

**Planning Advisory Committee  
WebEx Teleconference  
July 20, 2022**

Attendee	Organization
J. Truswell - Chair	ISO New England Inc.
M. Lyons - Secretary	ISO New England Inc.
A. Adhikari	New England Power Company
Z. Ahmed	ISO New England Inc.
R. Albrecht	Raymond J. Albrecht LLC
S. Ali	PPL Energy Plus
S. Allen	Eversource Energy
B. Anderson	NEPGA
B. Andrew	Eversource Energy
D. Bergeron	Maine Public Utilities Commission
P. Bernard	ISO New England Inc.
M. Birchard	Acadia Center
J. Brodbeck	Marble River
J. Burlew	ISO New England Inc.
D. Capra	NESCOE
D. Cavanaugh	Energy New England
B. Chamberlain	Olive Wood Energy
R. Collins	ISO New England Inc.
K. Csizmesia	New England Power company
A. Daly	Northeast Gas Association

J. Dannels	Shell Energy
B. D'Antonio	Eversource Energy
J. Dong	Eversource Energy
J. Donovan	Massachusetts Department of Public Utilities
L. Durkin	ISO New England Inc.
F. Etori	VELCO
J. Fenn	Versant Power
B. Forshaw	CMEEC
B. Fowler	Wheelabrator North Andover Inc.; Exelon Generating Company LLC; Nautilus Power; Dynegy Power Marketing, LLC; Entergy Nuclear Power Marketing LLC; Great River Hydro, LLC
J. Fundling	Eversource Energy
N. Gangi	ISO New England Inc.
S. Garwood	New Hampshire Transmission
J. Gordon	CPV Towantic
R. Guay	Maine Public Utilities Commission
D. Hurley	IceTec
N. Hutchings	ISO New England Inc.
J. Iafrati	Customized Energy Solutions
S. Judd	ISO New England Inc.
S. Kaminski	New Hampshire Electric CoOp
S. Keane	NESCOE
S. Kirk	Constellation Energy
M. Kotha	ISO New England Inc.
B. Kruse	Calpine

F. Kugell	Avangrid
R. Lafayette	Eversource Energy
S. Lamotte	ISO New England Inc.
J. Lucas	Eversource Energy
T. Lundin	LS Power
X. Luo	ISO New England Inc.
E. Mailhot	ISO New England Inc.
K. Mankouski	ISO New England Inc.
J. Martin	New England Power Company
T. Martin	New England Power Company
D. Matthews	New England Power Company
A. McBride	ISO New England Inc.
B. McKinnon	South Hadley Electric, Norwood Municipal
A. Mitchell	New England Power Company
D. Nallan	Equinor
S. Nguyen	New England power Company
S. Nikolov	ISO New England Inc.
K. Nimako	AES
B. Oberlin	ISO New England Inc.
R. Panos	New England Power Company
H. Pathan	Eversource Energy
D. Patnaude	Eversource Energy
M. Perben	ISO New England Inc.
D. Phelan	New Hampshire Public Utilities Commission
J. Porter	PPL Energy Plus

F. Pullaro	Renew Northeast
A. Rawat	New England Power Company
C. Richards	PPL Energy Plus
R. Roche	Hitachi Power Grids
J. Rotger	Galt Power, Cross Sound Cable, BP Energy, Mercuria Energy and DTE Energy
E. Runge	Day Pitney
L. Ruppert	Connecticut Public Utilities Commission
M. Saravanan	ISO New England Inc.
D. Schwarting	ISO New England Inc.
M. Scott	New England Power Company
P. Shattuck	Anbaric
M. Siddiqui	New England Power Company
M. Simmons	Maine Public Utilities Commission
A. Singh	ISO New England Inc.
J. Slocum	Massachusetts Public Utilities Commission
R. Snook	Connecticut Attorney General Office
P. Sousa	Marble River
K. Sreenivasachar	ISO New England Inc.
R. Stein	Generation Group Member, NRG Power Marketing, HQ Energy Services, PSEG Energy Resources & Trade, SunEdison
B. Swalwell	Tangent Energy
Z. Teti	Avangrid
P. Turner	Conservation Law Foundation
O. Vejzovic	Ulteig
P. Vijayan	ISO New England Inc.

P. Wong	ISO New England Inc.
A. Worsley	Boreas Renewables
J. Zhang	ISO New England Inc.

**Item 1.0 – Chairs Remarks**

Ms. Jody Truswell welcomed the committee and reviewed the days’ agenda.

**Item 2.0 – NEP A-1 & B-2 69 kV Line Asset Condition Project Update and Chestnut Hill #702 Asset Condition Replacement**

Mr. Rafael Panos (New England Power Company) reviewed the NEP A-1 & B-2 69 kV Line Asset Condition Project Update and Chestnut Hill #702 Asset Condition Replacement Project. The preferred solution is a full line rebuild using 115 kV design standards and install a four-breaker addition at the Royalston Station. Costs are \$355.93M (+50%/-25%). Also, perform a rebuild of the Chestnut Street Substation. Costs are \$29.37M (+50%/-25%).

In response to stakeholder questions, New England Power provided the following statements:

- The project is not considering differential insulation as it is not part of the project scope of work.
- NEP is looking into dual capability transformers that could support both 115 kV and 69 kV.
- The proposed in service date of the project is December 2027. However, NEP will reevaluate the projected in service date as the project moves forward and revise the date if necessary.

**Item 3.0 – NEP G-185S & L-190 115 kV Line Asset Condition Project**

Mr. John Porter (New England Power Company) provided an overview of the NEP G-185S & L-190 115 kV Line Asset Condition Project. The project will address the replacement of 181 deteriorating wood pole structures with steel pole structures. Reconductor L-190 mainline and Tower Hill Loop (~ 13.25 miles) with 795 MCM ACSS “Drake” conductor. Upgrade 12.5 miles of shield-wire to OPGW on G-185S and L-190 from Davisville Taps to West Kingston (L-190 to Wickford Junction) and install two new Motor Operated Load-breaks. Project costs are \$64.65M (+/- 10%). The expected in service date is December 2024.

In response to stakeholder questions, New England Power provided the following statements:

- The existing steel poles on the G185S and L-190 lines will not be replaced. The project will only address replacement of the deteriorating wood structure poles.

- NEP is working closely with Revolution Wind on this project to determine if there will be any impacts to that resource as a result of this line activity.

#### **Item 4.0 – NEP K-137 & L-138 115 kV Line Pilot Protection Schemes**

Mr. Anil Adhikari (New England Power) provided an overview of the NEP K-137 & L-138 115 kV Line Pilot Protection Schemes Project. The project will address the replacement of deteriorating wood pole structures with steel pole structures and Install Optical Ground Wire (OPGW) on the 115kV K-137/ L-138W Line. Project costs are \$19.94M (+ 50% /- 25%). The expected in service date is May 2023.

There were no questions from the committee on this topic.

#### **Item 5.0 – NEP A-127, B-128 & Z-126 115 kV Lines Pilot Protection Schemes for Webster Street and New Stafford Street Substations**

Mr. Anil Adhikari (New England Power) provided an overview of the NEP A-127, B-128 & Z-126 115 kV Lines Pilot Protection Schemes for Webster Street and New Stafford Street Substations Project. The project will include installing a new Stafford St. Substation built to BPS standards in Leicester, MA that connects the A-127, B-128, and Z-126 lines together via a 3 bay, 115 kV breaker and half arrangement. At the Webster Street Substation, upgrade the 115 kV Z-126E line protection (POTT and DCB) to replace relays and installation of wave trap and CCVT. Upgrade the 115 kV Z-126W line protection (2 line differential) to replace relays and communication devices. Installation of on-line monitoring sensors and associated equipment on the following assets; three 115 kV Gas Circuit Breakers, Transformer #101, #102, #103 and #104, and one station battery. Project costs are \$56.8M (+ 50% /- 25%). The expected in service date is August 2025.

In response to stakeholder questions, New England Power provided the following statements:

- When the change is made from the old system to the new system, NEP expects some minor impacts to both the Webster Street Station and New Stafford Street Substation.

#### **Item 6.0 – Representative Net ICR and Operable Capacity Analysis**

Ms. Manasa Kotha, Mr. Peter Wong and Mark Babula (ISO NE) provided an overview of the system wide ICR, Net ICR and reviewed the OpCap Analysis under 50/50 and 90/10 seasonal peak demands. The representative Net ICRs for the study period from 2027-2028 through 2031-2032 are estimated to range between 30,600 MW to 31,600 MW. There should be adequate amount of capacity to meet the resource adequacy needs associated with the 2022 CELT load forecast. A review of the summer and winter 50/50 and 90/10 OpCap Analysis was performed. In the years 2027/2028 – 2031/2032, the region has all negative operable capacity margins for both summer and winter. The negative winter operable capacity margins are larger than the negative summer operable capacity margins because of the assumption that certain amounts of

gas-only (single fuel) generators are non-operational during winter peak periods due to a lack of firm natural gas contracts. Load and capacity relief from through OP-4 actions will be needed to mitigate the negative OpCap margins projected for the time of the summer and winter peak demands.

In response to stakeholder questions, ISO-NE provided the following statements:

- The OpCap becomes a negative value after 2026. ISO replied that it does not account for the non-commercial resources that are included in Attachment K studies. They have their capacity calculated through the cleared FCM auctions and not the actual audits. We are using the 2022 CELT loads and the net ICR- for future years. There is some uncertainty to what the load will be. ISO-NE assumes that we purchase the amount of net ICR needed to meet the 1 day in 10 criteria. At the 50/50 and 90/10 peak, the load plus Operating Reserve requirements show a potential to enter into an OP 4 condition.
- ISO-NE is assuming a zero supply LNG and firm gas deliveries but that could be adjusted in real time based on availability.
- Last year's results did show using OP 4 actions as part of the OpCap analysis.

#### **Item 7.0 – 2050 Transmission Study – Updated Results and Approximate Frequency of Overloads**

Mr. Reid Collins (ISO-NE) reviewed the updated results and frequency of overloads as part of the 2050 Transmission Study. Updates were made to the interface definitions, line ratings and contingency analysis. There were updated results for the miles of overloaded lines for summer and winter peak conditions for the years 2035, 2040 and 2050 as well as the duration of overloads at various load levels ranging from 45,000 MWs to 56,993 MWs. The next steps are to begin development of possible transmission solutions to address the overloads. Transmission Solutions updates are expected to be brought to PAC in Q4 2022 with final results expected in Q1 2023.

In response to stakeholder questions, ISO-NE provided the following statements:

- ISO-NE is not aware of any lines that showed overloading in 2035 but did not show any overloading after that year.
- ISO-NE agreed to look into switching a lower voltage overload (69 kV or 115 kV) to a higher rated line (345 kV) to alleviate the overload. We will be developing solutions for 2050 and then work backwards to see if we can address the overload problems earlier than 2050.
- An exit related overload is bottled in generation that over loads nearby lines because it the generation is trying to serve load in other parts of the system.

There were additional stakeholder comments:

- Should ISO be considering future installation of onshore wind when the locations may not be known? ISO replied that all future onshore wind modeled in the snapshots is based on locations that have previously been studied. Additionally, while there is onshore wind included in the study, the majority of the wind would be from offshore sources.
- Bringing power down from Maine to CT would be challenging unless you use HVDC lines. The majority of overloads are North/South and in SWCT, if there was a multi-terminal HVDC in place, the power could be routed to where it is needed in the load centers. ISO stated we would be looking into HVDC lines as a possible solution to the overloads.

**Item 8.0 – NERC TPL-007-4 Benchmark and Supplemental Geomagnetic Disturbance 2026 Needs Assessment**

Ms. Meena Saravanan (ISO-NE) reviewed the NERC TPL-007-4 Benchmark and Supplemental Geomagnetic Disturbance (GMD) 2026 Needs Assessment. The analysis results showed no N-0 or N-1 thermal or voltage violations in New England for GMD events. The ISO-NE transmission system meets the performance requirement for the steady state Benchmark GMD event and no Corrective Action Plans are needed. The next steps are to post the draft GMD 2026 Needs Assessment in July 2022. There will be a 15-day review period for stakeholders to review and provide comments on the posted draft report. ISO-NE will post the final GMD 2026 Needs Assessment in Q3 2022.

There were no questions from the committee on this topic.

**Item 11.0 – Closing Remarks**

The next scheduled PAC meeting will be conducted virtually on Wednesday, August 24, 2022.

**Meeting Adjourned at 12:00 PM**

Respectively submitted,

Marc Lyons  
Secretary, Planning Advisory Committee