted" from application of the Stow Zoning Bylaw Sections 3.10 and 3.8.1.3, as requested by the Company (Stow Brief at 1). Stow does not object to the Siting Board granting an exemption from Section 3.8.1.3 based on Eversource's argument that "*construction activities* may exceed the Bylaw limit of 3 dBA above ambient" (emphasis added) (Stow Brief at 4). Stow "does not disagree" that the

Company has met the established legal framework for obtaining the identified individual zoning exemptions (Stow Brief at 3-4).

c. Town of Hudson

The Town of Hudson raised concerns regarding the granting of any exemptions related to water resources, including Section 3.3.10, Watershed Protection District, relating to the Company's potential use of pesticides and soil disturbances within an area with wells providing the supply of water to Hudson (Exh. Hudson-ER-1, at 6; Tr. 11 at 1954-1957; RR-EFSB-76). Hudson noted that although the Hudson ZBA could grant a Special Permit for the use of pesticides in the Watershed Protection District pursuant to Section 3.3.10(V)(4), the ZBA conditions special permits to prohibit such use as a general practice (RR-EFSB-76). Hudson also noted that the Company does not require an exemption for earth disturbance under the zoning bylaws since utilities are granted a specific exemption in the provisions of Section 3.3.10(IV)(12) (RR-EFSB-76). Hudson did not file a brief addressing these issues.[177]

d. Company Position

The Company answered Sudbury's objections concerning its requested individual zoning exemptions stating that the exemptions are needed to avoid delay in construction of a facility which is necessary to meet the regional need for additional energy resources (Company Reply Brief at 81-85). First, with respect to Sudbury's claim that Eversource did not timely consult with Sudbury zoning officials regarding the requested zoning exemptions, the Company maintains that it conducted more than 48 outreach meetings with municipal officials, special interest groups, regulatory agencies and other stakeholders in Sudbury, Marlborough, Stow and Hudson before it filed its Petition (Company Reply Brief at 54, 81, citing Exhs. EV-2, at 1-9 to 1-12, 4-4 to 4-5; EFSB-G-6; EFSB-RS-1; Protect-21; Protect-2-80; Protect-2-118; Tr. 5, at 839).

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[177] Christine Nelson, a Hudson resident, opposed the Company's request for zoning exemptions and expressed support for the Town of Sudbury's opposition to the Company's request for zoning relief (Nelson Brief at 2-3). Brian O'Neill, another Hudson resident, also opposed the Company's request for exemptions related to the proximity of the Preferred Route to the Hudson town wells (O'Neill Brief at 2).

The Company further stated that it deferred zoning discussions with municipal officials in an attempt to address municipal concerns (Company Reply Brief at 82). According to the Company, once the petitions were filed, "it became eminently clear" that Sudbury was opposed to the Project, and the town would not support the Company's request for zoning exemptions (Company Reply Brief at 82). Nevertheless, the Company states that it did request a meeting with Sudbury zoning officials in September 2017 (Company Reply Brief at 82). The Company argues that the town's clearly stated opposition to the Project moots "any hypothetical omission by the Company to meet with Sudbury zoning officials" (Company Reply Brief at 82).

The Company objects to Sudbury's argument that certain Company-requested individual zoning exemptions are not properly before the Siting Board in this case, arguing that none of the Company's requested zoning exemptions were explicitly enumerated in the Public Hearing Notice, nor is it commonplace to do so (Company Reply Brief at 83). The Company maintains that the information it provided in Exhibit EFSB-Z-19, in which the Company identified and requested additional individual zoning exemptions, "constitutes a legally sufficient request for additional exemptions" (Company Reply Brief at 83). The Company argues that the Public Hearing Notice put the public "on notice" that the Company was seeking both individual and comprehensive zoning exemptions pursuant to the provisions of G.L. c. 40A, § 3 (Company Reply Brief at 83). Since a comprehensive zoning exemption would have the effect of exempting the Project from the operation of all applicable provisions of the Sudbury Zoning Bylaw, including the additional requested zoning exemptions identified in Exhibit EFSB-Z-19, the Company contends that the public was on notice of the breath of the Company's request and fully afforded "a reasonable opportunity to prepare and present evidence and argument" (Company Reply Brief at 83).

4. Analysis and Findings

a. Notice of the Company's Requested Exemptions

As a preliminary matter, we address the assertion by the Town of Sudbury that the Company has failed to provide adequate notice of certain of the zoning exemptions it is seeking from the Sudbury Zoning Bylaw.

The Company seeks exemption from a total of nine individual provisions of the Sudbury Zoning Bylaw, as well as a comprehensive exemption from the bylaw in its entirety. Eversource requested these exemptions at different points in the proceeding. In its Zoning Petition, filed on April 20, 2017, the Company requested four individual exemptions (Sections 2230, 2600, 3423, and 4200). Subsequently, on July 27, 2017 in answer to an Information Request issued by Siting Board staff prior to hearings, Eversource identified an additional four exemptions (Sections 3425, 3427, 3430, and 3440) necessary for the Project. Finally, in its initial brief, filed on March 2, 2018, the Company requested one additional zoning exemption (Section 4100).

The Town of Sudbury objects to the timing of the Company's various requests for zoning relief. Sudbury asserts that the Board should consider only the four exemptions identified in the Company's original Zoning Petition and disregard or strike the remaining requests (Sudbury Reply Brief at 22). Sudbury asserts that, because the original Zoning Petition did not include the five later zoning exemption requests, inadequate notice of these requests was provided to the parties, in violation of the notice requirements in G.L. c. 40A, § 3, and G.L. c. 30A, § 11(1) (Sudbury Reply Brief at 22-23).

The MAPA addresses the notice requirements applicable to state-agency adjudicatory proceedings in the Commonwealth. G.L. c. 30A. Section 11 of the MAPA addresses the question of adequate notice to parties regarding the issues to be determined in an adjudicatory proceeding. Importantly, Section 11 does not require that all issues be identified at the outset of the proceeding. In fact, Section 11 recognizes that this does not, or cannot, always occur, and it sets out the notice provisions that apply when issues are identified later in the proceeding, rather than at the outset. Section 11 provides that:

> parties shall have sufficient notice of the issues involved to afford them reasonable opportunity to prepare and present evidence and argument. If the issues cannot be fully stated in advance of the hearing, they shall be fully stated as soon as practicable. In all cases of delayed statement, or where subsequent amendment of the issues is necessary, sufficient time shall be allowed after full statement or amendment to afford all parties reasonable opportunity to prepare and present evidence and argument regarding the issues.

G.L. c. 30A, § 11(1).

There is no question the parties, including the towns of Sudbury, Hudson, and Stow, had sufficient notice of the Company's initial four zoning exemption requests, as they were set forth

in the Company's April 20, 2017 Zoning Petition, the filing of which commenced this proceeding. Parties received notice of the next four exemption requests on or about July 27, 2017, when the Company filed its response to Information Request EFSB-Z-19 of the Board's second set of Information Requests. Evidentiary hearings in the proceeding did not begin until October 31, 2017, and they ended on January 24, 2018; briefing was completed March 2018. The parties thus had approximately eight months to address the four additional requests, both during hearings and in briefing. The Siting Board finds that this eight-month period provided sufficient notice to afford the parties a reasonable opportunity to prepare and present evidence and argument regarding these exemptions, as required by G.L. c. 30A, § 11. See also Hopkinton LNG Corporation, D.P.U. 17-144, at 66-69 (2018).

The fifth additional zoning exemption, requested for the first time in the Company's initial brief, is in a different category than the four additional exemptions requested during pre-hearing discovery. The timing of the Company's request for this exemption precluded examination of the request, both by the Board and by the parties, either during discovery or during hearings. Intervenors had an opportunity to comment on the request only in reply briefs two weeks after the Company made the request. Therefore, the Siting Board must determine whether the Company's late exemption request provided "sufficient notice of the issues involved to afford [the parties] reasonable opportunity to prepare and present evidence and argument" consistent with the requirements of G.L. c. 30A, § 11.

The zoning relief requested in the Company's initial brief was for an exemption from a single section of the Sudbury Zoning Bylaw: Section 4100, pertaining to permissible uses and activities in the town's Flood Plain Overlay District. The record shows that a portion of the Project would be located in the Flood Plain District. Section 4100 provides that construction of the Project in the Flood Plain District would require: (1) a use variance, which is not an available form of relief under the Sudbury Zoning Bylaw; or (2) a Special Permit, for which the Project may or may not qualify. Thus, the argument to be made by the parties upon receiving notice of this exemption request was whether, under the Siting Board's standard of review, an exemption from Section 4100 is "required" to construct the Project. It is clear that an exemption from Section 4100 is necessary to construct the Project. As a result, the Company's request for an exemption from Section 4100 constitutes a relatively minor amendment to the Company's

original Zoning Petition. As such, we find that two weeks was not an unreasonable amount of time for the parties to review Section 4100 and to respond, if they wished to do so, to the Company's request for this final additional zoning exemption.[178]

Accordingly, the Siting Board finds that the notice provided for each of the Company's zoning exemption requests satisfied the requirements of G.L. c. 30A, § 11(1) and G.L. c. 40A, § 3, by providing actual notice with sufficient time for parties to respond.[179] The Board finds further that in this instance there is no prejudice to any party's rights by allowing the Company, in effect, to amend its initial Zoning Petition to include the five exemption requests not originally included in its Zoning Petition. Accordingly, the Siting Board finds that, consistent with G.L. c. 30A, § 11(1), the notice provided by the Company of its all nine of its individual zoning exemption requests was sufficient to afford the parties a reasonable and sufficient opportunity to address each of them.[180] The Siting Board considers the merits of the Company's individual zoning exemption requests below.[181]

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178 We note that the Town of Sudbury did in fact respond to the Company's request for an exemption from Section 4100. See Sudbury Reply Brief at 22-23.

179 The notice provided to the parties regarding the nine requested zoning exemptions also meets the notice requirement in G.L. c. 40A, § 3, as G.L. c. 40A, § 3 simply provides that the notice to be provided is the notice set forth in G.L. c. 40A, § 11.

180 The Board notes that the finding of adequate notice with respect to the Company's request for exemption from Section 4100 of the Sudbury Zoning Bylaw rests largely on the specific facts of this case, in particular the nature of the requested exemption and the unlikely success of an argument that the exemption is not required to allow construction of the Project within the meaning of G.L. c. 40A, § 3. Such a finding, however, may not necessarily result where a late-filed amendment to an initial petition is more substantial or more complex in nature than the Company's single zoning exemption request here. See New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995) (obligation to identify individual zoning exemptions applicable to a project).

181 One additional note. The Department is not required to identify each and every zoning provision that applies to a particular facility in its grant of a zoning exemption. The SJC has stated that "[t]here is no reason to require the [D]epartment to determine which specific by-laws apply… the [D]epartment can exempt specified uses of specified property from the by-laws and ordinances to the extent applicable. That the land, structure, or use are specified is sufficient." Planning Board of Braintree v. Department of Public Utilities, 420 Mass. 22, 29 (1995).

b. Individual Exemptions Required

The Company has identified in Tables 13 through 15, above, the individual provisions of the Sudbury, Hudson, and Stow Zoning Bylaws from which it seeks exemptions to minimize delay in the construction and ultimate operation of the Project. The record shows that, without these exemptions, the Company would need to seek numerous variances and special permits. The Siting Board concurs with the Company that the grounds for issuing a variance may be subjective and that variances are difficult to obtain, constitute a disfavored form of relief, and may be overturned on appeal. Consequently, the need to obtain variances may result in an adverse outcome, burdensome requirements, or the potential for significant delay. Similarly, the Siting Board agrees that the discretionary nature of special permits and ZBA approval, the potential for an adverse result or burdensome conditions, and the delay that would result from a potential appeal warrant exemption from the provisions of the towns' bylaws requiring special permits. Furthermore, the Company has demonstrated that exemptions from: (1) Sections 5.2 and 3.3.10 of the Hudson Zoning Bylaw, which would otherwise prohibit the construction and operation of the Project in the town's Residential District and Water Protection District; and (2) Section 3.10 of the Town of Stow Zoning Bylaw, which effectively allows a public service corporation use in the Residential District only upon the grant of an exemption by the Department, are necessary for construction of the Project. As such, the Siting Board concludes that grant of the individual exemptions requested by the Company is warranted subject to the following conditions and exceptions.

First, as noted in the environmental analysis section above, Project construction in close proximity to residential areas would have noise impacts and requires certain limitations. Accordingly, while the Siting Board grants the Company's request for exemption from Section 3423 of the Sudbury Zoning Bylaw (and the construction hours prescribed therein), weekday construction in residential areas within the town shall be limited to Monday through Friday between the hours of 7:00 a.m. to 6:00 p.m., and Saturday construction in the town shall be limited to large equipment deliveries and quiet assembly and testing activities at the Sudbury Substation. This limitation is subject to the parameters described in Conditions J and K, below.

Second, the Board has declined to grant exemptions from zoning restrictions related to the operation, as opposed to the construction, of a proposed facility. The Siting Board is concerned that granting such exemptions would preclude the municipality from exercising its authority to limit well-defined nuisances such as operational fumes, odors and smoke, which the Board views as an unwarranted incursion into municipal home rule authority. See; Woburn-Wakefield at 147-148; Walpole-Holbrook at 99; Woburn Substation at 36. The Siting Board grants the Company's request for an exemption from Section 3425 of the Sudbury Zoning Bylaw and Section 3.8.1.3 of the Stow Zoning Bylaw only as the request relates to the construction of the Project. Therefore, to the extent that Section 3425 of the Sudbury Zoning Bylaw (pertaining to vibration, odor, glare and other potential environmental impacts) and/or Section 3.8.1.3 of the Stow Zoning Bylaw (pertaining to noise) applies to operation, rather than construction, of the Project, the Siting Board denies the Company's request for exemption from that Section.

Third, Section 3.3.10 of the Hudson Zoning Bylaw requires a special permit for non-agricultural pesticide (including herbicide) use in the Watershed Protection District. As noted in Section VI.D.2, above, in this instance the Siting Board directed Eversource to utilize mechanical vegetation management along the MBTA ROW. Consistent with that determination, and the nature of the Company's access road, Siting Board declines to grant an exemption to the Company for the use of pesticides in the Hudson Watershed Protection District.

c. Municipal Consultation

The Siting Board encourages zoning exemption applicants to consult with local officials, and in some circumstances, to apply for local zoning permits, prior to seeking zoning exemptions from the Siting Board under G.L. c. 40A, § 3. In this case, the Company met with numerous stakeholders, including municipal officials of all three towns, regarding route selection and design options in multiple meetings. The Company notes that during the period of these outreach meetings the Company deferred zoning discussions with municipal officials of all three towns in favor of attempting to satisfy concerns about route selection and design options with other town officials and therefore delayed meetings otherwise planned with town zoning officials.

The record reflects the Company's efforts to meet with Sudbury's zoning officials, although such efforts were ultimately unsuccessful. It is not unreasonable for the Company to have concluded from the entirety of its earlier outreach meetings, as well as its inability to secure a specific zoning-related meeting, that Sudbury was clearly opposed to the Project and would not support the Company's request for zoning exemptions. See NSTAR Electric Company, EFSB 10-2/D.P.U. 10-131/10-132, at 107-108 (2012) (applying for local zoning permits in advance of filing a zoning exemption petition is not required where to do so would likely be futile, or where the Company has met the spirit and intent of Russell by engaging in outreach with the affected municipalities). Given these circumstances, the Siting Board is not persuaded by Sudbury's argument that the Company's requested zoning exemptions should be denied because the Company did not consult with Sudbury zoning officials regarding its request for zoning exemptions prior to the Company's filing of its Zoning Petition. See East Eagle at 160 (the Russell standard is met where an applicant demonstrates that it made a good faith effort to consult with municipal authorities regarding a proposed project). Based on the record in this proceeding, the Siting Board finds that the Company has engaged in good-faith consultations with Sudbury, Hudson, and Stow regarding the Project, consistent with Russell.

5. Conclusion on Request for Individual Zoning Exemptions

The Siting Board has found above that: (1) the Company is a public service corporation; (2) the proposed use is reasonably necessary for the public convenience or welfare; and (3) the specifically named zoning exemptions set forth in Tables 13 through 15 are required for construction of the Project, within the meaning of G.L. c. 40A, § 3, with the exception of Section 3425 of the Sudbury Zoning Bylaw and Section 3.8.1.3 of the Stow Zoning Bylaw (construction only), and the provisions of Section 3.3.10 of the Hudson Zoning Bylaw relating to pesticide use. Additionally, we find that the Company engaged in good faith consultation with Sudbury, Hudson, and Stow. Accordingly, the Siting Board grants the Company's request for the individual zoning exemptions listed above in Tables 13 through 15, subject to the exclusions and conditions set forth in this Decision.

IX. COMPREHENSIVE ZONING EXEMPTIONS

A. Standard of Review

The Company requests comprehensive zoning exemptions from the operation of the Sudbury, Hudson, and Stow Zoning Bylaws (Exh. EV-3, at 23; Company Brief at 151). The Siting Board grants such requests on a case-by-case basis where the applicant demonstrates that issuance of a comprehensive exemption could avoid substantial public harm by serving to prevent a delay in the construction and operation of the proposed use. Vineyard Wind at 153; Woburn-Wakefield at 150; East Eagle at 161-162.

In order to make a determination regarding substantial public harm, the Department and the Siting Board have articulated relevant factors, including, but not limited to, whether: (1) the proposed project contributes to a reliable energy supply for the Commonwealth; (2) the project is time sensitive; (3) the project involves multiple municipalities that could have conflicting zoning provisions that might hinder the uniform development of a large project spanning these communities; (4) the proponent of the project has actively engaged the communities and responsible officials to discuss the applicability of local zoning provisions to the project and any local concerns; and (5) the affected communities do not oppose the issuance of the comprehensive exemption. Vineyard Wind at 153; Woburn Wakefield at 150; East Eagle at 161-162.

B. Positions of the Parties

The Company argues that a comprehensive zoning exemption is necessary in this case because the Project is necessary for system reliability and because the Project is needed imminently (i.e., the reliability concerns identified arose prior to 2013) (Company Brief at 153, citing Exh. EV-3, at 25). According to the Company, a comprehensive zoning exemption is necessary for the Project because zoning bylaws and ordinances "are rarely written with unique energy infrastructure facilities in mind," leading to the absence of clearly defined and specific regulation of electric infrastructure (Company Brief at 153 n.97). Moreover, vague and subjective terms and provisions within zoning bylaws result in an imprecise application of the zoning provisions to electric utility infrastructure projects (Company Brief at 153 n.97). In

addition, the Company argues that a comprehensive zoning exemption would exempt the Project from future zoning enactments that might jeopardize the Project (Company Brief at 152). Therefore, although the Company asserts that it interprets the provisions of zoning bylaws conservatively, in the hope that it is requesting individual zoning exemptions "for all of the provisions that could conceivably be said to apply to a project," the Company maintains that the grant of a comprehensive zoning exemption would remove any reasonable doubt as to the ability of the Project to move forward without violating any terms of the relevant zoning bylaws (Company Brief at 153 n.97, citing Exh. EV-3, at 25).

Sudbury states that it "is not prepared to support" the Company's request for a comprehensive zoning exemption (Sudbury Brief at 101). Sudbury indicates that it lacks detailed information on the Company's final design and construction of the Project (Sudbury Brief at 101, citing RR-EFSB-81). In addition, Sudbury asserts that the Company has failed to demonstrate that the Project is consistent with the public interest (Sudbury Brief at 101).

Stow states that it does not believe that a comprehensive zoning exemption from the Stow Zoning Bylaw would be necessary for the Project (Stow Brief at 1-2). Stow rejects the Company's argument that such comprehensive exemption is needed to protect the Project from any *future* zoning enactment that "has the potential to jeopardize the Project" (Stow Brief at 2, 4), citing Company's Brief at 152). Stow asserts that if the Project along the MBTA Underground Route is approved by the Siting Board (which is the route Stow supports as the better option for the Project), it is highly unlikely that any future zoning enactment would have such potential, and accordingly that such comprehensive exemption is unnecessary (Stow Brief at 4).

C. Analysis and Findings on Comprehensive Zoning Exemption

General Laws c. 40A, § 3 provides the Department with the authority to ensure that local interests do not prevent construction of needed facilities that serve the public interest. "The zoning exemption available under G.L. c. 40A, § 3, is intended to assure utilities' ability to carry out their obligation to serve the public when this duty conflicts with local interests." Planning Bd. of Braintree v. Department of Public Utilities, 420 Mass. 22, 27 (1995) ("Braintree").

Compared to the grant of individual zoning exemptions, which is tailored to meet the

construction requirements of a particular project, the grant of a comprehensive exemption serves to nullify a municipality's zoning code in its entirety with respect to the project under review. Thus, compared to the grant of individual zoning exemptions, a comprehensive zoning exemption constitutes a broader incursion upon municipal home rule authority. In the absence of a showing that substantial public harm may be avoided by granting a comprehensive exemption, the granting of such extraordinary relief is not justified. NSTAR Electric Company, D.P.U. 13-126/13-127, at 38-39 (2014) ; NSTAR Electric Company, D.P.U. 11-80, at 45 (2012); NSTAR Electric Company Waltham, D.P.U. 08-1, at 36-37 (2009).

Department and Siting Board cases that have considered and granted comprehensive exemptions have typically involved projects that contribute to a reliable supply of energy, were time-sensitive, and often, but not necessarily, dealt with the zoning ordinances of multiple municipalities where conflicting provisions or interpretations could arise. See e.g., Woburn-Wakefield at 150-151; Walpole-Holbrook at 98-100.

As discussed in Section III above, the record in this proceeding shows that the Project is needed to maintain the reliability of the regional transmission grid and to address pre-existing violations of planning standards and criteria. Thus, construction of the Project both contributes to a reliable energy supply and is time-sensitive. The record also shows that the Project spans multiple municipalities, including the towns of Sudbury, Hudson, and Stow, and the City of Marlborough. In addition, the Siting Board found, in Section VIII, above, that the Company engaged in good faith consultations with numerous municipal officials concerning the Project, notwithstanding the fact that the towns of Sudbury and Stow have objected to the grant of a comprehensive zoning exemption. In Sections VI and XIII, the Siting Board has incorporated specific conditions with regard to the construction and operation of the Project, which seek to protect local interests with regard to environmental impacts. Under these circumstances, the Siting Board finds that delay in the completion of the Project would likely cause substantial public harm and that the grant of comprehensive exemptions from the zoning bylaws of the towns of Sudbury, Hudson, and Stow is warranted.

In granting this relief, however, the Siting Board notes that the Company must inform the Siting Board of any changes other than minor variations so that the Board may decide whether to inquire further into a particular issue. See Section XIII, below. This condition ensures that all

intervenors and interested persons receive notice of any potential modification proposed by the Company related to the construction and operation of the Project and have the opportunity to comment on the potential impact of such modifications on local interests. The imposition of this standard protects local interests and should assist in resolving any potential conflicts between local needs and the interest of the general public in the timely completion of construction and operation of an energy facility needed for reliability purposes.

Further, even when a comprehensive zoning exemption is granted, one class of zoning ordinances or bylaws is often excluded: zoning restrictions relating to well-defined environmental aspects of the ongoing operation of the proposed project (as compared to the construction phase of a project). Woburn-Wakefield at 147-148; Walpole-Holbrook at 99; Woburn Substation at 36. As discussed in Section VIII, above, the Siting Board recognizes that granting such exemptions could prevent a city or town from exercising reasonable control over the on-going operation of a project. See Woburn Substation at 36.

In this case, in addition to the individual performance standards exemptions identified above, Sudbury Zoning Bylaw Section 3421 (water quality), Section 3422 (air quality), Section 3424 (solid waste storage), and Section 3426 (inflammables and explosives) set forth the town's authority to limit activities associated with environmental irritants and hazards. Section 5.4.2 of the Hudson Zoning Bylaw (Uses Specifically Prohibited) sets forth Hudson's authority to specifically prohibit any use that may produce a nuisance or hazard from fire, toxic or noxious fumes, odors, etc. The Town of Hudson also specifically prohibits uses that contaminate ground water, pollution of any stream or otherwise pollute the atmosphere in Hudson. Similarly, Sections 3.8.1.2 and 3.8.1.3 of the Stow Zoning Bylaws regulate odor, dust, and smoke, and limit noise in Stow. Consequently, including the above-referenced zoning provisions in the grant of a comprehensive exemption would preclude the towns from exercising reasonable local control over the on-going operations of the Project with respect to these environmental impacts. Accordingly, a comprehensive exemption is granted from these provisions only as they relate to the construction, as distinguished from operation, of the Project.

Accordingly, we grant a comprehensive zoning exemption from the Sudbury, Hudson, and Stow Zoning Bylaws, with the exception of: (1) Sections 3421, 3422, 3424, 3425, and 3426 of the Sudbury Zoning Bylaw; (2) Section 5.4.2 of the Hudson Zoning Bylaw; and (3) Sections

3.3.1.2 and 3.3.1.3 of the Stow Zoning Bylaw (these zoning exemptions are limited to the construction, not ongoing operation, of the Project), and Section 3.3.10 of the Hudson Zoning Bylaw (relating to both construction and operation of the Project). The comprehensive zoning exemption shall apply to the Project specifically as it has been described, approved, and conditioned herein.

X. ANALYSIS UNDER G.L. C. 164, § 72

A. Standard of Review

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

> authority to construct and use … a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric Company or to a municipal lighting plant for distribution and sale … and shall represent that such line will or does serve the public convenience and is consistent with the public interest .... The [D]epartment, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.[182]

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

In evaluating petitions filed under G.L. c. 164, § 72, the Department examines: (1) the need for, or public benefits of, the present or proposed use; (2) the environmental impacts or any other impacts of the present or proposed use; and (3) the present or proposed use and any alternatives identified. Needham-West Roxbury at 77-78: Woburn-Wakefield at 152; East Eagle at 164. The Department then balances the interests of the general public against the local

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[182] 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.

interests and determines whether the line is necessary for the purpose alleged and will serve the public convenience and is consistent with the public interest. Needham-West Roxbury at 77-78; Woburn-Wakefield at 152; East Eagle at 164.

B. Positions of the Parties

Protect Sudbury asserts that, under certain circumstances, "transmission lines generally do impact property values" and that "the Project would likely have such impacts" (PS Brief at 48, citing Exh. Protect-C, D, and E; Tr. 12, at 2109-2114). Protect Sudbury submitted three Massachusetts real estate listings (Multiple Listing Service, or "MLS" listings) for properties in the Town of Sudbury that referenced the potential for the Eversource Project (Exh. Protect-C, D, and E; Tr. 12, at 2109-2114). Protect Sudbury implied that these MLS listings demonstrated that properties in the vicinity of the Project had been removed from the market or had sold for less than the asking price (Exh. Protect-C, D, and E; Tr. 12, at 2109-2114).

Contrary to Protect Sudbury, Eversource argues that construction of the Project as proposed would not result in any detrimental effects to residential property values (Company Brief at 155, citing Exh. EV-JAC-1, at 4-5; Tr. 12, at 2127-2130). According to the Company, studies performed concerning other high-voltage transmission facilities have found no statistically significant effects on the market value of residential properties unless: (1) there was an easement on the property; (2) the residence was in very close proximity to the ROW (an average of 35 feet); and (3) there were unobstructed views of transmission structures (Exh. EV-JAC-1, at 3; Tr. 12, at 2085-2087). Eversource questioned the evidentiary value of the MLS listings provided by Protect Sudbury, indicating that listing prices vary with respect to sale prices for many reasons and that there is no basis for attributing differences for these three properties to the Project (Tr. 12, at 2130).

C. Analysis and Findings

In Sections III through VI, above, the Siting Board examined: (1) the need for, or public benefits of, the proposed Project; (2) the environmental impacts of the proposed Project; and (3) any identified alternatives. The Siting Board concluded that the Project along the MBTA

Underground Route would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability, and cost.

As noted in Section VI.D.1, above, while impacts to property values are outside of the scope of the Siting Board's review under G.L. c. 164, § 69J, consideration of such impacts is appropriate in the Board's review of the general public interest under G.L. c. 164, § 72 and G.L. c. 40A, § 3. See Presiding Officer Scoping Order Concerning Issue of Property Values, September 15, 2017. Based on the record in this proceeding, the Siting Board concludes that construction of the Project along the MBTA Underground Route is unlikely to have a significant detrimental effect on residential property values. The Siting Board does not view the three MLS listings provided by Protect Sudbury as a sufficient basis for identifying a real or persistent trend in real estate values in the Town of Sudbury, nor for establishing a causal relationship between residential property values and the Project. Rather, the Siting Board accepts the testimony of Mr. Chalmers – supported by peer-reviewed research – that because the Project along the MBTA Underground Route does not involve residential properties with (1) easements on the property; (2) residences in very close proximity to the ROW; and (3) unobstructed views of transmission structures, negative impacts to property values are unlikely.

Accordingly, with implementation of the specified mitigation measures proposed by the Company and the conditions set forth by the Siting Board in Section XIII, below, the Siting Board finds pursuant to G.L. c. 164, § 72, that the Project is necessary for the purpose alleged, will serve the public convenience, and is consistent with the public interest. Thus, the Siting Board approves the Section 72 Petition.

XI. SECTION 61 FINDINGS

MEPA provides that "[a]ny determination made by an agency of the Commonwealth shall include a finding describing the environmental impact, if any, of the Project and a finding that all feasible measures have been taken to avoid or minimize said impact" ("Section 61 Findings"). G.L. c. 30, § 61. Pursuant to 301 CMR 11.01(3), Section 61 Findings are necessary when an EIR is submitted to the Secretary of Energy and Environmental Affairs and Section 61 Findings should be based on such EIR. Where an EIR is not required, Section 61 Findings are not necessary. 301 CMR 11.01(4).

The record shows that Eversource filed an ENF for the Project with MEPA on May 15, 2017, and a correcting and clarifying ENF, dated June 12, 2017 (Exh. EFSB-G-1). The Secretary issued a Certificate on the ENF on July 14, 2017, requiring the Company to file a DEIR and an FEIR (Exh. EFSB-G-1(3)).[183] Therefore a finding under G.L. c. 30, § 61 is necessary for the Company's Zoning and Section 72 Petitions.[184] The Company submitted its DEIR on October 27, 2017 (Exh. EV-16) and the Secretary issued a Certificate on the DEIR on December 15, 2017 (Exh. EFSB-G-2(S3)(2)). The Company submitted its FEIR on July 2, 2018 (Exh. EV-18).[185] The Secretary issued a Certificate on the FEIR on September 14, 2018, determining that the FEIR adequately and properly complied with MEPA and its implementing regulations (Exh. EFSB-G-3(S1)(2))).

The Siting Board recognizes the Commonwealth's policies relating to GHG emissions, including G.L. c. 30, § 61 and the MEPA Greenhouse Gas Emission Policy and Protocol. The Siting Board notes that the transmission line portion of the Project would have minimal GHG emissions as it is an underground transmission line and would not have direct emissions from a

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183 The July 14, 2017 Certificate states that the Secretary determined that the Project "is not subject to the requirement to file a Mandatory Environmental Impact Report (EIR)." However, the Certificate further states: "[t]he Proponent intends to proceed through the MEPA review process on a voluntary basis and has requested that I issue a Scope for a Draft EIR (DEIR)" (Exh. EFSB-G-1-1(S-2)). Thus, the Project did, in fact, undergo MEPA review and required both a DEIR and an FEIR (Exh. EFSB-G-1-1(S-2)). See also DEIR Certificate, which states: "MEPA jurisdiction for this project extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations" (Exh. EFSB-G-2(S3)(2) at 5 of 77).

184 The Siting Board generally is not required to make a G.L. c. 30, § 61 finding in a G.L. c. 164, § 69J proceeding, as the Siting Board is exempt by statute from MEPA. G.L. c. 164, § 69I. However, the Board must comply with MEPA with respect to review of the Company's Section 40A, § 3, and § 72 Petitions, which are both Department statutes, and not exempt from MEPA. Accordingly, in approving the Company's Section 40A and 72 Petitions in this case, the Siting Board has conducted the review and made the findings required by MEPA.

185 The Company notified the Siting Board that in order to comply with the circulation requirements identified at 301 CMR 11.16(3)(b), on July 19, 2018, the Company withdrew its FEIR and subsequently resubmitted it for inclusion in the August 8, 2018 Environmental Monitor. See July 19, 2018 letter.

stationary source or indirect emissions from energy consumption. The new 115 kV circuit breakers at the Sudbury Substation will require the use of SF_6 gas, a potent GHG (Exh. EFSB-G-3(S1)(2) at 11). The Secretary's Certificate on the FEIR notes that the annual emissions rate for these circuit breakers of 0.1 percent is the lowest commercially available, and that the potential for SF_6 emissions at the substation is minimal (Exh. EFSB-G-3(S1)(2) at 11). Further, the Sudbury Substation currently has the capability to interconnect distributed renewable energy resources and there are no changes that could be implemented in conjunction with the Project to enhance this capability (Exh. EFSB-G-3(S1)(2) at 11-12).

In Section VI, above, the Siting Board conducted a comprehensive analysis of the environmental impacts of the proposed Project. Further, the record contains, and the Siting Board has reviewed, the MEPA documents submitted by the Company, including the ENF, DEIR, and FEIR for the Project, as well as public comments on the DEIR and FEIR (Exhs. EFSB-G-1; EFSB-G-1-1(S-2); EFSB-G-1(S-1); EFSB-G-2(S3); EFSB-G-3(S1); EV-16, and EV-18). In accordance with the requirements of MEPA, the Siting Board has: reviewed the FEIR for the Project; evaluated, and determined the impact of the Project on the natural environment; and specified in detail in this Decision measures to be taken by Eversource to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable. G.L. c. 30, § 61. The Siting Board notes that the Secretary has determined that the FEIR for the Project adequately and properly complies with MEPA (Exh. EFSB-G-3(S1)(2)). Accordingly, the Siting Board finds that all feasible measures have been taken to avoid or minimize the environmental impacts of the proposed Project. See G.L. c. 30, § 61; 301 CMR 11.2(5).

XII. RULING ON MOTION TO REPOEN RECORD AND HEARING

A. Procedural Background

On June 13, 2019, the Town of Sudbury filed a motion requesting that the Siting Board reopen the record and hearing in this proceeding to admit into evidence: (1) current load and EE forecast data from ISO-NE; (2) current MassDOER solar PV development data; and (3) new information relating to NTAs (Sudbury Motion at 1). Sudbury also filed a memorandum in support of its motion and an affidavit of Paul L. Chernick, and requested that the Siting Board

allow for limited additional discovery, cross-examination, or rebuttal with respect to such evidence (Sudbury Motion at 1).

On July 12, 2019 Protect Sudbury, HLPD, and the Company filed responses to Sudbury's Motion. The Company's response included two affidavits in support of its opposition to the Sudbury Motion: (1) a joint affidavit of Robert D. Andrew and Elizabeth Leonard; and (2) an affidavit of Julia Frayer. On July 26, 2019, Sudbury filed a reply to the Eversource Opposition, which included a second affidavit of Mr. Chernick.

B. Standard of Review

The Board's procedural regulations permit the re-opening of a completed adjudicatory hearing or record only for good cause, and only with respect to evidence that was unavailable at the time of hearing. Specifically, a party seeking to reopen a proceeding must: (1) explain the nature and relevance of the evidence it seeks to present; (2) explain why the evidence was unavailable while the hearing was still open; and (3) demonstrate clearly that good cause exists for re-opening. 980 CMR 1.09 (1). To demonstrate good cause clearly, a party must show that the new evidence, if allowed into the record, would be likely to have a significant impact on the Siting Board's decision in the proceeding. Cape Wind Associates, LLC and Commonwealth Electric Company d/b/a NSTAR Electric Company, EFSB 02-2/D.T.E. 02-53, Hearing Officer Ruling on Motion to Reopen (March 21, 2005) ("Cape Wind Ruling on Re-Opening"); in accord, Alliance to Protect Nantucket Sound v. Department of Public Utilities, 461 Mass. 190, 194-195 (2011) ("Alliance"); Box Pond. See also NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77, Presiding Officer Ruling on Motion to Re-Open Evidentiary Hearings (April 13, 2018); NSTAR Electric Company d/b/a Eversource Energy, EFSB 14-04/D.P.U. 14-153/14-154, Presiding Officer Ruling on Four Post-Hearing Evidentiary Motions (November 8, 2017).

Whether to re-open a completed adjudicatory hearing is, in the first instance, a matter of administrative agency discretion. Alliance, 461 Mass. at 190, 193-194; Box Pond, 435 Mass. at 408, 420. For a number of reasons, including considerations of due process, efficiency, and finality, an agency's discretion to re-open a completed hearing is to be exercised sparingly, and for compelling reasons only. See Alliance, 461 Mass. at 190, 193-195. This is why, in addition

to demonstrating unavailability and relevance, a party seeking to re-open the record in a Siting Board proceeding for the purpose of admitting new evidence must also demonstrate good cause, by showing that the evidence, if admitted, would be likely to have a significant impact on the Siting Board's decision in the proceeding. See 980 CMR 1.09(1); Cape Wind Ruling on Re-Opening at 12-14; Alliance, 461 Mass. at 190, 194-195.

C. Sudbury Motion

In the Sudbury Motion and supporting documentation, Sudbury argues that this additional evidence is necessary for the Siting Board's review of the Project because:

- the load and EE forecast used in the proceeding is stale; more recent forecasts are available showing a significant decrease in electricity demand and should be considered by the Siting Board;
- a revised needs assessment is required given the downward trend in ISO-NE's load forecasts;
- MassDOER's Solar Carve-Out II Program ("SREC II") and Solar Massachusetts Renewable Target ("SMART") Program solar PV information is necessary for the Siting Board's review of the solar PV/storage alternative proposed by the town;
- Eversource should revise its NTA analysis to consider whether the minimum injection requirement has fallen further and whether solar PV development paired with energy storage is a feasible NTA; and
- additional information on other feasible NTA solutions, which was not available during evidentiary hearings, should be considered by the Siting Board.

(Sudbury Motion at 1-2; Sudbury Memorandum at 3-13).

Sudbury argues that good cause exists to reopen hearings based on the reasons above (Sudbury Motion at 1; Sudbury Memorandum at 1). Sudbury cites to the passage of time and the availability of current information, and notes that the information it seeks to admit was not available until after the close of hearings (Sudbury Memorandum at 3-4). According to Sudbury, the information is central to the Siting Board's findings on Project need and alternative approaches to satisfy that need (Sudbury Memorandum at 3). Sudbury contends that the information will show material changes to forecasts relied upon by the Company and therefore will have a significant impact on the Siting Board's determinations in this proceeding (Sudbury Memorandum at 8-9).

D. Position of the Parties

1. Protect Sudbury

Protect Sudbury supports the Sudbury Motion, arguing that the town had clearly demonstrated that critical assumptions relied upon by the Company have significantly and materially changed since the close of hearings (PS Support at 1-3). Specifically, Protect Sudbury identifies fundamental and important changes in forecast data, solar capacity, and NTAs (PS Support at 1-3). Protect Sudbury seconds the town's position that the Siting Board has the authority to reopen the case and asserts that "it is beyond question that Chernick's [June 13] Affidavit constitutes the material evidence required to demonstrate good cause" (PS Support at 3 n.1). Protect Sudbury argues that the Siting Board should: (1) consider the information presented in the Chernick June 13 Affidavit; (2) review Eversource's forecasts and assumptions; and (3) assess growth in distributed generation capacity, particularly solar PV and battery storage, and active demand technologies (PS Support at 2-3).

2. HLPD

HLPD opposes the Sudbury Motion, requesting that the Siting Board deny the motion and issue a Final Decision as soon as possible (HLPD Opposition at 1). HLPD notes that Eversource's Petition was filed on April 20, 2017, and that briefing in this proceeding was completed on March 30, 2018 (HLPD Opposition at 1). HLPD submits that there has been more than sufficient time for the Siting Board and parties to ask questions, submit evidence, and make arguments with respect to every issue in this case (HLPD Opposition at 1-2). HLPD argues that the Siting Board process is not a moving target where every new piece of information requires that the record and/or hearings be re-opened, and states that it is not uncommon for ISO-NE to issue new forecasts while the Siting Board is considering evidence and preparing a Tentative Decision (HLPD Opposition at 2).

3. The Company

Eversource objects to the Sudbury Motion, arguing that the town has failed to demonstrate that the new information provided by way of the motion, if allowed into the record,

is likely to significantly affect the Siting Board's Final Decision (Eversource Opposition at 2). Accordingly, the Company requests that the Sudbury Motion be denied (Eversource Opposition at 2, 10).

In response to the town's assertion that use of the 2018 and 2019 CELT forecasts may obviate the need for the Project, the Company reports that it updated its needs analysis for the year 2023 using the 2019 CELT forecast and that this analysis shows a clear and continuing need for the Project (Eversource Opposition at 4-5).[186] While the Company agrees with the town that load levels predicted for the year 2023 in the 2019 CELT forecast are lower than those predicted in the 2016 CELT, Eversource argues that the thermal overloads, low voltage violations, and voltage collapse issues identified in the Company's Petition and referenced during the evidentiary hearings remain (Eversource Opposition at 5; Andrew/Leonard Affidavit at 1-5). Specifically, the Company states that it identified post-contingency thermal overloads as severe as 164 percent of LTE (or 158 percent of STE), post-contingency voltages as low as 0.75 per unit, and the potential for a voltage collapse that would interrupt the supply of power to all electric customers in the Marlborough Subarea (Eversource Opposition at 5; Andrew/Leonard Affidavit at 3-5). As such, the Company argues that the information Sudbury seeks to admit as evidence does not affect the Company's demonstration of need based on existing record evidence, nor would it significantly affect the Siting Board's conclusions on need (Eversource Opposition at 6).

Eversource reports that, prompted by the Sudbury Motion, it also prepared an update to its original analysis of an NTA solution to the identified need, including updated injection amounts and locations (Eversource Opposition at 6). Using the 2019 CELT forecast, the Company projected that approximately 80 MW of effective capacity (50 MW connected at the

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[186] Eversource maintains that Sudbury bears the burden of proof to show it has met the Siting Board's good cause standard (Eversource Opposition at 2). Furthermore, Eversource states that the information provided in the Eversource Opposition and accompanying affidavits is not intended for admission into the evidentiary record, but rather is provided in response to the factual statements made in the Sudbury Motion and its attached documents, and is intended solely to demonstrate that the town has not met its burden to show good cause why the record and hearing should be reopened (Eversource Opposition at 2 n.1).

West Framingham Substation and 30 MW at the Hudson or Northborough Road Substations) would be required to address the revised need for local resources; this is a reduction of approximately 35 MW from the injection requirement identified in the evidentiary record (Eversource Opposition at 6-7; Andrew/Leonard Affidavit at 6).[187] Eversource argues that any NTA of this magnitude would still be infeasible and/or higher cost than the Project (Eversource Opposition at 7-10). For example, Eversource submits that to address the need for the Project with EE resources, net peak load in the Marlborough Subarea would need to be reduced by 22 percent (Eversource Opposition at 7). Eversource argues that this level of EE savings is significantly different in scope and scale from any existing Eversource program and continues to be far in excess of any peak load reductions achieved by the Company or other transmission operators (Eversource Opposition at 7; Andrew/Leonard Affidavit at 6-7).

Eversource reports that a combined solar PV and battery storage solution also remains infeasible and not cost-effective under its updated analysis (Eversource Opposition at 8-9). According to the Company, even under the revised injection requirement and using updated cost and market information, such a solution would face significant implementation obstacles and have a yearly cost of approximately four times the levelized cost of the Project (Eversource Opposition at 8-9). Eversource states that the MassDOER information on solar PV developments raised in the Sudbury Motion does not alter this conclusion (Eversource Opposition at 8-9). Overall, Eversource argues that its updated analysis confirms the abundant record evidence that the Project is the least-cost alternative to resolve the identified need (Eversource Opposition at 10).

4. Sudbury Reply

Sudbury takes exception to the factual representations made in the Eversource Opposition, arguing that the information raises disputes as to material issues of fact, and that, absent inclusion of the information in the record, there is no mechanism in the Siting Board's

187 Eversource states that a total injection of 80 MW at the Hudson Substation would also resolve the identified need (Andrew/Leonard Affidavit at 6). The injection requirement would increase to 85 MW if all of the resources were to connect to the Northborough Road Substation (Andrew/Leonard Affidavit at 6).

procedures and prior decisions, nor in cognate law, for the Board to rely on the Company's factual assertions when determining whether there is good cause to reopen the record and hearing (Sudbury Reply at 2). Furthermore, Sudbury argues that the new analysis undertaken by the Company is untested, inconsistent with the underlying record, and not publicly available (Sudbury Reply at 2-3). Sudbury submits that Siting Board cannot rely on the factual assertions made by the Company without further process regarding such information (e.g., limited additional discovery, cross-examination and/or rebuttal) (Sudbury Reply at 3).

Without accepting the validity of the Eversource's updated analysis, Sudbury argues that the information presented shows a decrease of six violations in six years and that if this trend were to continue all violations could be resolved by 2025 (Sudbury Reply at 3). The town further argues that the lower NTA injection requirement cited by the Company provides clear support for Sudbury's request to update the record with current load and EE forecast data, and asserts that, because only 80 MW of effective capacity is now necessary, load rejection would be an acceptable alternative to the Project (Sudbury Reply at 4; Chernick July 26 Affidavit at 4).

Finally, using the Company's revised injection requirement, Sudbury describes a combination solar PV and storage project (250 MW solar PV and 308 MWh storage, intended to be used over a seven-hour period) as an alternative to the Project (Sudbury Reply at 5; Chernick July 26 Affidavit at 5). Sudbury argues that reopening the record would allow the Siting Board to properly evaluate a storage project as an NTA, in order to determine whether the falling cost of storage, the non-transmission benefits of storage, and the Commonwealth's goals for developing storage makes this NTA superior to the Project (Sudbury Reply at 5).

E. Analysis and Findings on Sudbury Motion

Administrative agencies have broad discretion over procedural matters before them. See Zachs v. Department of Public Utilities, 406 Mass. 217, 227 (1989). This is especially the case when the ruling concerns whether to reopen a proceeding or an administrative record. See Brockton Power Co., LLC v. Energy Facilities Siting Board, 469 Mass. 215, 219 (2014); Alliance II, 461 Mass. at 190; Box Pond, 435 Mass. at 420. In order for Sudbury to prevail on a motion to reopen the record, it must demonstrate clearly that good cause exists to reopen. 980 CMR 1.09(1). The burden is on Sudbury, and the Siting Board's regulations and standard of

review reflect this heavy burden. As discussed in Section III, above, the Siting Board found that there is a current need to address reliability criteria and planning standard violations in the Marlborough Subarea. These violations were found under both pre-existing and forecast summer peak load conditions and are so severe as to result in post-contingency thermal overloads well in excess of the LTE and STE ratings of existing transmission facilities, and the potential for an area-wide outage.

Parties agree that ISO-NE's most recent CELT forecast shows a lower level of electrical demand in year 2023 than previously predicted.[188,189] The significance of this decline to the need for the Project, however, is under dispute. The Town of Sudbury and Protect Sudbury argue that the decline in demand obviates the need for the Project, as evidenced by a reduction in the number of transmission elements experiencing post-contingency overloads. The Company maintains that demand in the area continues to exceed the existing transmission system's capability and that thermal overloads (both LTE and STE) and low-voltage violations remain to be addressed. In light of the severity of the planning standards and criteria violations identified in the Marlborough Subarea, above, and confirmed by the Company's updated analysis based on the ISO-NE 2019 CELT forecast showing criteria violations remain, the Siting Board concludes that inclusion of ISO-NE's recent demand forecast information in the record of this proceeding as requested by the town – and a revised needs assessment using this forecast – is not likely to

188 The information that Sudbury requests to be added to the record was not available during hearings. However, the Siting Board notes that CELT forecasts were part of the adjudicated underlying proceeding. Sudbury seeks to update evidence on the record.

189 The Siting Board reviews the information provided in affidavits from Sudbury and the Company to determine whether good cause exists to reopen the record. The standard to establish good cause is different than the general standard to admit evidence in an adjudicatory proceeding. The proffered evidence must not be merely relevant, but also of a significant nature such that it is likely that the evidence would impact in a significant way the conclusions reached by the Siting Board.

have a significant impact the Siting Board's determination that the Project is needed for reliability purposes.[190,191]

As discussed in Section IV, above, the Siting Board found that an NTA solution is inferior to the Project, particularly in light of the urgency and severity of the reliability concerns in the Marlborough Subarea. While the scale of the NTA required to address the identified need has been reduced by approximately 35 MW to a firm injection requirement of 80 MW, for the reasons stated in Section IV, above, confirmed by the Company's updated NTA analysis, an NTA solution of this magnitude remains infeasible and significantly higher cost than the Project. The information provided by the Town of Sudbury with its motion regarding NTAs does not resolve the deficiencies associated with such an alternative identified in Section IV.D, above, including the viability of achieving unprecedented levels of EE reductions in the Marlborough Subarea in a cost-efficient and timely manner, and the costs, practicality, and timing of the programmatic support needed to incentivize and coordinate a distributed solar PV/energy storage solution. See n.61, above.

Finally, in Sudbury's Reply to the Eversource Opposition, the town raises the potential for a load interruption alternative not previously raised in this proceeding. Sudbury argues that because the firm injection requirement for the Marlborough Subarea has been reduced to 80 MW it now falls below ISO-NE's threshold for allowable load interruption following an N-1-1 contingency. The Siting Board notes that the 2010 ISO-NE Load Interruption Guidelines, presented by the town, includes guidance stressing the importance of providing reliable service to all customers as well as specific provisions stating that: (1) overloads above the STE rating of equipment must be corrected by means other than interrupting load; and (2) non-consequential

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190 The Siting Board concurs with HLPD that it is not uncommon for ISO-NE to issue updated load forecast information during the pendency of a Board decision.

191 The Siting Board is not persuaded by the Town of Sudbury's argument that a reduction in the number of violations observed in the Marlborough Subarea demonstrates the need for the Project has been reduced in a meaningful way. While the number of transmission elements subject to post-contingency overloads is of interest when characterizing the breadth of a reliability concern, it is not determinative because each and every component of the transmission system must comply with applicable reliability standards and criteria to ensure a reliable supply of electricity for the Commonwealth.

load interruption is not recommended as a mitigation for voltage violations.[192] See Load Interruption Guidelines at 8. Accordingly, the Siting Board is not persuaded that a load interruption alternative would be an appropriate means of addressing the thermal overloads and low voltage violations identified in the Marlborough Subarea.

Given the reliability needs currently present in the Marlborough Subarea, the Siting Board concludes that inclusion of the NTA information presented by the Town of Sudbury with its Motion to Reopen is not likely to have a significant impact on the Siting Board's determination that the Project is necessary and superior to other alternatives identified with respect to providing a reliable energy supply for the Commonwealth with minimum impact on the environment at the lowest possible cost.

F. Conclusion

The Siting Board finds that the Town of Sudbury has failed to demonstrate clearly good cause for reopening the record in this matter. Therefore, the Town of Sudbury Motion to Reopen Record and Hearing, dated June 13, 2019, is denied. The documents referenced above that Sudbury and the Company have filed pertaining to the Sudbury Motion will not be considered by the Siting Board in its deliberations and in the issuance of a tentative and final decision on this matter.

XIII. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. Thus, an applicant must obtain Siting Board approval under G.L. c. 164, § 69J, prior to construction of a proposed energy facility.

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192 For example, the 2010 ISO-NE Load Interruption Guidelines includes a "guiding concept" stating that "[p]lanning of the regional transmission system should not consider load interruption as the primary means to mitigate transmission system reliability violations and thus recognizes the importance of providing reliable service to all customers." See Load Interruption Guidelines ("Load Interruption Guidelines") at 3.

In Section III, above, the Siting Board finds that additional energy resources are needed to maintain a reliable supply of electricity within the Marlborough Subarea.

In Section IV, above, the Siting Board finds that the Project is superior to the other alternatives identified with respect to providing a reliable energy supply for the Commonwealth with minimum impact on the environment at the lowest possible cost.

In Section V, above, the Siting Board finds that the Company has developed and applied a reasonable set of criteria for identifying and evaluating alternatives to the Project in a manner that ensures that the Company has not overlooked or eliminated any routes that are on balance clearly superior to the Project. The Siting Board also finds that the Company has identified a range of practical transmission line routes with some measure of geographic diversity. Consequently, the Siting Board finds that the Company has demonstrated that it examined a reasonable range of practical siting alternatives, and the proposed facilities are sited in locations that minimize cost and environmental impacts while ensuring a reliable energy supply.

In Section VI, above, the Siting Board finds that the proposed facilities along the MBTA Underground Route would be superior to the proposed facilities along both the All-Street Route and the MBTA Overhead Route with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

In Section VI, above, the Siting Board reviewed environmental impacts of the Project and finds that with the implementation of the specified mitigation and conditions, and compliance with all applicable local, state and federal requirements, the environmental impacts of the Project along the MBTA Underground Route would be minimized.

In Section VII, above, the Siting Board finds that with the implementation of specified mitigation and conditions, the Project is consistent with the health, environmental protection, and resource use and development policies of the Commonwealth.

In addition, the Siting Board finds, pursuant to G.L. c. 164, § 72, that the Project is necessary for the purpose alleged, and will serve the public convenience, and is consistent with the public interest, subject to the following Conditions A through S.

In addition, the Siting Board finds, pursuant to G.L. c. 40A, § 3, that construction and operation of the Company's proposed facilities are reasonably necessary for the public convenience or welfare. Accordingly, the Siting Board approves the Company's Petition for an

exemption from certain provisions of the zoning bylaws of the Towns of Sudbury, Hudson, and Stow, with limitations, as enumerated in Section VIII.D, above. In addition, the Siting Board finds that delay in the completion of the Project would likely cause substantial public harm and that the grant of comprehensive exemptions from the zoning bylaws of the towns of Sudbury, Hudson, and Stow is warranted. Accordingly, the Siting Board approves the Company's Petition for comprehensive exemptions from the provisions of the zoning bylaws of the Towns of Sudbury, Hudson, and Stow, with limitations, as enumerated in Section IX.C, above.

Accordingly, the Siting Board APPROVES pursuant to G.L. c. 164, § 69J, the Company's Petition to construct the Project using the MBTA Underground Route, as described herein, subject to the following Conditions A through S.

A. The Company shall file, prior to construction, the executed MOU between DCR that outlines vegetation management along the MBTA ROW.

B. The Company shall, in consultation with the owners/managers of bordering conservation land – Sudbury, Hudson, Marlborough, Sudbury Valley Trustees, DCR, and the U.S. Department of the Interior – develop an access plan that details: (1) the time of year that access would be limited along the MBTA ROW; (2) alternative access points to specific conservation areas if applicable; (3) guidelines for communicating with all owners/managers of such conservation lands; and (4) a complaint and resolution process regarding any issues arising from construction that impact the bordering conservation land.

C. The Company shall not commence construction of the Project along the MBTA Underground Route until the question of whether the MBTA can enter into the Option Agreement is resolved and the Company's rights to install the New Line along the MBTA ROW are thereby confirmed.

D. The Company shall file the following documents applicable to a particular community prior to the start of construction in that community: final mitigation plans for wetland replication and compensatory flood storage; completed wildlife habitat assessments; final avoidance and mitigation plans; and each Order of Conditions from the local conservation commissions. The Company shall not be precluded from commencing construction in a particular community if it is fully permitted to proceed in that community.

E. The Siting Board directs the Company to report on any future consultations with MassDFW and provide any additional mitigation or best practices that will be implemented prior to construction of the Project.

F. The Siting Board directs Eversource to utilize mechanical vegetation management along the MBTA ROW. Further, if Eversource finalizes an MOU with DCR for vegetation management along the MCRT, Eversource shall incorporate the same provision in the MOU. If DCR does not agree to the inclusion of this provision in the MOU, Eversource shall submit a report to the Siting Board describing DCR's objections for the Board's consideration.

G. The Company shall use the quietest low-noise generators reasonably available during cable splicing.

H. Eversource shall place any stationary equipment that emits loud noise in addition to portable generator units as far as practicable from residences and other sensitive receptors during construction.

I. Eversource shall provide a filing with the Siting Board describing nighttime construction noise mitigation measures that will be implemented during Project construction.

J. The Company shall limit construction of the New Line in residential areas to Monday through Friday from 7:00 a.m. to 6:00 p.m., with the exception of in-street work as requested by the Town of Hudson. Work requiring longer continuous duration than normal construction hours allow, such as cable splicing, is exempted from this condition. The Siting Board will allow Saturday work at the Sudbury and Hudson Substations, but it shall be limited to large equipment deliveries and to quiet assembly and testing activities.

Should the Company need to extend construction work beyond the above-noted hours and days, with the exception of emergency circumstances on a given day necessitating extended hours, the Company shall seek written permission from the relevant municipal authority before the commencement of such work, and to provide the Siting Board with a copy of such permission. If the Company and municipal officials are not able to agree on whether such extended construction hours should occur, the Company may request prior authorization from the Siting Board and shall provide the relevant municipality with a copy of any such request.

K. The Company shall inform the Siting Board and the relevant municipality within 72 hours of any work that continues beyond the hours allowed by the Siting Board. The Company shall also send a copy to the Siting Board, within 72 hours of receipt, of any municipal authorization for an extension of work hours. Furthermore, the Company shall keep records of the dates, times, locations, and duration of all instances in which work continues beyond the hours allowed by the Siting Board; if a municipality grants the Company extended work hours in writing, the Company shall keep records of work that continues past allowed hours, and must submit such records to the Siting Board within 90 days of Project completion.

L. The Company shall provide a Project-specific phone number, staffed during all daytime construction hours, for the public to raise concerns with respect to Project construction impacts. Further, the Company shall develop a Project-specific website, which should at a minimum contain contact information for Company public affairs personnel, the Project-specific phone number, all communications regarding local construction impacts, a Project map, traffic management plans, and a construction timeline. The Company shall provide the Siting Board with the phone number and website address when created.

M. The Company shall, in consultation with the towns, develop a separate, comprehensive outreach plan for the Project for each municipality. Each outreach plan should describe the procedures to be used to notify the public about: (1) the scheduled start, duration, and hours of construction in particular areas; (2) the methods of construction that will be used in particular areas (including any use of nighttime construction); and (3) anticipated street closures and detours. Each outreach plan should also include information on complaint and response procedures; Project contact information; the availability of web-based project information; and protocols for notifying the schools of upcoming construction.

N. The Company shall alert abutters a minimum of two weeks in advance of anticipated local construction activities, when possible.

O. The Company shall, upon request of any person or entity owning property located directly abutting the MBTA ROW whose view has materially changed due to construction of the Project, to provide appropriate and reasonable off site screening. Such screening may include shrubs, trees, window awnings, and fences, provided that operating and maintenance requirements for the transmission line are met. Upon completion of construction, the Company shall notify all owners of property located on or abutting the MBTA ROW in writing of the option to request that the Company provide off site mitigation. The Company shall honor all reasonable and feasible requests for mitigation that it receives from property owners within six months of receipt of the Company's written notification.

P. The Company shall provide an interim report at the mid-point of construction and a final report at the completion of the Project describing how the Company followed the MassDEP Rail Trail BMP.

Q. The Siting Board directs the Company to comply with all applicable federal, state, and local laws, regulations, and ordinances from which the Company has not received an exemption. The Company shall be responsible for ensuring such compliance by its contractors, subcontractors, or other agents.

R. The Siting Board directs the Company to submit to the Board an updated and certified cost estimate for the Project prior to the commencement of construction.

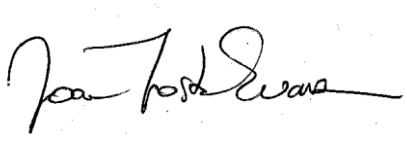
Additionally, the Siting Board directs the Company to file semi-annual compliance reports with the Siting Board starting within 180 days of the commencement of construction, that include projected and actual construction costs and explanations for any discrepancies between projected and actual costs and completion dates, and an explanation of the Company's internal capital authorization approval process.

S. The Siting Board directs the Company, within 90 days of Project completion, to submit a report to the Siting Board documenting compliance with all conditions contained in this Decision, noting any outstanding conditions yet to be satisfied and the expected date and status of compliance.

Because issues addressed in this Decision relative to this facility are subject to change over time, construction of the proposed Project must be commenced within three years of the date of the Decision.

In addition, the Siting Board notes that the findings in this Decision are based upon the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires the Company, and its successors in interest, to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. The Company or its successors in interest are obligated to provide the Siting Board with sufficient information on changes to the proposed Project to enable the Siting Board to make these determinations.

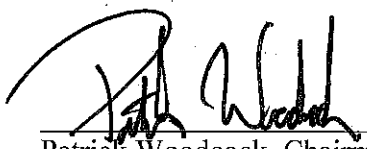
The Secretary of the Department shall transmit a copy of this Decision and the Section 61 findings herein to the Executive Office of Energy and Environmental Affairs and the Company shall serve a copy of this Decision on the Town of Sudbury Board of Selectmen, the Town of Hudson Board of Selectmen, the Town of Stow Board of Selectman, and the City Council of the City of Marlborough and the planning boards and zoning boards of appeals in these municipalities. The Company shall certify to the Secretary of the Department within ten business days of issuance that such service has been made.



Joan Foster Evans, Esq.
Presiding Officer

Dated this 18th day of December 2019

APPROVED by a vote of the Energy Facilities Siting Board at its meeting on December 17, 2019, by the members present and voting. Voting for the Tentative Decision as amended: Patrick Woodcock, Undersecretary of the Executive Office of Energy and Environmental Affairs and Siting Board Chairman; Matthew Nelson, Chair of the Department of Public Utilities; Cecile M. Fraser, Commissioner of the Department of Public Utilities;; Gary Moran, Deputy Commissioner and designee for the Commissioner of Massachusetts Department of Environmental Protection; Joseph Bonfiglio, Public Member; and Brian Casey, Public Member.



Patrick Woodcock, Chairman
Energy Facilities Siting Board

Dated this 18 day of December 2019

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Appeal as to matters of law from any final decision, order or ruling of the Siting Board 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 Siting Board be modified or set aside in whole or in part. Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board 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. Massachusetts General Laws, Chapter 25, Sec. 5; Chapter 164, Sec. 69P.