

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

SECTION 206 INVESTIGATION)

DOCKET NO. EL19-90-000

**RESPONSE OF ISO NEW ENGLAND, INC. TO ORDER
INSTITUTING SECTION 206 PROCEEDINGS**

INTRODUCTION

On October 17, 2019, the Commission issued an Order Instituting Section 206 Proceedings and opening Docket No. EL19-90-000 to “consider how the exemption for immediate need reliability projects that the Commission permitted to Order No. 1000’s requirement to eliminate provisions in Commission-jurisdictional tariffs and agreements that establish a federal right of first refusal for an incumbent transmission developer with respect to transmission facilities selected in a regional transmission plan for purposes of cost allocation is being implemented.”¹ The Commission stated that it is concerned that ISO New England, Inc. (ISO-NE) “may be implementing the exemption in a manner that is inconsistent with what the Commission directed, and therefore may be unjust and unreasonable, unduly preferential and discriminatory.”² The Commission directed ISO-NE to respond to a series of questions regarding its implementation of the exemption and such implementation’s consistency with Order No. 1000. This filing is being made consistent with the Instituting Order and provides answers to the questions posed by the Commission and background regarding ISO-NE’s implementation of the exemption for immediate need reliability projects.³

BACKGROUND

To ensure that ISO-NE’s answers are provided in the appropriate context, the following is a brief description of the ISO-NE transmission planning process as it relates to the Order No. 1000 exemption for immediate need reliability projects. ISO-NE’s Commission approved transmission planning process is set forth in Attachment K to the ISO-NE Open Access

¹ Docket No EL-19-90, Order Instituting Section 206 Proceedings (issued October 17, 2019) (Instituting Order), ¶ 1.

² Id.

³ Several of the links provided herein direct to documents that contain Critical Energy Infrastructure Information (CEII) and may only be accessed by those with appropriate permissions to access CEII materials.

Transmission Tariff (OATT)⁴ as well as its Transmission Planning Process Guide (Process Guide)⁵ and Transmission Planning Technical Guide (Technical Guide).⁶ The Commission issued the final Order approving ISO-NE's Tariff changes related to the Order No. 1000 on March 19, 2015, including Sections 4.1(i-j) of Attachment K, which set forth the time-sensitive needs exception in the Tariff.⁷

As described in Section 2.6 of the Process Guide and Section 4.1 of the Technical Guide, ISO-NE conducts Needs Assessments in order to determine whether Pool Transmission Facility (PTF) upgrades are required in a given study area. Needs Assessments go through a development process where the scope, assumptions, and results are reviewed with the Planning Advisory Committee (PAC) at various points. During this process, ISO-NE seeks comments on the draft assessments from stakeholders.

If any reliability criteria violations are found as the result of a Needs Assessment, the needs are deemed to be either time-sensitive or not based on when the identified violation is expected to occur. The Technical Guide states that when a Needs Assessment has been completed, "a decision must be made with regard to developing regulated transmission upgrades (solutions) to resolve the needs."⁸ The Technical Guide further states that:

The development of the solution(s) shall be accomplished by either the Solutions Study process or the Competitive Solution process. The initial determining factor of the decision for Reliability Transmission Upgrades is based on the time-sensitivity of each identified need in the Needs Assessment. Time-sensitive needs are those that occur in three years or less from the completion of the Needs Assessment report. If any of the needs identified are deemed to be time-sensitive and the requirements of Section 4.1(j) of Attachment K of the OATT have been met, then the Solutions Study process will be initiated.

Additionally, for all needs that are identified as a part of the Needs Assessment, a need-by date (NBD) is determined.

⁴ Capitalized terms used but not defined in this response have the meaning ascribed in the ISO New England Inc. Transmission, Markets, and Services Tariff (Tariff). The OATT is Section II of the Tariff.

⁵ Transmission Planning Process Guide (Process Guide), available at https://www.iso-ne.com/static-assets/documents/2018/05/transmission_planning_process_guide_1_30_2018.pdf

⁶ Transmission Planning Technical Guide (Technical Guide), available at https://www.iso-ne.com/static-assets/documents/2017/03/transmission_planning_techincal_guide_rev6.pdf

⁷ ISO New England, Inc., 150 FERC ¶ 61,209 PP 235-237 (2015).

⁸ Technical Guide Section 4.1.4.1

Section 2.7.1 of the Process Guide lays out the steps that ISO-NE is required to use in order to determine if the time-sensitive needs exception applies, including that ISO-NE present to the PAC: 1) an explanation of the reliability criteria violations and system conditions that generated the needs; 2) the time sensitivity of each need; 3) an explanation of other transmission or non-transmission options considered to address the identified reliability needs; and 4) the circumstances that generated the reliability need, and an explanation of why the reliability need was not identified earlier.⁹ ISO-NE was required to post related presentations on its website, to accept comments on the materials for 30 days, and to maintain such records on its website.¹⁰

ISO-NE considers a project that solves a time-sensitive need to be an immediate need reliability project as that term is used by the Commission in this proceeding. The date the project was designated as an immediate need reliability project is the date ISO-NE posts a final Solutions Study to the PAC website.¹¹

ISO-NE continuously assesses the transmission system, and where studies are required timelines may vary depending upon a number of factors, including the scope of the study; the amount and complexity of system concerns; the amount and timing of stakeholder interest; changes in resources that have cleared the Forward Capacity Market or are selected in a state-sponsored request for proposal or receive a financially binding obligation pursuant to a contract; resource retirements; changes in the load forecast; and changes in forecasted energy efficiency and photovoltaic generation. Any changes in these assumptions can lead to moving back a number of steps in the study process.

Consistent with this process, ISO-NE has separately undertaken the Southeastern Massachusetts/Rhode Island 2026 (SEMA/RI 2026) and Boston 2028 Needs Assessments. Links to the results of these Needs Assessments, Solutions Studies, and associated materials are included in Tables 1 and 2 below. While ISO-NE tracks components identified through each Needs Assessment individually, the need for all components is the result of the two Needs Assessments. In other words, these solution components, while listed individually, were developed as a comprehensive solution to correct the violations identified in each Needs Assessment.

⁹ Process Guide Sec. 2.7.1

¹⁰ Note, this 30-day timeline has recently been changed as a result of the Commission's acceptance of certain ISO-NE tariff changes on December 10, 2019 in Docket No. ER20-92, ISO New England, Inc., Order Accepting Tariff Revisions. The time period for comments under Section 4.1(j) of Attachment K is now 15 days.

¹¹ Technical Guide Section 4.1.4.1

<u>Table 1 – Solutions Studies</u>	
<u>SEMA/RI 2026 Study</u> ¹²	<u>Boston 2028 Study</u>
Southeastern Massachusetts and Rhode Island Area 2026 Solutions Study, Revision 1 - March 2017 - https://smd.iso-ne.com/operations-services/ceii/pac/2017/02/final_sema_ri_2026_solutions_study_report_rev1.pdf	Boston 2028 Solutions Study - October 2019 - https://smd.iso-ne.com/operations-services/ceii/pac/2019/10/ceii_final_boston_2028_solution_study.pdf
SEMA/RI 2026 Preferred Solution Update - J16S Line - April 2018 - https://smd.iso-ne.com/operations-services/ceii/pac/2018/04/a8_sema_ri_2026_preferred_solution_update_j16S_line.pdf	
SEMA/RI 2026 Preferred Solution Update - 323 Line Structure Replacements – April 2018 - https://smd.iso-ne.com/operations-services/ceii/pac/2018/04/a8_sema_ri_2026_preferred_solution_update_323_line_structure_replacements.pdf	

A solution’s NBD, as established through the Needs Assessment process, is associated with the time-sensitivity of the need. ISO-NE has separate protocols for determining time-sensitivity based on whether the need relates to short circuit, off-peak load levels, and peak load periods. The time-sensitivity of short circuit need(s) is based on the expected in-service date of a future project that causes the equipment to exceed its capabilities.¹³ If needs are identified at off-peak load levels, then the needs are deemed to be time-sensitive because these off-peak load levels are possible under current system conditions.¹⁴ For peak load periods, time-sensitive base cases are created and steady state thermal and voltage analysis is performed on these base cases. All needs identified in the 10-year study horizon base case that still appear as a result of the analysis using the time-sensitive base cases are considered time-sensitive needs. The NBD for time-sensitive needs observed at peak load will be set to June 1st of the time-sensitive year. All

¹² Notably, the West Medway and Medway circuit breaker upgrades were identified outside the Needs Assessment and Solutions Study process. These projects to upgrade and replace circuit breakers were identified and developed as a result of the Proposed Plan Application (PPA) studies completed for SEMA/RI projects in April 2018. The SEMA/RI projects increase the available short circuit levels at West Medway and Medway over the short circuit interrupting capabilities of the existing breakers. Since the SEMA/RI projects caused the need to replace the circuit breakers at West Medway and Medway, the NBD of the circuit breaker projects at West Medway and Medway is the same as the SEMA/RI projects (prior to 2016).

¹³ Planning Guide, Sec. 4.1.4.2

¹⁴ Planning Guide, Sec. 4.1.4.3

needs that were observed in the analysis using the study horizon base cases but are no longer present in the analysis using the time-sensitive base cases are considered non-time-sensitive needs.¹⁵

<u>Table 2 – Needs Assessments</u>	
<u>SEMA/RI 2026 Study</u>	<u>Boston 2028 Study</u>
Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - Section 5.5 - https://smd.iso-ne.com/operations-services/ceii/pac/2016/05/final_sema_ri_needs_assessment_report.pdf	Boston 2028 Needs Assessment - Section 6 - https://smd.iso-ne.com/operations-services/ceii/pac/2019/06/ceii_boston_2028_n.a.pdf
Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - Section 5.5 - https://smd.iso-ne.com/operations-services/ceii/pac/2016/12/sema_ri_2026_needs_assessment_addendum.pdf	

Once ISO-NE has established, through this process, that a given need is time-sensitive, it follows the Commission required steps for the exemption for immediate need reliability projects, including allowing an opportunity for stakeholder comment. At that point, in order to develop a solution to resolve the violation, ISO-NE works with the Transmission Owner of the system where the upgrade is expected to be located. By working with the Transmission Owner, expected in-service dates are developed, based on a good-faith estimate by the Transmission Owner of the equipment ordering, construction, and siting timeframes associated with the upgrades. For example, the in-service dates for the SEMA/RI Reliability Projects were determined in this way, and were first reported in the Regional System Plan (RSP) Project List on March 2017.¹⁶

Once a solution has been designed and has been discussed with the PAC, the solution needs to be approved through the Proposed Plan Application process in accordance with Section I.3.9 of the Tariff to determine if there are adverse impacts to the system. The Transmission Owners also begin the permitting, siting and construction process. Delays in the permitting, siting, and construction processes, which are outside the control of ISO-NE can lead to solutions not meeting their expected in service dates, even where the NBD might be in the past, or within three years of the completion of a Needs Assessment as required under Order No. 1000.

¹⁵ Planning Guide, Sec. 4.1.4.4

¹⁶ ISO-NE Project List – PAC March 2017, available at https://www.iso-ne.com/static-assets/documents/2017/03/final_rsp17_project_list_march_2017.xls

The initial expected in-service dates for the solution to the time-sensitive needs identified in the Boston 2028 Needs Assessment were reported in the Boston 2028 Solutions Study in Section 7.3.¹⁷ The date the Transmission Owner energizes the project will be reported on the RSP Project List and NEPOOL Participants Committee (NPC) presentation.¹⁸ This will also be included in the annual filing to FERC for time-sensitive projects made pursuant to Section 4.1(j) of Attachment K to the OATT. ISO-NE issued a Request for Proposals (RFP) on December 20, 2019 to address the identified, non-time-sensitive needs.

The Boston area transmission planning process was driven by the upcoming retirement of the Mystic Generating Station. Over the course of 2019 ISO-NE has completed a number of transmission planning studies for the Boston area. In June 2019, ISO-NE completed a Needs Assessment for Boston that identified both time-sensitive needs and non-time-sensitive needs. The time-sensitive needs are related to high voltages at minimum load and the non-time-sensitive needs are associated with system restoration and overloads at peak load level. ISO-NE has worked with Eversource and National Grid to develop a transmission solution to the time-sensitive needs, which involves relatively minor upgrades in Boston.

Following completion of the initial Boston 2028 Needs Assessment, ISO-NE completed a Needs Assessment Addendum to specify the design requirements for addressing the system restoration concerns; and a Needs Assessment Update which incorporated the solution to the time-sensitive needs and updated resource assumptions to the latest available data. Non-time-sensitive needs remain, including the overload of three 345 kV cables and one 115 kV overhead line, and will be addressed through the December 20, 2019 RFP as well as issues identified in the Addendum to that Needs Assessment.

Against this background, ISO-NE provides the following answers to the questions posed by the Commission in the Instituting Order.

¹⁷ This was also reported in a presentation to the PAC in September, 2019. https://www.iso-ne.com/static-assets/documents/2019/09/bos_2028_sol_study_pref_soln_presentation_clean_rev1.pdf

¹⁸ ISO-NE NEPOOL Participants Committee Report October 2019, available at <https://www.iso-ne.com/static-assets/documents/2019/10/october-2019-coo-report.pdf>

RESPONSES TO QUESTIONS

1. *Provide a consolidated list of all immediate need reliability projects for which the incumbent transmission owner was designated as the entity responsible for construction and ownership of the project and cite to where each project was reported to the Commission in an informational filing. For each project, provide the date the project was designated as an immediate need reliability project, the project's need-by date, the initial expected in-service date, and the date the incumbent transmission owner energized the project.*

All of the project components designated as time-sensitive by ISO-NE as of January 2019 were the result of the SEMA/RI 2026 Solutions Study, discussed above. Two additional projects resulting from the Boston 2028 Solutions Study have been added since ISO-NE's January 2019 Informational Filing in Docket No. ER13-193-000 (these will be included in ISO-NE's January 2020 Informational Filing). Attachment A to this filing provides an updated list of ISO-NE designated projects with the details requested by the Commission.

2. *Explain how the Responding RTO identifies an immediate need reliability project, including how it determines whether a transmission project is needed in three years or less to solve reliability criteria violations. Describe the information and criteria the Responding RTO uses to make that determination, including cites to the relevant tariff provisions, transmission owner agreements, and business practice manuals. Describe and list the criteria (e.g., generation retirement, fuel deliverability) the Responding RTO used to evaluate immediate need reliability projects.*

Section 4.1(i) of Attachment K requires ISO-NE to use a Solutions Study to address time-sensitive needs. Specifically, Section 4.1(i) states that “[w]here the ISO forecasts that a solution is needed to solve reliability criteria violations in three years or less from the completion of a Needs Assessment...the ISO will evaluate the adequacy of proposed regulated solutions by performing Solutions Studies, as described in Section 4.2 of this Attachment.”

Section 4.1(j) of Attachment K sets forth the required steps that ISO-NE must take to find that a Solutions Study shall be used as a response to a Needs Assessment. These require that ISO-NE: 1) post on its website an explanation of the reliability criteria violations and system conditions that the region has a time-sensitive need to solve within three years of the completion of the relevant Needs Assessment; 2) provide to the PAC and post on its website a full and supported written description explaining the decision to designate a Transmission Owner as the entity responsible for construction and ownership of the reliability project and provide 30 days for stakeholder comments;¹⁹ and 3) maintain and post on its website a list of prior year designations of all projects needed to address time-sensitive needs.

As stated above, a solution's NBD, as established through the Needs Assessment process, is associated with the time-sensitivity of the need. ISO-NE has separate protocols for determining

¹⁹ As noted above, this time period has been changed to 15 days through the Commission's acceptance of certain ISO-NE tariff changes on December 10, 2019 in Docket No. ER20-92.

time-sensitivity based on whether the need relates to short circuit, off-peak load levels, and peak load periods. The time-sensitivity of the short circuit need(s) is based on the expected in-service date of a future project that causes the equipment to exceed its capabilities.²⁰ If needs are identified at off-peak load levels, then the needs are deemed to be time-sensitive because these off-peak load levels are possible under current day system conditions.²¹ For peak load periods, time-sensitive base cases are created and steady state thermal and voltage analysis is performed on these base cases. All needs identified in the 10-year study horizon base case that still appear as a result of the analysis using the time-sensitive base cases are considered time-sensitive needs. The NBD for time-sensitive needs observed at peak load will be set to June 1st of the time-sensitive year. All needs that were observed in the analysis using the study horizon base cases, but are no longer present in the analysis using the time-sensitive base cases are considered non-time-sensitive needs.²²

ISO-NE is required by Sec. 3.6(c) of Attachment K to “modify...regulated transmission solutions or Transmission Upgrades to reflect changes to the PTF system configurations, including ongoing investments by Market Participants or other stakeholders.” Section 4.1(f) of Attachment K requires that ISO-NE “incorporate or update information regarding resources in Needs Assessments that have been proposed and (i) have cleared in a Forward Capacity Auction pursuant to Market Rule 1 of the ISO Tariff, (ii) have been selected in, and are contractually bound by, a state-sponsored Request For Proposals, or (iii) have a financially binding obligation pursuant to a contract... [or] submitted Retirement De-List Bids, submitted Permanent De-List Bids, and demand bids that have cleared in a substitution auction, and may model out-of-service rejected-for-reliability Static De-List Bids and rejected-for-reliability Dynamic De-List Bids from the most recent Forward Capacity Auction.”

A copy of ISO-NE’s FERC-approved OATT is available at the following URL: <http://www.iso-ne.com/participate/rules-procedures/tariff/oatt>.

As discussed above, ISO-NE’s Process Guide (https://www.iso-ne.com/static-assets/documents/2018/05/transmission_planning_process_guide_1_30_2018.pdf) and Technical Guide (https://www.iso-ne.com/static-assets/documents/2017/03/transmission_planning_techincal_guide_rev6.pdf) are the sources for the procedures used to determine the time-sensitivity of needs and the need-by date and implement the OATT.

²⁰ Planning Guide, Sec. 4.1.4.2

²¹ Planning Guide, Sec. 4.1.4.3

²² Planning Guide, Sec. 4.1.4.4

3. For each identified immediate need reliability project, provide individual links to the locations on the Responding RTO’s website where the Responding RTO provided in advance the information and explanations of the reliability violations and system conditions for which there was a time-sensitive need.

The information and explanations of the reliability violations and system conditions for the SEMA/RI 2026 and Boston 2028 Needs Assessments were presented to the PAC in advance pursuant to Section 4.1(j) of Attachment K. Links are included in the table below.

<u>SEMA/RI 2026 Study</u>	<u>Boston 2028 Study</u>
Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - Section 5.5 - https://smd.iso-ne.com/operations-services/ceii/pac/2016/05/final_sema_ri_needs_assessment_report.pdf	Boston 2028 Needs Assessment - (Section 6) - https://smd.iso-ne.com/operations-services/ceii/pac/2019/06/ceii_boston_2028_na.pdf
Southeastern Massachusetts and Rhode Island (SEMA/RI) 2026 Needs Assessment, Revision 2 (PAC Presentation) - https://smd.iso-ne.com/operations-services/ceii/pac/2016/05/final_sema_ri_2026_needs_assessment_presentation_rev2.pdf	Boston Area 2028 Needs Assessment – Update and Results - Revision 1(PAC Presentation) - https://smd.iso-ne.com/operations-services/ceii/pac/2019/04/ceii_boston_2028_na_presentation_rev1_clean.pdf
Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment Section 5.5 - https://smd.iso-ne.com/operations-services/ceii/pac/2016/12/sema_ri_2026_needs_assessment_addendum.pdf	
Southeastern Massachusetts and Rhode Island (SEMA/RI) 2026 Needs Assessment, Update, Rev. 1 (PAC Presentation) – https://smd.iso-ne.com/operations-services/ceii/pac/2016/10/a7_sema_ri_2026_needs_assessment_update.pdf	

4. *For each identified immediate need reliability project, provide individual links to the locations on the Responding RTO's website for the full and supported written descriptions explaining: (1) why that project was designated to the incumbent transmission owner as the entity responsible for construction and ownership of the project, including an explanation of alternate solutions to the immediate need reliability project that were considered; and (2) the circumstances that generated the immediate reliability need and why the immediate reliability need was not identified earlier.*

Consistent with Section 4.1 of Attachment K to the OATT, ISO-NE presents to the PAC the reasons a solution was designated to the incumbent Transmission Owner (including an explanation of alternate solutions reviewed, the circumstances that generated the immediate reliability need, as well as why the need was not identified earlier. Links to ISO-NE's presentations to the PAC can be found in the table provided in the response to Question No. 3. Specifically, Slides 50-61 of the Boston Area 2028 Needs Assessment – Update and Results - Revision 1 (PAC Presentation) and Slides 20, 62-80 of the Southeastern Massachusetts and Rhode Island (SEMA/RI) 2026 Needs Assessment, Revision 2 (PAC Presentation) contain this information.

Links to the SEMA/RI 2026 and Boston 2028 Needs Assessments, which formalize the findings presented to the PAC (and incorporates or addresses feedback received through the PAC process) are contained in Table 2, above. Section 6 of the SEMA/RI 2026 Needs Assessment and Section 7 in the Boston 2028 Needs Assessment detail why the projects were designated to the incumbent transmission owner as the entity responsible for construction and ownership of the project, including an explanation of alternate solutions to the immediate need reliability project that were considered.

The circumstances that generated the immediate reliability need are detailed in Section 5 of both Needs Assessments. The needs were not identified in previous planning cycles because each was caused by changed circumstances and assumptions, specifically:

- a. SEMA/RI 2026 – Resource retirements, most notably the Brayton Point Power Station (Brayton Point) and Pilgrim Nuclear Power Station (Pilgrim), which were submitted in different ISO-NE Forward Capacity Auctions, prompted the SEMA/RI study to be restarted several times before being completed.

- b. Boston 2028 – As discussed above, the pending retirement of the Mystic Generating Station (Mystic), as well as changes in minimum load level assumptions, prompted the start of the Boston 2028 study.²³
5. *For each identified immediate need reliability project, describe how the Responding RTO permitted stakeholders to provide comments and provide individual links to the location(s) on the Responding RTO’s website where stakeholder comments on specific immediate need reliability projects are made publicly available.*

As described in the Process Guide, the PAC process includes multiple meaningful opportunities for stakeholders to provide input regarding immediate reliability need projects.²⁴ Stakeholders had the chance to provide comments for 30 days following each PAC presentation. Stakeholders had an additional opportunity to provide comments during a stakeholder review period following the posting of draft Needs Assessments to the PAC section of the ISO-NE external website. Stakeholder comments and ISO-NE responses to those comments for the SEMA/RI 2026 and Boston 2028 Needs Assessments and Addendums and Updates are available at the links below:

- a. SEMA/RI 2026 Needs Assessment - https://www.iso-ne.com/static-assets/documents/2016/05/final_response_to_comments_sema_ri_needs_assessment.pdf
- b. No comments were received for the Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment
- c. Boston 2028 Needs Assessment - https://www.iso-ne.com/static-assets/documents/2019/06/response_to_stakeholder_comments_on_draft_boston_2028_na.pdf
- d. Boston 2026 Solutions Study, Needs Assessment Addendum, and Needs Assessment Update - https://www.iso-ne.com/static-assets/documents/2019/10/response_to_stakeholder_comments_on_draft_boston_2028_reports.pdf

²³ The changes in Minimum Load Level Assumptions were presented to the PAC on November 16, 2017. The following links including the presentation and backing documentation regarding those changes: https://www.iso-ne.com/static-assets/documents/2017/11/a6_transmission_planning_assumptions_methodology_implementation_and_min_load_level.pdf; https://www.iso-ne.com/static-assets/documents/2019/03/a7_minimum_light_and_should_loads_update_to_transmission_planning_technical_guide.zip

²⁴ Process Guide Section 2.7.1.1

6. *Provide any additional information that may be necessary to demonstrate that the Responding RTO met the five criteria for each identified immediate need reliability project.*

During the course of both the SEMA/RI 2026 and Boston 2028 Needs Assessments, ISO-NE followed the planning process laid out in Section 4.1 of Attachment K, and as further detailed in the Process Guide and Technical Guide. As noted above, the Tariff was approved by the Commission through ISO-NE's Order No. 1000 compliance process and the Process Guide and Technical Guide describe the process set forth in the Tariff. ISO-NE has followed all Commission required steps to designate projects as time-sensitive and develop solutions with the Transmission Owners following such designation. In fact, were ISO-NE to have done otherwise, it would have violated Sec. 4.1(i) of Attachment K to the OATT, which requires that a need be deemed time-sensitive where the appropriate conditions - a NBD of three years or less and appropriate notice to stakeholders - are met.

7. *Explain how the Responding RTO distinguishes an immediate need reliability project's need-by date from the expected in-service date. Explain how an immediate need reliability project can have a need-by date prior to or in the year the project was designated as an immediate need reliability project. Cite to the provisions of the tariff, transmission owner agreements, or business practice manuals that define the terms "need-by date" and "expected in-service date."*

As discussed above, the NBD is established through the Needs Assessment process. ISO-NE's Needs Assessment process describes when the upgrade is needed to correct a reliability violation. The reliability violation may be found to exist in the present, in certain situations.

Following completion of a Needs Assessment, the solutions development process, including permitting, siting, and equipment ordering, must be completed in order to place the solution in-service. Even though the timing of the need to address the reliability violations is established in the Needs Assessment, the timing of the expected in-service date can only be established after the completion of a Solutions Study or competitive solicitation.

The Solutions Study process identifies the appropriate upgrade(s) to address a given violation. The expected in-service date is based on a realistic appraisal by the affected Transmission Owner of how long it is likely to take for the preferred solution identified through the Solutions Study to receive permitting and siting authorization, order and receive equipment, and ultimately be constructed (including the scheduling of any required transmission outages) and placed in service. For these reasons, the expected in-service date may exceed the NBD determined in the Needs Assessment process.

The terms "need-by date" and "expected in-service date" are not explicitly defined in the OATT, Technical Guide, or Process Guide. ISO-NE believes they are commonly understood terms and

do not need to be expressly defined. Moreover, as stated above, Table 4-6 of the Process Guide discusses how NBDs are determined for different types of time-sensitive needs.²⁵

8. *For each immediate need reliability project with a need-by date prior to the project being designated, explain why the relevant time-sensitive reliability criteria violation was not identified in prior planning cycles.*

The circumstances that generated the immediate reliability needs for SEMA/RI 2026 and Boston 2028 are detailed in Section 5 of both Needs Assessments and in the PAC presentations referenced in response to Question 4. The needs were not identified in previous planning cycles because each was caused by changed circumstances and assumptions. Specifically:

- a. SEMA/RI 2026 – Resource retirements, most notably including Brayton Point and Pilgrim, which came about in different ISO-NE Forward Capacity Auctions prompted the SEMA/RI study to be restarted several times before being completed.
 - b. Boston 2028 – The pending retirement of Mystic, as well as the minimum load level assumption changes mentioned in response to Question 4 above, prompted the start of the Boston 2028 study.
9. *For each immediate need reliability project with a need-by date earlier than its projected in-service date, explain how the time-sensitive reliability criteria violation is being addressed before the project is placed in service.*

As described in previous responses, while ISO-NE has 31 projects²⁶ where the need-by date is earlier than the projected in-service date, the solutions are addressing the time-sensitive needs described in the SEMA/RI 2026 and Boston 2028 Needs Assessments. Each group of projects is composed of components that function together to address the violations identified in the two Needs Assessments.

ISO-NE decides what actions to take to address violations based on the conditions that are driving the needs. In many instances, Needs Assessments are performed with a more conservative set of assumptions than what is experienced in typical day-to-day operations. This is done to ensure that the system is designed in a robust manner, allowing for reliable service to load under a wide range of operating conditions. As an example, in some instances, ISO-NE's operators do not have to respect certain contingencies if the contingencies do not have impacts

²⁵ ISO-NE notes that during the pendency of the SEMA/RI 2026 Needs Assessment, an earlier version of the Technical Guide was in place. The 2016 Technical Guide is available at the following link: https://www.iso-ne.com/static-assets/documents/2016/01/planning_technical_guide_1_15_16.pdf

²⁶ As noted above, while there are 31 projects tracked by ISO-NE, all 31 projects are the result of two Needs Assessments, SEMA/RI 2026 and Boston 2028, and are individual pieces to correct the reliability needs determined through those Needs Assessments.

outside of the local area where they occur. Additionally, operators have access to a wider range of equipment ratings and system operating criteria than are allowed in transmission planning, such as increased thermal ratings if ambient conditions warrant their use. Essentially, ISO-NE's planning process is designed to yield the system that is needed to meet all reliability and planning obligations, whereas the daily operation of the system involves operating the system as it exists to ensure reliability.

Specific to the needs identified in the SEMA/RI 2026 Needs Assessment, the needs appear under peak load system conditions. Therefore, many hours of the year there is limited concern regarding the identified issues. Under peak load conditions, system operators will use all of the tools at their disposal, depending on available equipment on that particular day. As an example, on a peak day, operators will dispatch every available resource as necessary to prevent reliability issues. The available set of resources on such a day might differ from the transmission planning study assumptions. In the SEMA/RI area of the system, operations has created a transmission interface within the area to assist the operators in assuring that the necessary resources are brought into service relative to dynamic load conditions and equipment availability. In instances where the resources are not available or there is not a resource that can alleviate a certain system concern, operators may temporarily reconfigure the system to address the issue. While this system reconfiguration functions to protect the larger load serving area of the system, it may result in increased risk to smaller, local load serving capability if specific contingencies were to occur. Finally, if the prior operating actions are not successful, the operators can implement the localized disconnection of customers to protect the integrity of the system. By making use of the wider range of equipment ratings, utilizing all available resources, and reconfiguring the system, the exposure to the localized disconnection of customers is low enough that additional measures are not being taken in the time before the necessary transmission system upgrades are in place.

The needs identified in the Boston 2028 Needs Assessment are related to high voltages on the transmission system under minimum load conditions. Operators will make use of all available equipment, resources, and a wider range of equipment ratings if they are available. For example, operators may also dispatch local generation resources and operate them at a minimal real-power output to allow sufficient reactive control without injecting significant real power onto the system. However, this option is often limited because the operators must ensure that overall supply is equal to the overall system demand at all times. Operating additional resources under these load conditions will increase overall supply and other resources will have to be reduced or removed from service to maintain this power balance. In the event that none of these actions are successful, operators may temporarily remove transmission lines from service if they are adversely contributing to the identified system concerns. However, removal of transmission lines may increase risk to smaller local load serving capability and may reduce the useful life of the equipment being switched. At this time, no additional measures are being put into place until the transmission upgrades are in service.

In all cases, however, these real-time control methods are not a long-term solution to issues identified through a given Needs Assessment. The operational steps are workarounds required in certain circumstances and are not permanent solutions, nor do they correct the violations of transmission planning standards and criteria found on the system under the applicable conditions. The needs continue to remain time-sensitive.

10. If construction of an immediate need reliability project has not begun prior to its need-by date, explain what, if any, process the Responding RTO has to confirm that the previously identified immediate need reliability project is still needed in three years or less.

Unless other factors create a change in circumstances or assumptions sufficient to justify an update to a Needs Assessment, ISO-NE would not re-study or confirm that a project is still needed. As discussed in detail above, the NBD may be identified as being immediate, or even in the past.

11. Provide a detailed status report for each immediate need reliability project that has not gone or is not projected to go into service by its need-by date, including a description of factors preventing the project from going into service. For each project, also provide the reliability criteria violation it resolves, if any. Please explain how the time-sensitive reliability criteria violation is being addressed before the project is placed in service.

ISO-NE solicited information from National Grid and Eversource to respond to this question. Those responses are provided as received in Attachment B (containing narrative responses to the question) and Attachments C and D (containing detailed project status updates).

The time-sensitive reliability criteria violations associated with the SEMA/RI 2026 and Boston 2028 Projects are listed in Attachment A to this filing.

As stated in response to Question 9, ISO-NE's Operations group can take the short term and temporary steps required to avoid violations that may otherwise occur under certain operating conditions until projects are constructed and brought on line to permanently address and resolve a given violation.

12. For immediate need reliability projects that have not gone into service or are not scheduled to go into service by their need-by date:

a. Explain whether the Responding RTO reevaluates alternatives to address the reliability need, and if so, how the reliability need was reevaluated consistent with the Order No. 1000's requirements for reevaluation. Cite to the provisions of the tariff, transmission owner agreements, reliability criteria, and business process manuals governing such reevaluation.

Once Needs Assessments are completed, they often remain active, being updated and adjusted as load forecasts change, resources retire, and new generation and demand response resources enter the market. However, as discussed in response to Question 10, unless such factors create a change in circumstances or assumptions sufficient to justify an update to a Needs Assessment, ISO-NE would not need to re-study or confirm that an upgrade is still needed.

This process is consistent with Order No. 1000's requirement for reevaluation contained in Paragraph 329, which requires, for projects that have been selected for cost allocation that ISO/RTOs "reevaluate the regional transmission plan to determine if delays in the development

of a transmission facility selected in a regional transmission plan for purposes of cost allocation require evaluation of alternative solutions, including those proposed by the incumbent transmission provider, to ensure the incumbent transmission provider can meet its reliability needs or service obligations.”

As discussed herein, the Needs Assessment process detailed in Sections 3.6(c) and 4.1(i-j) of Attachment K of the OATT, Technical Guide Section 4.1.4.1, and Process Guide Sec. 2.7.1 is continuous. ISO-NE is able to, and does, update its Needs Assessments and related solutions, where warranted because of system changes, such as a change in the load forecast or the addition or retirement of resources.

- b. If reevaluation is conducted, state the frequency with which reevaluation is conducted and the entity or entities conducting the reevaluation, and explain how this frequency is consistent with the Commission’s regional transmission system planning rules, such as 18 C.F.R. 35.34.*

ISO-NE reevaluates the need for Transmission Upgrades based on changes in resources that have cleared the Forward Capacity Market (conducted each February) or are selected in a state-sponsored request for proposal or receive a financially binding obligation pursuant to a contract (at any time); requested resource retirements (submitted in March); changes in the load forecast (updated each May); and changes in forecasted energy efficiency and photovoltaic generation (also updated each May).

Specifically, ISO-NE is required by Sec. 3.6(c) of Attachment K to “modify...regulated transmission solutions or Transmission Upgrades to reflect changes to the PTF system configurations, including ongoing investments by Market Participants or other stakeholders.” Section 4.1(f) of Attachment K requires that ISO-NE “incorporate or update information regarding resources in Needs Assessments that have been proposed and (i) have cleared in a Forward Capacity Auction pursuant to Market Rule 1 of the ISO Tariff, (ii) have been selected in, and are contractually bound by, a state-sponsored Request For Proposals, or (iii) have a financially binding obligation pursuant to a contract... submitted Retirement De-List Bids, submitted Permanent De-List Bids, and demand bids that have cleared in a substitution auction, and may model out-of-service rejected-for-reliability Static De-List Bids and rejected-for-reliability Dynamic De-List Bids from the most recent Forward Capacity Auction.”

As stated in response to the previous question, ISO-NE’s planning process, as laid out in Attachment K to the OATT and Technical and Process Guides implementing that Tariff are fully compliant with the Commission’s rules, including Order No. 1000. It is a continuous process that is designed to account for changing circumstances.

13. If an existing immediate need reliability project is re-evaluated for immediate need and is determined to still meet that requirement, is the three-year time frame extended based on the time of the reevaluation?

As discussed herein, the ISO-NE planning process dictates that any updated Needs Assessments, based on material changes in assumptions or circumstances, would entail a reevaluation of any time-sensitive reliability need, and, should a project still be found to be needed to correct a reliability need in three years or less from the completion of an updated Needs Assessment, it would continue to qualify for the exception.

14. For all transmission projects that the Responding RTO has selected in its regional transmission plan for purposes of cost allocation since 2016, provide the number and percentage of transmission projects to address reliability criteria violations that did not qualify as immediate need reliability projects.

To-date, ISO-NE has not selected any projects to address reliability criteria violations that did not qualify as immediate need reliability projects. However, ISO-NE is in the process of administering its first RFP (which was issued on December 20, 2019) for solutions designed to meet needs identified through the Boston 2028 Needs Assessment Addendum and Update that were identified as being non-time-sensitive.

15. Explain how implementing each or a combination of the following potential changes to the current requirements for immediate need reliability projects would help maintain the balance between reliability and competition and ensure that immediate need reliability projects remain a limited exception:

a. Shorten the current three-year time frame for immediate need reliability projects.

The current three-year time frame should remain in place. ISO-NE believes that a shorter time period would result in delays in the development and construction of solutions needed to resolve immediate reliability needs in an expeditious manner. That, in turn, could adversely impact system reliability and result in a need for ISO-NE to use the operations tools discussed in response to Question 9 to work around potential violations.

b. Require use of anticipated in-service date instead of need-by date to determine immediate need reliability project eligibility.

The time-sensitive needs exception is intended to allow for construction of upgrades for reliability needs that are in existence at present or within three years. The anticipated in-service date has no bearing on when the violation occurs.

The anticipated in-service date is determined by the Transmission Owners, in consultation with ISO-NE, based on considerations beyond the ISO-NE planning process. Specifically, ISO-NE anticipates that the following process would be required in order to use anticipated in-service date instead of NBD to determine eligibility: 1) ISO-NE conducts a Needs Assessment; 2) ISO-NE works with Transmission Owners to develop solution; 3) Transmission Owner determines

anticipated in service date for the chosen solution; 4) based on the chosen solution, ISO-NE would then decide if the solution is going to be time sensitive or not; 5) if solutions are then determined to not be able to be constructed in three years or less, then ISO-NE would issue an RFP to address the need identified in step one. Such a process would require running both processes in series. This would be, inefficient, and also reveal Transmission Owner developed solutions, including costs, to others prior to issuing the RFP, thereby creating a non-level playing field for any subsequently issued RFP.

- c. Require each relevant incumbent transmission owner to provide the Responding RTO and stakeholders periodic, detailed status reports on each immediate need reliability project.*

ISO-NE believes that the level and frequency of communications currently provided by the Transmission Owners is sufficient. At present, the Transmission Owners provide project status updates to ISO-NE through the RSP Project List, which are presented to the PAC three times a year. In addition, ISO-NE, using information provided by the Transmission Owners, reports on the status of projects monthly to the NEPOOL Participants Committee. Further increasing these reporting obligations is unlikely to result in projects being constructed sooner and will not result in a faster resolution of identified reliability issues.

- d. Require the Responding RTO to reevaluate each immediate need reliability project that does not go into service by its need-by date.*

As previously discussed, ISO-NE reevaluates immediate need reliability projects when circumstances or assumptions change materially such that an updated Needs Assessment is required. Requiring additional studies without a change in circumstance, like those discussed in the response to Question 12(b) above, will only confirm the original result, which is an inefficient use of planning processes/resources.

- e. Prohibit projects with specific characteristics from qualifying as immediate need reliability projects (e.g., those that exceed a certain voltage level, line miles, or capital cost thresholds).*

Placing artificial or arbitrary bounds around the types of projects that qualify for the time-sensitive needs exception is unlikely to result in faster deployment of solutions in New England. ISO-NE does not know what solutions are appropriate to resolve a given violation until a Solutions Study has been completed (in consultation with the Transmission Owner (s)), *after* a need has been determined to be time-sensitive. This process is designed to yield efficient solutions through collaboration.

- f. Create an abbreviated competitive process for immediate need reliability projects.*

This solution would be problematic. Where a reliability need already exists or will within three years, any solicitation will take additional time to weigh options to meet a need. The length of the siting, permitting, and construction process used by the Transmission Owner to determine an

expected in-service date is applicable when ISO-NE and the Transmission Owner begin the design effort as soon as the needs are identified. If a competitive submissions process is introduced, ISO-NE anticipates that it will take between one to two years to conduct the solicitation of solutions and then perform review of all proposed solutions received. Without any delays in, or litigation challenges of, ISO-NE's project selection, a competitive process is likely to add significant time to project development while ISO-NE awaits proposals, and conducts analysis on the solutions proposed.

The Solutions Study process currently employed by ISO-NE for time-sensitive needs, however, allows for the parallel processing of solutions in cooperation with the Transmission Owner(s), so as solutions are being proposed, they can be simultaneously studied, which results in more efficiencies.

16. Propose and explain any additional conditions or restrictions on the immediate need reliability project exemption contained in the Responding RTO's tariff to help maintain the balance referenced in paragraph 19.

ISO-NE believes that the exception is working as intended in the New England area and that no changes are necessary at this time. However, following the completion of the RFP that ISO-NE issued on December 20, 2019, it intends to conduct a "lessons learned" process, during which time ISO-NE will revisit its processes to determine if overall improvements can be made.

CONCLUSION

The preceding answers serve to demonstrate that ISO-NE's implementation of the time-sensitive needs exemption to Order No. 1000 has been consistent with its Tariff, Order No. 1000 and the Commission's regulations. The time-sensitive needs exception is a vital tool in transmission planning to address reliability violations in the immediate and short term and should be kept in place by the Commission.

Respectfully submitted,

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Dated: December 27, 2019

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Holyoke, Massachusetts this 27th day of December, 2019.

/s/ Julie Horgan

Julie Horgan
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Attachment A

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Needs Assessment	ID #	Solution Component (Project)	Reliability Criteria Violation	Transmission Owner Responsible for the Project	Date Designated as Immediate Need	Need-By Date	Initial Expected In-Service Date¹	Actual In-Service Date
Southeastern Massachusetts and Rhode Island ²	1714	New Grand Army 115 kV GIS switching station built to BPS standards, remote terminal station work (Brayton Point and Somerset) & loop E-183E, F-184, X3 and W4 lines (associated with RSP 1742) ³	B, J, Q, S, T, U, AC – AI, AM – AN, CW – DD	National Grid	May 26, 2016	Prior to 2016	November 2020	TBD ⁴
Southeastern Massachusetts and Rhode Island	1742	Remote terminal station work (Wampanoag and Pawtucket 115 kV) for new 115 kV Grand Army GIS switching station to tie the E-183E, F-184, X3 and W4 lines (Associated with RSP 1714)	B, J, Q, S, T, U, AC – AI, AM – AN, CW – DD	National Grid	May 26, 2016	Prior to 2016	November 2020	TBD
Southeastern Massachusetts and Rhode Island	1715	Upgrades at Brayton Point (new 115 kV breaker, new 345/115 kV transformer and upgrades to E183E, F184 station equipment)	B, J, Q, S, T, U, AC – AI, AM – AN, CW – DD	National Grid	May 26, 2016	Prior to 2016	June 2020	TBD
Southeastern Massachusetts and Rhode Island	1716	Increase clearances on E-183E & F-184 lines between Brayton Point & Grand Army (~1.5 miles each)	AC – AI, AM – AN	National Grid	May 26, 2016	Prior to 2016	November 2019	November 2019
Southeastern Massachusetts	1717	Separate X3/W4 DCT and reconductor X3, W4 lines between	AB	National Grid	May 26, 2016	Prior to 2016	November 2019	November 2019

¹ The initial expected in-service dates for the SEMA/RI Needs Assessment was first reported in the June 2018 Project List - https://www.iso-ne.com/static-assets/documents/2018/09/final_rsp18_project_list_june_2018.xls. The initial expected in-service dates for the Boston Needs Assessment was first reported in the Boston 2028 Solutions Study - https://smd.iso-ne.com/operations-services/ceii/pac/2019/10/ceii_final_boston_2028_solution_study.pdf.

² The Southeastern Massachusetts and Rhode Island Project is the result of one Needs Assessment. This project involves a number of components, each of which is tracked separately.

³ Project names are listed as they appear in the ISO New England Regional System Project List.

⁴ "TBD" or "To be determined" indicates that the project has not yet been placed into service.

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and Rhode Island		Somerset and Grand Army (~2.7 miles each). Reconfigure Y2 and Z1						
Southeastern Massachusetts and Rhode Island	1718	Robinson Ave 115 kV circuit breaker addition and reterminate Q10 line	D, E, F, I, K, CA - CE	National Grid	May 26, 2016	Prior to 2016	November 2019	TBD
Southeastern Massachusetts and Rhode Island	1719	Install 45.0 MVAR capacitor bank at Berry Street	CF - CJ	National Grid	May 26, 2016	Prior to 2016	December 2020	TBD
Southeastern Massachusetts and Rhode Island	1720	Separate N12/M13 DCT & reconductor N12 & M13 between Somerset and Bell Rock (~3.5 miles)	V, AL, DF, DG, GA, CR - CV	National Grid	May 26, 2016	Prior to 2016	November 2021	TBD
Southeastern Massachusetts and Rhode Island	1721	Reconfigure Bell Rock to breaker and a half station, split M13 line at Bell Rock and terminate 114 line at Bell Rock. Install new breaker in series with N12/D21 tie breaker, upgrade D21 line switch and install 37.5 MVAR capacitor.	AA, AJ, AK, CO-CQ	National Grid	May 26, 2016	Prior to 2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1722	Extend Line 114 - Dartmouth town line (Eversource- NGRID border) to Bell Rock (~4.2 miles)	AA, AJ, AK, CO-CQ	National Grid	May 26, 2016	Prior to 2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1730	Extend the 115 kV 114 line from Eversource/National Grid border to Industrial Park Tap	AA, AJ, AK, CO-CQ	Eversource	May 26, 2016	Prior to 2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1731	Install 35.3 MVar 115kV capacitors at High Hill Substation #644 and Wing Lane Substation #624	CM, CN	Eversource	May 26, 2016	Prior to 2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1736	Reconductor the 108 line from Bourne Substation #917 to Horse Pond Tap	BA	Eversource	May 26, 2016	2016	November 2018	October 2018
Southeastern Massachusetts	1723	Reconductor L14 and M13 from Bell Rock to	AP - AZ	National Grid	May 26, 2016	Prior to 2016	September 2021	TBD

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and Rhode Island		Bates Tap (8.3 miles each)						
Southeastern Massachusetts and Rhode Island	1735	Replace wave trap on 114 line at Tremont Substation #713	AA	Eversource	May 26, 2016	Prior to 2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1732	Loop 201-502 line into Medway #65 Substation to form the 201-502N and 201-502S lines	M, N	Eversource	May 26, 2016	Prior to 2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1737	Replace disconnect switches 107A, 107B, 108A and 108B on Line 323 at West Medway Substation #446. Replace 8 line structures with taller structures.	L	Eversource	May 26, 2016	2018	December 2018	TBD
Southeastern Massachusetts and Rhode Island	1728	Build a new Carver to Kingston 115 kV line and Carver terminal	O, P, CK, CL	Eversource	May 26, 2016	2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1729	Install a new bay position at Kingston for Carver line	O, P, CK, CL	Eversource	May 26, 2016	2016	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1734	Reconductor/Upgrade 112 Line Tremont Substation #713 to Industrial Tap and terminal equipment	W - Z	Eversource	May 26, 2016	2016	June 2018	June 2018
Southeastern Massachusetts and Rhode Island	1726	Separate the 135/122 DCT lines - West Barnstable to Barnstable	GB	Eversource	May 26, 2016	Prior to 2018 ⁵	November 2020	TBD
Southeastern Massachusetts and Rhode Island	1727	Retire Barnstable SPS	EA - FC	Eversource	May 26, 2016	Prior to 2018 ⁵	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1725	Build a new Bourne #917 to West Barnstable #921 115 kV line and associated terminal work	EA - FC,	Eversource	May 26, 2016	Prior to 2018 ⁵	December 2021	TBD

⁵ These contingency scenarios in the Cape Cod subarea were non-convergent in at least one study case for projected 2018 system conditions; as such, their Year of Need for the Cape Cod subarea needs were set to coincide with that study year and respective projected New England net load. Since non-converged solutions are an indication of severe system performance concerns, the actual year of need is likely to be before 2018.

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Southeastern Massachusetts and Rhode Island	1733	Separate the 325/344 DCT lines - West Medway to West Walpole	H, AO, BB - BJ	Eversource	May 26, 2016	Prior to 2016	April 2021	TBD
Southeastern Massachusetts and Rhode Island	1724	Kent County T3 345/115 kV transformer replacement	A	National Grid	May 26, 2016	Prior to 2016	November 2020	TBD
Southeastern Massachusetts and Rhode Island	1741	Rebuild the Middleborough Gas and Electric (MGED) portion of the E1 line from Bridgewater to Middleborough (2.5 miles)	R	Middleborough Gas and Electric Department	May 26, 2016	2017	December 2019	April 2019
Southeastern Massachusetts and Rhode Island	1782	Reconductor the J16S line	G	National Grid	May 26, 2016	Prior to 2016	December 2020	TBD
Southeastern Massachusetts and Rhode Island	1789	West Medway 345 kV Circuit Breaker Upgrades	PPA Study	Eversource	May 26, 2016	Prior to 2016 ⁶	December 2021	TBD
Southeastern Massachusetts and Rhode Island	1790	Medway 115 kV Circuit Breaker Replacements	PPA Study	Eversource	May 26, 2016	Prior to 2016 ⁶	December 2021	TBD
Boston	Not yet assigned	Install a 160 MVAR reactor at Golden Hills 345 kV	HA - HU	National Grid	June 10, 2019	June 2019 ⁷	September 2021	TBD
Boston	Not yet assigned	Install a 115 kV breaker in series with breaker 4 at Mystic to eliminate the breaker failure contingency	HA - HU	Eversource	June 10, 2019	June 2019 ⁷	September 2021	TBD

⁶ These projects to upgrade and replace circuit breakers were identified and developed as a result of the Proposed Plan Application (PPA) studies completed for the Southeastern Massachusetts and Rhode Island (SEMA/RI) projects in April 2018. The SEMA/RI projects increase the available short circuit levels at West Medway and Medway over the current short circuit duties of the breakers there. Since the SEMA/RI projects caused the need to replace the circuit breakers at West Medway and Medway, the Need By Date (NBD) of the circuit breaker projects at West Medway and Medway is the same as the SEMA/RI projects (Prior to 2016).

⁷ The needs identified at off peak load levels are deemed to be time-sensitive because the off-peak load levels are possible under current day system conditions. The NBD for steady-state needs observed at off peak load levels will be defined as the date of publishing the final Needs Assessment report. The date of publishing of the Needs Assessment report is the date when the final Needs Assessment report is posted to the PAC website which in this case was June 10, 2019. See Section 4.1.4.3 of the Transmission Planning Technical Guide, https://www.iso-ne.com/static-assets/documents/2017/03/transmission_planning_technical_guide_rev6.pdf.

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- Table 1 through Table 4 are copied from the SEMA/RI 2026 Needs Assessment posted May 2016 - https://smd.iso-ne.com/operations-services/ceii/pac/2016/05/final_sema_ri_needs_assessment_report.pdf. All of the needs are from the SEMA/RI 2026 Needs Assessment unless otherwise noted.
- Table 5 is copied from the Boston 2028 Needs Assessment posted June 10, 2019 - https://smd.iso-ne.com/operations-services/ceii/pac/2019/06/ceii_boston_2028_na.pdf

Table 1: SEMA-RI Time-Sensitive Thermal Needs

Need ID	Study Subarea	Element ID	Element Description	N-1 Thermal Violations	N-1-1 Thermal Violations
A	Farnum	Kent County 3X	Kent County 3X 345/115 kV Autotransformer		X
B	Farnum	V148S-1	V148 Tap to Washington RI 115 kV Line	X	X
C	Farnum	H17-1	West Farnum to Farnum Tap 115 kV Line	X	X
D	Farnum	R9	Riverside to Valley 115 kV Line	X	X
E	Farnum	Valley P11/R9 Bus Tie	Valley 205 115 kV Bus Equipment	X	X
F	Farnum	J16S	Staples to Highland Drive 115 kV Line	X	X
G⁸	Farnum	J16	Riverside to Highland Park 115 kV Line	X	X
H	Farnum	P11-1	Pawtucket to P11 Tap 115 kV Line	X	X
I	Farnum	P11-2	Valley to P11 Tap 115 kV Line	X	X
J	Farnum	P11-3	Robinson Ave to P11 Tap 115 kV Line	X	X

⁸ Need is from the Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - https://smd.iso-ne.com/operations-services/ceii/pac/2016/12/sema_ri_2026_needs_assessment_addendum.pdf.

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Need ID	Study Subarea	Element ID	Element Description	N-1 Thermal Violations	N-1-1 Thermal Violations
K	Farnum	Q10	Robinson Ave to Staples 115 kV Line		X
L	West Medway - West Walpole	323 (Eversource)	West Medway to Millbury 345 kV Line		X
M	West Medway - West Walpole	C-129N-1	Millbury to Purchase Tap 115 kV Line Section		X
N	West Medway - West Walpole	C-129N-6	Rocky Hill to Purchase Tap 115 kV Line Section		X
O	South Shore	191	Kingston to Auburn 115 kV Line		X
P	South Shore	117	Kingston to Brook St 115 kV Line		X
Q	South Shore	F19-2	Auburn St to Belmont Tap 115 kV Line Section		X
R	South Shore	E1	Bridgewater to Middleboro 115 kV Line	X	X
S	South Shore	C2	Dupont to Auburn St 115 kV Line		X
T	South Shore	L1	East Bridgewater to East Bridgewater Tap 115 kV Line Section	X	X
U⁹	South Shore	U6	Bridgewater to Raynham 115 kV Line		X
V	Industrial Park	111-1	High Hill to Industrial Park	X	X

⁹ Need is from the Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - https://smd.iso-ne.com/operations-services/ceii/pac/2016/12/sema_ri_2026_needs_assessment_addendum.pdf

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Need ID	Study Subarea	Element ID	Element Description	N-1 Thermal Violations	N-1-1 Thermal Violations
			115 kV Line Section		
W	Industrial Park	112-1	Tremont to Rochester 115 kV Line Section	X	X
X	Industrial Park	112-2	Rochester to Crystal Spring Tap 115 kV Line Section	X	X
Y	Industrial Park	112-3	Industrial Park to Crystal Spring Tap 115 kV Line Section	X	X
Z	Industrial Park	112-4	Industrial Park to Industrial Park Tap 115 kV Line Section	X	X
AA	Industrial Park	114-1	Tremont to Rochester 115 kV Line Section		X
AB	Somerset - Newport	W4	Somerset to Swansea 115 kV		X
AC	Somerset - Newport	F184-3	Mink St to Read St 115 kV Line Section		X
AD	Somerset - Newport	S8-1	Somerset to S8 Tap 115 kV Line Section		X
AE	Somerset - Newport	S8-2	Raynham to S8 Tap 115 kV Line Section		X
AF	Somerset - Newport	S8-4	Bridgewater to Raynham 115 kV Line Section	X	X
AG	Somerset - Newport	V5-1	Somerset to Dighton 115 kV Line Section		X
AH	Somerset - Newport	V5-2	Dighton to V5 Tap 115 kV Line Section		X
AI	Somerset - Newport	V5-3	Bridgewater to V5 Tap 115 kV Line Section	X	X

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Need ID	Study Subarea	Element ID	Element Description	N-1 Thermal Violations	N-1-1 Thermal Violations
AJ	Somerset - Newport	N12-1	Somerset to Sykes Rd 115 kV Line Section	X	X
AK	Somerset - Newport	N12-2	Sykes Rd to Bell Rock 115 kV Line Section	X	X
AL	Somerset - Newport	D21	Bell Rock to High Hill 115 kV Line	X	X
AM	Somerset - Newport	U6-1	Somerset to Dighton 115 kV Line Section	X	X
AN	Somerset - Newport	U6-3	Dighton to Dighton Tap 115 kV Line Section	X	X
AO	Somerset - Newport	K15	Swansea to Robinson Ave 115 kV Line		X
AP	Somerset - Newport	M13-3	Bent Rd to Tiverton Tap 115 kV Line Section		X
AQ	Somerset - Newport	M13-4	Somerset to Sykes Rd 115 kV Line Section	X	X
AR	Somerset - Newport	M13-5	Tiverton Tap to EMI Tiverton Tap 115 kV Line Section		X
AS	Somerset - Newport	M13-6	EMI Tiverton Tap to EMI Tiverton 115 kV Line Section		X
AT	Somerset - Newport	M13-7	Canonicus to Dexter 115 kV Line Section		X
AU	Somerset - Newport	M13-8	Sykes Rd to Tiverton Tap 115 kV Line Section	X	X
AV	Somerset - Newport	L14-3	Bent Rd to Tiverton Tap 115 kV Line Section	X	X
AW	Somerset - Newport	L14-4	Bell Rock to Tiverton Tap 115 kV Line Section	X	X

Attachment A

**ISO New England Inc.
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Attachment K, Section 4.1(j)(iii)**

Need ID	Study Subarea	Element ID	Element Description	N-1 Thermal Violations	N-1-1 Thermal Violations
AX	Somerset - Newport	L14-5	Tiverton Tap to EMI Tiverton Tap 115 kV Line Section		X
AY	Somerset - Newport	L14-6	EMI Tiverton Tap to EMI Tiverton 115 kV Line Section	X	X
AZ	Somerset - Newport	L14-7	Canonicus to Dexter 115 kV Line Section	X	X
BA	Cape Cod	108-4	Bourne to Horse Pond Tap 115 kV Line		X
BB	Boston (External)	Kingston 345A	Kingston 345A 345/115 kV Autotransformer		X
BC	Boston (External)	Kingston 345B	Kingston 345B 345/115 kV Autotransformer		X
BD	Boston (External)	329-531	Brighton to North Cambridge 115 kV Line		X
BE	Boston (External)	385-512	Kingston St to K Street 1 115 kV Line		X
BF	Boston (External)	385-513	Kingston St to K Street 1 115 kV Line		X
BG	Boston (External)	385-510-1	High St to K Street 1 115 kV Line Section		X
BH	Boston (External)	385-510-2	Kingston St to High St 115 kV Line Section		X
BI	Boston (External)	385-511-1	High St to K Street 2 115 kV Line Section		X
BJ	Boston (External)	385-511-2	Kingston St to High St 115 kV Line Section		X

Attachment A

**ISO New England Inc.
Projects Designated to the PTOs
Attachment K, Section 4.1(j)(iii)**

Table 2: SEMA-RI Time-Sensitive Voltage Needs

Need ID	Study Subarea	Bus Name	Base kV	N-1 Voltage Violations	N-1-1 Voltage Violations
CA	Farnum	Highland Drive	115		X
CB	Farnum	Riverside	115		X
CC	Farnum	Robinson Avenue	115		X
CD	Farnum	Staples	115		X
CE	Farnum	Valley	115		X
CF	West Medway – West Walpole	Beaver Pond	115		X
CG	West Medway – West Walpole	Depot Street	115		X
CH	West Medway – West Walpole	Purchase Street	115		X
CI	West Medway – West Walpole	Rocky Hill	115		X
CJ	West Medway – West Walpole	Union Street	115		X
CK	South Shore	Brook Street	115		X
CL	South Shore	Kingston	115		X
CM	Industrial Park	High Hill	115	X	X
CN	Industrial Park	Industrial Park	115	X	X
CO	Industrial Park	Tremont	115	X	X
CP	Industrial Park	Acushnet	115	X	X
CQ	Industrial Park	SEMASS	115		X
CR	Somerset - Newport	Bell Rock	115	X	X
CS	Somerset – Newport	Canonicus	115	X	X
CT	Somerset – Newport	Dexter	115	X	X
CU	Somerset – Newport	Jepson	115	X	X
CV	Somerset – Newport	Tiverton	115	X	X
CW	Somerset – Newport	Mink Street	115		X
CX	Somerset – Newport	Dighton	115		X
CY	Somerset – Newport	Somerset	115		X

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**ISO New England Inc.
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Need ID	Study Subarea	Bus Name	Base kV	N-1 Voltage Violations	N-1-1 Voltage Violations
CZ	Somerset – Newport	Sykes Road	115		X
DA	Somerset – Newport	Swansea	115		X
DB	Somerset – Newport	Pawtucket	115		X
DC	Somerset – Newport	Phillipdale	115		X
DD	Somerset - Newport	Wampanoag	115		X
DE	Cape Cod	Valley_NB	115		X
DF	Cape Cod	Wareham	115		X

Table 3: SEMA-RI Time-Sensitive Non-Convergence Needs

Need ID	Element OOS	Non-convergence for N-1-1
EA	122-1-2	X
EB	122-1-2	X
EC	122-3-4	X
ED	122-3-4	X
EE	399	X
EF	399	X
EG	399	X
EH	399	X
EI	399	X
EJ	399	X
EK	399	X
EL	399	X
EM	399	X
EN	399	X
EO	399	X
EP	399	X
EQ	399	X
ER	345A West Barnstable 345/115 kV	X

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**ISO New England Inc.
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Need ID	Element OOS	Non-convergence for N-1-1
ES	345A West Barnstable 345/115 kV	X
ET	345A West Barnstable 345/115 kV	X
EU	345A West Barnstable 345/115 kV	X
EV	345A West Barnstable 345/115 kV	X
EW	345A West Barnstable 345/115 kV	X
EX	345A West Barnstable 345/115 kV	X
EY	345A West Barnstable 345/115 kV	X
EZ	345A West Barnstable 345/115 kV	X
FA	345A West Barnstable 345/115 kV	X
FB	345A West Barnstable 345/115 kV	X
FC	345A West Barnstable 345/115 kV	X

Attachment A

**ISO New England Inc.
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Table 4: SEMA-RI Time-Sensitive Load Loss Result

Need ID	Base kV	Initial Element OOS	Load Loss > 300 MW	Load Loss (MW) in Time-sensitive year
GA¹⁰	115	112 Line	X	392
GB¹¹	115	115 Line	X	392

Table 5: N-1-1 Minimum Load High Voltage Violations

Need ID	Bus Description	Voltage (kV)	N-1 Voltage Violations	N-1-1 Voltage Violations
HA	Kingston	115		X
HB	K Street	115		X
HC	Carver Street	115		X
HD	Colburn	115		X
HE	Baker Street	115		X
HF	Electric Avenue	115		X
HG	Waltham	115		X
HH	Brighton	115		X
HI	High Street	115		X
HJ	Scotia Street	115		X
HK	Watertown	115		X
HL	Woburn	115		X
HM	N Cambridge	115		X
HN	Mystic	115		X
HO	Putnam	115		X
HP	E Cambridge	115		X
HQ	Fulkerson	115		X
HR	Blair Pond	115		X
HS	N Cambridge	345		X
HT	Mystic	345		X
HU	Kingston	345		X

¹⁰ Need is from the Second Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - https://smd.iso-ne.com/operations-services/ceii/pac/2018/06/sema_ri_2026_needs_assessment_seconf_addendum.pdf

¹¹ Need is from the Second Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment - https://smd.iso-ne.com/operations-services/ceii/pac/2018/06/sema_ri_2026_needs_assessment_seconf_addendum.pdf

Attachment B

Eversource Narrative Response

Eversource is responsible for sixteen “time-sensitive” projects within the ISO-NE control area. Fifteen of these projects were identified in the “Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment” (“SEMA-RI”) and one was identified in the “Boston 2028 Needs Assessment”. “Time-sensitive” is the specific term used in the ISO-NE Open Access Transmission Tariff (“OATT”) to designate what the Commission order refers to as “Immediate Need” projects. Transmission needs are deemed time-sensitive if they have a year of need within three years of the completion of a Needs Assessment and met the requirements of Section 4.1(j) of Attachment K to the ISO-NE OATT. The SEMA-RI Needs Assessment was issued in May 2016 and Section 6.1 of this assessment identified several time-sensitive conditions. Since the publishing date of the SEMA-RI Needs Assessment occurred before June 1, 2016, the threshold for determining time-sensitive needs was determined to be any transmission reliability conditions that could occur before the 2019 summer peak. The SEMA-RI Needs Assessment identified the year of need for most of the transmission system conditions to be either “2016” or “Prior to 2016.”

The time-sensitive conditions identified in the SEMA-RI Needs Assessment could not have been identified earlier because the study associated with the assessment was delayed and paused due to several intervening factors between 2011 and 2016, such as generation retirements and additions, load level changes, and ISO-NE forward capacity market changes. A brief timeline of ISO-NE led SEMA-RI study is below –

- 2011: Study work begins
- 2013: Announcement of Brayton Point Generation Retirement
- 2014: Study restarted
- 2015: Announcement of Pilgrim Nuclear Retirement
- 2016: Canal 3 and Burrillville Energy Center receive Capacity Supply Obligations in Forward Capacity Auction #10
- 2016: 2026 Needs Assessment presented to Planning Advisory Committee; time-sensitive needs assigned to transmission owners

The SEMA-RI Needs Assessment also confirmed the use of the Solutions Study process described in Section 4.2 of Attachment K to the ISO-NE OATT to develop solutions to address these needs in collaboration with Eversource and National Grid, the two Participating Transmission Owners in the study area.

As required, National Grid and Eversource worked with ISO-NE undertaking Solution Studies, as set out in Attachment K, to identify preferred solutions to the identified needs. On January 27, 2017 ISO-NE publicly posted the draft “SEMA-RI Area 2026 Solutions Study” report, establishing the “Preferred Solutions” to address the identified time sensitive needs and posting the final version of the report on March 3, 2017. On March 17, 2017, ISO-NE notified National Grid and Eversource of the Preferred Solutions that it adopted, that the Preferred Solutions would be identified as such in the Regional System Plan (“RSP”), and that going forward

National Grid and Eversource would be responsible for reporting the progress of their respective Preferred Solutions. After the Preferred Solutions were identified by ISO-NE, Eversource and National Grid undertook Proposed Plan Application (“PPA”) studies as required by Section I.3.9 of the ISO-NE Tariff. These studies took over one year to complete, due in part to the significant increase in interconnection applications for offshore wind, energy storage, elective transmission upgrades, and other resources in SEMA-RI during this time period.¹ The results of the PPA studies were presented to the NEPOOL Reliability Committee for approval in April 2018, and Eversource received ISO-NE’s PPA determination letter of no adverse impact with SEMA-RI solutions in April 2018.

Detailed status reports are provided on each of Eversource’s Immediate Need projects in the attached spreadsheet (Attachment C) referencing progress against key milestones. To -date, most Eversource’s Immediate Need projects identified through the SEMA-RI report (i.e., RSP IDs = 1730, 1731, 1736, 1735, 1732, 1737, 1728, 1729, 1734, 1726, 1727, 1725, 1733, 1789, 1790) are progressing satisfactorily against their key milestones and several have been placed in-service. The development status of four Immediate Need projects arising from the study, (i.e., RSP IDs = 1725, 1728, 1729, 1730, 1733) is less advanced due to factors outside of Eversource’s control, such as re-evaluation of the need for some projects due to declines in the ISO-NE load forecasts, the inherent variability of the timelines for state and local permit approvals, and the acquisition of property rights. Any similar projects (i.e. new lines or new substations) being developed in the SEMA-RI study area would be subject to similar challenging factors. An explanation of these factors obfuscating the development status of certain individual projects is included below.

Review of Project Need

The 2019 Capacity, Energy, Loads, and Transmission (CELT) Report, which provides the basis for forecasted peak loads in ISO-NE transmission planning studies, now forecasts considerably lower peak load in the study area than the 2015 CELT Report, on which the 2026 SEMA-RI report was based. Because of this change, Eversource and National Grid decided to re-evaluate the need for several projects under the updated peak load forecasts. ISO-NE has also commenced a review of two projects and has notified National Grid and Eversource that an update will be provided at an upcoming Planning Advisory Committee meeting.

RSP ID Project 1725: Additional analysis was required to reconfirm the need and design for this project given the 2019 CELT report and increase in offshore wind interconnection activity on Cape Cod. In addition, the acquisition of additional property rights from one of the host communities took longer than initially anticipated. A petition with the MA Energy Facilities Siting Board (“EFSB”) was filed on November 8, 2019, and a procedural timeline has not yet been established. Further procurement and construction activities will depend on the EFSB schedule.

RSP ID Project 1728, 1729: Design and construction of these projects are being coordinated with a separate project to rebuild the existing Kingston Station (Project ID 27 on the ISO-NE

¹ During this time period, approximately 4,200 MW of new resources entered the ISO-NE Interconnection Queue in SEMA-RI.

Asset Condition List). All permitting for the replacement of the existing station has been secured. The rebuild is a precursor to completing these RSP projects.

For the RSP projects, additional analysis was required to reconfirm the need for this project in light of the 2019 CELT report. Eversource anticipates filing a siting petition with the MA Department of Public Utilities (“DPU”) in late 2019 or early 2020. Detailed engineering is underway. Design and construction of these projects are being coordinated with a separate project to rebuild Kingston Station (Project ID 27 on the ISO-NE Asset Condition List). Further procurement and construction activities will depend on the DPU procedural schedule, on the availability of outages to support the rebuild of Kingston Station, and the subsequent cutover of the existing transmission lines from the existing station to the new station.

RSP ID Project 1730: Activity on this project has been suspended because ISO-NE has requested that Eversource make no further progress on its development while ISO-NE re-considers whether a potentially less impactful alternative project can satisfy the revised need in the study area in the light of the lower peak load forecasted in the study area by the 2019 CELT Report. Eversource anticipates receiving an update from ISO-NE regarding the need for this project at an upcoming Planning Advisory Committee meeting.

RSP ID Project 1733: Additional analysis was required to reconfirm the need for this project in light of the 2019 CELT report. Detailed engineering is underway. A petition with the MA Department of Public Utilities (“DPU”) is under development and expected to be filed in the second quarter of 2020. Further procurement and construction activities will depend on the DPU procedural schedule.

National Grid Narrative Response

National Grid is responsible for fourteen “time sensitive” projects within the ISO-NE control area. Thirteen of these projects were identified in the “Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment” (“SEMA-RI”) and one was identified in the “Boston 2028 Needs Assessment”. “Time-sensitive” is the specific term used in the ISO-NE Open Access Transmission Tariff (“OATT”) to designate what the FERC order refers to as “Immediate Need” projects. Transmission needs are deemed time-sensitive if they have a year of need within three years of the completion of a Needs Assessment and met the requirements of Section 4.1(j) of Attachment K to the ISO-NE OATT. The SEMA-RI Needs Assessment was issued in May 2016 and Section 6.1 of this assessment identified several time-sensitive conditions. Since the publishing date of the SEMA-RI Needs Assessment occurred before June 1, 2016, the threshold for determining time-sensitive needs was determined to be any transmission reliability conditions that could occur before the 2019 summer peak. The SEMA-RI Needs Assessment identified the year of need for most of the transmission system conditions to be either “2016” or “Prior to 2016”. The time-sensitive conditions identified in the SEMA-RI Needs Assessment could not have been identified earlier because the study associated with the assessment was delayed and paused due to several intervening factors between 2011 and 2016, such as generation retirements and additions, load level changes, and ISO-NE forward capacity market changes. A brief timeline of ISO-NE led SEMA-RI study is below –

- 2011: Study work begins
- 2013: Announcement of Brayton Point Generation Retirement
- 2014: Study restarted
- 2015: Announcement of Pilgrim Nuclear Retirement
- 2016: Canal 3 and Burrillville Energy Center receive Capacity Supply Obligations in Forward Capacity Auction #10
- 2016: 2026 Needs Assessment presented to Planning Advisory Committee; time-sensitive needs assigned to transmission owners

The SEMA-RI Needs Assessment also confirmed the use of the Solutions Study process described in Section 4.2 of Attachment K to the ISO-NE OATT to develop solutions to address these needs in collaboration with National Grid and Eversource Energy (“Eversource”), the two Participating Transmission Owners in the study area.

As required, National Grid and Eversource worked with ISO-NE undertaking Solution Studies, as set out in Attachment K, to identify preferred solutions to the identified needs. On January 27, 2017 ISO-NE publicly posted the draft “SEMA-RI Area 2026 Solutions Study” report, establishing the “Preferred Solutions” to address the identified time sensitive needs and posted the final version of the report on March 3, 2017. On March 17, 2017 ISO-NE notified National Grid and Eversource of the Preferred Solutions that it adopted, that the Preferred Solutions would be identified as such in the Regional System Plan (“RSP”), and that going forward National Grid and Eversource would be responsible for reporting the progress of their respective Preferred Solutions. After the Preferred Solutions were identified by ISO-NE, Eversource and National Grid undertook Proposed Plan application (“PPA”) studies as required by Section I.3.9 of the ISO-NE Tariff. These studies took over one year to complete, due in part to the significant

increase in interconnection applications for offshore wind, energy storage, elective transmission upgrades, and other resources in SEMA-RI during this time period.² National Grid and Eversource Proposed Plan Application (“PPA”) Studies were presented to the NEPOOL Reliability Committee for I.3.9 approval in April 2018, and National Grid received ISO-NE’s PPA determination letter of no adverse impact with SEMA-RI solutions in April 2018.

Detailed status reports are provided on each of National Grid’s Immediate Need projects in the attached spreadsheet (Attachment D) referencing progress against key milestones, (i.e., PPA Status, Engineering Progress, Equipment Ordered, Permitting, Siting, Construction, etc.). To date, most of National Grid’s Immediate Need projects identified through the SEMA-RI report (i.e., RSP IDs = 1714, 1742, 1715, 1716, 1717, 1718, 1719, 1724, 1782) are progressing satisfactorily against their key milestones. The development statuses of the remaining four Immediate Need projects arising from the study, (i.e., RSP IDs = 1720, 1721, 1722, 1723) are less advanced due to factors outside of National Grid’s control, such as re-evaluation of the need for some projects due to declines in the ISO-NE load forecasts, the inherent variability of the timelines for state and local permit approvals, and the acquisition of property rights. Any similar projects (i.e. new lines or new substations) being developed in the SEMA-RI study area would be subject to similar challenging factors. An explanation of these factors obfuscating the development status of certain individual projects is included below.

Review of Project Need

The 2019 Capacity, Energy, Loads, and Transmission (“CELT”) Report, which provides the basis for forecasted peak loads in ISO-NE transmission planning studies, now forecasts considerably lower peak load in the study area than the 2015 CELT Report, on which the 2026 SEMA-RI report was based. Because of this change, Eversource and National Grid decided to re-evaluate the need for several projects, including RSP ID Projects 1720 & 1722, under the updated peak load forecasts. ISO-NE has also commenced a review of these two projects and others and has notified National Grid and Eversource that an update will be provided at a future Planning Advisory Committee meeting.

RSP ID Project 1720: In addition to the project need uncertainties arising from the 2019 CELT Report, this project has experienced impacts to its timeline due to the need for acquiring property rights. Additional property rights are required because the project design requires a crossing of the Taunton River and the conceptual route plan was determined by National Grid to be infeasible during detailed engineering and design. The conceptual design for crossing of a highway was based on attaching to a bridge that crosses over the highway. It was subsequently discovered that the bridge is in a deteriorated condition and is planned for future replacement by Massachusetts Department of Transportation (“MADOT”), making a cable attachment infeasible. This discovery necessitated analysis of routing alternatives, horizontal directional drilling options, underground-to-overhead transition options, and additional property availability. Furthermore, on the east side of the Taunton River, the Massachusetts Bay Transportation Authority (“MBTA”) is developing a new railroad layover facility in the same general location as the proposed overhead transmission line crossing of the river. This has resulted in technical

² During this time-period, approximately 4,200 MW of new resources entered the ISO-NE Interconnection Queue in SEMA-RI.

and real estate challenges requiring protracted coordination and negotiation between the MBTA and National Grid projects.

RSP ID Project 1722: ISO-NE has requested that National Grid suspend and not further progress the development of this project while ISO-NE re-considers the continuing need for this project in the light of the lower peak load forecasted in the study area by the 2019 CELT Report. National Grid anticipates receiving an update from ISO-NE regarding the need for this project later this year at a Planning Advisory Committee Meeting. Prior to receiving ISO-NE's request to halt development of this project, National Grid had significantly progressed this project, with engineering approximately 70% complete, equipment specifications developed, and several licensing and permitting applications submitted or in development.

RSP ID Project 1721: The licensing of this project is highly complex, and this complexity is giving rise to uncertainties in its timeline. The project is in an environmentally sensitive location that is within areas of Outstanding Resource Waters, the SEMA NHESP Bioreserve, lands subject to a MA DCR Conservation Restriction, and the City of Fall River drinking water supply watershed, and therefore, will require considerable amounts of federal, state and local environmental permitting. Furthermore, due to the project's location near Eversource facilities, significant coordination is required with Eversource regarding equipment placement.

RSP ID Project 1723: The licensing of this project is highly complex, and this permitting complexity is giving rise to uncertainties in its timeline. The transmission lines are located on environmentally sensitive lands within areas of Outstanding Resource Waters, the Watuppa Reservation, Rare/Threatened/Endangered species habitats, and the City of Fall River drinking water supply watershed, and therefore, will require considerable amounts of federal, state and local environmental permitting.

Attachment C

Key Study Area	Project ID	Solution Component (Project)	Transmission Owner Responsible for the Project	Need-By-Date	Proposed In-Service Date (RSP)	Actual In-service Date	Please provide a status report for each project which details a) the work that has been completed at this time and b) the work that remains to be done.
Southeastern Massachusetts and Rhode Island	1730	Extend the 115 kV 114 line from Eversource/National Grid border to Industrial Park Tap	Eversource		Dec-21		Project is being reexamined by ISO-NE to determine if a less impactful alternative can meet the needs remaining after accounting for the reduced loads forecasted in the 2019 CELT. Preliminary engineering underway on revised project. Revised PPA expected to be submitted to ISO-NE in Q1 2020.
Southeastern Massachusetts and Rhode Island	1731	Install 35.3 MVAR 115kV capacitors at High Hill Substation #644 and Wing Lane Substation #624	Eversource	Prior to 2016	Dec-21		a) Preliminary engineering has been completed. Siting/permitting preliminary analysis has been completed. B) Detailed engineering (100% design) planned to be completed by Q3 2020. Local permits expected to be obtained in Q4 2020. Long-lead materials (such as capacitor banks) expected to be ordered by Q2 2020 and delivered by Q4 2020. Start of construction anticipated in Q4 2020, though changes to permitting requirements could affect project timeline.
Southeastern Massachusetts and Rhode Island	1736	Reconductor the 108 line from Bourne Substation #917 to Horse Pond Tap	Eversource	2016	Nov-20	Oct-18	Project is complete. In-service date significantly advanced from initial estimate due to minimal permitting requirements and availability of outage windows.
Southeastern Massachusetts and Rhode Island	1735	Replace wave trap on 114 line at Tremont Substation #713	Eversource	Prior to 2016	Nov-20	N/A	Project is complete. Additional analysis determined that rating of existing substation equipment (wave traps) was sufficient.
Southeastern Massachusetts and Rhode Island	1732	Loop 201-502 line into Medway #65 Substation to form the 201-502N and 201-502S lines	Eversource	Prior to 2016	Dec-21		a) Preliminary engineering and siting/permitting assessment is complete. b) Detailed engineering (100% design) expected to be completed by Q4 2020. Anticipate ordering materials and starting construction in 2021.
Southeastern Massachusetts and Rhode Island	1737	Replace disconnect switches 107A, 107B, 108A and 108B on Line 323 at West Medway Substation #446. Replace 8 line structures with taller structures.	Eversource	2018	Nov-20		a) Three disconnect switches and all eight transmission structures have been replaced. b) Final disconnect switch replacement is scheduled for Q1 2020.
Southeastern Massachusetts and Rhode Island	1728	Build a new Carver to Kingston 115 kV line and Carver terminal	Eversource	2016	Dec-21		a) Preliminary engineering has been completed. A Massachusetts Environmental Protection Agency (MEPA) certificate has been received. b) Detailed design (100% engineering) anticipated to be completed in 2020. Siting petition expected to be filed with the MA DPU in late 2019 or early 2020. All licenses and permits, other than state siting approval, are expected in 2020. Purchases of materials and issuance of construction contracts will occur after state siting approvals. Start of construction and in-service date will depend on timing of state siting proceeding.
Southeastern Massachusetts and Rhode Island	1729	Install a new bay position at Kingston for Carver line	Eversource	2016	Dec-21		a) Significant coordination required with engineering and outages for a separate project to construct a replacement for Kingston Substation. Preliminary engineering for new substation is complete and permits have been acquired. b) Detailed engineering (100% design) expected to be complete in 2020. Long-lead materials planned to be ordered in mid-2020. Construction planned for 2021.
Southeastern Massachusetts and Rhode Island	1734	Reconductor/Upgrade 112 Line Tremont Substation #713 to Industrial Tap and terminal equipment	Eversource	2016	Nov-20	Jun-18	Project is complete. In-service date significantly advanced from initial estimate due to minimal permitting requirements and availability of outage windows.

Attachment C

Southeastern Massachusetts and Rhode Island	1726	Separate the 135/122 DCT lines - West Barnstable to Barnstable	Eversource	Prior to 2018	Dec-21	<p>a) Preliminary engineering has been completed. A siting petition was filed with the MA DPU on 6/28/2019 and the initial DPU public hearing was held on 11/4/2019.</p> <p>b) Detailed design (100% engineering) is scheduled to be complete in Q3 2020. Environmental permit requests are scheduled to be submitted by Q3 2020. If siting decision is received in 2020, construction is expected to start in 2021.</p>
Southeastern Massachusetts and Rhode Island	1727	Retire Barnstable SPS	Eversource	Prior to 2018	Dec-21	<p>This project will be completed once RSP Project 1726 (above) is in-service.</p>
Southeastern Massachusetts and Rhode Island	1725	Build a new Bourne #917 to West Barnstable #921 115 kV line and associated terminal work	Eversource	Prior to 2018	Dec-21	<p>a) Preliminary engineering is complete. All required outreach for upcoming filing of siting board petition has been completed, including two community Open Houses (7/29/19 in West Barnstable and 7/30/19 in Sandwich). Significant coordination required with engineering and outages for a separate project to construct a replacement for Bourne Substation.</p> <p>b) Siting board (MA EFSB) petition and environmental permit (MEPA) requests filed on 11/8/19. Procurement and construction timeline will depend on siting board schedule.</p>
Southeastern Massachusetts and Rhode Island	1733	Separate the 325/344 DCT lines - West Medway to West Walpole	Eversource	Prior to 2016	Dec-21	<p>a) Preliminary engineering design is complete.</p> <p>b) Siting petition (MA DPU) and environmental permit requests scheduled to be filed in Q2 2020. Procurement and construction timeline will depend on siting board schedule.</p>
Southeastern Massachusetts and Rhode Island	1789	West Medway 345 kV Circuit Breaker Upgrades	Eversource	Prior to 2016	Dec-21	<p>a) No permits are required for this project and all materials have been received.</p> <p>b) Protection & Control Engineering (relay settings) is scheduled to be completed to support each breaker replacement. Four breakers are scheduled to be upgraded in 2020 and four breakers will be upgraded in 2021.</p>
Southeastern Massachusetts and Rhode Island	1790	Medway 115 kV Circuit Breaker Replacements	Eversource	Prior to 2016	Dec-21	<p>a) This project replaces a total of 5 breakers. Engineering design settings have been completed for 2 of the 5 breakers. One breaker was replaced in October 2019. No permits are required for this project. All materials have been received.</p> <p>b) Engineering design settings for the remaining 3 breakers are scheduled to be completed in Q1 2020. Outage permits have been submitted to replace 3 breakers in 2020 and 1 breaker in 2021.</p>
Boston	Not Assigned Yet	Install a 115 kV breaker in series with breaker 4 at Mystic to eliminate the breaker failure contingency	Eversource	2019	Sep-21	<p>Project was recently selected by ISO-NE. Preliminary engineering is underway and a detailed project schedule is being developed.</p>

Attachment D

Key Study Area	Project ID	Solution Component (Project)	Transmission Owner Responsible for the Project	Need-By-Date	Proposed In-service Date	Actual In-service Date	Please provide a status report for each project which details a) the work that has been completed at this time and b) the work that remains to be done.
Southeastern Massachusetts and Rhode Island	1714	New Grand Army 115 kV GIS switching station built to BPS standards, remote terminal station work (Brayton Point and Somerset) & loop E-183E, F-184, X3 and W4 lines (associated with RSP 1742)	National Grid	Prior to 2016	Nov-20	TBD	<ul style="list-style-type: none"> • PPA - approved • Engineering - 100% complete • Equipment - all equipment has been received • Public outreach - near completion, National Grid maintains a web site to inform/update the public Previous Outreach: 1. National Grid performed door to door outreach to selected abutters and local officials and held an open house on April 12, 2017 to inform area residents and officials of the project. 2. National Grid notified abutting property owners and other stakeholders, including all municipal officials, DPWs and police and fire chiefs, of the project by mailing of a fact sheet. 3. Stakeholder Management also provided e-mail updates to the stakeholders whose email addresses have been provided to the Company <ul style="list-style-type: none"> • Permit applications – completed, pending close-out activities • Siting applications – N/A • Construction - underway (98% complete)
Southeastern Massachusetts and Rhode Island	1742	Remote terminal station work (Wampanoag and Pawtucket 115 kV) for new 115 kV Grand Army GIS switching station to tie the E-183E, F-184, X3 and W4 lines (Associated with RSP 1714)	National Grid	Prior to 2016	Nov-20	TBD	Wampanoag – necessary protection upgrades will be made at Wampanoag to support the cutover of the E-183 line into Grand Army in Spring 2020. Dual pilot protection schemes on this line will be installed at a later date as part of an ACR project. Pawtucket - there is no SEMA-RI work at Pawtucket associated with the X3 line cutover into Grand Army. The X3N line will go in-service Nov 2019 with step distance protection. There are no settings changes required at Pawtucket. DCB and POTT schemes will be incorporated into the larger substation rebuild project at Pawtucket when that project goes in service.
Southeastern Massachusetts and Rhode Island	1715	Upgrades at Brayton Point (new 115 kV breaker, new 345/115 kV transformer and upgrades to E183E, F184 station equipment)	National Grid	Prior to 2016	Jun-20	TBD	<ul style="list-style-type: none"> • PPA - approved • Engineering - 100% complete • Equipment - T4 transformer delivery Jan 2020, all other major equipment has been received • Public outreach – near completion, National Grid maintains a web site to inform/update the public • Permit applications – completed, pending close-out activities • Siting applications – N/A • Construction - underway (30% complete)
Southeastern Massachusetts and Rhode Island	1716	Increase clearances on E-183E & F-184 lines between Brayton Point & Grand Army (~1.5 miles each)	National Grid	Prior to 2016	Nov-19	May-2019	<ul style="list-style-type: none"> • PPA - approved • Engineering - 100% complete • Equipment - all equipment has been received • Public outreach – National Grid maintains a web site to inform/update the public • Permit applications – completed, pending close-out activities • Siting applications – N/A • Construction - 100% complete
Southeastern Massachusetts and Rhode Island	1717	Separate X3/W4 DCT and reconductor X3, W4 lines between Somerset and Grand Army (~2.7 miles each). Reconfigure Y2 and Z1	National Grid	Prior to 2016	Nov-19	Nov-2019	<ul style="list-style-type: none"> • PPA - approved • Engineering - 100% complete • Equipment - all equipment has been received • Public outreach – National Grid maintains a web site to inform/update the public • Permit applications – completed, pending close-out activities • Siting applications – N/A • Construction - 100% complete
Southeastern Massachusetts and Rhode Island	1718	Robinson Ave 115 kV circuit breaker addition and reterminate Q10 line	National Grid	Prior to 2016	Nov-20	TBD	<ul style="list-style-type: none"> • PPA - approved • Engineering - 100% complete • Equipment - all major equipment has been ordered • Public outreach – near completion, outreach has been ongoing with the local community/abutters • Permit applications – completed Oct 2019 • Siting applications – N/A • Construction - not in construction.
Southeastern Massachusetts and Rhode Island	1719	Install 45.0 MVAR capacitor bank at Berry Street	National Grid	Prior to 2016	Dec-20	TBD	<ul style="list-style-type: none"> • PPA - approved • Engineering - 30% complete • Equipment – Cap bank and breaker have been ordered Nov 2019 • Public outreach – N/A, all work in substation, local officials will be notified • Permit applications – no permits anticipated • Siting applications – N/A • Construction – not in construction.

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Southeastern Massachusetts and Rhode Island	1720	Separate N12/M13 DCT & reconductor N12 & M13 between Somerset and Bell Rock (~3.5 miles)	National Grid	Prior to 2016	Nov-21	TBD	<ul style="list-style-type: none"> • PPA approved • Delays have been experienced with acquisition of real estate and property rights • Engineering 50% completed • Procurement <ul style="list-style-type: none"> o Equipment specifications in development o Equipment procurement has not been initiated • Licensing and Permitting <ul style="list-style-type: none"> o Massachusetts Executive Office of Energy and Environmental Affairs, Massachusetts Environmental Policy Act Office, Expanded Environmental Notification Form – Application in development o Massachusetts Historical Commission, Project Notification Form – Issued o Massachusetts Department of Environmental Protection, Section 401 Water Quality Certification – Application pending development o Massachusetts Department of Environmental Protection, Chapter 91 Minor Modification – Application pending development o United States Army Corps of Engineers, Section 404/10 Pre-Construction Notification – Application pending development o United States Environmental Protection Agency, National Pollutant Discharge Elimination System General Construction Permit – Application pending development o Massachusetts Coastal Zone Management, Federal Consistency Review – Application pending development o Massachusetts Natural Heritage and Endangered Species Program, Massachusetts Endangered Species Act Project Checklist Review – Application in development o Massachusetts Department of Transportation, Highway Construction Access Permit – Application pending development o Federal Aviation Administration, Notice of Proposed Construction and Alteration – Application pending development o Somerset Conservation Commission, Notice of Intent – Application pending development o Fall River Conservation Commission, Notice of Intent – Application pending development o Fall River Zoning Board of Appeals – Application pending development o Fall River Board of Selectmen, Grant of Location – Application pending development • Siting <ul style="list-style-type: none"> o Massachusetts Energy Facilities Siting Board, Section 69J Petition – Application in development o Massachusetts Department of Public Utilities, Section 72 Petition – Application in development • Public Outreach <ul style="list-style-type: none"> o Initial coordination with municipalities underway o Additional stakeholder outreach will be performed in advance of MA EFSB Filing • Construction - not in construction.
Southeastern Massachusetts and Rhode Island	1721	Reconfigure Bell Rock to breaker and a half station, split M13 line at Bell Rock and terminate 114 line at Bell Rock. Install new breaker in series with N12/D21 tie breaker, upgrade D21 line switch and install 37.5 MVAR capacitor.	National Grid	Prior to 2016	Dec-21	TBD	<ul style="list-style-type: none"> • PPA approved • Engineering 70% completed • Procurement <ul style="list-style-type: none"> o Equipment specifications have been developed o RFPs and POs are in progress • Licensing and Permitting <ul style="list-style-type: none"> o Massachusetts Executive Office of Energy and Environmental Affairs, Massachusetts Environmental Policy Act Office, Expanded Environmental Notification Form Certificate and Phase 1 Waiver issued – Approved o Massachusetts Natural Heritage and Endangered Species Program, Massachusetts Endangered Species Act Project Checklist Review – Approved o Fall River Conservation Commission, Notice of Intent filed and Order of Conditions issued – Approved o Fall River Zoning Board of Appeals, Site Plan Approval – Application in development o Fall River Zoning Board of Appeals, Variance to Building Setback Requirements – Application in development o Massachusetts Department of Environmental Protection, Section 401 Water Quality Certification – Application submitted for approval o United States Army Corps of Engineers, Section 404/10 Pre-Construction Notification – Application in development o United States Environmental Protection Agency, National Pollutant Discharge Elimination System General Construction Permit – Application pending development o Massachusetts Historical Commission, Project Notification Form – Issued o MA Department of Conservation and Recreation – Construction & Access Permit • Siting <ul style="list-style-type: none"> o No state siting required • Public Outreach <ul style="list-style-type: none"> o Outreach to City of Fall River and other key stakeholders is on-going • Construction - not in construction

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Southeastern Massachusetts and Rhode Island	1722	Extend Line 114 - Dartmouth town line (Eversource- NGRID border) to Bell Rock (~4.2 miles)	National Grid	Prior to 2016	Dec-21	TBD	<ul style="list-style-type: none"> • Activity suspended pending ISO-NE review • PPA approved • Engineering 70% completed • Procurement <ul style="list-style-type: none"> o Equipment specifications have been developed o Procurement not initiated • Licensing and Permitting <ul style="list-style-type: none"> o Massachusetts Natural Heritage and Endangered Species Program, Massachusetts Endangered Species Act Project Checklist Review – Application submitted and agency consultation on-going o Massachusetts Executive Office of Energy and Environmental Affairs, Massachusetts Environmental Policy Act Office, Expanded Environmental Notification Form Certificate – Approved o Massachusetts Executive Office of Energy and Environmental Affairs, Massachusetts Environmental Policy Act Office, Single Environmental Impact Report– Application in development o Massachusetts Department of Environmental Protection, Section 401 Water Quality Certification – Application pending development o Massachusetts Department of Environmental Protection, Chapter 91 Minor Modification – Application pending development o Massachusetts Department of Transportation, Highway Construction Access Permit – Application pending development o United States Army Corps of Engineers, Section 404/10 Pre-Construction Notification – Application pending development o United States Environmental Protection Agency, National Pollutant Discharge Elimination System General Construction Permit – Application pending development o Fall River Conservation Commission, Notice of Intent – Application pending development o Massachusetts Historical Commission, Project Notification Form – Issued o Massachusetts Department of Conservation and Recreation, Construction and Access Permit – Application pending development • Siting <ul style="list-style-type: none"> o Massachusetts Energy Facilities Siting Board, Section 69J Petition – Application in development o Massachusetts Department of Public Utilities, Section 72 Petition – Application in development • Public Outreach <ul style="list-style-type: none"> o Initial Open House completed o Initial outreach to municipality and other key stakeholders completed o Additional stakeholder outreach will be performed in advance of MA EFSB Filing • Construction - not in construction
Southeastern Massachusetts and Rhode Island	1723	Reconductor L14 and M13 from Bell Rock to Bates Tap (8.3 miles each)	National Grid	Prior to 2016	Sep-21	TBD	<ul style="list-style-type: none"> • PPA approved • Engineering 50% completed • Procurement <ul style="list-style-type: none"> o Equipment specifications in development o Equipment procurement has not been initiated • Licensing and Permitting <ul style="list-style-type: none"> o Massachusetts Department of Environmental Protection, Section 401 Water Quality Certification – Application pending development o Massachusetts Department of Environmental Protection, Chapter 91 Minor Modification – Application pending development o Massachusetts Natural Heritage and Endangered Species Program, Massachusetts Endangered Species Act Project Checklist Review – Application in development o United States Army Corps of Engineers, Section 404/10 Pre-Construction Notification – Application pending development o United States Environmental Protection Agency, National Pollutant Discharge Elimination System General Construction Permit – Application pending development o Massachusetts Department of Transportation, Highway Construction Access Permit – Application pending development o Fall River Conservation Commission, Letter of Notification – Notification in development o Westport Conservation Commission, Letter of Notification – Notification in development o Massachusetts Historical Commission, Project Notification Form – Issued o MA Department of Conservation and Recreation, Construction and Access Permit – Application pending development • Siting <ul style="list-style-type: none"> o No state siting required • Public Outreach <ul style="list-style-type: none"> o Initial coordination with municipalities underway o Additional stakeholder outreach will be performed in advance of construction • Construction - not in construction
Southeastern Massachusetts and Rhode Island	1724	Kent County T3 345/115 kV transformer replacement	National Grid	Prior to 2016	Nov-20	TBD	<ul style="list-style-type: none"> • PPA - approved • Engineering - 30% complete • Equipment – T3 transformer has been ordered Aug 2019, delivery Dec 2020 • Public outreach – N/A, all work in substation, local officials will be notified • Permit applications – only minor local permits required • Siting applications – N/A • Construction - not in construction

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Southeastern Massachusetts and Rhode Island	1782	Reconductor the J16S line	National Grid	Prior to 2016	Dec-20	TBD	<ul style="list-style-type: none"> • PPA approved • Project was planned to be performed in conjunction with R9 Line Reconductoring for Invenegy's proposed Clear River Energy Center. Due to delay of Invenegy projects, the J16S project needs to be rescopeed. • Engineering 50% completed • Procurement <ul style="list-style-type: none"> o Equipment specifications in development o Equipment procurement has not been initiated • Licensing and Permitting <ul style="list-style-type: none"> o Rhode Island Department of Environmental Management, Letter of Notification – Notification pending development o United States Army Corps of Engineers, Section 404/10 Pre-Construction Notification – Application pending development o Rhode Island Pollutant Discharge Elimination System General Construction Permit – Application pending development o Rhode Island Historical Preservation and Heritage Commission, Project Notification Letter – Pending project development • Siting <ul style="list-style-type: none"> o Rhode Island Energy Facility Siting Board, 90-Day Notice of Intent – Application in development • Public Outreach <ul style="list-style-type: none"> o Initial coordination with municipalities underway o Additional stakeholder outreach will be performed in advance of construction • Construction - not in construction
Boston	Not Assigned Yet	Install a 160 MVAR reactor at Golden Hills 345 kV	National Grid	2019	Sep-21	TBD	