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Chairman Norman C. Bay
Regional Transmission Investment

Déjà Vu, All Over Again ...

Power Grid Upgrades
• From 2005 to 2009, the region invested heavily to relieve congestion in S.W. Connecticut and Greater Boston
• Boosted reliability and virtually eliminated chronic congestion

Natural Gas Pipeline System Needs Additional Investment
• Increased use of gas has outstripped capacity during peak periods
  – Creating stressed markets and reliability concerns
• Necessitated out-of-market Winter Reliability Program
Transmission Investment 2002-2019

- $7 billion of new investment from 2002-14
  - These upgrades virtually eliminated transmission congestion

- Regional System Plan calls $3.2 billion of new investment from 2015-19
  - Most of this to enter service in 2015

Source: ESAI
Proposed Transmission Projects
Power Consumption Declining

Source: IHS and ISO-NE
Power Imports on the Rise

Source: ISO-NE
Majority of Imports from Canada

Source: ISO-NE
GWh in 2014
CERA Forecasts Drop in Reserve Margins

Source: IHS
Energy Efficiency Savings

Source: IHS
Natural Gas is the Region’s Dominant Fuel

Source: IHS, EIA and Ventyx Velocity Suite
Natural Gas is the Marginal Fuel in the Vast Majority of Hours

Source: IHS
Power Prices Closely Track Natural Gas

[Graph showing the correlation between Day-ahead power price and Natural gas prices from 2005 to 2014.]
LNG Utilization Declines

Source: Derived from Bentek data
New England Natural Gas Demand Forecast

Source: RBN Energy
Residential and Commercial Sectors Dominate Gas Demand

Source: Derived from Bentek Energy data
Proposed New England Pipeline Expansions
Regional Natural Gas Prices
Infrastructure Investments Forecast to Ease Natural Gas Supply Issues

Source: IHS
Renewable Penetration to Accelerate

Source: IHS
Massachusetts Ranks Fourth in Solar Installations – Primarily Driven by State Policies

Source: SEIA
Retail Rates Higher than the National Average

Source: IHS and EIA
New England’s Fuel Mix Differs from other Regions

Source: IHS and EIA
Deepwater Offshore Wind Project

- The first offshore wind farm in the U.S.
- Located off of Block Island (26 miles from Newport)
- 30 megawatt, 5 turbine
- Milestones:
  - Financing: $290 mil. debt & $70 mil. private equity
  - “Steel in the water” is planned for this summer
  - Scheduled to be online in 2016.
- 20-year PPA, includes a year-one off-take price of $244/MWh (Currently before FERC, EL15-61-000, filed 5/11/15)
Other Offshore Wind Development

Other New England Leases
• 742,000 acres, leased Jan. ‘15
  – $14 mil. in lease revenue
  – 5 GW of potential capacity
• Federal jurisdiction - BOEM
• No NIMBY concerns, out of the line of sight from land
• Leases located in deep water – technically more difficult to site the turbines

Global offshore wind capacity is 5.4 GW (2012)
• U.K. 3 GW and Denmark 1 GW
• Rapid growth projected in China