

New England States Committee on Electricity

To: Mike Henderson, ISO-NE
From: New England States Committee on Electricity
Re: Draft Assumptions, 2010 Economic Study
Date: July 1, 2010
CC: ISO-NE Planning Advisory Committee

Pursuant to discussion at the Planning Advisory Committee (PAC) meeting on June 16, 2010 and to ISO-NE's communication to stakeholders dated June 29, 2010 concerning feedback on ISO-NE's preliminary draft assumptions for the 2010 Economic Study proposed by NESCOE, NESCOE requests modification to several of ISO-NE's preliminary draft assumptions.¹ NESCOE believes these modifications will further the intent of the study, which is to forecast reliability, cost, and policy compliance outcomes expected for New England's power system over a twenty (20) year period under assumptions that reflect status quo market and reliability constructs and the region's perspectives on regulatory and market structures.

NESCOE appreciates consideration of its requests, as well as ISO-NE's efforts to process the 2010 Economic Study in a timeframe that makes sense in relation to interconnection-wide planning activities. Please let us know if there are any issues that require discussion or clarification.

1. Modification to Case No. 6 "New England Renewables and Imports"

Preliminary Draft Case No. 6 (Slide 26) provides: "Same as Base Case except 8,523 MW of carbon heavy units older than 50 years old will be replaced by additional New England wind (Best On-Shore plus Full Queue), state specific photovoltaic and biomass estimates plus imported energy from Canada (several new 1,500 MW DC transmission lines)".

NESCOE requests ISO-NE replace draft Case No. 6 so that carbon heavy units are replaced with three variations on the mix of renewable resources and Canadian imports, with each case giving different weight to imports and certain renewable resources listed below. A nameplate to nameplate replacement of heavy fuel with renewables falls short when taking into account the capacity factors of renewables; these gaps will need to be filled in.

- a. Case No. 6a) Renewables Case Weighted for Wind - 3,000 MWs Canadian imports, and in New England, 1,000 MWs Solar, 500 MWs Biomass, and the remainder from wind

¹ References to ISO-NE's preliminary draft assumptions relate to ISO-NE's power point presentation entitled "*Preliminary Assumptions for Economic Studies*" dated June 16, 2010 and posted with PAC materials.

- b. Case No. 6b) Renewables Case Weighted for Canadian Imports - 6,000 MWs Canadian imports, and in New England, 1,500 MWs Solar, 500 MWs Biomass, and the remainder from wind
- c. Case No. 6c) Renewables Case Weighted for Solar - 3,000 MWs Canadian imports, and in New England 3,000 MWs Solar, 500 MWs Biomass, and the remainder from wind

These cases will provide information and data that more fully reflect the range of potential means by which New England may achieve its renewable energy goals.

2. On Shore & Off Shore in Base Case

With respect to the assumed wind development to achieve 20% energy from wind, ISO-NE's preliminary draft assumptions contemplate using the Best On Shore and Full Queue scenario from ISO-NE's New England Wind Integration Study (NEWIS).

To reflect better balance in potential development between New England's on- and off-shore wind resources, NESCOE requests the study reflect the NEWIS 20% build-out scenario that assumes 1.5GW Offshore/Best On-Shore/Full Queue for a total of 8.79GW (See, *NEWIS Interim Results Update*, PAC Presentation dated May 25, 2010, slide 11). NESCOE refers to this scenario as NEWIS' Balance Case.

NESCOE underscores ISO-NE's prior observation that the Balance Case, like the other conceptual scenarios, is not intended to estimate specific projects but rather to represent a reasonable regional estimate in the study period.

3. Renewable Assumptions Other Than Wind – Preliminary Estimates

The 2009 Economic Study, referred to as the *Renewable Development Scenario Analysis*, was focused on wind development. It therefore did not provide estimates with respect to development of other renewable resources. As discussed at the June 16, 2010 PAC meeting, the New England states are providing preliminary estimates of non-wind renewable resource development in the region in the year 2030.

These assumptions are necessarily preliminary estimates and are based on each state's judgment of potential resource growth over time in light of current incentive programs and other factors. Factors such as Massachusetts' recent study on biomass and various state and federal incentive programs may, of course, influence actual resource development over time.

Table I. Other (Non-Wind) Renewable Resource Development Preliminary Assumptions – 2030

2030 NE Renewable Sources-Non-wind MW							
	Solar	LFG	Hydro	Biomass	Fuel Cell	Not Defined	Total
1 MA	800	10	15	tbd			825
2 VT	52		10	200		26	288
3 NH	50	15		125			190
4 RI	3	20					23
5 ME	20			400			420
6 CT	196	38	14	139	45		432
Total	1121	83	39	864	45	26	2,178
	51%	3.8%	1.8%	40%	2.1%	1.2%	100%

4. Energy Efficiency

ISO-NE’s preliminary draft assumptions included 3500MW of energy efficiency in the study year consistent with the assumptions adopted for the 2009 Economic Study. The states uniformly believe that 3500MW does not reflect development of energy efficiency under a “business as usual” approach to energy efficiency in New England given current state programs and their current scheduled ramp-ups during the study period.

In establishing assumed levels of energy efficiency for purposes of the 2010 Study, context is important. The purpose of this 2010 Study is to forecast reliability, cost, and policy compliance outcomes that are expected for New England’s power system over a twenty (20) year period under assumptions that reflect status quo market and reliability constructs. The analyses are to provide a solid baseline for comparing the region’s future to scenario analyses that will be carried out on an interconnect-wide basis and to reflect New England’s energy and environmental policy goals.

As a point of comparison, the 2009 Economic Study, or the *Renewable Development Scenario Analysis*, was intended to present economic and environmental characteristics of conceptual wind resource development scenarios in the northeast. The 2009 Study was not intended to add resources to meet particular demand projections, or to add resources in light of various state policies and programs, such as meeting demand through cost-effective energy efficiency.

Accordingly, NESCOE requests the 2010 Study assume a total of 5,000 MW of energy efficiency through the study period.

NESCOE arrived at this assumption by using the average passive resource performance of 234 MW per year. Extrapolating out six (6) years, the Demand Reduction in 2020 will be (3 FCA #s 267MW, 228 MW, 206 MW) + (6 years X 234 MW/yr.) = 2,105 MW. Continuing that extrapolation an additional twelve (12) years adds an additional 2,806 MW from energy

efficiency programs, bringing the total to 4,911 MW of energy efficiency through the study period (rounded to 5,000 MW).

Table II. Energy Efficiency Assumptions - 2030

	FCA 1 Actual	FCA 2 Actual	FCA 3 Actual										Total
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018				Total
	267	228	206	234	234	234	234	234	234				2105
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
	234	234	234	234	234	234	234	234	234	234	234	234	2806
Value													4911

A 5,000 MW assumption is well-supported and conservative. It is drawn from observations of actual bids into the FCA by energy efficiency providers who may be cautious in their initial bids to the FCA during a period of recession. In addition, the observations are taken from a point in time before the New England states’ ambitious energy efficiency initiatives have been fully implemented.

5. Carbon Price Sensitivity

With respect to assumptions about the price of carbon, NESCOE requests that a price sensitivity of \$40/ton be reflected in the base case as discussed at the June 16, 2010 PAC meeting.

6. Plug In Electric Vehicles & Hybrids

With regard to Plug In Electric Vehicles (PEVs) and hybrids, NESCOE requests the study include a sensitivity on the base case assuming PEV penetration.

The 2009 Economic Study established scenarios based on a range of penetrations related to Oak Ridge Laboratories’ projections of 2.5 million PEV’s operating in New England by 2030. For purposes of this 2010 Study, NESCOE believes the medium 2009 PEV case, which assumed New England would achieve two-thirds (2/3) of Oak Ridge’s 2.5 million PEV projection, is appropriate (i.e., 1.8 million PEV and 3,000MW).