1 PROJECT OVERVIEW

1.1 Introduction

New England Power Company d/b/a National Grid ("NEP" or the "Company") submits this Application to Support the Petition before the Energy Facilities Siting Board ("Siting Board" or "EFSB") ("Application") pursuant to G.L. c. 164, § 69J ("Section 69J Petition") seeking approval to remove the existing 69 kilovolt ("kV") E5/F6 lines (the "Existing Lines") and to rebuild them (the "Rebuilt Lines") to a 115 kV design within the existing electric transmission line right-of-way ("ROW") between NEP's Millbury #305 Substation in Millbury, Massachusetts ("Millbury Substation") and the Deerfield #4 Substation in Shelburne, Massachusetts ("Deerfield #4 Substation") (the "Central to Western Massachusetts Energy Improvement Project" or the "Project"). The Project also includes the reconstruction of three of the tap lines associated with the Existing Lines on the same ROWs as the Existing Taps: (1) the Quabbin Switch Tap Line, (2) the Shutesbury Tap Line and, (3) the Deerfield #3 Tap Line[1] (referred to as the "Existing Taps" and the "Rebuilt Taps") and the construction, reestablishment and improvement of access roads. Contemporaneous with the filing of the Section 69J Petition, NEP has filed a petition with the Massachusetts Department of Public Utilities ("DPU") requesting a determination that the Project is necessary and will serve the public convenience and be consistent with the public interest in accordance with G.L. c. 164, § 72 ("Section 72 Petition").

The Existing Lines connect Millbury Substation and Deerfield #4 Substation and supply power to NEP's Pondville, Leicester, Harrington, Lashaway, Belchertown, and Shutesbury Substations. Today, the Existing Lines and Taps provide electricity to 26 cities and towns in Massachusetts Electric Company's ("MECo") service territory and transmit power from the Deerfield #2, #3, and #4 generating stations to the New England region. The E5 Line and F6 Line are each approximately 67 miles in length. The lines pass through the towns of Millbury, Auburn, Leicester, Spencer, East Brookfield, North Brookfield, West Brookfield, Ware, Belchertown, Pelham, Shutesbury, Leverett, Sunderland, Deerfield, Conway, and Shelburne.

The Tap Lines each consist of two parallel single circuit lines. The Quabbin Switch Tap Lines are each approximately 0.1 miles long and connect the Existing Lines to the Quabbin Switch. The Quabbin Switch Tap Lines and Quabbin Switch are located in Belchertown. The Shutesbury Tap Lines are each approximately 0.02 miles long and connect the Existing Lines to Shutesbury Substation. The Shutesbury Tap Lines and Shutesbury Substation are located in Shutesbury. The Deerfield #3 Tap Lines are each approximately 0.5 miles long, pass through Shelburne, and connect the Existing Lines with Deerfield #3 generating station in Buckland.

The Existing Lines must be rebuilt because inherent design characteristics as well as physical deterioration have resulted in poor reliability. They are supported primarily on approximately 711 structures that date back to early 1900s when the lines were first energized and are currently supported on a combination of wood (98), lattice tower (538) and steel pole (75) structures. In addition, increased fiber optic capability is needed to both protect the lines from lightning and

[1] Conductors from the E5/F6 Lines to the following other tap lines will be replaced, but no structures will be rebuilt as part of the Project: Lashaway, Leicester, Harrington, Deerfield #2, and Pondville.

improve telecommunications. Lastly, the Existing Lines lack sufficient capacity to interconnect renewables and other green technology to the electric grid. As with the Existing Lines, the Existing Taps have a poor operating history and have insufficient capacity to interconnect renewables to the electric grid. The Existing Taps are currently supported on 34 wood and steel structures.

New structures on the Rebuilt Lines will be steel pole double circuit structures with an average height of 85 feet. In most locations, the Rebuilt Lines will be constructed slightly offset, by approximately five feet, from the centerline in the ROW. The Company will replace the existing copper conductors and Aluminum Conductor, Steel Reinforced ("ACSR") with Aluminum-Conductor, Steel Supported Conductor ("ACSS") and the existing shield wire will be replaced with two Optic Ground Wires ("OPGW"), which will increase the reliability and capacity of the Existing Lines and improve communication between stations. The Project also will replace all structures along the Tap Line ROWs. The Rebuilt Taps will also be 795 ACSS with two OPGW and will operate at 69 kV but will be designed to support future operation at 115 kV.

The Company proposes to construct the Rebuilt Lines using its 115 kV design standards even though there are currently no immediate reliability needs that would necessitate the operation of the Rebuilt Lines at 115 kV within the 10-year planning horizon. Even when operating at 69 kV, the Rebuilt Lines will provide increased capacity due to the proposed use of ACSS conductor. Notably, the Rebuilt Lines will support future operation at 115 kV, which will provide flexibility in meeting future transmission system needs as the implementation of electrification and climate change initiatives in the Commonwealth increase across the state.

As discussed further in *Section 4*, the Company proposes construction of the Rebuilt Lines and Taps along the route of, and in the same ROWs as, the Existing Lines and Taps because this route is superior to any other potential route given the need to provide continued transmission service to the switching and substations between Millbury Substation and the Deerfield Substation. Constructing the Project along other routes would result in increased costs, schedule delays, and new and/or increased impacts to human and natural environments. Figure 1-1 is a United States Geological Survey ("USGS") quadrangle base map showing the location of the Existing Lines and Taps.

DEERFIELD #4 SUBSTATION
DEERFIELD #3 SUBSTATION
DEERFIELD #2 SUBSTATION
DEERFIELD TAP #3
SHUTESBURY #704 SUBSTATION
SHUTESBURY #704 TAP
QUABBIN SWITCH TAP
LASHAWAY # 525 TAP
LASHAWAY #525 SUBSTATION
LEICESTER #21 TAP
LEICESTER #21 SUBSTATION
PONDVILLE #26 TAP
MILLBURY #305 SUBSTATION
WARE #1 SUBSTATION
HARRINGTON #2234 SUBSTATION
HARRINGTON #2234 TAP
MEADOW ST #552 SUBSTATION
PONDVILLE #26 SUBSTATION

Legend

- Study Area

Project Components

- Existing E5/F6 Transmission Line
- Existing E5/F6 Taps

System Components

- Substation
- Existing Transmission Lines

1 inch = 5 miles (0, 2.5, 5 Miles)

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Central to Western Massachusetts Energy Improvement Project

nationalgrid
BSC GROUP

Figure 1-1
United States Geological Survey (USGS) Locus Map

As set forth in detail below, and consistent with the requirements of G.L. c. 164, §§ 69H, 69J and 72, the Project will provide a reliable energy supply for the Commonwealth of Massachusetts with a minimum impact on the environment at the lowest possible cost. The Project will serve the public interest by: (1) improving the reliability of the electric system while minimizing environmental impacts and costs; and (2) increasing the thermal capacity and voltage capability of the Rebuilt Lines to meet existing and projected load requirements, including the connection of more renewable energy resources to the transmission system. For these reasons, NEP requests the Siting Board's approval of the Project.

1.2 Overview of Application

The balance of *Section 1* presents an overview of the Project. The remaining sections of this Application provide detailed information and analysis to support the Project, specifically the need for the Rebuilt Lines (*Section 2*), a comparison of Project alternatives (*Section 3*), a description of the route evaluation process that was used to ensure that the existing E5/F6 ROW is the optimal route for the Rebuilt Lines (*Section 4*), a detailed analysis of the Project's impacts on the natural and social environment, including mitigation of those impacts (*Section 5*), and an analysis of the Project's consistency with the health, environmental protection, resource use, and development policies of the Commonwealth of Massachusetts (*Section 6*).

1.3 Project Need

The key driver for the Project is the long-standing history of poor performance on the E5/F6 Lines. A review of the recent operating history, design, and physical condition of the Existing Lines demonstrates that they should be rebuilt to ensure reliable service. As discussed in *Section 2*, the Existing Lines, which were originally constructed in the early 1900s, reconductored in 2001, and reinsulated in 2020, are among the oldest transmission lines in New England and are supported by the original lattice structures. They are among NEP's worst performing transmission lines, due in large part to the original structure design, which makes them particularly susceptible to lightning and avian interaction.

The Existing Lines are the sole transmission source for approximately 24,000 customers in twelve Massachusetts municipalities and must be replaced as they are approaching the end of their asset life and have intrinsic flaws in their structural configuration, which has resulted in poor reliability. For example, close, tall trees adjacent to the ROW, as well as poor shielding angles and insulation levels when compared to present-day industry standard, have contributed to their poor performance. In addition, the Existing Lines and Taps do not have sufficient thermal capacity to support the connection of proposed and future distributed energy resources ("DER") to the electric grid. Even without proposed DER, equipment at multiple substations served by the Existing Lines would be subject to low voltage conditions under certain contingencies. The Rebuilt Lines will also provide increased fiber optic capability, which will both protect the lines from lightning and improve telecommunications. Accordingly, the Existing Lines and Taps must be replaced in the near term to allow NEP to continue to meet regional demands for a reliable supply of electricity.

1.4 Project Alternatives

In accordance with Siting Board precedent, NEP evaluated a series of Project alternatives for the potential to meet the identified need and to determine the approach that best balances reliability,

cost, and environmental impact. *Section 3* summarizes the analyses used to identify and evaluate alternative means of meeting the identified need. These include: (1) a No-Build Alternative; (2) Non-Wires Alternatives ("NWAs"); (3) two Partial Rebuild Alternatives; and (4) a Complete Line Rebuild Alternative (the Project). As shown in *Section 3*, the Project is the only alternative that meets all identified needs and achieves the appropriate balance between need, minimization of environmental impacts and cost.

After determining that completely rebuilding the Existing Lines was the only alternative that could meet all the identified needs, the Company assessed two transmission structure designs for the Rebuilt Lines – rebuilding the Existing Lines for operation at 69 kV or rebuilding the Existing Line to support present day operation at 69 kV and future operation at 115 kV. The Company determined that the Project as proposed – rebuilding the Existing Line to support future operation at 115 kV – will most effectively provide a reliable energy supply with the least impact on the environment at the lowest reasonable cost, as well as support long-term electric load growth.

1.5 The Project Route

NEP proposes replacing the Existing Lines with Rebuilt Lines within the existing ROW. *Section 4* of this Application describes the process by which NEP evaluated potential route alternatives to ensure no clearly superior route was overlooked. Route selection was heavily guided by the need to connect the two termini of the Existing Lines and Taps, as well as the ten substations between them. As an initial matter, the Company identified a geographic study area (the "Study Area") that encompassed possible route options for the Rebuilt Lines and Taps. The Study Area and the routing opportunities and constraints within it are described in *Section 4*. The Company also established criteria to identify, screen, and evaluate potential overhead routes. NEP assessed potential routes with a focus on maximizing the use of existing linear corridors, limiting construction constraints, and minimizing the potential for natural and social environmental impacts. After evaluating a wide array of potential route corridors and options, NEP determined that all potential alternative routes for both the E5/F6 Lines and Taps, as compared to the route along the Existing Lines and Taps ROWs (the "Project Route"), were clearly inferior in that they would be longer, have greater environmental impacts and more significant constructability issues and, therefore, would be more costly.

1.6 Summary of Project Schedule and Cost

Assuming receipt of all necessary permits and approvals, construction of the Project is expected to commence in April 2029; the Rebuilt Lines and Taps are expected to be energized as installed; and all Project-related activities, including removal of the Existing Lines and Taps, are expected to conclude in April 2035.

1.6.1 Project Schedule

A summary of the major Project elements and their corresponding target milestone dates are provided in Table 1-1, below.

Table 1-1: Anticipated Project Schedule

Project Component	Estimated Start Date	Estimated End Date
Access Route Construction, Reestablishment, and Improvements	April 2029	April 2033
Rebuild Existing Lines and Taps	September 2029	November 2034
Remove Existing Lines and Taps	January 2030	April 2035
Restore ROW (where required)	April 2029	April 2035

1.6.2 Project Cost

NEP estimates that the total cost of rebuilding the Existing Lines and Taps is approximately $896.9 million. This estimate is provided with an assumed accuracy level of –25%/+50%.

1.7 Construction Overview and Impact Minimization

Section 5 describes the methodology by which the Project will be constructed, assesses the potential for environmental impacts, and describes mitigation measures that will be implemented by the Company to minimize impacts of construction on the surrounding community.

Generally, there are eight phases of construction for an overhead transmission line project: (1) removal of vegetation and ROW mowing in advance of construction; (2) installation of soil erosion and sediment controls; (3) construction and improvements to access; (4) structure work pads and construction staging areas; (5) installation of foundations and transmission structures; (6) installation of overhead conductor and OPGW; (7) removal and disposal of existing transmission line components; and (8) restoration and stabilization of the ROW. Several phases of construction may be ongoing simultaneously in different sections of the route. The various construction activities occur as a progression of work activities along the ROW and each transmission structure location will be visited intermittently to complete each phase of construction.

Potential impacts from Project construction will include temporary traffic congestion, construction noise, and sediment generation. As discussed in *Section 5*, the Company has thoroughly assessed the potential for impacts to the environment and surrounding community as a result of the Project, and has avoided, minimized, or mitigated those impacts. The Project is simultaneously undergoing review pursuant to the Massachusetts Environmental Policy Act ("MEPA"), GL c. 30, §§ 61 through 62L. NEP submitted an Environmental Notification Form ("ENF") on January 15, 2025, provided as Appendix 6-1. the Company will provide the Secretary of Executive Office of Energy and Environmental Affairs ("EEA") Certificate on the ENF when it is available.

1.8 Agency and Community Outreach

NEP is committed to working with municipal officials, local businesses, residents, communities along the Project Route, and any interested stakeholders to provide proactive and transparent communication throughout the life of the Project. NEP's initial outreach efforts have been aimed at providing notification to abutting landowners of activities within the ROW and briefing local officials and other stakeholders on the need for the Project, providing details regarding the Project Route and Project schedule; and detailing the permitting and siting processes, including opportunities for public input. The Company will continue these efforts throughout the licensing and permitting process and will maintain a focused communications program during and after construction. This outreach program is designed to educate and engage the Project communities,

foster public participation, and solicit feedback from stakeholders. Key elements of NEP's outreach program for the Project are described below.

Open House: NEP held five in-person Project Open Houses to introduce the Project to the public on June 5, 2024, June 11, 2024, June 26, 2024, July 17, 2024, and September 17, 2024. NEP mailed invitations to landowners along the Project Route and to municipal officials (Table 1-3). The Open Houses provided the public an opportunity to speak with subject matter experts, ask questions, and share concerns about the Project. During the Open Houses, NEP provided a Project overview with a focus on the need, benefits, permitting process, location, design, schedule, and anticipated construction activities, as well as a summary of participation opportunities for all interested persons.

Environmental Justice Community Meeting: NEP hosted a virtual meeting pursuant to MEPA guidelines on December 19, 2024. Per 301 Code of Massachusetts Regulations ("CMR") 11.05(4)(b), on November 26, 2024, the Company sent advanced notification of the meeting in the form of a completed "Environmental Justice Screening Form" via electronic mail to all contacts on the Environmental Justice ("EJ") Reference List provided by the MEPA Office on September 3, 2024. EJ community members on the provided EJ Reference List, in addition to the municipality administrators and abutters within EJ communities, were invited to attend to learn more about the Project and its anticipated impacts on EJ community areas as identified by MEPA. Recipients of the invitation were encouraged to share the invitation on organization and municipal websites, forums, message boards, and social media channels. Invitation to the virtual meeting were published in English in three publications that spanned the sixteen municipalities along the Project Route. The three newspapers, the *Worcester Telegram & Gazette*, the *Greenfield Recorder*, and *The Republican*, have the highest circulation for each of their respective counties.

Door-to-Door: The Company has reached out in-person to landowners upon request and/or as needed to discuss ongoing field activities and future use of abutter properties, i.e., access and tree trimming. Targeted door-to-door outreach is planned pre-construction.

Website: NEP hosts a Project website, **https://www.cmatowmaenergy.com/.** The website provides basic Project information, maps, regular updates, meeting invitations, a construction process animation video, links to public filings, request for translation of Project materials, and contact information. The website can be viewed in English; however, content can be translated to other languages by submitting a request through a form on the website. The website will be maintained and updated for the duration of the Project.

Project Hotline: NEP has a dedicated toll-free Project hotline number (888-431-3536). The Project hotline number is provided at all community events and is included in all Project outreach materials, including mailings, email correspondence, and the Project website. NEP commits to responding promptly to all inquiries received via the Project hotline. Inquiries received through the hotline are typically answered within three business days (excluding weekends and Company recognized holidays).

Project Email: NEP has designated info@CMAtoWMAenergy.com as its Project email address. The email address is included in all Project outreach materials, including fact sheets, mailings, the website, and is provided at all community events. As with the Project hotline, NEP commits to responding promptly to all inquiries received via the Project email.

Multilingual Materials: All printed Project community outreach materials are available in English and can be translated as needed. Community outreach materials, such as the Project factsheet and Project Open House invitations include a QR code directing recipients to the Project website homepage. The Contact Us section includes a translation request form.

Municipal and Stakeholder Briefings: NEP has met with municipal officials and other stakeholders in Shelburne, Leverett, Sunderland, Conway, Pelham, Shutesbury, Spencer, Belchertown, West Brookfield, Ware, Auburn, Millbury, Leicester. A list of outreach meetings with the municipalities, regulatory agencies, and other officials is provided in Table 1-2 and Table 1-3.

Table 1-2: Select Board Outreach and Consultations

Date(s)	Activities and Milestones	Interaction Type / Description
12/04/2023	Shelburne	Select Board Presentation
12/05/2023	Leverett	Select Board Presentation
12/11/2023	Sunderland	Select Board Presentation
12/18/2023	Conway, Pelham	Select Board Presentation
02/13/2024	Shutesbury	Select Board Presentation
02/26/2024	Spencer	Select Board Presentation
03/03/2024	Belchertown	Select Board Presentation
03/04/2024	West Brookfield	Select Board Presentation
03/19/2024	Ware	Select Board Presentation
03/25/2024	Auburn	Select Board Presentation
03/26/2024	Millbury	Select Board Presentation
04/01/2024	Leicester	Select Board Presentation
1/18 and 02/05/2024	Deerfield - No Response/presentation; presentation shared via email	Select Board Presentation
2/5 and 2/14/2024	North Brookfield – No Response/presentation; presentation shared via email	Select Board Presentation
2/5 and 2/14/2024	East Brookfield – No Response/presentation; presentation shared via email	Select Board Presentation

Table 1-3: Community Outreach and Consultations

Date	Activities and Milestones	Interaction Type / Description
06/10/2022	Field activity/survey notification	Postcards
08/25/2023	Factsheet	Mailer
09/17/2023	Targeted Soil boring notification	Letter
11/2023	Targeted Forestry notification	Letter
06/26/2023	Targeted Cultural resource notification	Letter
05/31/2024	Notice of Project Open House in Sunderland	Mailer
06/05/2024	Notice of Project Open House in Belchertown	Mailer
06/05/2024	Notice of Project Open House in Shelburne	Mailer
07/10/2024	Notice of Project Open House in West Brookfield	Mailer
09/09/2024	Notice of Project Open House in Millbury	Mailer
06/05/2024	Sunderland	Project Open House
06/11/2024	Shelburne	Project Open House
06/26/2024	Belchertown	Project Open House
07/17/2024	West Brookfield	Project Open House
09/17/2024	Millbury	Project Open House

Construction Community Outreach Plan: NEP will execute a comprehensive construction community outreach plan to keep landowners, businesses, and municipal officials, including fire, police, and emergency personnel, updated on planned construction activities. NEP will notify abutting landowners and municipal officials of its planned construction start date and work schedule prior to commencing construction and will work closely with both groups to limit construction impacts. In addition to the Project website and hotline, this outreach plan will include:

- Targeted door-to-door outreach throughout construction to notify landowners of upcoming activities and to address any questions or concerns they may have. Translation services will be made available as requested.
- In-person pre-construction briefings with municipalities and other stakeholder groups.
- Regular email updates to municipal officials and any other stakeholders requesting this form of communication.
- Periodic communications with abutters and other stakeholders providing advance notice of scheduled construction activities. Written communications will be provided in English and translated as needed/requested.
- Meetings, emails, and phone calls with concerned landowners will be held on a case-by-case basis.
- Upon request, meetings with affected landowners prior to each major stage of construction.

1.9 Conclusion

NEP proposes to rebuild its E5/F6 Lines and the Quabbin, Shutesbury and, Deerfield #3 Tap Lines with steel pole structures, conductor, and OPGW designed to operate at 115 kV. The Rebuilt Lines and Taps will address underlying issues associated with the Existing Lines and Taps and will enhance reliability, increase resilience, and allow for easier future maintenance. In addition, the upgraded infrastructure will enable the Company to connect proposed renewable energy projects to the electric grid. The Company seeks authority to construct the Project to fulfill its obligations to ensure the safe and reliable transmission of power to its customers with a minimum impact on the environment at the lowest possible cost.

As described above and as demonstrated throughout this Application, the Project also will "serve the public convenience and is consistent with the public interest," consistent with the requirements of Section 72. Given the operational history of the Existing Lines and Taps, the Project is needed to address system reliability requirements. Further, NEP extensively considered potential alternatives to, and the environmental impacts of, the Project and has avoided and minimized environmental impacts and proposed appropriate mitigation for those impacts. As such, the Project meets the standards applicable under Section 72 for authorization to construct and operate its transmission facilities.

For the reasons described in greater detail in this Application, NEP has demonstrated that the Project is consistent with Siting Board and DPU standards and precedent on need, alternatives, routing, and minimization of environmental impacts under G.L. c. 164, § 69J, and therefore should be approved.