

Planning Advisory Committee
WebEx Teleconference
April 23, 2020

Attendees (as noted on the WebEx)

- Abhinav Rawat
- Abigail Krich
- Alan McBride
- Arash Nezam Sarmadi
- Avadhish Dewal
- Ben D'Antonio
- Bob Andrew
- Brad Swalwell
- Brent Oberlin
- Brett Kruse
- Brian Forshaw
- Brian Thomson
- Bruce Anderson
- Carissa Sedlacek
- Carol Wendel
- Daniel Phelan
- Daniel Schwarting
- Daryl Hart
- Dave Burnham
- Diedre Matthews
- Digaunto Chatterjee
- Dorothy Capra
- Dwayne Basler
- Erin Camo
- Fabio Dallorto
- Frank Walsh
- Hantz Presume
- Jack Martin
- Janny Dong
- Jeff Fenn
- Jeff Iafrati
- Jinlin Zhang
- John Brodbeck
- John Moskal
- John Simonelli
- Jonathan Breard
- Julia Gasse
- Kannan Sreenivasachar
- Kelley Csizmesia
- Kerry Schlichting
- Kevin Flynn
- Kevin Huang
- Kory Haag

- Malcolm Ainspan
- Margaret Neves
- Mariah Winkler
- Mark Spenser
- Meenakshi Saravanan
- Melissa Scott
- Michael Macrae
- Michael Drzewianowski
- Mohammed Farhan Siddiqui
- Paul Holloway
- Paul Lopes
- Paula Abucewicz
- Phelps Turner
- Rafael Panos
- Raymond Albrecht
- Richard Kornitsky
- Robert Stein
- Sheila Keane
- Steve Kaminski
- Steve Kirk
- Steven Judd
- Tony Blanco
- Vandan Divitia
- William Therriault
- Michael Kuser
- Denis Bergeron
- Bill Fowler
- George McCluskey
- Eric Runge
- Cal Bowie
- Mike Jackson
- Bob Snook
- Dave Thompson
- Dave Cavanaugh
- Theodore Paradise

Chair's Remarks

Mr. Pete Bernard (ISO-NE) welcomed the committee and reviewed the agenda.

National Grid Asset Condition Projects

CEII TOPIC

Mr. Rafael Panos (National Grid) reviewed the National Grid Asset Condition Projects.

- Chestnut Hill #702 Substation Asset Replacements

Q - What is a sacrificial airbreak?

A - A sacrificial airbreak is a cheaper option than a circuit breaker to provide high side protection to a transformer. Once it operates, it typically needs to be replaced.

Q - This presentation is just a needs statement that says we have a problem and you will come back with a proposed solution.

A – Yes. That is correct.

- Vernon #13 Substation Asset Replacements
- Deerfield #4 Substation Asset Replacements
- A-1 & B-2 69 kV Line Asset Condition Project

Q - Are the A1 and B2 lines grandfathered PTF assets? Meaning even though they are 69 kV are they identified as PTF.

A - Yes. The entire 110 miles of A1 and B2 lines are PTF.

SEMA/RI 2029 Needs Assessment Update

*****CEII TOPIC*****

Mr. Kannan Sreenivasachar (ISO-NE) reviewed the SEMA/RI 2029 Needs Assessment Update.

Q –Based on the 2026 study, are these projects on the project list?

A – Projects that have already gone into construction phase are already included in the case.

Q – Is there any way to quickly verify results against the new CELT forecasts?

A - We can take a look at the new CELT forecasts.

Q: With the 2020 CELT forecast being 1,000 MW more than the 2019 CELT forecast, should the study use the new forecasts?

A: The ISO doesn't want to wait and let projects that are not needed to continue. There was a delay to wait for auction results. The ISO may complete an analysis on the side but we may not formally share the results if nothing changes.

Q - You confirmed needs of some projects. Is there a list of how many have not started construction yet and are no longer needed?

A – Yes. Those projects are shown on slide 47.

Q - How will the projects that are no longer needed be treated while studying projects in the interconnection queue.

A - This will be part of the final determination on whether a project can be cancelled or not.

Q - The Cape Cod area does not peak coincidentally with the ISO NE peak. The Needs Assessment studies have been done using the ISO NE basecases. Has the ISO studied the area with a different peak for Cape Cod?

Comment – Eversource is showing different results taking into account the non-coincidental peak of the Cape Cod area.

A – The study was conducted using the 90/10 peak load according to the Transmission Planning Technical Guide.

Q – Will the study take into account the effect of cancellations on FCA 15 topology?

A – Projects have not been cancelled at this point.

2019 Economic Study Offshore Wind Transmission Interconnection Analysis

*****CEII TOPIC*****

Mr. Alan McBride reviewed the 2019 Economic Study Offshore Wind Transmission Interconnection Analysis

Up to 8,000 MWs of offshore wind was studied in 2030 load conditions. The main intent of the presentation was to identify different injection points for offshore wind along the coast and identify the maximum injection at each of those points without requiring major transmission upgrades.

Q - Were stability studies done?

A - Yes, stability and PSCAD wherever needed.

Q - What is the maximum injection at Davisville?

A - 1000 MW according to slide 4.

Q - Will the ISO look at the potential use of synchronous condensers?

A - Yes and STATCOMs.

Q - Is the power going to Boston load or flowing through Boston?

A - It is mostly going to Boston load.

Q - With the new 345 kV from the Cape to the Boston area, can you add 800 more MW.

A - At a very high conceptual level, no.

Q - Besides Millstone and Seabrook, what is running other than inverter based resources?

A - With these OSW injections, a lot of the generation in SEMA is not running.

Q - Was a light load scenario studied to identify stability issues?

A - Yes.

Q - Can a step by step analysis be done instead of 800 MW at once to see what margin is?

A: This will increase the scope and hence cannot be done at this point.

Q - DERs use the same transmission capacity. So, is it really an additional 7,000 MW of just offshore wind? Or is it a combination of offshore wind and DERs?

A - It is a shared amount.

Q - Is Millstone on and Middletown is off?

A - Yes.

Q - Was an additional 800 MWs at K Street looked at?

A - Yes.

Follow-up to Questions Related to the NESCOE Economic Study

Mr. Richard Kornitsky reviewed the Questions Related to the NESCOE Economic Study

Q - When looking at what type of generation is serving load, what dispatch is needed at a minimum to balance the wind.

A - It depends on how wind is behaving at that specific hour.

Q - How did you model the interchange?

A - There was a one way slope based on economic prices.

Q - When imports are spilled would they have been set to 0?

A - Yes, that is correct but they were never negative.

Q - There has been a request for an understanding of emission results. When will the data become available? In addition, is there a thought to publish more granular data that is shown on slide 8 or 9?

A - We will have to get back to you.

Comment - It will be helpful to see the amount of export capacity during the hours of spillage just to see the opportunity there.

Renew Economic Study Results

Mr. Richard Kornitsky reviewed the Renew Economic Study Results.

Q - Are the threshold prices for different resources on slide 10 arbitrary?

A - All these resources have 0\$/MWhr production cost and emission cost. Having different threshold process for different resources helps differentiate between resources and understand what they are doing.

Comment - On slide 23, can you include in the final report how the base scenario compares with the historical value? Also, for slide 20, can you show how the congestion cost compares with the historical value? Finally on slides 23-25, can you show the breakdown by month?

Q - On slide 7, the Coopers Mill to Maine Yankee line is shown? Slide 26 shows very little spillage from NECEC. Wondering if that was a factor in the Anbaric study.

A – Ms. Krich, Boreas Renewables, LLC responded - We used a bubble model. So, the individual lines are not modeled. Just the interface limits are modeled. Therefore, we had requested the Suroweic South Interface Limit to be increased by certain MWs based on what we thought was the impact of NECEC including the Coopers Mill to Maine Yankee line. In this scenario, NECEC has a lower threshold price and hence was not spilled. In other scenarios, there was spillage.

Q - Is spillage interspersed throughout the day, a couple of hours here and there, and so energy storage could have lot more arbitrage opportunities?

A - Energy arbitrage is available during high load months. However, on low load months when most curtailment occurs, it doesn't really help and there is a need long term storage solutions.

National Grid 2020 Economic Study

Ms. Melissa Scott, Ms. Julia Grasse and Mr. Kai Horn reviewed the National Grid 2020 Economic Study

Q: The 2016 NEPOOL economic study looked at the question of Revenue Requirement and Carrying Charges of resources. Estimating the amount of margins that might be available in the market to meet carrying charges and fixed cost of various resource types. Is that something you want to look at in this study? The ultimate motive of all of these studies is to look at what product/service is missing from the market that we ought to be focusing on in the future.

A: We are also interested in the same question. In this study we will be looking at the energy and ancillary services market revenue and look at the needs after that. Maybe for renewables, it could come from renewables attribute market and for conventional resources from the capacity market. The goal is not to necessarily focus on where they should come from but just to understand what those gaps could be as the climate changes.

Q - Are you assuming that by 2035, through CASPR or some other mechanism, all of the additional renewables would acquire CSO in all scenarios?

A - The baseline assumption would be some fraction of the capacity is awarded a CSO. It will be important to assume what load carrying capability is awarded to different types of renewables.

Q - Neighbors will follow a similar pattern such that they may have surplus when we have surplus. Quebec is an exception. Can you talk about bi-directionality?

A - Yes, it is important. Starting point would be look at historical flows with neighbors. Look at the transfer capability at different times and with different neighbors.

Q - Ultimately, there will be a very diverse mix of resources to meet policy needs. Why did you select bi-directionality and storage as the things you want to evaluate in this study?

A – We agree with the comment that different resource mixes will be needed to meet the policy objectives. The goal of the study is to contribute to that discussion of what the portfolio is going to look like.

Comment - A survey of generation profile of resources regionally and across borders is needed. This came up in the context of bi-directional capability with neighbors like NY.

Comment - It is important to look at a combination of transmission and storage solutions and make sure to look at imports from Quebec.

Q - On slide 7, it shows 9,500 GW and 4,500 MW hours of winter heating impact. How you came up with this number?

A – The analysis was done looking at electrified heating, particularly oil fired heating. This is based on the assumption of electrifying all oil heating by 2050. This represents about 20% of non- electric heating being electrified.

Q - You have 6,000 MW for offshore wind by 2035. That assumption seems to be understated.

A - In our analysis, 6,000 MW combined with other resources was used for high renewable scenario. We may need to adjust it up if the target suggests that it is required. The initial assumptions were formed by internal modeling that it hits target by 2035.

Q - Bidirectional transmission – AC or DC?

A - We are talking primarily about AC ties.

Q - Have you thought about overlaps with future grid study or NESCOE and NEPOOL studies? Are their synergies and common questions that study might be able to answer as well?

A - There is overlap with NESCOE study but this goes beyond the scope of the other study. It doesn't just calculate spillage but also looks at how the spillage can be minimized. The study will be more targeted at finding potential solution whether it is bi-directional transmission, storage, or combination. Also, more inputs on what transmission upgrades are needed from the offshore wind study. The future grid study is probably not as specific. There are many ideas and the scope of the future grid study is still being discussed at the NEPOOL committees.

Q - When will ISO come back on this?

A – Ms. Sedlacek – ISO New England - We are still evaluating. The intention is to come back at the May meeting. There will be a lot of back and forth between the National Grid and the ISO. Things may change as we have a better idea.

Comment – Bi-directionality may be a problem with neighbors like NY. They may have a similar renewable surplus at the same time. We should get some sort of survey from neighbors on the generation profile.

Regional System Plan (RSP) Improvements

Ms. Carissa Sedlacek reviewed the Regional System Plan Improvements.

Final 2020 Load Forecast: Regional Energy and Peak Demand Forecasts

Mr. Jonathan Black reviewed the Final 2020 Load Forecast: Regional Energy and Peak Demand Forecasts

Q: On slide 19, the calculation for the net 50/50 load looks like gross 50/50 load minus EE.

Does the net 50/50 load not include EV and heat pumps?

A: Yes, that is correct. They are shown here for information purposes.

Planning Advisory Committee meeting adjourned at 4:00 PM.

Respectively submitted

Avadhish Dewal

Acting Secretary, Planning Advisory Committee