

**Planning Advisory Committee
WebEx Teleconference
August 24, 2022**

Attendee	Organization
J. Truswell - Chair	ISO New England Inc.
M. Lyons - Secretary	ISO New England Inc.
J. Adadjo	Eversource Energy
Z. Ahmed	ISO New England Inc.
S. Allen	Eversource Energy
B. Andrew	Eversource Energy
J. Ansah	Avangrid
M. Babula	ISO New England Inc.
K. Badamo	New England Power Company
C. Benker	Eversource Energy
D. Bergeron	Maine Public Utilities Commission
P. Bernard	ISO New England Inc.
C. Bothwel	Department of Energy
P. Boughan	ISO New England Inc.
J. Burlew	ISO New England Inc.
D. Burnham	Eversource Energy
D. Capra	NESCOE
D. Cavanaugh	Energy New England
B. Chamberlain	Olive Wood Energy
R. Collins	ISO New England Inc.

W. Coste	ISO New England Inc.
K. Csizmesia	New England Power Company
F. Dallorto	ISO New England Inc.
B. D'Antonio	Eversource Energy
H. Dinesh	Eversource Energy
J. Dong	Eversource Energy
J. Donovan	Massachusetts Department of Public Utilities
M. Drzewianowski	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
G. Ghanavati	Eversource Energy
J. Gordon	CPV Towantic
R. Guay	Maine Public Utilities Commission
R. Harvey	IEEE
C. Cullen Hitt	Equinor
P. Holloway	Massachusetts DOER
N. Hutchings	ISO New England Inc.
J. Iafrati	Customized Energy Solutions
S. Kaminski	New Hampshire Electric CoOp
S. Keane	NESCOE

S. Kirk	Constellation Energy
D. Kopin	VELCO
R. Kornitsky	ISO New England Inc.
N. Krakoff	Conservation Law Foundation
A. Krich	Boreas Renewables
B. Kruse	Calpine
F. Kugell	Avangrid
R. Lafayette	Eversource Energy
S. Lamotte	ISO New England Inc.
P. Lopes	Massachusetts DOER
J. Lucas	Eversource Energy
E. Mailhot	ISO New England Inc.
K. Mankouski	ISO New England Inc.
J. Martin	New England Power Company
C. Marquis	AEE
A. McBride	ISO New England Inc.
J. McLaughlin	Eversource Energy
B. McKinnon	South Hadley Electric, Norwood Municipal
A. Mitchell	New England Power Company
A. Mitreski	Brookfield Renewable Energy
D. Mooy	Energy Exemplar
D. Nallan	Equinor
A. Nichols	ISO New England Inc.
B. Oberlin	ISO New England Inc.
R. Panos	New England Power Company
H. Pathan	Eversource Energy

D. Patnaude	Eversource Energy
C. Richards	PPL Energy Plus
J. Rotger	Galt Power, Cross Sound Cable, BP Energy, Mercuria Energy and DTE Energy
M. Rowe	Eversource Energy
C. Ruell	ISO New England Inc.
E. Runge	Day Pitney
M. Saravanan	ISO New England Inc.
D. Schwarting	ISO New England Inc.
M. Scott	New England Power Company
C. Sedlacek	Eversource Energy
K. Sikorski	Eversource Energy
P. Silva	Synapse Energy
A. Singh	ISO New England Inc.
J. Slocum	Massachusetts Public Utilities Commission
R. Snook	Connecticut Attorney General Office
C. Soderman	Eversource Energy
R. Somayajulu	New England Power Company
K. Sreenivasachar	ISO New England Inc.
R. Stein	Generation Group Member, NRG Power Marketing, HQ Energy Services, PSEG Energy Resources & Trade, SunEdison
R. Taylor	Invenergy
Z. Teti	Avangrid
J. Vaile	Eversource Energy
O. Vejzovic	Ulteig
P. Vijayan	ISO New England Inc.

A. Weinstein	Vistra Energy
S. Welch	Doral LLC
M. Winne	ISO New England Inc.
P. Wong	ISO New England Inc.
A. Worsley	Boreas Renewables
F. Zeng	ISO New England Inc.
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 Tewksbury Substation Asset Condition Replacement Project

Ms. Kelley Csizmesia (New England Power Company) reviewed the NEP Tewksbury Substation Asset Condition Replacement Project. The project will consist of replacement of several items in the Tewksbury Substation due to ongoing asset condition issues. The #3 230/115 kV transformer bank and the B phase of the #2 transformer bank will be replaced. Six 230 kV and Capacitor Coupled Voltage Transformers (CCVTs) and fifteen 115 kV CCVTs will be replaced. Eight electromechanical relays will be replaced along with one set of 230 kV gang operated disconnects and sixteen sets of 115 kV gang operated disconnects. The project also includes the addition of substation monitoring on various components. Projected PTF costs are \$35.49M (-25%/+50%). No proposed in service date was provided.

There were no questions from the committee on this project.

Item 3.0 – Eversource Holbrook Station 345/115 kV Autotransformer Replacement Asset Conditions Project

Mr. Paul Melzen (Eversource Energy) provided an overview of the Holbrook Station 345/115 kV Autotransformer Replacement Asset Condition Project. The current unit is experiencing moisture in the main tank and elevated oxygen levels. The proposed project work will replace the existing GE 345/115 kV autotransformer at Holbrook with a new HICO-manufactured three-leg core form design autotransformer. Project costs are \$10.29M (-25%/+50%). The proposed in service date is Q2 2023.

In response to stakeholder questions, Eversource provided the following statements:

- Although the unit was replaced in 2013, the replacement was an existing spare. The unit was then considered as PTF once it was activated. The new autotransformer design is different in that it is being designed to accommodate existing system harmonics.

Item 4.0 – Eversource Eagle Autotransformer Replacement Project

Mr. Paul Melzen (Eversource Energy) provided an overview of the Eagle 345/115 kV Autotransformer Replacement Project. After a fault in May 2022, maintenance workers identified Load Tap Changer (LTC) leakage and a bulging door. Oil analysis identified acetylene in the main tank oil volume. The project plan is to modify the existing TB154 autotransformer foundation and oil containment system to accommodate the TB150 spare autotransformer. Relocate the spare TB150 345/115 kV autotransformer currently located at Scobie Pond to Eagle substation. Perform cable/conduit and wiring modifications to connect the spare autotransformer at Eagle substation. Project costs are \$6.37M (-50%/+200%) for the new TB150 spare autotransformer. The proposed in service date is Q4 2022.

In response to stakeholder questions, Eversource provided the following statements:

- If there were no spare autotransformer available it would take approximately two plus-years to order and receive a replacement.
- The warranty on the original unit was expired but we are working with the manufacturer regarding some type of cost recovery once the transformer is removed and fully inspected.
- HICO was the original manufacturer of the autotransformer as well as the replacement.

Item 5.0 – Eversource 1231/1242 Line Reconductor and Structure Replacements

Mr. Chris Soderman (Eversource Energy) provided an overview of the 1231/1242 Line Reconductor and Structure Replacements. This project was previously reviewed at PAC in January 2021. The original cost estimate was \$97M (-25% / +50%) with an in service date of Q4 2023. Due to refined engineering design an additional 42 structure replacements will be required, but accommodates removal of 17 structures. Additional PTF substation work is required at Cumberland, Berkshire and Montague to install all-dielectric self-supporting (ADSS) fiber optic cables at all three substations and replace terminal structures (Cumberland only). The project costs have increased to \$158.5M (-25% / +50%) with an updated in service date of Q4 2024.

There were no questions from the committee on this topic.

ISO-NE commented that information regarding the status of these lines was an input into the solution for the Pittsfield-Greenfield area years ago. The information provided today highlights the importance of the facility owners providing accurate asset condition information.

Item 6.0 – Eversource Mid-Cape Reliability Project

Mr. Dave Burnham provided an overview of the Eversource Mid-Cape Reliability Project. The project proposes to upgrade a 115 kV line from the Bourne Switching Station to the West Barnstable Substation, RSP Project ID 1725, to 345 kV to accommodate the QP 700 (Park City Wind) as well as additional proposed off shore wind resources in the area. Eversource is requesting this \$13.7M (-25% / +50%) incremental upgrade be considered as Pool-Supported PTF under the Open Access Transmission Tariff.

In response to stakeholder questions, Eversource provided the following statements:

- Given the benefit and need on the Cape, the 345 kV line should be recoverable as PTF instead of the costs being picked up by the developers.
- There were no issues identified with an additional 345 kV circuit the sharing the right of way in the SIS of the Cape Cod Cluster Study.
- We are uncertain what additional state siting board issues will need to be addressed.
- In response to a question on if this issue could be delayed until the policy issues are addressed, Eversource stated that the reliability project is an immediate need. The request needs to be addressed prior to a siting board decision and the subsequent construction as either a 115 kV line or 345 kV line. An additional stakeholder agreed that the policy discussion should take place first taking into account the recent FERC Transmission NOPR.
- The project construction may be split up where the line is installed first, and then the additional infrastructure, such as substation upgrades, are built.
- ISO commented that we will be reviewing this request. The project is on the project list as a 115 kV line and it was modeled that way in the in the base case.
- A significant number of stakeholders commented that the incremental transmission costs should be funded by the project developer, which is consistent with current Tariff practices.

Item 7.0 – Economic Planning for the Clean Energy Transition (EPCET) Pilot Study – New Modeling Features and Initial Benchmark Scenario Results

Mr. Ben Wilson (ISO-NE) provided an overview of the EPCET Pilot Study – New Modeling Features and Initial Benchmark Scenario Results. The pilot study will use new production cost features in switching from the current GridView program to the Energy Exemplar's PLEXOS program, such as generator fuel-switching due to fuel constraints, co-located energy storage and generation, full AC power flow with N-1 secure dispatch, distributed generation modeling and automation programming interface.

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

- Although ISO-NE has not had the time to fully explore PLEXOS' operating reserve capabilities, it intends to test that in the future.
- ISO-NE is changing assumptions one at a time. This includes changing seasonal prices to daily gas prices for the benchmark (previous year) case
- With regard to hydro facilities, the program will check the energy available each month.
- The model does not have pricing for load.
- In response to question about why the policy scenario is information only, with consideration to recent FERC NOPRs on this topic the ISO-NE responded that is looking into if the model can be used for such a future transmission base cases.
- PLEXOS is trying to model the Day Ahead pricing to see if that impacts the real time pricing. With regard to gas availability, it is an approximation of gas availability taking into account possible pipeline constraints.
- Stakeholders were pleased with the increased capabilities of the PLEXOS program and support its use in the EPCET.
- A stakeholder commented that the benchmark phase tweaking is to see how the model performs. However, the ISO-NE should realize in looking into the 10 – 30 year future that it won't be able to tweak the inputs with a high degree of accuracy.

Item 8.0 – Updates to IEEE 1547-2003 Distributed Energy Resources (DER) Modeling Assumptions

Ms. Meena Saravanan (ISO-NE) reviewed the Updates to IEEE 1547-2003 Distributed Energy Resources (DER) Modeling Assumptions.

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

- There are other modeling tools that can more exactly model the behavior of the transmission system following unbalanced faults, but PSSSE is the better tool to understand the system-wide impact of contingencies.
- The contingency for which real-time data was compared to model performance was the only instance that could be found where a fault occurred during a period of high DER production, in a year recent enough that a significant amount of DER was installed on the system.

Item 9.0 – Representative Future Locational Needs for Current Reserve Zones

Mr. Fei Zeng (ISO-NE) provided an overview of the Representative Future Locational Needs for Current Reserve Zones.

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

- The current methodology for calculating reserve requirements is backward looking using the last two years' historical data. The impact from the expected retirement of the Mystic 8 & 9 resources was not included for calculating the reserve requirement for 2024 due to the timing of their retirement. Their impact will be accounted for 2025.
- This study is focused on the three identified reserve zones of SWCT, CT, NEMA/Boston). Two questions were raised 1) why SWCT and CT reserve zones remain given that the zonal requirements have been zero for many years and 2) with the increased additions of wind resources in SEMA/RI area, will the SEMA/RI area need to be looked at for quick start units in the future? We will relay these questions to our market development group as they led the efforts in this topic
- The behind the meter PV is modeled as a load reducer.

Item 10.0 – Generator Outage and Interface Transfers for Needs Assessments – Proposed Assumptions

Mr. Dan Schwarting (ISO-NE) provided an overview of the Generator Outage and Interface Transfers for Needs Assessments – Proposed Assumptions.

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

- The interface transfers are established by using a pseudo economic dispatch.
- The renewable resources could have outages but they usually impact a single unit or inverter, rather than an entire wind farm or utility-scale solar installation. Therefore, we don't need to plan for a resource wide outage in the base system condition. Outages of these facilities will still be considered as contingencies, as required by NERC, NPCC, and ISO standards.
- We do not look at economic conditions when choosing units for outages. We will look at the economics when considering transfer assumptions.
- If there are multiple conventional units that are greater than 50 years old in a given study area, we would choose the most impactful unit for outage. Different units over 50 years old may be taken out of service in different dispatches, depending on what is most impactful under the other conditions studied in that dispatch.
- The way we calculate transfers now is much more complicated than this new proposal.
- ISO intends that future Needs Assessments will begin to use this new methodology starting in late 2022 or the beginning of 2023.

Item 11.0 – Closing Remarks

The next scheduled PAC meeting will be conducted virtually on Wednesday, September 21, 2022. Pete Bernard will be chairing the meeting.

Ms. Truswell thanked the committee Secretary, Marc Lyons for his service to the committee, as he will be taking on a new roll at ISO.

Meeting Adjourned at 3:05 PM

Respectively submitted,

Marc Lyons
Secretary, Planning Advisory Committee