

Stakeholder Economic Study Requests and ISO Proposed Scope of Work

IPSAC Meeting
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Background

Discussions held with PAC on April 22, 2009

Objectives of “Attachment K” Analysis

- Satisfy Tariff requirements
 - Perform “Economic Studies” in response to stakeholder requests
- Provide forum for stakeholder review of the impact of alternative system expansion scenarios
 - Include economic evaluations
 - Supplement with environmental emissions analysis
 - Consider potential economic benefits of relieving transmission constraints
 - Also shows benefits of developing resources in alternative locations
 - Similar to “what-if” framework of Scenario Analysis
 - Not an introduction to a specific Market Efficiency Transmission Upgrade (METU), e.g., “Attachment N” project
 - Provides information to stakeholders

Needs Assessments for Economic Considerations

- Part 4.1.b states that, “the ISO’s stakeholders may request the ISO to initiate a Needs Assessment to evaluate potential regulated transmission solutions or other participant-developed market solutions investments that could result in (i) a net reduction in total production cost to supply system load based on the factors specified in Attachment N of this OATT, (ii) less congestion, or (iii) the integration of new resources and load on an aggregate regional basis (Economic Studies)”

Submittal and Consideration of Needs Assessment Requests

- Requests for Economic Studies by stakeholders must be submitted by April 1 each year
 - These will be posted to the ISO website
- The ISO may add its own proposals
- The ISO shall develop a rough scope of work and cost estimate for all requested Studies
- The ISO shall develop a preliminary prioritization based on perceived benefits
- By May 1 of each year, a PAC meeting shall be held at which Economic Study proponents provide an explanation of their request

Submittal and Consideration of Needs Assessment Requests, *cont.*

- By June 1 of each year, the PAC shall meet, discuss and prioritize up to 3 Economic Studies to be performed
 - The costs will be recovered under the Tariff
 - Additional meetings may be held to discuss the prioritization or substance of the studies
- If agreement is not reached on prioritization or study substance, then the dispute resolution provisions may be invoked by any PAC member by August 30
- The ISO will issue a notice to the PAC detailing the prioritization of the Economic Studies
- There are no deadlines for completion of studies within the Tariff

RSP08 Completed Economic Studies

RSP08 Completed Economic Studies Documentation

- RSP09 will provide a high level summary of the Economic Studies requested in April 2008
- Plans call for posting a detailed report on the PAC website
- A Word document that clarifies stakeholder questions on the completed Economic Studies has been posted at
 - http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mins/_2009/pacmattersquestions.pdf
- In response to stakeholder comments, the spreadsheet of detailed Economic Study results has been reposted to include the energy production for each of the expansion resources
 - http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/reports/index.html

RSP08 Economic Studies – Results

- Production cost simulations for various system resource expansion scenarios in
 - Maritimes
 - Maine
 - Vermont
 - New Hampshire (may assume transmission interconnection to Quebec)
 - SEMA/RI
- Identified transmission constraints and postulated higher limits
- Results can be used by developers and may suggest benefits of possible transmission improvements
 - A more targeted study could lead to an METU

RSP08 Economic Studies – Results, *cont.*

- Natural gas will remain the dominant fuel for setting marginal electric energy prices
- Virtually no congestion is apparent within New England under the RSP08 system conditions
- The effect of the Financial Transmission Rights/Auction Revenue Rights (FTR/ARR) offsets will reduce Load Serving Entity (LSE) electric energy expense because it allows LSEs to purchase energy from the export-constrained portions of the system that have relatively low LMPs
- Systemwide CO₂ and NO_x emissions decrease as more low-emission or zero-emission resources are added

RSP08 Economic Studies – Results, *cont.*

- Adding resources that inject a significant amount of low-cost energy into the market reduce average clearing prices
 - Makes it more difficult for those resources to be self supporting solely in the New England wholesale electric energy market
- The addition of resources in portions of southern New England, such as the cases with Natural Gas Combined Cycle (NGCC) additions in both Connecticut and Boston and wind resources in southeastern Massachusetts, will not result in congestion
 - These results also represent an injection of energy via high-voltage direct current (HVDC) transmission into these areas
 - The addition of 1,200 MW of resources north of the North-South interface will not create significant congestion on that interface

RSP08 Economic Studies – Results, *cont.*

- Additions of 1,200 MW of wind energy north of the Orrington-South interface will result in congestion
- For cases adding 3,600 MW of low-cost resources injected into Orrington and an additional 1,200 MW of low-cost resources injected into New Hampshire, congestion would be relieved by
 - Increasing both the Orrington-South and Surowiec-South interfaces by 1,800 MW
 - Increasing the North-South and Maine-New Hampshire interfaces by 1,200 MW
 - Detailed transmission analysis hasn't been conducted
 - Several HVDC developers had made suggestions

RSP08 Economic Studies – Results, *cont.*

- The results of production cost studies of resource-expansion scenarios near load centers show no apparent transmission congestion on the system for 2009 and through 2018
 - Reflects system improvements identified in previous RSPs
 - Allows for the integration of some future system resources

RSP08 Economic Studies – Conclusions

- Some of the RSP08 economic studies showed congestion for some scenarios with resource expansion remote from load centers
- Analysis of METUs are not warranted at this time
- Developers proposing “Merchant and Elective Transmission Upgrades” may use the information provided by the economic studies

Scope of Work for RSP09 Economic Study Requests

Background

Discussions held with PAC on April 22, 2009

Summary of Economic Study Requests

Specific Projects

- NextEra Energy
 - Interconnect resource-rich areas north of Boston (Seabrook) to the critical load centers in Boston (K Street) and Cape Cod (Canal)
- New England Independent Transmission Company, LLC
 - Study regional benefits of increased transmission capacity between resource-rich areas of northern Maine (Maine Yankee) and the northeast Massachusetts market (Boston – K Street, Salem, Lynn)
- Mirant
 - Consider generation alternative to planned upgrades in SEMA

Summary of Economic Study Requests

General Studies

- LS Power
 - Increase transfer capability from resource-rich areas of New York to New England by 800 MW and 2,000 MW
- NRG
 - Replace existing old steam generation units with modern natural gas-fired (dual fuel) combined cycle units
- New England States Committee on Electricity (NESCOE)
 - Identify the significant sources of renewable energy in New England, the most effective means to integrate them into the grid, and estimated costs

ISO Economic Study Scope of Work

- The NESCOE study will help states formulate regional policy
 - States developed study scope of work and assumptions
 - ISO providing technical support
- Greater specificity of the Scope of Work and required system assumptions have been developed
 - Includes potential amounts and locations of resources
 - Will include conceptual transmission development
 - Will NOT include detailed identification of final project plans (I.3.9 analysis) and their associated economic impacts (full METU analysis)
- ISO will give NESCOE request priority
 - Scope of work may encompass other requests
 - Retirements and replacement of old steam generating units
 - Conceptual transmission upgrades

ISO Economic Study Scope of Work, *cont.*

- Increase New York – New England Transfer Capability
 - Possible consideration as part of NESCOE request
 - Will be addressed as part of studies in support of the Northeast Coordinated System Plan (NCSP)
- Northeast Coordinated System Plan
 - Interregional production cost data base is under development (may be ready for NESCOE request)
 - Production Cost analysis will be conducted to show need for additional transmission development
 - Analysis of a new Plattsburgh – Vermont tie is ongoing
- Preliminary discussions were held with IPSAC on May 7 and follow-up discussions are scheduled for June 30

Proposed ISO Scope of Work

Governors' Request ISO Technical Support for Regional "Blueprint"

- States seek to identify: "***significant sources of renewable energy available to New England, the most effective means to integrate them into our power grid, and the estimated costs.***"
 - NESCOE, March 2009
- Request economic study for 2009
- Transmission funding methodology uncertain



Blueprint: Approach

- Study is based on renewable resource scenarios
 - Combination of wind, demand resources, Plug-in Hybrid Electric Vehicle (PHEV), energy storage and expanded imports
 - Range of resource penetrations (low / medium / high)
 - Long-term horizon: approximately 20 years into the future (around 2030)
- Evaluates generation retirement scenarios
 - Gas units added if needed to meet Installed Capacity Requirement
- States are developing study assumptions

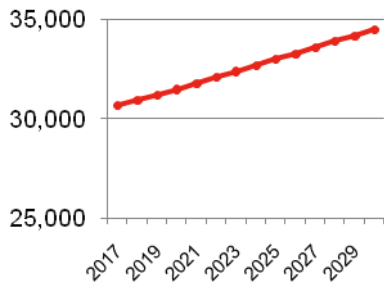
Blueprint: Preliminary Assumptions



Existing Resources

- Existing capacity plus resources selected in Forward Capacity Market

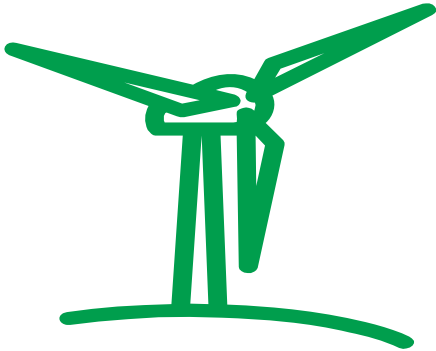
Forecast: 2017-2030



Demand Forecast

- Extrapolate *2009 Regional System Plan* forecast to 2030 (Approx. 34,500 MW peak demand)

Blueprint: Preliminary Assumptions, *cont.*



Wind

- Add up to 12,000 MW of on- and off-shore wind in New England
 - Off-shore wind distributed evenly between Maine, Massachusetts, and Rhode Island



New Demand Resources

- On-peak and seasonal peak energy efficiency (Passive)
- Real-time Demand Response (Active)
- Emergency Generation

Blueprint: Preliminary Assumptions, *cont.*



Energy Storage

- Add generic energy storage scenario as a proxy for new pumped storage hydro, batteries, compressed air, or other technologies



Plug-in Electric Vehicles

- Up to 2.5 million PHEVs in New England by 2030

Blueprint: Preliminary Assumptions, *cont.*



Repowering

- Repower older fossil generators (oil and coal) with new state-of-the-art natural gas generators



Imports

- Expand interconnections with neighboring systems to increase imports of clean energy supplies