



New England States Committee on Electricity

**NESCOE Issues Renewable and Clean Energy
Scenario Analysis and Mechanisms 2.0 Study
Phase I: Scenario Analysis Report
Winter 2017**

March 3, 2017 – The New England States Committee on Electricity (NESCOE) has completed the *Renewable and Clean Energy Scenario Analysis and Mechanisms 2.0 Study, Phase I, Scenario Analysis Report* (the Scenario Analysis). London Economics International (LEI) performed the economic modeling that is at the core of this Phase I report. The Scenario Analysis is one piece of information, together with other studies, data and information produced by the Independent System Operator New England (ISO-NE), individual states, and market participants that may inform policymakers’ consideration of issues related to New England’s competitive wholesale electric market and hypothetical resource futures.

Context: In New England, ISO-NE identifies generating resources that will serve New England consumers at the lowest cost through a competitive system that is fuel neutral. ISO-NE’s competitive auction process was designed to select resources based only on their costs. Today, the wholesale competitive market is generally not designed to accommodate state laws that seek to increase reliance on renewable and certain no-carbon resources. Moreover, the resource-neutral competitive wholesale markets have resulted in an increasing reliance on natural gas-fired resources. NESCOE has observed over the last several years that New England’s competitive wholesale markets may need to be revised to better accommodate state energy and environmental laws if they are to remain sustainable over time.

In June 2016, the New England Power Pool (NEPOOL), a body of New England energy stakeholders, commenced a conversation about whether it could identify potential market solutions that could accommodate state laws. That exploratory effort remains underway. Another piece of information that may inform thinking on markets and policies is an ISO-NE *Economic Study of Markets and Planning*, which NEPOOL requested and defined.

The Scenario Analysis: This report presents an economic analysis of various hypothetical renewable and clean energy futures in New England, and is the first phase of a two-phase study.¹

¹ Phase I shows the potential implications of various hypothetical renewable and clean energy futures on existing and new resources in New England, and ultimately on the consumers who pay for them. Phase II

LEI analyzed New England wholesale electric energy and capacity market dynamics in two future years - 2025 and 2030 - under various hypothetical future market conditions that NESCOE defined.

LEI estimated the going-forward costs and future electricity market revenues for existing and new generation resources in New England with a focus on renewable and clean energy resources. Importantly, LEI estimated the amount of “missing money” for each resource type – i.e., the amount by which a resource’s *costs* exceed its forecasted wholesale electricity market *revenues*. LEI also examined power sector air emissions under a range of future scenarios.

For this study, NESCOE:

- 1) Designed the set of hypothetical resource and infrastructure expansion scenarios,
- 2) Specified the assumptions, and
- 3) Prepared this Phase I Report

Ultimately, the analysis provides estimates of the amount of “missing money” that generation resources may need to: 1) enable New England to meet the hypothetical state clean energy and renewable requirements, and 2) maintain reliable electric service at the lowest possible consumer cost over the long-term. The results are directionally consistent with other studies.²

Study Limitations: This study, and LEI’s modeling, provides *indicative* information about a range of hypothetical scenarios, not precise predictions. It is not a plan, and it is not a collective or individual state view of or preference about the future.

Given the hypothetical nature of the input assumptions for the scenarios, LEI’s modeling is intended to be illustrative rather than predictive or precise. For example, LEI developed the capacity market revenue estimates under the hypothetical scenarios without taking into account the impact of certain market rules on new resources, including the Minimum Offer Price Rule (MOPR). Ignoring such market rules should not be read that the states are supportive of their removal or revision. Furthermore, LEI’s modeling rests upon many assumptions, any one or more of which history may prove wrong to varying degrees. For example, the costs LEI’s model identifies are based on assumptions and therefore should not be interpreted as an actual price tag. NESCOE did not ask LEI to consider the total costs of any of the investments in the hypothetical scenarios. The total costs of an investment are the costs that would emerge in a

will examine, in the context of the Phase I hypothetical futures, various mechanisms that states could use to achieve certain policy objectives and the associated consumer costs. Together, Phase I and II of the study is intended to inform policymakers’ consideration of potential mechanisms through which states could execute energy and environmental objectives and provide estimates of the associated consumer costs.

² See, for example, initial draft results from NEPOOL’s 2016 Economic Study: Scenario Analysis, available at http://www.nepool.com/uploads/IMAPP_20161110_2016_economic_study_draft_results.pdf.

competitive solicitation, as the result of a negotiation, or otherwise reflect actual project costs.

LEI's model assesses different hypothetical scenarios, but cannot predict the future given there are many uncertainties in electricity markets. Rather, any analysis in this study assumes that policymakers will apply judgment to the assumptions in each of the hypothetical scenarios.

In addition, the study does *not* attempt to:

- Precisely forecast the timing of future generator retirements, or infrastructure development.
- Evaluate cost-effectiveness under an avoided cost approach.
- Optimize the level, timing, or location of renewable and clean energy resources.
- Suggest winners or losers.

This study should be viewed accordingly, and critically.

NESCOE welcomes from market participants or others any facts or data that clarify, correct, or should be considered in reviewing the study results.