

**Planning Advisory Committee  
WebEx Teleconference  
March 17, 2021**

Attendee	Organization
J. Truswell - Chair	ISO New England Inc.
M. Lyons - Secretary	ISO New England Inc.
M. Ainspan	NRG
R. Albrick	National Diesel Bio Board
B. Anderson	NEPGA
R. Andrew	Eversource Energy
J. Arruda	Vineyard Wind
N. Baldenko	Eversource Energy
K. Bashford	ISO New England Inc.
D. Bergeron	Maine Public Utilities Commission
P. Bernard	ISO New England Inc.
J. Black	ISO New England Inc.
P. Boughan	ISO New England Inc.
J. Breard	ISO New England Inc.
T. Brennan	New England Power Company
J. Brodbeck	Marble River
D. Burnham	Eversource Energy
E. Camp	Synapse Energy Economics Inc.
D. Capra	NESCOE
D. Cavanaugh	Energy New England
J. Cebrik	Avangrid
Q. Chen	ISO New England Inc.

R. Collins	ISO New England Inc.
S. Conant	RLC Engineering
D. Conroy	RLC Engineering
J. Contino	Ocean Winds
W. Coste	ISO New England Inc.
F. Dallorto	ISO New England Inc.
B. D'Antonio	NESCOE
S. Dave	Consultant
V. Divatia	Eversource Energy
J. Dong	Eversource Energy
M. Drzewianowski	ISO New England Inc.
F. Etori	VELCO
D. Evans	Avangrid
J. Fenn	Versant Power
K. Flynn	ISO New England Inc.
B. Forshaw	CMEEC
K. Fougere	Avangrid
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. Frost	Synapse Energy
N. Gangi	Eversource Energy
S. Garwood	New Hampshire Transmission
G. Ghanavati	Eversource Energy
M. Gonzalez	ISO New England Inc.
J. Gordon	CPV Towantic

P. Holloway	Massachusetts Department of Public Utilities
N. Hutchings	ISO New England Inc.
J. Iafrati	Customized Energy Solutions
S. Ishwanthlal	Brookfield Renewables
S. Judd	ISO New England Inc.
S. Kaminski	New Hampshire Electric CoOp
S. Kaplan	Marble River
T. Kaslow	First Light Power Resources
S. Kirk	Exelon Generation Company
A. Kniska	ISO New England Inc.
M. Kotha	ISO New England Inc.
R. Kowalski	ISO New England Inc.
A. Krich	Boreas Renewables
B. Kruse	Calpine
K. Kumar	ISO New England Inc.
S. Lamotte	ISO New England Inc.
P. Lopes	Mass DCAM
W. Lu	ISO New England Inc.
J. Lucas	Eversource Energy
E. Mailhot	ISO New England Inc.
C. Malone	Avangrid
B. Marszalkowski	ISO New England Inc.
K. Mankouski	ISO New England Inc.
T. Martin	New England Power Company
A. McBride	ISO New England Inc.

B. McKinnon	Norwood Municipal, South Hadley Municipal
J. Nyarko	Able Grid Infrastructure Holdings
B. Oberlin	ISO New England Inc.
T. Paradise	Anbaric Development Partners
H. Presume	VELCO
V. Rojo	ISO New England Inc.
J. Rotger	Galt Power, Cross Sound Cable, BP Energy, Mercuria Energy and DTE Energy
C. Ruell	ISO New England Inc.
E. Runge	Day Pitney
M. Saravanan	ISO New England Inc.
K. Schlichting	ISO New England Inc.
D. Schwarting	ISO New England Inc.
M. Scott	New England Power Company
C. Sedlacek	ISO New England Inc.
T. Shakespeare	Massachusetts Department of Public Utilities
P. Shattuck	Anbaric Development Partners
G. Shen	EN Engineering
S. Siddiqui	MEPPI
R. Snook	Connecticut Department of Public Utilities
C. Soderman	Eversource Energy
P. Sousa	Massachusetts Department of Public Utilities
M. Spencer	Jericho Power
K. Sreenivashchar	ISO New England Inc.
R. Stein	Generation Group Member, NRG Power Marketing, HQ Energy Services, PSEG Energy Resources & Trade, SunEdison

M. Swain	Massachusetts DER
P. Tatro	EIG
B. Thomson	MMWEC
E. Tremblay	HQ US
P. Turner	Conservation Law Foundation
R. Vega	ISO New England Inc.
J. Walkey	Green Roots
A. Weinstein	Vistra Corp.
M. Winne	Maine Governor's Energy Office
P. Wong	ISO New England Inc.
A. Worsley	Boreas Renewables
J. York	LS Power
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 – Eversource New Hampshire 115 kV Laminated Wood Structure Replacement Program – Phase I**

Mr. Chris Soderman (Eversource Energy) reviewed the need to replace 61 total miles of 115 kV laminated wood structures along five 115 kV lines in southern New Hampshire. The structures were installed in the 1970's but are now deteriorating due to woodpecker and insect damage and environmental rot. Eversource anticipates replacing 546 wood structures with steel monopoles. Estimated costs are expected at \$98M (-25%/+50%) with in-service dates ranging from December 2021 to December 2022. The only significant question was regarding the depreciation schedule as it pertains to rate recovery. Eversource did not have an immediate answer but agreed to follow-up with the stakeholder off-line.

### **Item 3.0 – Draft Regional System Plan (RSP) Transmission Projects and Asset Conditions – March 2021 Update**

Mr. Peter Bernard (ISO-NE) reviewed the reviewed the March 2021 update of the RSP Transmission Projects and Asset Conditions. This review is performed three times a year (March, July, and October). The presentation summarizes what projects have been placed in service, major project cost estimate changes and new projects started since the last update (October 2020). There was a cost increase in the SEMA/RI Reliability project of \$10.6M due to COVID impacts and withdrawal of QP 489. There were three new projects as part of the Boston Area Optimized Solution costing \$48.6M. Finally, there were 15 upgrades that have been placed in service (8 projects in MA, 3 projects in CT, and 4 projects in RI). Mr. Bernard responded to minor clarifying questions from stakeholders.

### **Item 4.0 – Update on Draft 2021 CELT Load Forecast**

Mr. Jon Black and Ms. Victoria Rojo (ISO-NE) provided an update on the draft 2021 CELT Load Forecast. Highlights included the impact of changes to reconstitution of passive demand resources (PDR), energy efficiency (EE) forecast, photovoltaic (PV) forecast, heating electrification forecast, transportation electrification forecast and gross and net summer demand forecasts. Under the new PDR reconstitution methodology, which will be used for the 2021 gross load forecast, PDR reconstitution is based on the total CSOs acquired by PDR resources in the most recent Forward Capacity Auction (FCA). The draft EE forecast reflects annual state EE program budgets, updated state level EE projections and updated end use production costs. The draft PV forecast reflects updated PV installations from distribution owners, updated New England PV policy drivers, assumed impacts of PV panel degradation and discounted factors to capture uncertainty in the forecast. Heating electrification focus on the winter months only (October to April) and considers air-source heat pumps (ASHP) that provide either partial or full residential heating requirements. The transportation electrification forecast focuses on electrified

light duty vehicles. The gross load forecast reflects load before reductions from EE and BTM PV. The net load forecast reflects gross load minus EE and BTM PV. There were some clarifying questions on the presentation with the most significant being what drove a 1500 MW increase in the total nameplate PV forecasted for 2025. ISO replied that it was due to expanded state policies in Massachusetts and Maine. There was one request to add a graph showing the load factors into future presentations. ISO agreed to take that back for further discussion. Additional information regarding the 2021 CELT Forecast will be discussed at the April PAC meeting.

#### **Item 5.0 – Western and Central Massachusetts (WCMA) 2029 Solution Study Scope of Work Update**

Mr. Kaushal Kumar (ISO-NE) reviewed the Western and Central Massachusetts (WCMA) 2029 Solution Study Scope of Work Update. The solution study scope of work was delayed due to the National Grid Western Mass Distributed Energy Resource (DER) Cluster Study Group 2 project, which has significantly changes the WCMA transmission topology. The solution study will focus on the WCMA A1/B2 69 kV Line Corridor from Vernon (VT) to Pratts Junction (MA). The analysis will be limited to steady state, peak load voltage violations, and reconductoring the A1/B2 lines. Once solution alternatives have been developed a short-circuit analysis will be performed. Comments are due to ISO by April 1<sup>st</sup> and the solution study results will be presented to PAC in Q2 or Q3 2021. The only comment was that ISO should review minimum load conditions as well as peak load conditions. The ISO responded that the study will follow the Transmission Planning Technical Guide and the Transmission Planning Clean Energy Transition pilot study will take into consideration the minimum load levels during springtime weekend night time and day time.

#### **Item 6.0 – Energy Storage in Transmission Planning Studies**

Ms. Meenakshi Saravanan (ISO-NE) reviewed how ISO-NE Planning intends to review energy storage resources in Transmission Planning Studies. Studies will include Needs Assessments, Solution Studies, Transmission RFP's and Public Policy Transmission Studies. The Transmission Planning for Clean Energy Transition does not include a significant amount of batteries so this proposal will not affect that effort. The expected amount of battery storage in the region is expected to increase in the coming years. There are more than 3000 MWs of stand-alone batteries in the Queue. On-going state initiatives are expected to increase that amount in the future. There are two types of batteries, Market Facing and Non-Market Facing. The Market Facing batteries will be modeled and dispatched by Locational Marginal Pricing (LMP), provide capacity and be subject to Pay-For-Performance penalties and incentives. Non-Market facing batteries do not participate in the ISO markets resulting in much less visibility and control of the resources. The co-located batteries may not have interconnection rights and therefore will not be able to charge from the grid when there is no renewable output. The battery assumptions were based on the spring and summer load shapes. A number of scenarios were developed to

(weekday, weekend, day night, high and low renewable performances, etc.) project battery performances that will be used in the study assumptions. Feedback is due to ISO by April 1<sup>st</sup> and the final assumptions will be added into the Transmission Planning Technical Guide. A stakeholder questioned what the battery efficiency would be modeled at. ISO stated efficiency will be modeled at 90%. However, the assumptions look at a snapshot in time versus efficiency performance over an entire season. ISO stated that the implementation of the battery study process would be in place by late 2021. This method will not be used in any on-going Transmission Studies. A stakeholder commented that ISO should include new assumptions for the expected increase in regulation needs that could be provided by batteries.

#### **Item 7.0 – Cape Cod Resource Integration Study**

Mr. Al McBride (ISO-NE) reviewed the preliminary results for the Cape Cod Resource Integration Study. System Impact Studies (SIS) have been completed for the interconnection of 1600 MWs of offshore wind into Cape Cod. The Resource Integration Study has identified that an additional 1200 MWs of offshore wind could be interconnected to the Cape after the addition of a Cluster Enabling Transmission Upgrade (CETU) for a second 345 kV line connecting West Barnstable to Bourne using an existing transmission right-of-way. A second Resource Integration Study will be initiated to determine if additional upgrades could increase the offshore wind interconnection amounts. Multiple interconnection points to the Cape are being proposed by developers. These interconnection proposals are being reviewed in parallel with the Cape Clustering analysis. There is approximately 600 MWs of peak load on the Cape where a majority of the year, the load values are less than 300 MWs. This will result in a large majority of the interconnecting offshore wind will be directed to the rest of system via the existing 345 kV transmission lines as well as the new 345 kV line from West Barnstable to Bourne. Testing was performed for various transmission configurations to include steady state, stability, N-1 and N-1-1 constraints for thermal and voltage overloading. It was determined that a number of synchronous condenser installations will be needed in the area. Feedback on the presentation is due to ISO by April 16<sup>th</sup>. The final results of the first CCRIS and cost estimates are expected by May 2021. Initiation of a second CCRIS are expected to begin in May 2021. ISO responded to several technical clarifying questions on the meanings in some of the presentation slides. There were suggestions to add batteries in the area to off-set transmission needs and well as a comment that perhaps these projects could be put out for competitive bid or have the states initiate the project as a public policy initiative.

#### **Item 8.0 – FCA 16 Transmission Transfer Capabilities and Capacity Zonal Development**

Mr. Al McBride (ISO-NE) reviewed the interface transfer capabilities and external interfaces and review the proposed Capacity Zone construct for FCA 16. (FCA 16, Capacity Commitment Period 2025-2026). The proposed potential Capacity Zones for FCA 16 are: Connecticut, Southeast New England, Northern New England, Maine, and Rest-of-Pool. This was the same presentation given to the RC the day before and there were no questions from the committee.



### **Item 9.0 – Economic Studies Reference Document**

Ms. Carissa Sedlacek (ISO-NE) reviewed the Economic Studies Reference Document that explains how ISO-NE performs Economic Studies, identifies the software tools used in the study and reviewed the typical set of metrics that are developed. Comments are due to ISO by March 31<sup>st</sup>. There were no questions from the committee on this topic.

### **Item 10.0 – Kick-Off Regional System Plan (RSP) 2021 Process**

Ms. Carissa Sedlacek (ISO-NE) reviewed the 2021 RSP Kick-Off Process and reviewed the highlights of what will go into this year's RSP. The RSP is performed by ISO every other year in accordance with Attachment K of the OATT. ISO will present the RSP 21 results and seek final feedback at a public meeting scheduled for October 6<sup>th</sup>. Anticipated highlights of the report is that the net load forecast is expected to decrease over the next 10 years. The electrification forecasts for transportation and heating are expected to increase relative to the 2020 CELT. Beyond the 10-year planning horizon, the increased electrification needed to achieve states long-term decarbonization goals will likely cause the region to be a winter peaking system. Increased penetration of renewables will present technical challenges to the grid for system security, non-market resources, and the increased need for ancillary services (regulation, ramping, reserves and voltage support). ISO will review the draft RSP 21 and receive comments from PAC in July, perform a page-turn of the RSP 21 stakeholder comments in August and post the public meeting draft of RSP 21 in late September in time for the October 6<sup>th</sup> Public Meeting. There were no questions from the committee on this topic.

### **Item 11.0 – Lower Maine 2030 Needs Assessment Results**

Mr. Reid Collins (ISO-NE) provided an overview of the Lower Maine 2030 Needs Assessment Results to evaluate the reliability performance and identify reliability needs in the area for 2030. Since the initial Show of Work presentation, 16 projects totaling 486 MWs (nameplate) were added in the area as a result of the Maine renewable generation RFP (13 solar, one on-shore wind, one biomass and one hydro). Steady State thermal and voltage analysis were performed for N-1 and N-1-1 for peak and minimum loads. Short circuit analysis evaluated the breaker duties at all substations. The steady state analysis showed no violations for N-1 and N-1-1 under peak and minimum load conditions. There were no breakers identified as overdutied in the short circuit analysis. The time sensitive needs analysis was not performed because no needs were identified. As there were no needs identified, ISO will not be performing a Solution Study. Comments on the Needs Assessment are due to ISO by March 31<sup>st</sup> and the final Needs Assessment report will be posted in Q2 2021. There were a few minor technical comments from the stakeholders that ISO responded to and one stakeholder commented that they believe daytime minimum load will become an issue in the future as more solar resources are installed.

### **Item 12.0 – Closing Remarks**

The next PAC meeting will be Wednesday, April 14, 2021 via WebEx Teleconference.

**Meeting Adjourned at 4:10 PM**

Respectively submitted,

/s/ Marc Lyons

Marc Lyons  
Secretary, Planning Advisory Committee