



Economic Planning for the Clean Energy Transition

Pilot Study Scope of Work

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Overview

- Background
- Past Economic Studies and FGRS Key Takeaway
- Economic Planning for the Clean Energy Transition (EPCET) Pilot Study
- Benefits of EPCET Pilot Study
- EPCET Pilot Study Timeline



Background

- Economic Study process is defined in Section 4.1(b) in Attachment K of the OATT *“Requests by Stakeholders for Needs Assessments for Economic Considerations”*
 - Sub-section of 4.1 *“Needs Assessments”* which is a sub-section of 4 *“Procedures for the Conduct of Needs Assessments, Treatment of Market Responses and Evaluation of Regulated Transmission Solutions”*

...Stakeholders may request a Needs Assessment to examine situations where potential regulated transmission solutions or market responses or investments could result in

- a net reduction in total production cost to supply system load based on the factors specified in Attachment N of this OATT,*
- reduced congestion, or*
- the integration of new resources and/or loads on an aggregate or regional basis...*



Past Economic Studies

Year	Study
2008	New Resource Study
2009	New England 2030 Power System Study for New England Governors
2010	None
2011	Offshore Wind Integration Study
2012	Resource Addition/Retirement Scenarios
2013	Phase II HVDC Import Study
2014	None
2015	Wind Expansion Study (3 studies)
2016	Implications of Public Policy on New England Market Design (2 phases)
2017	Exploration of Least-Cost Emissions-Compliant Scenarios
2018	None
2019	Offshore Wind Expansion and Orrington South Export (3 studies)
2020	Bi-directional Tie-lines with HQ
2021	Future Grid Reliability Study – Phase I

<https://www.iso-ne.com/system-planning/system-plans-studies/economic-studies/>

FGRS Key Takeaway: Economic Study Framework

- As part of the 2021 Economic Study (Future Grid Reliability Study – Phase I), the ISO identified areas for improvement in our current Economic Study framework and software tools to perform the analyses
- To address the framework of future Economic Studies, the ISO is pursuing changes to Attachment K of the Tariff and plan to have our first presentation at the Transmission Committee at their May 31, 2022 meeting
 - We will not be discussing the Tariff changes in this forum
- To address the gaps in the software tools, the ISO did an extensive evaluation of Energy Exemplar's PLEXOS software program last Fall, and have obtained a license for the program



Economic Planning for the Clean Energy Transition

Pilot Study

- As discussed in the Transmission Planning for the Clean Energy Transition (TPCET) [pilot study](#), New England is leading in many industry trends
 - Expansive buildout of distributed energy resources (e.g., solar PV)
 - Integration of large scale renewables, most notably offshore wind
 - Increasing imports via HVDC interconnections
 - Integration of significant amounts of energy storage resources
- In addition to these factors having a large effect on the assumptions used in reliability studies, they also have a significant impact in economic planning analyses



Economic Planning for the Clean Energy Transition

Pilot Study, cont.

- To achieve a better understanding of the effect of these industry trends on our economic planning analyses, the ISO is proposing a similar ‘pilot’ study of Economic Planning for the Clean Energy Transition (EPCET) to achieve three main objectives
 - Perform a dry-run of the study framework proposed in the upcoming Tariff changes
 - Take a deep dive into all input assumptions in economic planning analyses, propose updates to any assumptions based on our current experience, and test the effect of those modeling changes
 - Gain experience in the features and capabilities of our new economic planning software
- The overall goal is to prepare our models, tools and processes such that informative and actionable results can be more readily produced in future Economic Study cycles
 - Because the work that will be performed in 2022/2023 is more akin to an R&D project, the ISO determined that it was not appropriate to self-submit the proposal as a formal Economic Study request



EPCET Pilot Study Scope

- Start with a defined set of three reference scenarios
 - **Benchmark Scenario:** Model previous year (2021) to test fidelity of models against historical performance
 - **Attachment K Scenario:** Model future year (i.e., 10-year planning horizon) based on our existing planning criteria (CELT forecasts [EE, PV, EV, HP], FCM new/retired resources, state contracted resources, etc.)
 - **Policy Scenario:** Model future year (i.e., year of last policy target, 2050) based on full effect of all New England state climate policies (i.e., electric sector and economy-wide de-carbonization)
- Invite stakeholders' input to review and provide comments on testing of new/updated assumptions used in reference scenarios
- After the initial results of the reference scenarios are presented to stakeholders, invite sensitivity requests to test the effect of a specific change to input assumptions (e.g., resource mix, transmission topology, etc.)
- We expect to work on this pilot study over the next 18-24 months



Benefits of EPCET Pilot Study

- The pilot study will provide a dry-run of the analysis framework that could be used by the region to evaluate current progress on policies as the region transitions to clean energy
- The ISO proposes to use ISO-initiated study assumptions that are aligned with those used in other studies performed in System Planning to make the results more actionable, but also allow for open stakeholder review, input, and discussion of assumptions
- The ISO proposes to incorporate the following updates in this pilot study
 - More time for stakeholder consideration between presentations
 - Exploring new modeling methods for evolving grid (e.g., co-located storage, gas constraints, etc.)
 - Evaluate benefit of moving from zonal to nodal simulations and providing contingency based congestion
 - Incorporate neighboring region's detailed model in simulations
 - Gain experience in the use of capacity expansion modeling for the policy scenarios



EPCET Pilot Study Timeline

- **Q2/Q3 2022** – Present reference scenario assumptions and request stakeholder feedback
- **Q4 2022** – Present results from benchmark and Attachment K scenarios
- **Q1/Q2 2023** – Present policy scenario assumptions and request stakeholder feedback
- **Q3/Q4 2023** – Present policy scenario results and sensitivities after stakeholder feedback



Questions

