Regional System Planning Spurs Major Investment in New England's Transmission System

ISO-NE to Conduct Studies that Evaluate the Economics of Additional Transmission Expansion

NARUC Winter Committee Meeting and 2008 National Electricity Delivery Forum
February 21, 2008
Washington, D.C.

Introduction

New England has a long history of regional planning and coordination. The region boasts a tightly integrated bulk power system that is designed to provide reliable wholesale electricity service to customers from Connecticut to Maine under a variety of conditions. The region shares in the cost of upgrading the bulk transmission system, and its market design promotes development of demand and supply resources in locations where they are needed most.

The six New England States have been leaders and innovators on energy policy individually and through the New England Conference of Public Utilities Commissioners (NECPUC). In addition, the Federal Energy Regulatory Commission (FERC) recently approved the states' proposal to form the New England States Committee on Electricity (NESCOE), which will enable enhanced coordination on developing the region's energy policy. New England also has a tradition of close collaboration with its neighboring power systems to the North in Canada.

All of this provides a solid foundation from which the region can meet its new energy challenges—particularly, the need to meet environmental policy goals and address electricity price concerns while maintaining efficient and reliable electricity service to all New England customers.

This document describes the existing process for regional system planning in New England, the transmission investment that has occurred as a result, and enhancements to the transmission planning process recently ordered by the FERC. It also highlights emerging discussions regarding development of transmission to enable the construction of renewable electricity resources within remote areas of the region and to increase imports of non-carbon emitting resources from Canada.

Existing Planning Process in New England

FERC granted ISO New England responsibility for system planning for the six-state region in 2000.[1] Since this time, the ISO has developed an annual Regional System Plan (RSP) that serves as the comprehensive needs assessment of New England's bulk power system.

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[1] Regional coordination of transmission planning and operation of New England's bulk power system has existed for more than 30 years. However, the establishment of the ISO shifted planning for transmission and generation *from* vertically integrated utilities in a process largely regulated by state commissions *to* an independent entity (the ISO) in a process regulated by the FERC.

New England stakeholders provide input to the RSP throughout the year through the Planning Advisory Committee (PAC). The PAC is made up of representatives from the New England States, environmental organizations, transmission owners, generators, suppliers, public power, and other interested parties.

The RSP develops a ten-year forecast of electricity use for New England, the states, and multiple sub-areas and analyzes the adequacy of the region's bulk power system to reliably serve this forecast use. It also describes the fuel mix for generation and reviews the region's ability to meet state and federal environmental regulations, including the renewable portfolio standards and carbon emission reductions targeted in the Regional Greenhouse Gas Initiative (RGGI). Finally, the RSP defines a transmission expansion plan to meet system needs.

Results of the RSP needs assessments are presented to the PAC to encourage the marketplace to develop solutions to system needs. While ISO New England's planning authority is limited to the development of regulated transmission solutions, the ISO accounts for responses from the marketplace (i.e. the development of demand resources, generation, and merchant transmission) in performing the RSP needs assessments. If the ISO determines that a market response addresses a system need, it may defer or eliminate the need for a regulated transmission solution.

Improvements to the Transmission Planning Process

In February 2007, FERC issued Order 890 of the Open Access Transmission Tariff (OATT), which led to a review of the system planning process in New England. The ISO worked with the New England Power Pool (NEPOOL) and NECPUC to identify improvements to the RSP process and incorporated these improvements into the ISO OATT at the end of 2007.

Key improvements to the process include further defining the process for incorporating market responses into the needs assessments and establishing an evaluation framework to determine—through economic studies—whether transmission solutions or other projects could result in economic benefits to the region.

Interregional Planning

ISO New England closely coordinates its planning activities among six New England States, as well as with the federal government and with neighboring systems in the U.S. and Canada. The ISO participates in interregional planning initiatives with the North American Electric Reliability Corporation (NERC), the Northeast Power Coordinating Council (NPCC), the U. S. Department of Energy, the ISO-RTO Council (IRC), and the Inter-Area Planning Stakeholder Advisory Committee (IPSAC).

Transmission Expansion Progress to Date

Since 2000, ISO New England's regional system planning process has identified the need for approximately $8 billion in transmission investment, prompting significant transmission development in each of the New England States. More than $1 billion in transmission investment has occurred over the past eight years, and projects estimated at approximately $7 billion in investment are in various stages of development, planning, or construction.[2] Four major 345-kilovolt (kV) transmission projects have been successfully constructed and put into service in four states, and another two major 345-kV transmission projects are under construction in two states. Additionally numerous smaller projects are being planned.

[2] RSP07 estimates projects totaling approximately $4.4 billion. Since approval of RSP07, additional information about transmission projects and transmission needs have increased this estimate to approximately $7 billion. Note that all estimates are preliminary and are subject to change. Also, some elements of the transmission needs may be satisfied through market responses, thus lowering the estimates.

This is the first significant transmission development in the region in decades and the active participation of the states in the planning process has been instrumental in achieving this success.

System Planning Challenge: Meeting State Goals to Increase Electricity Generated from Renewable Fuel Sources and to Reduce Carbon Emissions

Five of the six New England States have adopted renewable portfolio standards (RPSs), which require utilities and other suppliers of retail service to obtain specified percentages of their electricity from power plants that run on renewable fuels. The ISO projects that these state-mandated RPS requirements will more than double the amount of electricity that needs to be produced by renewable resources in the next decade. This will require the addition of many more of these resources than what is currently proposed in the ISO Generator Interconnection Queue in New England.

Each of the New England States has signed on to RGGI, which sets a 10% reduction in carbon emissions by 2018. The ISO has analyzed several future resource scenarios and found that New England will face challenges meeting these targets unless the region invests heavily in resources with low or zero emissions, including energy efficiency, large-scale renewables, and nuclear power located in New England or imports of hydro, wind, or nuclear power from Canada.

The New England States and Eastern Canadian provinces requested the system operators in New England, New Brunswick, and Quebec to map the most likely sites for the development of new renewable resources in the broader region. The first phase of this activity was completed earlier this year and provides some interesting directional information. Typically, the best sites for renewable resources are either off shore or in remote areas that are not served by a robust transmission infrastructure. It is already evident that the majority of the potential for new large-scale renewable resources will exist in Northern Maine, Northern New Hampshire, Quebec, New Brunswick, Newfoundland, and Labrador.

System Planning Solution: Developing Economic Studies of Transmission Needed to Enable the Development of Renewable Electricity Resources

A starting point to address the region's renewable energy requirements is to assess the magnitude of the need. Following the determination of need, the costs and benefits of expanding the New England transmission system to the locations that have the potential for renewable-resource development to address the need must be analyzed. This will require the ISO and New England stakeholders to develop an evaluation framework that identifies the return on transmission investment towards meeting reliability, economic, and environmental goals.

The How

The development of economic studies for transmission investment will move forward in two parallel processes. First, the ISO will convene a working group to determine *how* to conduct—that is, the methodology for—the economic studies envisioned in FERC Order 890. Because this methodology must be developed with consensus among regional policymakers and market participants, the working group will be led by a steering team with representatives from ISO New England, NECPUC, and NEPOOL. This process will also help further develop the factors that should be considered in determining *Market Efficiency Transmission Upgrades* that are eligible for regional cost sharing.[3] This type of upgrade has been part of the ISO's tariff for some time but to date has not been utilized by the region. The more common type of transmission upgrade that is eligible for regional cost sharing in New England is the *Reliability Transmission Upgrade.* These are projects that address identified reliability needs.

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[3] http://www.iso-ne.com/regulatory/tariff/sect_2/oatt/index.html

The What

Second, the ISO and PAC will prioritize the economic studies the ISO must conduct. The PAC has the ability to request the ISO to conduct up to three studies each year. These studies are funded through the regional tariff. Stakeholders requesting additional studies would be responsible for paying for the costs of those studies.

To date we have discussed at least three different cases to be studied for the development of new renewable resources on the system with representatives of the New England States. The ISO also needs to consider seven new transmission projects to move electricity from Canada to customers in New England that were proposed at an ISO-led forum in December 2007 plus any other projects that may be proposed in the future.

It is evident that not all of the proposed projects will need to be built. Thus, the evaluation framework must determine *what* transmission investment is best for the region.

Sticking to a Long-Term Transmission Plan for New England

New England must continue to make progress to site and construct the transmission projects already approved by the RSP planning process. These projects are needed to maintain reliability of the bulk transmission system and amount to the region “catching up” after decades in which there was little or no investment. These upgrades also improve the efficiency of the system and provide economic benefits to the region by increasing the network capability to move large quantities of electricity throughout the region. Also, many of the older, less efficient, and environmentally-challenged power plants in New England are located in the middle of the largest demand centers. Clearly, the existing RSP expansion plan must be completed to enable the retirement and/or repowering of these plants. Enhancing the transmission network backbone will offer the foundation from which the region can move forward and pursue achievement of environmental and economic policy objectives.

New England faces many challenges in terms of meeting its energy goals; however, the ISO is optimistic that the region can meet these challenges through a spirit of collaboration and innovation. ISO New England looks forward to working with state policymakers and our market participants to pursue the most cost effective solutions for the region.

Overview of Attachments N and K of the Open Access Transmission Tariff – Market Efficiency Transmission Upgrades and Economic Studies

Bob Ethier
Director, Resource Adequacy and Chief Economist
March 26, 2008

Outline of Presentation

- Overview of Attachment N
  - How potential economic transmission projects are evaluated
- Overview of Attachment K
  - How stakeholders may trigger economic evaluations of the transmission system
- Attachment N/K Working Group Charter/Scope of Work Straw Proposal

Overview – Attachment N

- Attachment N of the Open Access Transmission Tariff (OATT) provides "Procedures for Regional System Plan Upgrades"
- Attachment N has four Sections:
  - Introduction
  - Standards for Identifying Reliability Transmission Upgrades (RTU) and Market Efficiency Transmission Upgrades (METU)
  - Procedures for Identifying RTU and METU
  - Cost-Effectiveness and Cost Allocation Determination of RTU and METU
- While the RTU language has been relied on extensively, to date no METU have been studied or identified

Attachment N Section II – Standards for Identifying RTU and METU

- Section II describes how both RTU and METU are identified:
  - METU are "designed primarily to provide a net reduction in total production cost to supply the system load."
  - Specifically, METU are upgrades where, "the net present value of the net reduction in total cost to supply the system load, as determined by the ISO, exceeds the net present value of the carrying cost of the identified transmission upgrades."
  - Section II lists many factors to be taken into account, including energy costs, capacity costs, losses, release of bottled generation, and operating reserves.
  - Other data may be supplied to stakeholders but not considered in the ISO's determination (*e.g.* total cost to load, congestion costs)

Attachment N Section III – Procedures for Identifying RTU and METU

- ISO shall regularly conduct studies to identify needed system upgrades
- These studies will be shared with stakeholders through the PAC
- If these needs are not addressed through market responses, then METU may be added to the Regional System Plan
  - Section III recognizes that METU may be delayed or dropped from the RSP due to market responses that have development times shorter than those for transmission projects
- These decisions shall be made in consultation with stakeholders

Attachment N Section IV – Cost Effectiveness and Cost Allocation Determination of RTU and METU

- The cost-effectiveness and cost allocation will be determined pursuant to Schedule 12 and Attachment K of the OATT and ISO Planning Procedure 4.
- These procedures are the same for both RTU and METU
  - This means that costs of METU will be shared Pool-wide based on load-ratio shares of each transmission owner
  - METU costs are subject to Transmission Cost Allocation review under Schedule 12 to determine if any costs should be localized
- These procedures have been implemented for RTU

Overview – Attachment K

- Attachment K of the Open Access Transmission Tariff (OATT) provides "Procedures for Regional System Plan Upgrades". Attachment K has a number of Sections:
  - Overview
  - Planning Advisory Committee (PAC)
  - Regional System Plan (RSP)
  - Procedures for the Conduct of Needs Assessments and Evaluation of Proposed Studies
  - Supply of Information
  - Regional Coordination
  - Procedures for RSP development and approval
  - Participating Transmission Owners obligations

Overview – Attachment K

- Attachment K has a number of Sections:
  - Merchant Transmission Facilities
  - Cost Responsibility for Transmission Upgrades
  - Allocation of Incremental Auction Revenue Rights (ARRs)
  - Dispute Resolution Procedures
  - Rights Under the Federal Power Act
  - This discussion will focus on "Procedures for the Conduct of Needs Assessments and Evaluation of Proposed Studies"
  - Part 4.1.b "Requests by Stakeholders for Needs Assessments for Economic Considerations"

Needs Assessments and Economic Studies

- Attachment K describes how the ISO is able to conduct Needs Assessments of the adequacy of the Pool Transmission Facilities to maintain reliability and promote the operation of efficient wholesale electric markets
- There are a number of possible triggers for Needs Assessments (e.g. operational needs, meeting reliability standards, expected constraints)
  - One specific trigger of a Needs Assessment is the submittal of an Economic Study request by a stakeholder

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 (an "Economic Study").

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

- 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

Evaluation of Proposed Solutions

- Once a “need” has been identified through a Needs Assessment, the ISO evaluates proposed solutions (Part 4.2 of Attachment K)
- Solutions to a “need” may be market-driven or Regulated Transmission Solutions
  - Market solutions will be reflected in updated Needs Assessments and the RSP as described
  - Proposed Regulated Transmission Solutions are developed or evaluated through Solutions Studies, and approved and classified as Reliability Transmission Upgrades or Market Efficiency Transmission Upgrades under Attachment N as appropriate

NECPUC

(New England Conference of Public Utility Commissioners)

Economic Study Proposals

4/30/08, Clifton Below, Commissioner, NHPUC

- 2 studies to analyze potential transmission interconnections or upgrades to connect new renewable electric generation resources within New England:
- **Off-shore or Coastal Wind** (esp. CT, RI, & MA, but also NH & ME)
- **Northern NH and Northeast VT, Wind and Biomass** (and potential relationship to imports)

1

Main Drivers of Request

- Need to understand the economics of renewable resources within the region to inform decisions regarding options & choices, including potential long-term contracts for imports.
- **3 LARGE POTENTIAL RESOURCES:**
  - **Larger scale biomass** generation that needs to be close to the resource (e.g. northern N.E.)
  - **Inland wind**, especially in the north, where it is strong & developable – near Canada
  - **Coastal & offshore wind, near load & with good peak coincidence**

2

Study Parameters & Assumptions

- NEPUC will work with the Economic Studies Process Working Group & ISO-NE to develop the analytic framework and refine parameters and assumptions for the studies.
- Results should provide useful information on potential costs and benefits under a variety of scenarios and assumptions.

3

Cost Recovery Methods

- No particular cost recovery method is planned or proposed for the two NECPUC economic study requests.
- Various states have interest in exploring various options for cost recovery and the implications of each.

4

Scope of Work – Coastal Wind

- Look at off-shore wind generically (no specific projects or transmission proposed)
- Review locations with known development interests (RI, CT & MA) as well as areas of potential interest (ME & NH)
- Possibly develop a representative range of coastal and offshore wind profiles and expected generation output.
- Look at potential net costs & benefits under various scenarios (e.g. 250, 500, 1000 or 2000 MW of wind)
- Similar proposal from Energy Management Inc.

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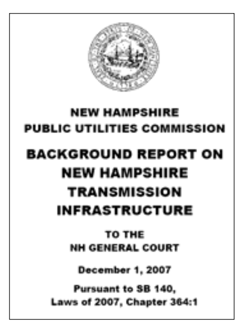
Scope of Work & Background on Northern NH & NE VT Study

- Why Northern NH & VT? That's where commercially developable wind and biomass resources exist at significant scale: a good case study
- Significant Analysis to date by National Grid and PSNH (NU) (see background report for summary info at www.puc.nh.gov



NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

BACKGROUND REPORT ON
NEW HAMPSHIRE
TRANSMISSION
INFRASTRUCTURE

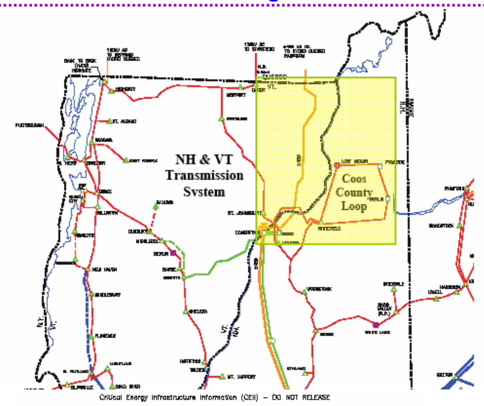
TO THE
NH GENERAL COURT

December 1, 2007

Pursuant to SB 140,
Laws of 2007, Chapter 364:1

6

The Area in Question



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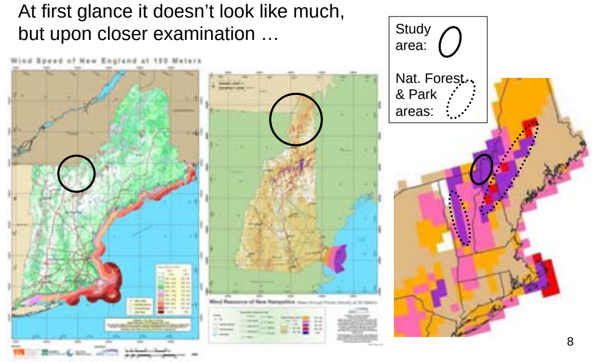
What's the Wind Resource?

At first glance it doesn't look like much, but upon closer examination …



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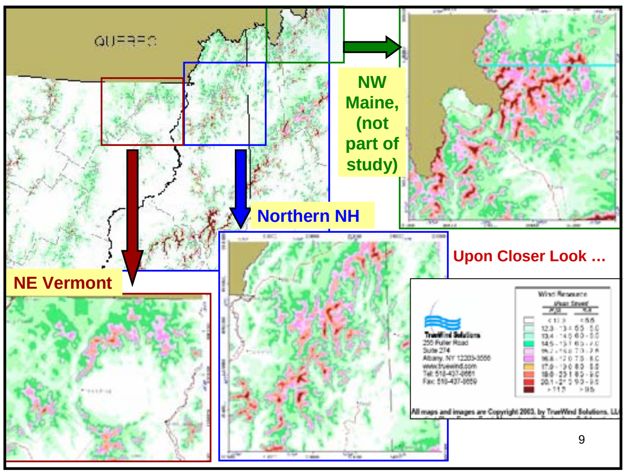

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What's in the Queue?

Northern NH & VT Renewable Energy Projects in the ISO-NE Interconnection Study Queue or Affected System Queue as of 4/15/08 and an Est. of Additional Potential Wind					
Project Name	**Fuel Type**	**Summer Capacity (MW)**	**Winter Capacity (MW)**	**County**	**ST**
Wind Project^	Wind	100	100	Coos	NH
Wind Project	Wind	40	40	Caledonia	VT
Wind Project^	Wind	146	146	Coos	NH
Biomass Project^	Wood	56	68	Coos	NH
Biomass Project^	Wood	41	41	Coos	NH
Biomass Project^	Wood	41	41	Coos	NH
Biomass Project^	Wood	61	64	Coos	NH
Wind Project	Wind	50	50	Grafton	NH
Wind Project^*	Wind	34	34	Coos	NH
Landfill Gas^*	LFG	6	6	Coos	NH
TOTAL IN QUEUE		**575**	**590**		
Approx. Additonal Potential Wind (per Noble Environmental)^		?	70		
TOTAL POSSIBLE Northern NH RENEWABLES (range)		**575**	**660**		
^Total Potential on the Coos County Loop		**485**	**570**		
^Total Potential that is Wind		280	350		
*Project proposes to connect to the distribution system that in turn connects to the Coos Loop.					
Prepared by NHPUC	4/28/2008				

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Biomass Potential:

- Closure of Fraser pulp mill in Berlin and Wausau pulp & paper mill in Groveton have opened up a significant, though not unlimited, supply of low grade wood chips. NH DRED RFP on supply.

Clean Power Development, LLC "Successful Farm" Appearance next to Waste Water Treatment Plant

Laidlaw proposed Biomass-Energy Plant

Artist's Rendering of the Proposed Laidlaw Berlin Biomass-Energy Plant Coupled with Potential New Businesses

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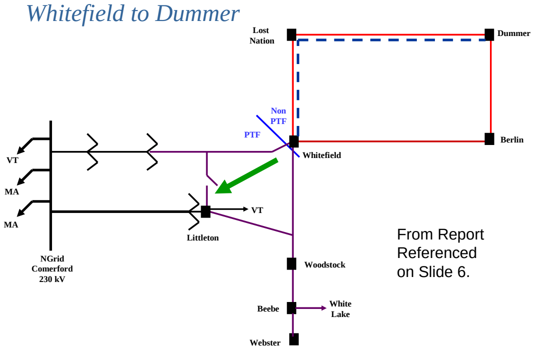
Scope of Work, continued

- Complementary NH Transmission System Needs Assessment by ISO-NE underway
- Look at potential value of up to 400-500 MW of wind & biomass beyond what system can accommodate with modest planned upgrades
- Review in context of cost estimates of various options already analyzed inc. flows south from Whitefield, for example: (next slide)

12

Power Flow for New Generation
Option 2
Add a new 115kV line (in blue dash) from Whitefield to Dummer

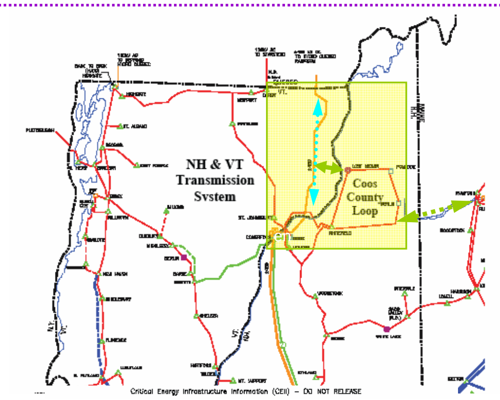


From Report Referenced on Slide 6.

Finally, (footnote)

- Take a high level look at possible reliability and economic value of connecting:
  - Approximately 40 miles from Gorham, NH to Rumford, ME (existing RR & gas ROWs)
  - Or only about 7-8 miles from Coos loop near Groveton to HVDC corridor where a possible new A/C tie line could run to an HVDC converter station near the border for increased imports from Québéc, including use of their hydro as a wind balancing resource and allow wind in Northeast Vermont to connect.

Potential Connections



NEG-ECP Energy Dialogue 2008
"Development and Trade of Energy Resources in New England & Eastern Canada"

Montréal Québec
May 21, 2008
Delta Montreal Hotel

Note: *This document is meant as a supplement to the facilitator's notes circulated under a different cover. It represents an unofficial compilation of comments from the Energy Dialogue and not a formal summary of the discussions or outcomes.*

Welcome and Introductions

Daniel Bienvenue, Québec and John Kerry, Maine

The co-chairs of the Northeast International Committee on Energy (NICE) welcomed the participants[1] to the 2008 Energy Dialogue of the Conference of New England Governors and Eastern Canadian Premiers (NEG/ECP) - "Development and Trade of Energy Resources in New England & Eastern Canada". John Kerry noted the importance on this issue to the governors and premiers and the historical relationship between New England and Eastern Canada.

Introduction to Power Trade Issues

Steve Rourke ISO-NE, Inc.

Steve provided an introduction to the project being pursued by US and Canadian system operators to map the region's current and projected transmission assets

- Map 1 *Current Assets* –illustrates the main 765 KV transmission assets and 345 KV loop that rings NB and includes the second 345KV tie with Maine (not fully operational)
- Map 2 *New Resources* – provides a map of all new low-emitting resources anticipated to 2024, and groups them in geographic proximity
- Map 3 *New Transmission* – a simplistic illustration of direct routes from source to sink and a magnitude of cost
- Map 4 *Proposed Transmission Options* – provides options for integration of new generating capacity and takes into account
    - new lines to South of Burlington (to access potential wind power in northern NH)
    - possible new connection to northern Maine wind power
    - Currently 12 interconnections exist between NE and neighbors – 2 with NB, 2 with QC and 8 with NY
    - Physical constraints on the current system are generally 1400 MW – new capacity should respect this limitation

It was noted that ISO has the challenge of covering energy movement NS and EW across large northern areas and within the major southern load centers; however there is work underway that will result in the network expanding north to meet new resources.

The maps are evolving with new announcement of new generation proposals. It was noted that the success rates of new generation proposals varies between jurisdictions. Labrador contains a vast amount of energy potential above and beyond the proposed Lower Churchill project.

[1] A list of registrants is attached.

New England's renewable resource requirements have been recalculated using state RPS and proposal queues resulting a minimum shortfall of 11 TW-h. This calculation does not account for projects that will be added to the queue nor projects that fail to be approved.

Power Trade - Market Context and Opportunities

Paul Hibbard, MA DPU

The NEG-ECP goals are to facilitate both climate change mitigation and promote energy trade. Based on the structure of energy markets in New England, there is currently sufficient capacity. In future if states are unable to meet emission reduction targets, there is a known opportunity cost in the form of the alternative compliance payment. These funds are remitted to states to be used to fund technology research and efficiency initiatives for low-income families.

For the foreseeable future the market is structured so that the price of natural gas will determine the cost of electricity on the margin. The availability of natural gas CC and CT facilities , backed by oil ensures a dependable level of service.

The premise is that RPS were developed to send a development signal to the market for best priced energy resources without intervention by government. In addition, if a national cap'n'trade system is instituted there will be sufficient compliance alternatives for utilities without locking into multi-year commitments that involve significant investment in transmission.
In general power sale opportunities should be dictated by

1. Competitive markets
2. State-based procurement
3. Utility basic service contracts – LTC for base residential load.

The key factor should be delivered price including transmission.

Some participants observed that the energy markets in the US contain some degree of regulation and questioned whether it is reasonable to rely solely on market mechanisms to produce the required mix of energy diversity, security, and emission control. For instance the Alternative Compliance payment option was categorized as a means of government intervention in the process of developing new clean energy technology. It was suggested that a more effective alternative would be to dedicate funding to pay for existing clean energy and let the market develop new technology. The development of fuel cells was cited as an example of a promising technology that attracted significant funding without providing social benefit.

Massachusetts indicated that there is a strict rejection of socializing the cost of transmission assets. The duty of their PUC is to protect ratepayers from additional price burdens related to infrastructure not based on usage. The only alternative is to make a convincing case that the delivered price of future energy purchases is a viable alternative as a hedge on future natural gas prices

Opportunities and Barriers to Cross Border Trade

Jonathan Raab, Raab Associates & MIT (facilitator)

Jonathan Raab of Raab Associates facilitated the discussion of Opportunities and Barriers to Energy Trade in the Region as well as of Policies and Mechanisms to Pursue Regional and Cross-Border Power Trade.

> *Italicized items in blue below represent the gist of some of the participant comments on the topics discussed.*

INTRODUCTION

As an introduction, it was noted that in assessing the opportunities for energy trade, industry and government must evaluate the effects of carbon constraints on economic growth and decide whether the path (pure market-based, support mechanisms for renewables, etc.) they are on will provide the best solutions.

Governors asking us to revisit our assumptions based on our carbon goals; including Renewable Portfolio Standards (RPS).

The tables presented by Steve Rourke indicate that Canadian export capacity grows from 3,240 (2011) to 11,400 MW (2021). There will likely be more generating capacity identified; however electricity exports from the eastern provinces will be constrained by transmission capacity.

There are opportunities for cooperation in providing balancing services on a seasonal, peak and timing basis. It is assumed that more synergies might exist if regulatory barriers were removed. Beside the cost of the generation and whether it is economic to build transmission, there should be consideration of the benefits of reliability.

The region can't escape gas's determining role in markets. Does oil back-up for gas units change the equation?

The issue of fuel diversity and system reliability – the market doesn't adequately value diversity; the market will likely continue to add gas resources that may lead to resource constraints and interruptions – how do we promote fuel diversity in additional to economic goals in a market context?

Economic transmission is a major determinant; but shouldn't states act together in terms of entering into long-term contracts … Benefits for transmission have to be based on benefits for energy. Rate payers are already being charged to meet RPS; couldn't it be dedicated to northern renewable?

If we continue to try to regionalize cost of transmission we can't solve the disagreements that prevent these transactions. There can be a tariff in the region that recovers transmission cost but there has to be a mechanism to recover it but current system needs to be changed or eliminated.

Have to make case that any agreement is a good price decision and hedge against gas prices …

SESSION 1: OPPORTUNITIES AND BARRIERS

The Viability of Canadian Large-Scale Renewable Projects with or without long-term (LT) purchase commitments and U.S. willingness/ability to contract long-term …

It was noted that 3 year plus is no longer a reasonable qualification as long term, the more reasonable approach is to match contracts to risk component. Hydro-Quebec indicated that the vast majority of their projects are self-financing and they intend to avail themselves of both long-term commitments and sales on the spot market. As it stands the project developers in Maritime provinces will have the opportunity to negotiate contracts with load servers. In the case of Lower Churchill, ideally commitments could be made to match financing terms for a large portion of the total cost therefore the preference is for a very long average contract term. However nothing is cast in stone regarding the question of fixed price versus escalators. HQ is wiling to consider all options from fixed to floating and all terms from 2 months to forever.

LT contracting is becoming less of an issue than it used to be. The need to secure financing or mitigate risk is well understood but the issue of load migration in the deregulated US market needs to be hedged. US companies have to consider the impact of LT contracts on capital structure and potential cost of capital impact by rating companies.

For the purchaser LT contracts need to provide incentives in the form of a discount to future costs and benefit to ratepayers. How transmission costs are recovered is a key decision point. Given the high level of uncertainty US companies would not commit to contracts tied to long term forecasts, more likely they'd be tied to cost recovery (including financing).

If we're considering whether our company should enter into LT contracts, do producers see both a LT contract and spot market moving forward? We keep hearing the 'market' will take care of the economics; we've gone from 100% hedged in the old world to 100% spot now …

Long-term contracts on a fixed scale for the time-frame of the project financing would be necessary for our province; the Atlantic provinces are somewhat different than Quebec, since Quebec's projects are essentially one.

What is meant by 'long-term' is somewhat different now, but it is essentially the time necessary to amortize the investment. But there are other financial instruments to accomplish the same goals, LT contracts aren't the barrier …

While wind power was on the margin LT contracts were very important but developers can now consider riskier structures.

To approve a long-term contract, there needs to be a demonstrated advantage to rate-payers. In a situation where there is no cost to rate-payers for transmission a regulator doesn't care; but being asked to pay for depreciation of a transmission investment over 30-40 years is clearly a barrier.

Other mechanisms like cost-of-service arrangements may offer a solution in some cases, particularly in regards to the NB nuclear units. But there was general agreement that there was a need to be more cognizant of investors on debt and to cap profits; we just can't index LT contracts to world oil prices anymore.

Identified barriers:

- ✓ transmission providers can't commit to cost of service contracts due to highly volatile commodity prices (copper, steel);
- ✓ There is a range of issues associated with intermittent generation ;
- ✓ Some the fundamental questions relate to the cost of various major projects and getting them to market;
- ✓ Transmission capacity needs to be increased through Maine, New Hampshire, and Vermont in order to deal with the projected trade levels;
- ✓ The utilities have to answer questions of having rate payers shoulder the burden of significant new costs against alternatives that could be more or less expensive;
- ✓ There remains the issue of state RPS's not recognizing large-scale hydro; and
- ✓ Dealing with the four Atlantic provinces is much more difficult than directly with HQ.

<u>Transmission …</u>

Based on the morning's presentations, the current situation is one of generation in the north and load in the south even within New England. The question of who will pay for system upgrades needs to be resolved even before looking across the border to Canada. There is some feeling that in contrast to a system where generation includes the cost of getting electrons to market there should be some recognition that the system needs to be robust enough to handle all providers, therefore requires a shared system tariff. While there is universal support for maintaining system reliability, there is some disagreement over whether system upgrades described as necessary to maintain/enhance reliability are adequately recognizing that there are other un-socialized benefits accruing to different parties.

Work on infrastructure in New England would leverage transmission in Canada with no additional work needed (in New Brunswick) to increase electricity exports; also, HQ Phase II with some adjustments can carry more power than it currently does …

The grids will need the ability to adapt to the intermittency and harmonics of significant new wind resources …

The big transmission issue is that the big new resources are in the north and the big markets are in the south and interconnection enhancements alone may not be adequate … who will pay for the upgrades needed?

There are many issues related to system build-out for reliability purposes – while reliability is the responsibility of all regulators things like the Maine reliability proposal may not be entirely for reliability needs.

We've traditionally accepted imperfections in the market (like reliability benefits) in the past but now it seems we want our future structures to be 'perfect'.

We need to determine whether getting power from Canada is the economic choice and whether new transmission is needed – 1st is it economic, then address transmission.

Reaching a decision on how to upgrade the ISO-NE system:

- will require a coherent regional vision;
- should recognize that the upgrades will allow greater transfer of energy in both directions;
- needs agreement on what costs are included and what are not; and
- give consideration to more improved market integration and balancing benefits.

Identified barriers:

- ✓ Siting;
- ✓ Balancing intermittent resources; and
- ✓ RECs designations for large-scale hydro, nuclear, etc.

SESSION 2: POLICIES AND MECHANISMS

Some issues and conclusions noted that would contribute to the structuring of long-term agreements or otherwise promote trade in large-scale low-carbon resources in the region were:

- Long-term pricing might expand the number of options available to utilities beyond simply the cheapest alternative;
- It is not clear who will have to move first to explore this issue, government or industry;
- If one assumes that ratepayers will pay the risk premium, then governments will have a primary role in negotiations;
- There is the possibility of creating opportunities for merchant transmission owners;
- States might consider picking an entity to negotiate a 100MW deal and assess performance. Need a test case that puts money on the line - avoid transmission issues and focus on the LTC issue;
- Alternatively, negotiate a deal in principle for review by regulators. Needs to include capacity of infrastructure and pricing options and amounts that could be delivered;
- Revisit the classification of nuclear and LS hydro as low-carbon energy as states continue to assess RPS.
- If the only option is price, then regulators could construct the elements of a LT contract framework by estimating the price of the energy, the price of the transmission and additional features (term, hedging mechanisms). A starting point would be to forecast a reasonable delivered price of electricity to consumers and use this as yardstick for assessing the attractiveness of new supply options.
- In order to make the US infrastructure investment decisions, there needs to be some information from Canada on the amount available for export, the price, and when it will be available. Canadians can provide current pricing based on wind energy development contracts and predict delivered cost at the border. The analysis could include several scenarios since some higher volumes would imply transmission upgrades in Canada.

However, there was no agreement on picking an energy mix that meets emission targets as market forces will choose the least cost options. It is held that the marginal price of electricity will be determined by price of natural gas generation, and compliance with carbon markets. The concept of merchant transmission could also be viable since in some states there may be limited support for a regional tariff for expanded transmission capacity.

In terms of mechanisms, interstate gas pipelines propose a project, have an open season for subscribing for transmission, then go to binding commitments and financing (with generally 10-20 year contract terms).

Several pathways are necessary for resolving contingency issues; what Massachusetts and Rhode Island are doing relative to distribution company long-term contracting could serve as a regional model.

If we pick solutions to meeting the carbon cap we can only increase the costs of meeting that cap … a national carbon cap is the regulatory structure some states are looking at.

Recommendations and Next Steps

The messaging to governors and premiers is that there are avenues to achieve progress on increased trade in low-emission energy, but there remain several steps that need to be addressed.
Some of the key questions to be answered are:

- Determine options for transmission corridors (US).
- Options for transmission cost allocation (US).
- General information on probable delivered cost (Canada).
- Whether a national cap and trade trade system is a certainty (US and Canada)
- In an era without coal is the possibility of 80% reliance on natural gas an acceptable alternative (US)

In the context of the NEG-ECP the participants agreed that there is a need for clear direction on what the objectives of the region are. There is no clear consensus but as a group the stakeholders believe there is benefit in regional cooperation and are willing to commit to a schedule and process to further assess issues. The participants would like to get past the theoretical and confirm there is an opportunity that would justify building transmission and satisfy needs

For the consideration of the Northeast International Committee on Energy:

Data and Informational Tasks:

- *The participants requested that states and provinces review their lists of proposed new generation projects and classify them as confirmed, likely, or under review. Ensure that Canadian RPS's are already met before calculating export capacity.*

Facilitation and Coordination Tasks:

- *Initiate a regional dialogue on the classification of large-scale hydro and nuclear as renewable under state RPS's, and possible options.*
- *Provide guidance from policy-makers to ISO-NE and other players on how to proceed.*
- *Introduce a discussion on options to socialized transmission.*

Contractual and Regulatory Tasks:

- *New Brunswick will use the existing transmission tariff to provide a delivered cost to the Maine border of wind generation, and provide an outline of existing contract structures used by developers.*
- *Have regulators construct the elements of a LT-contract framework by estimating the price of energy, the price of transmission and additional features (like term and hedging mechanisms).*

NEG/ECP--Energy Dialog 2008
High Level Facilitator's Summary

Dr. Jonathan Raab, Raab Associates/MIT

May 21—Montreal Meeting

Presentations

- Steve Rourke (ISO NE), Maps and "Regional Interchange and Renewable Resource Information"
- Paul Hibbard (MA DPU), "Power Trade: Market Context and Opportunities"

Opportunities

- Substantial renewable and low emitting power available for export from CN in 2011-2021 timeframe (over 10,000 MW and 50,000 GWH by 2021)
- Numbers need to be updated, and show where they are in development process
- With adequate transmission export potential could probably be greater
- Note: Exports not constrained by need to retain generation to meet carbon targets in Canada, at least in short run

Other Opportunities

- System balancing capabilities
  - Summer/Winter
  - On-peak/Off-peak
- Probably other synergies TBD
- Also new LNG capacity for export
- Chance to reframe where we should be going as region and how best to get there

Barriers—
Need for Long-Term Contracting

- Need not all be in long-term contracts
- Need not all be at fixed price.
- Need to hedge against the possibility of load migration during contract term
- Need to address restructured states preference for shorter-term arrangements
- More sophisticated contracts with shared risk, contingent arrangements, variable time lengths, etc. necessary and achievable.

Barriers—Transmission

- Major challenge is probably transmission between Northern NE and Southern NE
- Need to demonstrate that the price of energy justifies the transmission investment.
- ISO NE can do studies, but require convergence on major assumptions (e.g., future prices of gas, HQ, and nuclear)
- Need to explore new ways to finance this transmission (other than CN paying 100% or full NE socialization)

Barriers—Transmission

- Maine Power Connection project could handle 950 MW of new ME wind. Might be able to get regional cost recovery under Appendix M. Likely to be controversial.
- Need to improve existing infrastructure first to increase carrying capacity
- NB/Maritimes transmission project helps region
- Need to further evaluate and address impact of wind on transmission system (i.e., power quality issues)
- HQ currently pays up to $600/KW for transmission projects
- Solutions should be world scale, synergistic, and foundational

Other Barriers

- Market integration/System balancing
- Challenges of very long-term investments, and interface with financial markets and regulatory arenas (e.g., carbon caps)
- Need to hedge
- Who takes the risk?
- Dealing with multiple jurisdictions on both sides of the border
- Being willing to overcome “inertia” and recommend changing our course, if need be
- Siting
- Large scale hydro and nuclear in REC markets

Potential Next Steps (To Do List)

- Update Canadian potential export numbers through 2021 (appropriately caveated)
- List various transmission options on both sides of border, and evaluate their cost, incremental throughput, and siting feasability
- Explore and evaluate different cost allocation options for transmission
- Assess potential economic trading value
  - Roughly what are the potential delivered prices on new resources to the Canadian border?
  - Roughly would the delivered prices need to be Southern New England to justify expanding transmission?

Potential Next Steps (To Do List)

- Assess potential for merchant transmission solutions
- Discuss shifting emphasis of environmental policies to "low carbon"
- Develop test or real case to see what deals are possible
  - Consider open season for transmission/generation proposals
- Evaluate impacts of potential US national GHG cap and trade laws on all of the above

Recommendations on Energy Trade to Governors and Premiers in September

- States and Provinces believe that there is potentially significant value from enhancing energy trade
- However, no firm conclusion or consensus yet
- Both sides are committing to do the following things (…), by the following dates (…).
- As part of our continued joint exploration, we may issue a call for generation/transmission proposals

Power Trade:
Market Context and Opportunities

Paul J. Hibbard, Chairman
Massachusetts Department of Public Utilities

NEG/ECP Energy Dialogue – Montreal, Quebec
May 21, 2008

1

Summary

- New England Governors and Eastern Canadian Premiers interested in reviewing ways to facilitate economic energy trade
- Also committed to addressing climate change
- Are there power trade opportunities that can facilitate both?
- What are the opportunities, what are the barriers?

2

Overview

- [*Canadian context: have power, will sell?*]
- New England context: have load, will buy
  …If cheaper
- So, what I will review: New England context
  – Power market context
  – Environmental context
  – Key mechanisms and barriers for trade

3

Key Observations

- **The wholesale power market in New England is competitive and internally robust**
- **The retail power market in New England is competitive, but also partly regulated**
- **Emission control is largely market based**
- **The proper environmental context for resource considerations is a national, all-sector carbon cap & trade program**
- **Opportunities: market sales, long-term contracts for basic service, state power authority models, …**
- **#1 Barrier: push for regionalization of transmission costs within New England**

4

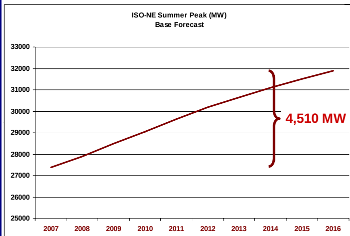
Wholesale Market

Competitive Wholesale Market

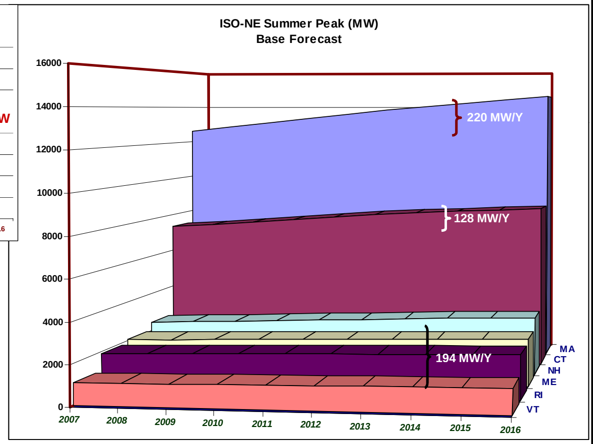
- What is the backdrop for wholesale market transactions in New England?
  - Demand growth
  - Supply needs
  - Market response
- What does this imply for power pricing?
  - Price formation, now and future
  - Impact of competing alternatives
  - Role of transmission

6

Does NE need new power sources?



- **CAGR 1.7% 2007 – 2016**
- **4,510 MW increase**

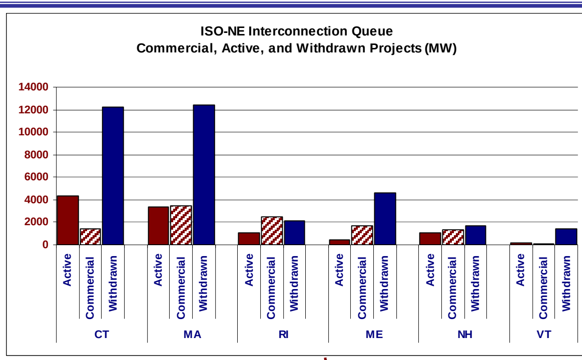


- ***>>Yes***
- **On order of 500 MW/year**
- **Could be significantly affected/delayed by region-wide expansion of energy efficiency and demand response**

7

Data: ISO-NE CELT 07, RSP 07 (draft)

Will Market Meet Resource Needs?



<u>Southern New England</u>
- 8,760 MW active proposals
- 7,279 MW commercial
- 26,685 MW withdrawn

<u>Northern New England</u>
- 1,714 MW active proposals
- 3,079 MW commercial
- 7,741 MW withdrawn

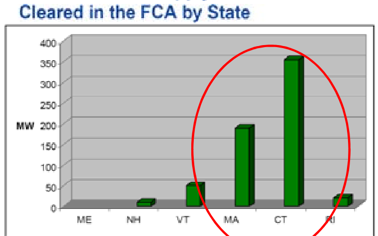
- ***New England needs new supply, and in-region market resources can meet the need***
- **Over 10,000 MW developed in 10 years**
- **Over 10,000 MW are active in queue**
- **Gas plus renewables**
- **As needed, most are in southern NE, close to load**

8

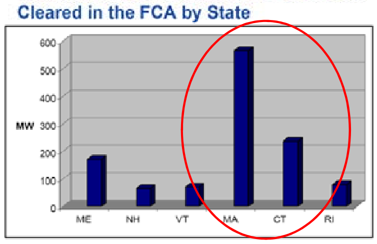
Source: ISO Queue

Forward Capacity Market

626 MW of New Supply Resources that Cleared in the FCA by State

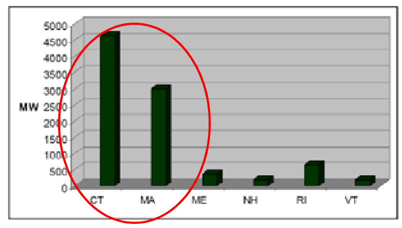


1188 MW of New Demand Resources that Cleared in the FCA by State



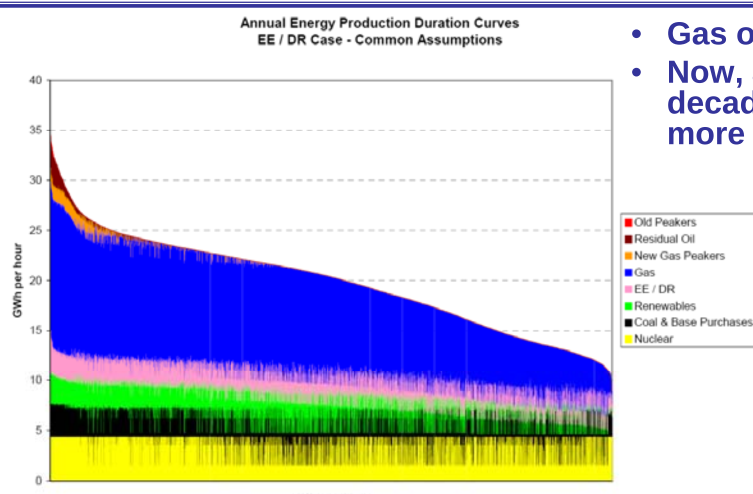
- Active participation by supply *and demand* resources
- Mostly in southern New England
- Includes needed peaking resources
- Successful resources responsible for ALL costs of necessary transmission system i/connection and upgrades

8985 MW of New Supply Resources Seeking Qualification in the Second FCA by State



Source: ISO NE

Price Formation



- **Gas on margin**
- **Now, and for a decade or more to come**

- **Notably, new renewables can not change price formation context**

Source: ISO Scenario Analysis

Electricity Price Implications

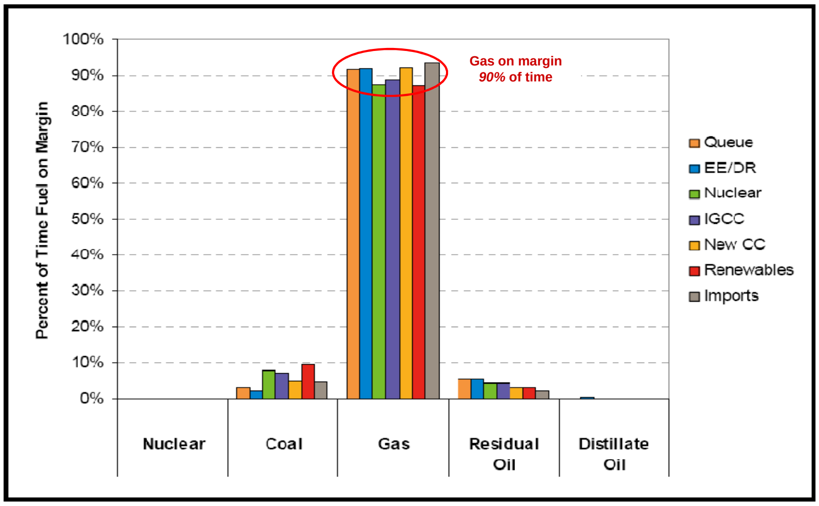


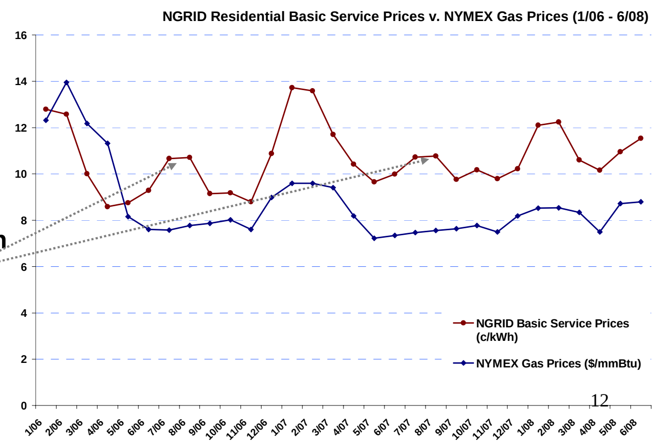
Figure 4: Percent of time fuel is on the margin.

Source: ISO Scenario Analysis

Price Correlation at the Retail Level: Basic Service Electricity and Natural Gas

- **Rates charged to NGrid Electric customers**
  - **Average price for 2 semi-annual procurements**
- **NYMEX future-month prices**
  - **Average for each month of NYMEX at time of each procurement**

- **Forward electricity prices generally track forward natural gas prices**
- **Effect of increasing heat rate observable in peak periods**



Source: DPU

Summary of Market Context

- New England will need new power resources
- Need may be attenuated by recent surge in demand response and state efficiency policies
- Market is responding
  - In-region demand response, renewables
  - Natural gas CC and CT close to load, with oil backup
  - Interest in importing power from north
- Electricity price drivers are known with certainty
  - Natural gas on the margin almost all hours, and will continue to be the case for decade or more
  - True whether we meet incremental demand with more gas, or with renewable or other non-gas resources
  - Additional investment in transmission cannot produce a different result, other than by *adding* transmission costs

13

Environmental Policy

Environmental Policy

- What are the relevant environmental policy considerations related to energy trade?
- How might trade affect U.S. policy compliance?
- What does this imply for efforts to choose resources outside of competitive market outcomes?

Framing of Issue

- New England load needs power from the north to meet RGGI & RPS
- Based on review of New England resources vs. New England demand
- So, New England should pursue and subsidize such power (e.g., by paying for transmission interconnection)

Digging a Bit Deeper…

- **RPS**
  - **Retail supplier requirement, or "floor"**
    - **Intended to avoid self-build requirements, resource planning approach**
    - **Wholesale market internalizes REC value, produces least-cost path to compliance**
    - **Ratepayer impact is predetermined, capped by ACPs**
      - **If market can not meet RPS for less than ACP, retail funding redirected to R&D**
      - **Explicit decision by legislatures, regulators**
    - **Legislators appear willing to adjust standards to meet available resources**
    - **Main purpose: Carbon control**
  - **Objective: Financial signal to spur market development *without* specific resource selection**

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Digging a Bit Deeper…

- **Carbon**
  - **RGGI**
    - **Cap not particularly challenging for a decade**
    - **Cap & trade; allowance market extends well beyond New England, could grow even larger**
    - **Premature to judge energy infrastructure response**
  - **BUT, relevant metric: national carbon law**
    - **Timeframe of potential development of northern resources? 5-10 years?**
    - ***Likely* we'll have national program by then**
    - **Resource selection under cap does not change emissions, only compliance costs**
    - **Lieberman-Warner**
      - **<u>all sectors</u>; inter-sector trading; possible fuel efficiency standards; reforestation, advanced technology funding**
      - **Economy-wide trading produces most efficient compliance path**

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Correct Framing of Issue

- ~~New England load needs power from the north to meet RGGI & RPS~~
  - Government policy set standards, markets produce most efficient compliance path.
  - In-region demand response, efficiency, renewables will contribute
  - Power from North will contribute, only if economic in power markets
- ~~Based on review of New England resources vs. New England demand~~
  - RGGI, RPS boundaries and compliance opportunities extend well beyond New England; potential projects are numerous
  - In any event, national all-sector carbon cap & trade program is the correct frame of reference given development timelines – not RGGI, RPS
- ~~So, New England should pursue and subsidize such power (e.g., by paying for transmission)~~
  - Wholesale market will produce most efficient resources given financial signals of environmental policies
  - Selection of specific resources likely to decrease compliance efficiency

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Opportunities and Barriers

Summary Observations

- New England will need resources
- Market appears poised to provide resources needed
- Basis for future market prices is known, and is virtually independent of *which* resources are added
- Power from northern New England or Canada are not needed for:
  - Resources/reliability
  - Policy compliance (RPS/RGGI)
- *But*, could help stabilize electricity prices
  - IF structured at good prices in long-term contracts

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Opportunities for Power Sales

- Competitive market sales
  - Of any duration
  - To any market participant (supplier, broker, utility, end users)
- State-based procurements
  - Power authority arrangements
  - RFP-based procurements
- Utility basic service contracts
  - For energy, or energy plus RECs
  - Long-term contract approvals possible under existing statutory constructs; new statutory constructs possible if appropriate
- Other arrangements?

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Key Factors

- **Delivered price**
  - **including transmission**
- **Relative to what otherwise would be paid**
  - **Market resources, close to load, little or no incremental transmission costs**
- **Important considerations**
  - **Pricing formula (flat, indexed)**
  - **Contract term**

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Key Barriers

- **Siting**
- **Efforts to recover in-region transmission costs via pool-wide tariff**
  - **Inefficient, unfair market intervention for generation interconnection/upgrades**
  - **Guarantees extensive delay**
    - **Committee processes**
    - **Regulatory proceedings**
    - **Courts**
  - **Pursuit of alternative funding mechanisms can avoid this**
    - **Coupling of transmission with power transactions**
    - **Negotiated mechanism tying benefits to costs**

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MEMORANDUM

From: Paul J. Hibbard, Chairman, Department of Public Utilities

To: Gordon van Welie, ISO New England
Bob Ethier, ISO New England

cc: Sharon Reishus, Chairman, Maine Public Utilities Commission
Joe Staszowski, Northeast Utilities
Economic Study Process Stakeholder List

Date: June 11, 2008

Subject: Economic Studies Working Group

Dear Gordon and Bob,

As you know, in late March ISO New England kicked off a Stakeholder Review Process for Attachments K and N to the Open Access Transmission Tariff (Tariff), recognizing that until now, these provisions have never been used. In a few meetings since that time, we have reviewed (without conclusion) a number of issues, including background on the Tariff Attachments, issues related to interpretation of Tariff Attachment language, what projects are eligible for review under these Attachments, the type of analysis for projects submitted, and the application of certain analytic methods to a recently-filed Attachment N request. It is fair to say that the Stakeholder Review Process has been initiated, and that stakeholders are busy getting up to speed on the many and complex issues raised by these Attachments and the implications of various interpretations and project reviews that may flow from them. In this vein, I look forward to continuing to participate in such review.

However, I am writing to express a growing concern over the focus and pace of the current Stakeholder Process. As you may have noticed in previous meetings, there remain significant reservations with respect to ISO's interpretation of related tariff language, the economic and policy rationales for the analytic method proposed for associated studies, and the framing and processing of the Attachment N study request for the Maine Power Connection (MPC). I believe these stakeholder reservations reflect a deeper unease and disagreement concerning ambiguity in the Tariff with respect to the purpose of and process for Attachments N and K, and the implications of potential outcomes for (1) the continued evolution and competitiveness of our region's wholesale electricity markets, (2) the jurisdictional roles of states and the federal government over resource planning, (3) the proper role of ISO in the administration of electricity markets and the Tariff, and (4) the impact of related resource and cost allocation decisions on all of the region's electricity consumers.

For example, it is clear that the purpose of some – if not all – Attachment N and K study requests received to date is to achieve regionalization of the cost to interconnect specific generating resources inside or outside the New England region. This raises some fundamental questions concerning the future of regional electricity markets, and the role of the ISO, such as:

1. Will demand and supply resources for New England continue to be selected via the region's competitive markets, or should they result, in whole or in part, from system planning analyses, or administrative determinations of potential or asserted generation project benefits?
2. If the latter, who ultimately is responsible for making decisions related to which demand and supply resources should be added to meet each state's retail customer needs?
3. Who is or should be responsible for paying for transmission system projects that are not focused on maintaining power system reliability, or reducing congestion, but instead are entirely or largely driven by the interconnection of new generation resources?
4. What is the appropriate economic and analytic basis for modeling approaches under Attachments N or K, particularly if such studies are focused on the addition of generating capacity?
5. What should be the role of the system operator in the administration or review of state environmental legislation and policy?

I understand that the entities filing the MPC request have asked for expedited treatment under Attachment N. However, the issues involved in considering the processing of Attachments N and K requests are new, and are fundamental to the role of ISO, the administration of the Tariff, and the fairness and competitiveness of the region's wholesale electricity markets. It is simply premature and inappropriate to process *any* request under either Attachment prior to resolution at the regional level of the underlying policy and tariff issues associated with such reviews, agreement on analytic and modeling approaches, and clear delineation of the practical outcomes that flow from such studies with respect to resource selection and infrastructure cost allocation.

Please do not hesitate to contact me if you have any questions.

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC UTILITY CONTROL

DONALD W. DOWNES
CHAIRPERSON

July 10, 2008

Gordon Van Welie
President and CEO
ISO New England
One Sullivan Road
Holyoke, MA 01040

Honorable Sharon Reishus
Chairman, Maine PUC
242 State Street, State House Station 18
Augusta, MA 04333

Honorable Paul Hibbard
Chairman, Massachusetts DPU
One South Station
Boston, MA 02110

Joseph Staszowski
Director of NEPOOL and ISO Relations
Northeast Utilities Services Company
107 Seldon Street
Berlin, CT 06037

Dear Economic Studies Working Group Steering Committee:

We grow increasingly concerned as we see the emerging dialogue over the development of economically beneficial transmission facilities. Specifically, we are concerned that the process and method used to evaluate economic transmission proposals must be competitive (*i.e.*, reviews many competing projects to identify relative benefits), comprehensive, open, transparent, non-discriminatory and in the public interest. Moreover, notwithstanding any language in the tariff or elsewhere to the contrary, we believe that it is imperative that load not be required to fund construction of any economic upgrades, but rather that any decision by load to fund such projects must be voluntary.[1]

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[1] The Department has serious concerns regarding the legal authority under the Federal Power Act of the ISO New England and the Federal Energy Regulatory Commission to require states to fund economic transmission upgrades that are not needed to maintain transmission system reliability or to fund the cost of transmission designed to promote and interconnect certain types of renewable generation that the ISO NE deems beneficial.

We believe that time is of the essence for resolving these concerns. The Department also believes that the best way to identify the lower cost alternatives and the most beneficial project proposals is to compare competing proposals rather than a "gold rush" approach in which individual proposals are examined in isolation on a first-come-first-served basis.

When Attachments K and N were developed, some extremely important issues were not fully addressed. For example, there is no specific language that determines the parameters (processes, assumptions, methodologies, criteria, etc.) for the economic studies that are essential for ultimately determining whether there will be an economic benefit. These parameters are critically important and could dictate the outcome of the analysis.

Such gaps in the rules will continue to impede our progress until they are resolved. Those who might be inclined to press on without first resolving these threshold issues relating to how the economic studies are to be conducted may find that the subsequent challenges may consume much more time (and produce a less desirable outcome) than simply confronting the issues now.

We believe that a concerted effort could resolve these issues reasonably quickly so that we may then take the necessary next steps toward implementing an appropriate review of economic transmission proposals. In order to focus the discussion, we offer the attached framework of ideas for the consideration of the participants.

We recognize that this straw proposal is not comprehensive but rather is an attempt to address the issues we perceive to be deal breakers.

We hope you find these suggestions useful. Please contact us if you have questions or comments.

Best regards,

Donald W. Downes
Chairman, Connecticut DPUC

Proposals for Transmission Dialogue

1. *Suspend Decision Making Until Outstanding Issues Are Resolved* – The ISO will not make a determination under Attachment N that any project qualifies as a Market Efficiency Transmission Upgrade that is eligible for inclusion in Regional Network Service rates on grounds that the project provides economic benefits until a settlement is reached or until a date certain. This provision will insure that the parties devote a serious, timely effort to resolution while protecting those parties that may be asked to pay for transmission projects.

2. *Determine Economic Benefit Study Parameters* – This process is well under way, but there needs to be further process in order to gain consensus regarding the procedure, methods, and criteria for evaluating proposed economic transmission upgrades. A significant number of parties representing substantial load, generation, and municipalities appear to have concerns that need to be addressed. One major issue of concern to the Department relates to assumptions the ISO NE makes regarding the potential benefits from generators that may or mat not interconnect to the proposed transmission line. When assessing the economic benefits of any proposed transmission line, the ISO NE should not assume that any new generators will be interconnected, but rather should analyze the economic benefits of the line based on actual existing generation only. It is too speculative to assume that certain types of new generators or additional amounts of megawatts will, in fact, interconnect and operate in a specified manner when there are not any contracts in place to assure such performance or binding commitments in the FCM. Absent a firm commitment by generators to interconnect, as evidenced by an obligation in the FCM or a contractual obligation backed by sufficient performance security, ISO NE should not assume hypothetically that any new generators will interconnect for purposes of analyzing forecasted benefits of any economic transmission proposals.[2]

Equally important, projects should not be examined on a first-come-first-served basis in a process akin to a "gold rush." Rather, an open season should be conducted to examine all alternatives so that the lower cost and/or most beneficial transmission projects can be selected. Unlike reliability upgrades, where a limited set of types of facilities at a limited set of specific locations will fix a specific transmission problem, with economic type upgrades, the variety of possible proposals is potentially unlimited as to the type, purpose, and location of the proposed facilities. For this reason, it is important to examine alternative proposals together before a determination is made that any particular alternative is economically beneficial.

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[2] For any generators that may actually interconnect to any economic transmission projects, there is a substantial body of authority and precedent on the issue of who bears the costs of interconnection. The Department believes that these rules should remain applicable to generator interconnections to any economic transmission projects. First, as has traditionally been the case, the cost of interconnection must be borne by any generation project that may interconnect. Second, future determinations regarding PTF should not be expanded to categorize as PTF those facilities that have traditionally been treated as generation interconnection facilities.

3. *Develop the Mechanism for Realizing Economically Beneficial Projects* – This will be the most difficult issue to resolve. There appears to be widespread agreement that ISO should not unilaterally impose the costs of projects after a mere administrative procedure. Instead, we suggest several elements that the mechanism should include:

- Disengage the automatic inclusion of projects in RNS rates simply upon a finding of economic benefit.

- Announce the results of studies of projects that are alternatives, including other transmission, generation and demand-side alternatives, or complements to one another simultaneously, so that all participants can understand the benefits and obligations of each alternative and compare them to each other, singly or in combination.

- Partial cost socialization – if a particular project contains some elements that are clearly PTF additions and other elements that are not, then socialization should apply to the PTF elements and not apply to non-PTF elements. This principle could also be applied where some percentage of the transmission capacity is needed for reliability and additional capacity may be designed into the project to achieve economic benefits – *i.e.*, only the reliability costs would then be socialized.

- "Open season" approach

Memorandum

To: Gordon Van Welie, ISO New England

Robert Ethier, ISO New England

CC: Paul J. Hibbard, Chairman, MA Department of Public Utilities

Joe Staszowski, Northeast Utilities,

Economic Study Process Stakeholder List

From: Sharon Reishus, Tom Getz, Elia Germani, Jim Volz and David O'Brien

Date: 8/11/2008

Re: Economic Studies Working Group

Dear Gordon and Bob,

As you know, two of New England's state regulatory commissions have offered their views on the progress of the Economic Studies Working Group. We are writing to you to provide the views of the Maine Public Utilities Commission, the New Hampshire Public Utilities Commission, the Rhode Island Public Utilities Commission, the Vermont Public Service Board and the Vermont Department of Public Service.

We agree with many of the observations made in the letters of both the Massachusetts DPU and the Connecticut DPUC. In fact, the Draft Scope of Work which is currently before the ESWG in draft form, which we support, mirrors many of the concerns raised by both agencies.

A common theme of the Massachusetts and Connecticut letters is that there should be some attempt at a "beneficiaries pay" approach when it comes to cost allocations for Market Efficiency Transmission Upgrades (METU). While many of us have advocated this approach to transmission cost allocation in the past, we worry that creation of a distinction between how costs are allocated based on project classification can create additional problems since most transmission projects have both reliability and economic aspects to them. Nevertheless, because the line between reliability upgrades and market efficiency upgrades can be a gray one, we are prepared to explore a different cost allocation. Furthermore, we agree that all projects should be subject to stricter cost controls and we are committed to pursuing that critical goal.

We do not agree with our colleagues, however, that there should be a suspension of work on the application now before the ISO.[1] We agree with the ISO's interpretation that there is an obligation to process the application before it according to the current tariff until that tariff is changed. ISO's responsibility is to operate in accord with the tariff and we expect it will discharge its responsibilities appropriately. At the same time, we agree, consistent with the intentions of the ESWG, that the METU application process merits greater attention and further development.

Finally, we would like to point out that we all must be willing to work together to address current problems such as diminishing fuel supplies, rapidly rising fuel prices and environmental degradation. New England has demonstrated its ability to work together when faced with this type of problem in the past. It shared the cost of developing nuclear and large oil fired power plants, it shared the cost of developing the 345 kV system to join them together, and it developed an entity (first NEPOOL and then ISO New England) to coordinate joint dispatch and administer tariffs. We hope the region can once again come together and find common cause.

Please do not hesitate to contact us if you have any questions.

[1] Since the Maine Power Connection (MPC) project is now before the Maine PUC, these comments should not be taken as a position of the Maine PUC on the merits of that project.

Scope for Economic Study Process Working Group

DRAFT

Overview

The Economic Studies Process Working Group is intended to bring together interested stakeholders to establish the process for the review of the economic factors and modeling assumptions to be considered in the detailed evaluation of the benefits and costs of any potential Market Efficiency Transmission Upgrade (METU) under Attachment N and for the conduct of economic studies under Attachment K of the ISO New England Inc. ("ISO-NE") Open Access Transmission Tariff ("OATT").

Background: Tariff Language in Attachment N

"Market Efficiency Transmission Upgrades are upgrades designed primarily to provide a net reduction in total production cost to supply the system load."(Attachment N, Section II.B)

"Although not used to evaluate the net economic benefit of the system Upgrade, analysis may be provided to illustrate the net cost to load with and without the transmission upgrade – considering additional factors such as locational ICAP, congestion costs, and impacts on bilateral prices for electricity" (Attachment N, Section II.B)

Background: Intent of Attachment K Economic Studies from Order Nos. 890 and 890-A

Primary objective:

"… to ensure that the transmission planning process encompasses more than reliability considerations." (p542)

Other objectives:

"… to require transmission providers to prepare studies identifying "significant and recurring" congestion and post such studies on their OASIS" (P529) as well as "… to integrate new generation resources or loads on an aggregated or regional basis." (P548)

"… to ensure that customers may request studies that evaluate potential upgrades or other investments that could reduce congestion or integrate new resources and loads on an aggregated or regional basis (e.g. wind developers), not to assign cost responsibility for those investments or otherwise determine whether they should be implemented." (P544)

"… not to impose a costly study requirement that is unrelated to the real-world concerns of consumers." (P546)

"By expanding the scope of [the economic planning studies] principle, we do not intend to supplant the existing process for individual customer to integrate new resources or loads through specific requests for interconnection or transmission service under the pro forma OATT. Rather, we contemplate that any such studies conducted pursuant to this principle, as explained above, would be for purposes of planning for the alleviation of congestion through integration of new supply and demand resources into the regional transmission grid or expanding the regional transmission grid in a manner that can benefit large numbers of customers, such as by evaluating transmission upgrades necessary to connect numbers of customers, such as by evaluating transmission upgrades necessary to connect major new areas of generation resources . . . Specific requests for service would continue to be studied pursuant to existing pro forma OATT responses." (P549)

Draft Scope of Work

I. Attachment N

Technical Issues

Review and develop a common understanding of the factors for identifying METUs which are listed in Attachment N

Assess how base case conditions are determined in the economic modeling of an METU.

Questions to be answered:

- Should planned units be included in the economic studies?
- Should new resources displace existing resources? (i.e. should the system be modeled at criteria)
- What sensitivity cases should be evaluated and what role should the results play in the final determination?
- What study period should be used for the evaluation and should it be dependent on the in-service date of the upgrade being evaluated ?
- Review and determine if the economic model used should be widely used and available. Should a spreadsheet tool be available similar to the Scenario Analysis tool?

Policy Issues

Reach agreement on the methodology for calculating economic benefits for proposed additions

Questions to be answered:

Should the production cost standard for METU's currently in the tariff be changed, i.e. to LSE costs, or supplemented?

Should externalities be factored into any analysis as part of the standard? For example, RGGI requirements, the value and costs of RECs (and similar programs)

How should transmission project cost uncertainty be addressed in METU determinations and/or in how transmission costs are allocated?

Should there be a RTU/METU hybrid class? How might such a class be evaluated?

Evaluation Issues

Determine how to evaluate and choose among potentially competing alternative economic transmission projects

Reach agreement on the need for consistency between Attachment N and Attachment K evaluations

Reach agreement on a governance or decisional structure for METUs

Consider the appropriate role of the ISO

Which of these issues might be delegated to subgroups of the ESWG?

Implementation Issues

Determine whether modifications to Attachment N are desirable and/or necessary

Determine whether more detailed evaluation instructions should be reflected in an ISO Planning Procedure

II. Review current requested evaluation of a project as a METU under Attachment N

Evaluate the Maine Power Connection economic studies and associated processes, and provide input to the ISO as it executes its responsibilities under the existing Tariff.

III. Attachment K

Evaluate submittals and prioritization of Requests for Economic Studies under Attachment K and propose criteria for use in future years as appropriate.

Questions

Should Attachment K studies be more specific in future analyses?