TRANSMISSION IN THE NORTHEAST

Law Seminars International

New England States Committee on Electricity

March 20, 2015

NESCOE

New England's Regional State Committee governed by a Board of Managers appointed by each of the New England Governors to represent the collective views of the six New England states on regional electricity matters

- **Focus**: Resource Adequacy, System Planning & Expansion

- **Resources**: 5 full-time staff with diverse disciplines & experience. Consultants, primarily for transmission engineering, economics & independent studies

- **More information**, filings & comments at www.nescoe.com

Overview

- Transmission in New England
  - Congestion
  - Other resources delaying or replacing transmission
  - Planning Guides
  - Cost Estimating and Containment
  - Order 1000

- New England Governors' Infrastructure Initiative

CONGESTION VIRTUALLY NON-EXISTENT

"The…2009 Congestion Study concluded that New England was no longer a Congestion Area of Concern. Since that time, **congestion in New England** has diminished even further and **is today virtually non-existent**." *NESCOE Comments to 2012 National Electric Transmission Congestion Study, U.S. DOE Consultation Draft*

- ✓ **Looking back 2002 - June 2014**: 559 projects into service – **$6.6 billion** new infrastructure investment

- ✓ **Looking ahead**: As of June 2014, the total estimated cost of transmission upgrades - proposed, planned, under construction - was approximately **$4.5 billion**

SIGNIFICANT STATE INVESTMENT IN OTHER RESOURCES THAT REDUCE THE NEED FOR OR AFFECT TIMING OF NEW TRANSMISSION TO MEET RELIABILITY NEEDS

ENERGY EFFICIENCY

- Four New England states - **MA, CT, RI, VT** - in top 10 nationally for EE
- Aggressive investment is reflected in regional planning, at states' request
- ***2018-2023 ISO-NE EE Forecast*** shows MA will invest another $3B over time period - savings of at least 4.5 TWh and 605 MW
- New England states will invest **$5.7 billion** for total savings of 9.1 TWh and 1.2 GW **by 2023**

DISTRIBUTED GENERATION

- ISO-NE developed, at states' request, solar PV forecast based on state policies with funding sources
- With discounts, region expects to increase installed solar from roughly 175 MW in 2013 to almost 500 MW by 2016 and up to almost 750 MW by 2024
- In 2014 forecast of solar PV as to the end of 2014, ISO- NE projected 246.5 MW of new solar PV; survey indicates **actual increase was 410 MW**
- **ISO-NE collecting data on DG more broadly for forecast**

TRANSMISSION PLANNING GUIDES

In response to states' request, ISO-NE developed **Transmission Planning Guides** on the **regional planning process** and **planning assumptions**

- increase transparency about and confidence in aspects of planning questioned by stakeholders and in state siting
- memorializes what are reasonable assumptions and criteria ISO-NE uses to model transmission system conditions in identifying a "need"

Multi-year Road to Consider Use of Probabilities in Planning

a more analytical, mathematical approach to developing assumptions

2013: NESCOE presented in several venues the concept of using probabilities in planning
2014: ISO-NE began stakeholder discussions
2015: **New England will begin examining load modeling and unit availability assumptions**

TRANSMISSION COST ESTIMATES & CONTAINMENT

Reliable transmission project cost estimates are a prerequisite to ISO-NE's and state siting authorities' assessment of alternative means to satisfy an objective in a way that best meets consumer interests

Competitive dynamics under FERC Order 1000 spotlights this challenge

States are interested in appropriately structured cost containment as:

- ☑ a tool to limit the risk of cost overruns
- ☑ a selection criterion for evaluating competing transmission projects
- ☑ a way to balance consumers' interest in cost certainty and transmission developers' legitimate unforeseeable transmission project costs

In 2015, NESCOE will encourage focus on cost containment approaches, including cost caps and a review of the process for developing transmission project cost estimates

FERC issued latest ruling in New England's Order 1000 March 19th

Public Policy in Planning

- States: differing views
  - Shared view on strong state role
- It's one tool for states, per FERC
- Some states interested in considering options to satisfy their state policy objectives through incremental transmission already working regionally and already moving to consider resources and infrastructure; some states all set

Public policy consideration can't just be about poles and wires: wholesale markets need to accommodate resources required by state laws

Competitive Transmission

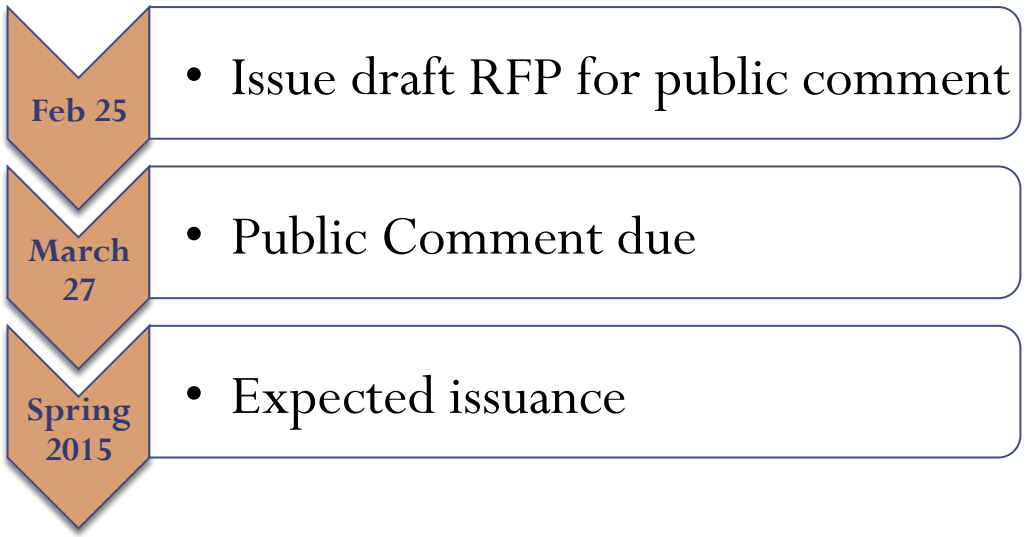
- States: common positive view
- Complexity in implementation
- Complexity in comparing competing projects with different benefits and challenges
- Critical to get details right to achieve potential consumers benefits
  - Accurate cost estimates
  - Reasonable study parameters and costs

Developers should resist temptations to turn this into a lobbying or PR exercise: it's all about objective analysis by ISO-NE and before state siting authorities

Multi-state Coordinated Clean Energy RFP

Certain state agencies and utilities in **CT, MA and RI** developed, with NESCOE assistance, a **joint RFP for clean energy projects** based on each state's current authority. www.CleanEnergyRFP.com

Objective: To explore whether a multi-state procurement might attract larger-scale projects and transmission than single state procurements and achieve individual states' clean energy goals more cost effectively than if each state proceeded on its own



Clean Energy RFP: Eligibility and Mechanics

- **Resource Types: Class I renewable power (wind, solar) or large-scale hydro meeting requirements of states' laws. 20 MW minimum threshold. Over 2,000 GWh in total.**

Project types

- Traditional PPAs No Transmission Requirement
- PPAs with associated Transmission
- Clean energy delivery commitments

Clean energy delivery commitment proposals tie transmission-only support payments to the project's performance in fulfilling the commitments for the delivery of clean energy

- **Support payments under a FERC filed and accepted transmission tariff/rate schedule paid for by the participating states**

- **RFP issuers will jointly and individually evaluate bids**
  - No obligation to procure anything at all
  - Each state, EDC use own authority, criteria, judgment to determine whether a proposed project is cost-effective and beneficial for its consumers

New England Governors' Energy Infrastructure Initiative

Strategic, coordinated investments in regional energy infrastructure that would

- Improve energy **system reliability**
- **Diversify** our energy **supply** portfolio
- Strengthen state and regional **economic competitiveness**
- **Meet** common energy and environmental **policy goals**
- **Increas**e the **supply** of cleaner, no-to-low carbon generation
- **Mitigate energy price volatility**

Achieve what no single state could do on its own

Consumer benefits must outweigh consumer costs

Market-Based Pipeline Solutions Not Meeting New England's Needs

Gas and Electricity Markets' Term Mismatch

- Nationally, the natural gas pipeline industry is based on long-term contractual commitments (i.e., at least 10 years, commonly 15-20 years)
- In New England, the electric industry is based on short-term market price signals (up to seven years for new resources, year-to-year for existing)

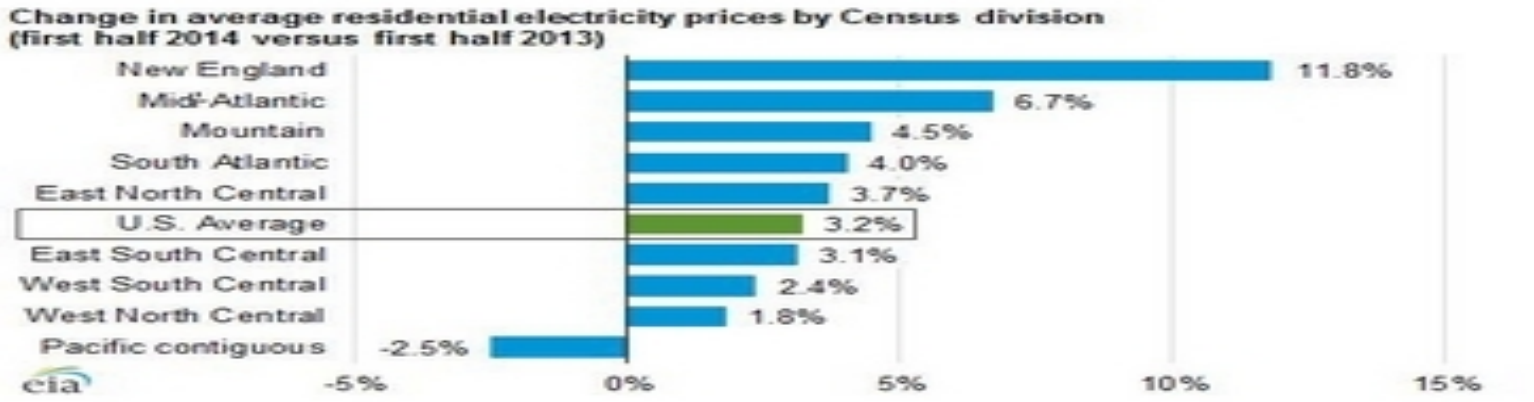
Recent pipeline projects in New England have had zero electric power generators subscribe for firm natural gas transportation

Spectra's AIM project was downsized from original design due to lack of subscription from 500 mmcf/day to 342 mmcf/day

Consumer Consequences of Constraints

U.S. Department of Energy EIA

New England price increases ***triple*** the national average increase in first half of 2014 compared to first half of 2013



Retail Rate Increases – Energy Only

Per Eversource 11/ 2/ 14 presentation

Residential *Rates*	Energy Rate (c/kWh)		% Change	Upcoming Period
	Current Rate	Upcoming Rate		
Connecticut				
CL&P	10.0	12.5	25%	Jan '15 - Jun '15
United Illuminating	8.7	13.3	53%	Jan '15 - Jun '15
Massachusetts				
NSTAR	9.4	15.0	60%	Jan '15 - Jun '15
WMECO	8.8	14.0	58%	Jan '15 - Jun '15
National Grid	8.3	16.2	96%	Nov '14 - Apr '15
Fitchburg	8.5	14.1	66%	Dec '15 - May '15
New Hampshire				
PSNH	9.9	*9.6**	*(3%)*	Jan '15 - Dec '15
Unitil	8.4	15.5	85%	Dec '14 - May '15
Liberty	7.7	15.5	100%	Nov '14 - Apr '15
NH Elec Coop	9.0	11.6	29%	Oct '14 - Apr '15

Power System Reliability Consequences of Constraints

"The **challenges to grid reliability** are not a question of if they will arise, but when - and **when is now**." *ISO-NE 2014 Regional Electricity Outlook*

"The **performance of the largest and most flexible portion of the region's generating fleet** is being **weakened by insufficient natural gas pipeline and LNG storage** in the region." *ISO-NE 2015 Regional Electricity Outlook*

WINTER RELIABILITY PROGRAMS

- ☑ Out of market investment primarily in oil credited with sustaining power system reliability over the last two winters
- ☑ ISO-NE identifies reliability need for future Winter Programs
- ☑ **Costs to consumers of future programs must be benchmarked against costs of current winter program**

Emissions Consequences of Constraints

New England relying more heavily on oil & coal resources

☑ At times this winter they represented about **45% of generation**

☑ New England used **2.7 million barrels of oil** in the 2014/15 winter reliability program

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ISO-NE 2015 Regional Electricity Outlook

"**When gas-fired generators are unavailable** to run or underperform, the **ISO may need to commit** significant amounts of additional generating resources—**mostly oil and coal plants—to maintain system reliability**."

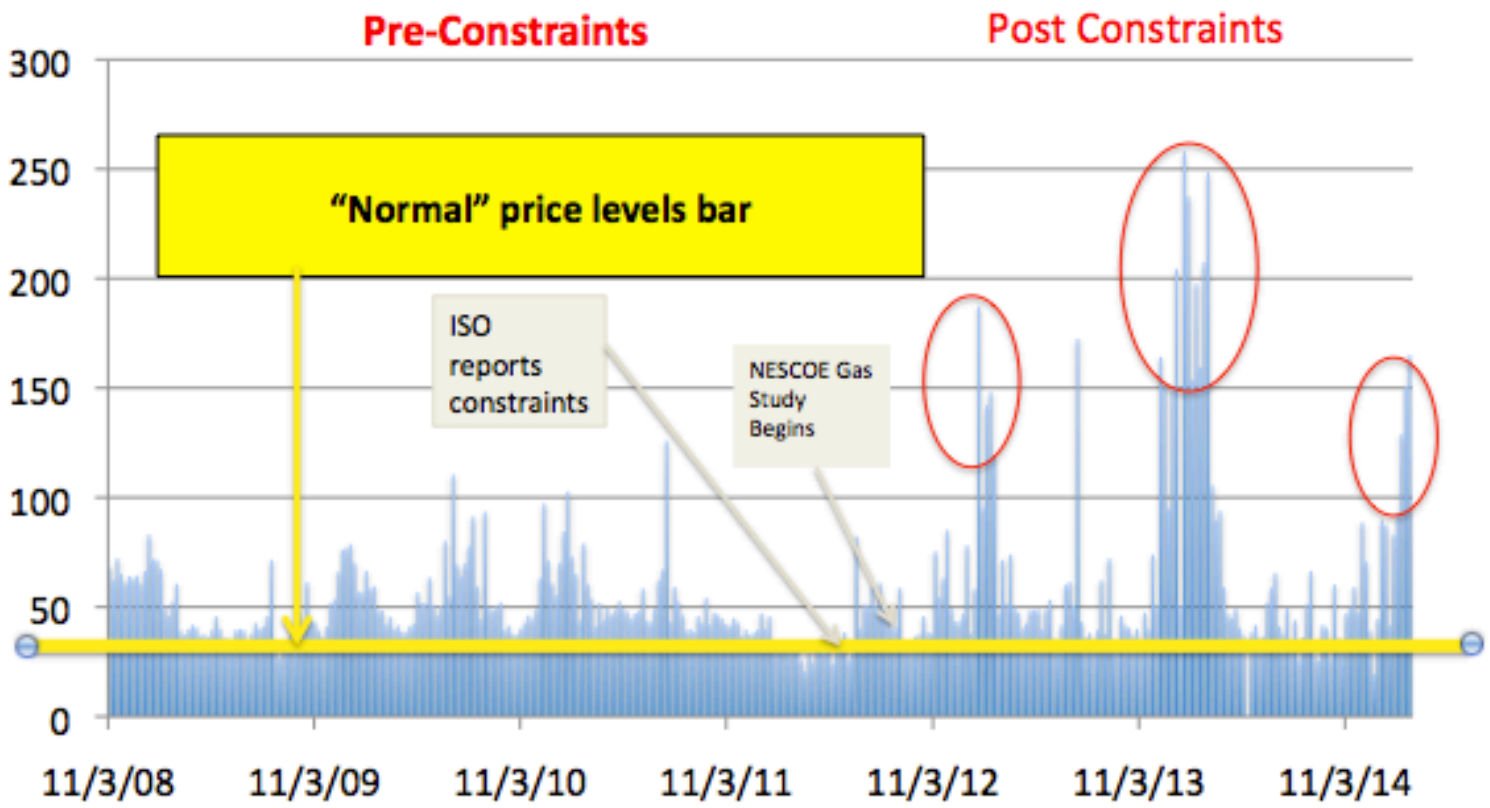
"There's an environmental cost when the region can't use its gas-fired units to meet demand. **Higher-emitting oil- and coal-fired plants run more often instead, leading to increases in regional air emissions**."

Some argue that states' interest in solving infrastructure constraints was a reaction to last year's historic prices, and that New England's power system challenges are resolved because this winter, prices did not exceed last years' historic highs.

According to U.S. DOE's EIA:

- Natural **gas prices in New England** during the week of February 15, 2015 were more than **10 times the price in Pennsylvania and 5 times the price at the Henry Hub**

- As of January and February of 2015, **New England electricity and natural gas prices were almost twice as high as the Mid-Atlantic and four times higher than other parts of the country**



Weekly average RT on-peak LMP's per ISO-NE

Actions, Late 2014

☑***July 31, 2014***: Massachusetts Legislature adjourned without acting on a bill to enable the state to procure levels of no-and/or low- carbon power

☑***August 1, 2014***: NESCOE requested from NEPOOL a pause in discussions to provide Massachusetts state officials time to evaluate options

☑***Fall – December 2014***: Massachusetts undertook further study of Massachusetts state-level solutions in light of state policies in December 2014, which, like the myriad studies on the subject, identified a need for additional natural gas pipeline capacity

Some Current Activities

☑ State officials continue discussing ways forward on regional solutions

☑ Governors discussed New England energy challenges in November, plan to resume discussion in April

☑ Some parallel state activities:

- Multi-state clean energy solicitation
- Connecticut DEEP issued IRP identifying resource needs
  - associated legislation pending
- Maine and Rhode Island have enabling laws
  - Maine PUC proceeding to evaluate gas pipeline proposals ongoing
- Massachusetts DPU to consider electric company authority under current law to support incremental natural gas pipeline for electric power system purposes
  - separately, broad legislative proposals under discussion