ISO New England Update

Consumer Liaison Group Meeting

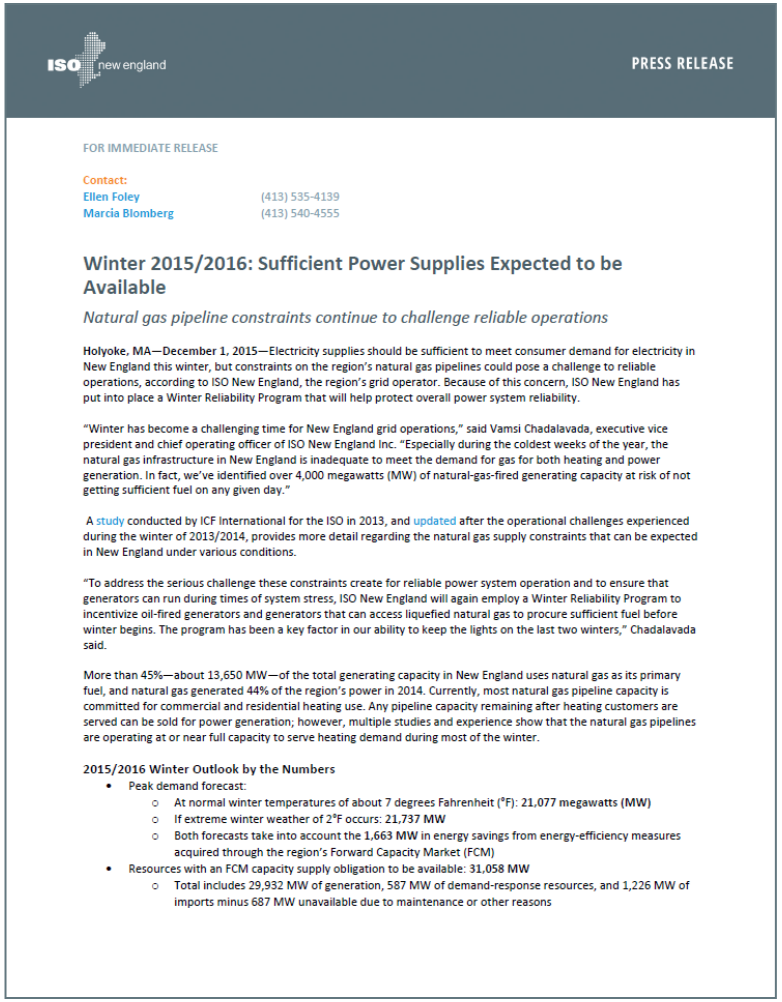
Anne George

VICE PRESIDENT, EXTERNAL AFFAIRS & CORPORATE COMMUNICATIONS

2015/2016 WINTER OUTLOOK

ISO New England Releases 2015/2016 Winter Outlook

- On December 1, 2015, ISO New England released its **2015/2016 Winter Outlook** press release, which projects sufficient electricity supplies to meet consumer demand in New England this winter
- Winter Outlook is available on ISO New England's press releases webpage
  - http://www.iso-ne.com/about/news-media/press-releases



ISO new england PRESS RELEASE

FOR IMMEDIATE RELEASE

Contact:
Ellen Foley (413) 535-4139
Marcia Blomberg (413) 540-4555

Winter 2015/2016: Sufficient Power Supplies Expected to be Available

Natural gas pipeline constraints continue to challenge reliable operations

Holyoke, MA—December 1, 2015—Electricity supplies should be sufficient to meet consumer demand for electricity in New England this winter, but constraints on the region's natural gas pipelines could pose a challenge to reliable operations, according to ISO New England, the region's grid operator. Because of this concern, ISO New England has put into place a Winter Reliability Program that will help protect overall power system reliability.

"Winter has become a challenging time for New England grid operations," said Vamsi Chadalavada, executive vice president and chief operating officer of ISO New England Inc. "Especially during the coldest weeks of the year, the natural gas infrastructure in New England is inadequate to meet the demand for gas for both heating and power generation. In fact, we've identified over 4,000 megawatts (MW) of natural-gas-fired generating capacity at risk of not getting sufficient fuel on any given day."

A study conducted by ICF International for the ISO in 2013, and updated after the operational challenges experienced during the winter of 2013/2014, provides more detail regarding the natural gas supply constraints that can be expected in New England under various conditions.

"To address the serious challenge these constraints create for reliable power system operation and to ensure that generators can run during times of system stress, ISO New England will again employ a Winter Reliability Program to incentivize oil-fired generators and generators that can access liquefied natural gas to procure sufficient fuel before winter begins. The program has been a key factor in our ability to keep the lights on the last two winters," Chadalavada said.

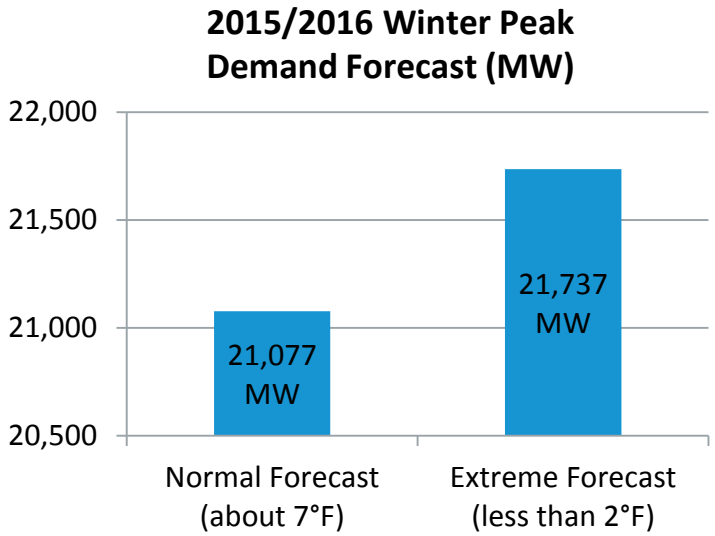
More than 45%—about 13,650 MW—of the total generating capacity in New England uses natural gas as its primary fuel, and natural gas generated 44% of the region's power in 2014. Currently, most natural gas pipeline capacity is committed for commercial and residential heating use. Any pipeline capacity remaining after heating customers are served can be sold for power generation; however, multiple studies and experience show that the natural gas pipelines are operating at or near full capacity to serve heating demand during most of the winter.

2015/2016 Winter Outlook by the Numbers

- Peak demand forecast:
  - At normal winter temperatures of about 7 degrees Fahrenheit (°F): **21,077 megawatts (MW)**
  - If extreme winter weather of 2°F occurs: **21,737 MW**
  - Both forecasts take into account the **1,663 MW** in energy savings from energy-efficiency measures acquired through the region's Forward Capacity Market (FCM)
- Resources with an FCM capacity supply obligation to be available: **31,058 MW**
  - Total includes 29,932 MW of generation, 587 MW of demand-response resources, and 1,226 MW of imports minus 687 MW unavailable due to maintenance or other reasons

2015/2016 Winter Outlook By the Numbers

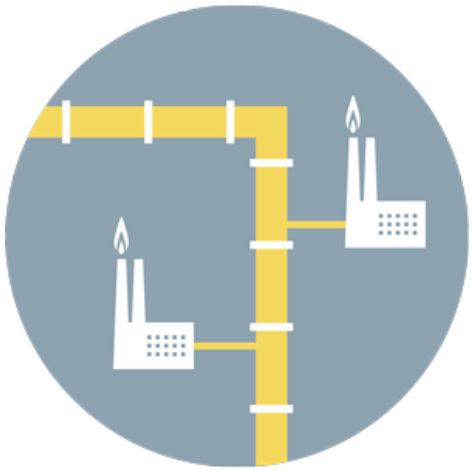
- Peak demand forecast:
  - At normal winter temperatures (of about 7°F): **21,077 MW**
  - At extreme winter temperatures (of less than 2°F): **21,737 MW**
  - Both forecasts take into account **1,663 MW** of energy savings from energy-efficiency measures



- Total resources with an FCM capacity supply obligation to be available: **31,058 MW**
- Total resources, including FCM obligations and capability without FCM obligations: **33,922 MW**
- All-time winter peak demand: **22,818 MW** (set on January 15, 2004)
- All-time peak demand: **28,130 MW** (set on August 2, 2006)

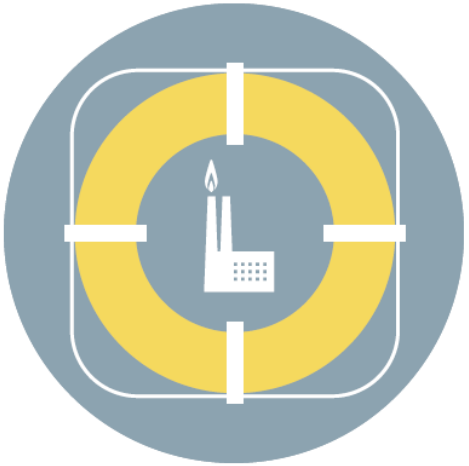
Winter Outlook Highlights Natural Gas Pipeline Constraints as a Continuing Challenge

- More than 45%—about **13,650 MW**—of the total generating capacity in New England uses natural gas as its primary fuel
- Winter Outlook identifies **4,220 MW** of natural gas-fired generation at risk of not being able to get fuel when needed
- Because of concerns relating to natural gas pipeline constraints, the ISO will administer another **Winter Reliability Program** to help improve fuel security and protect overall power system reliability
  - December 1, 2015 to February 29, 2016



Winter Reliability Program Update

- For the past two winters, ISO New England has administered a **Winter Reliability Program** to address challenges created by the region's constrained interstate natural gas pipeline system
- In September, FERC approved a program that will be in place for the next three winters, providing compensation for:
  1. Carrying costs of fuel oil that was unused at the end of the winter;
  2. Unused liquefied natural gas contract volumes; and
  3. Supplemental demand response
- These programs serve as a **stop-gap measure** until longer-term capacity market changes go into effect on June 1, 2018 through the ISO's Pay-for-Performance (PFP) incentives



Winter Reliability Program Update, *continued*

1. **Oil Program:** Based on initial submissions from 81 units, total eligible oil is anticipated to be **2.965 million** barrels
   - Total oil program cost exposure is anticipated to be **$38.25 million** ($12.90/barrel)

2. **LNG Program:** Based on initial submissions from 8 units, total eligible LNG is anticipated to be **1.278 million** MMBTU
   - Total LNG program cost exposure is anticipated to be **$2.75 million** ($2.15/MMBTU)

3. **DR Program:** Based on initial submissions from 6 assets, at least **26.5 MW** of interruption capability is anticipated
   - Total DR program cost exposure is anticipated to be **$132,000**

Note: Verification of data is underway for all assets participating in the program.

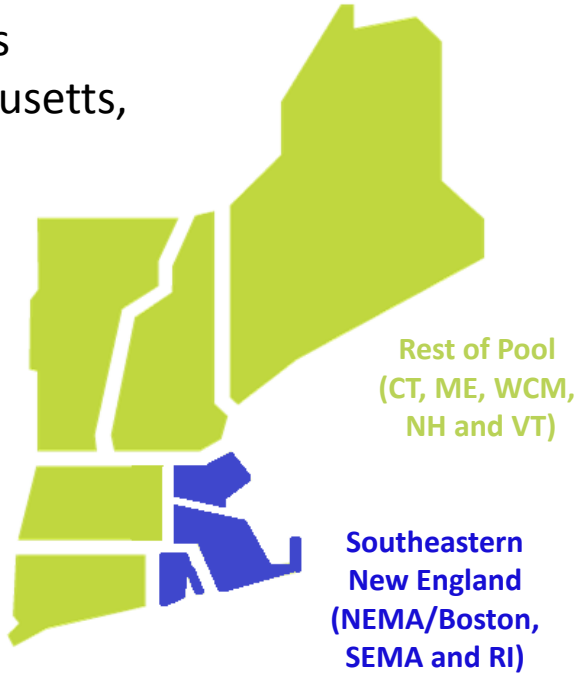
FORWARD CAPACITY AUCTION #10

ISO New England Will Run the Tenth Forward Capacity Auction (FCA #10) in February 2016

- FCA #10 will begin on February 8, 2016, and will procure the capacity resources needed for the New England control area for the **2019-2020 Capacity Commitment Period**
- On November 10, 2015, ISO New England submitted an **informational filing** to FERC regarding the qualification of resources for FCA #10
- The filing also included **locational capacity requirements** based upon the topology of the transmission system, and specifically which **capacity zones** are to be modeled in the auction

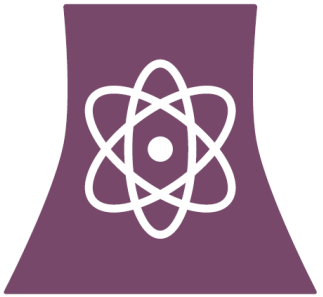
Two Capacity Zones Will Be Modeled for FCA #10

- The ISO will model two capacity zones in FCA #10:
  1. The **Southeastern New England** Capacity Zone, which includes Northeastern Massachusetts (NEMA)/Boston, Southeastern Massachusetts (SEMA), and Rhode Island
  2. The **Rest-of-Pool** Capacity Zone, which includes Connecticut, Maine, Western/Central Massachusetts, New Hampshire and Vermont
- The net Installed Capacity Requirement to be procured in the auction is **34,151 MW**
- The ISO qualified **33,411 MW** of existing capacity resources and **6,720 MW** of new capacity resources to compete in the auction



More Than 700 MW of Capacity Submitted Non-Price Retirement (NPR) Requests for FCA #10

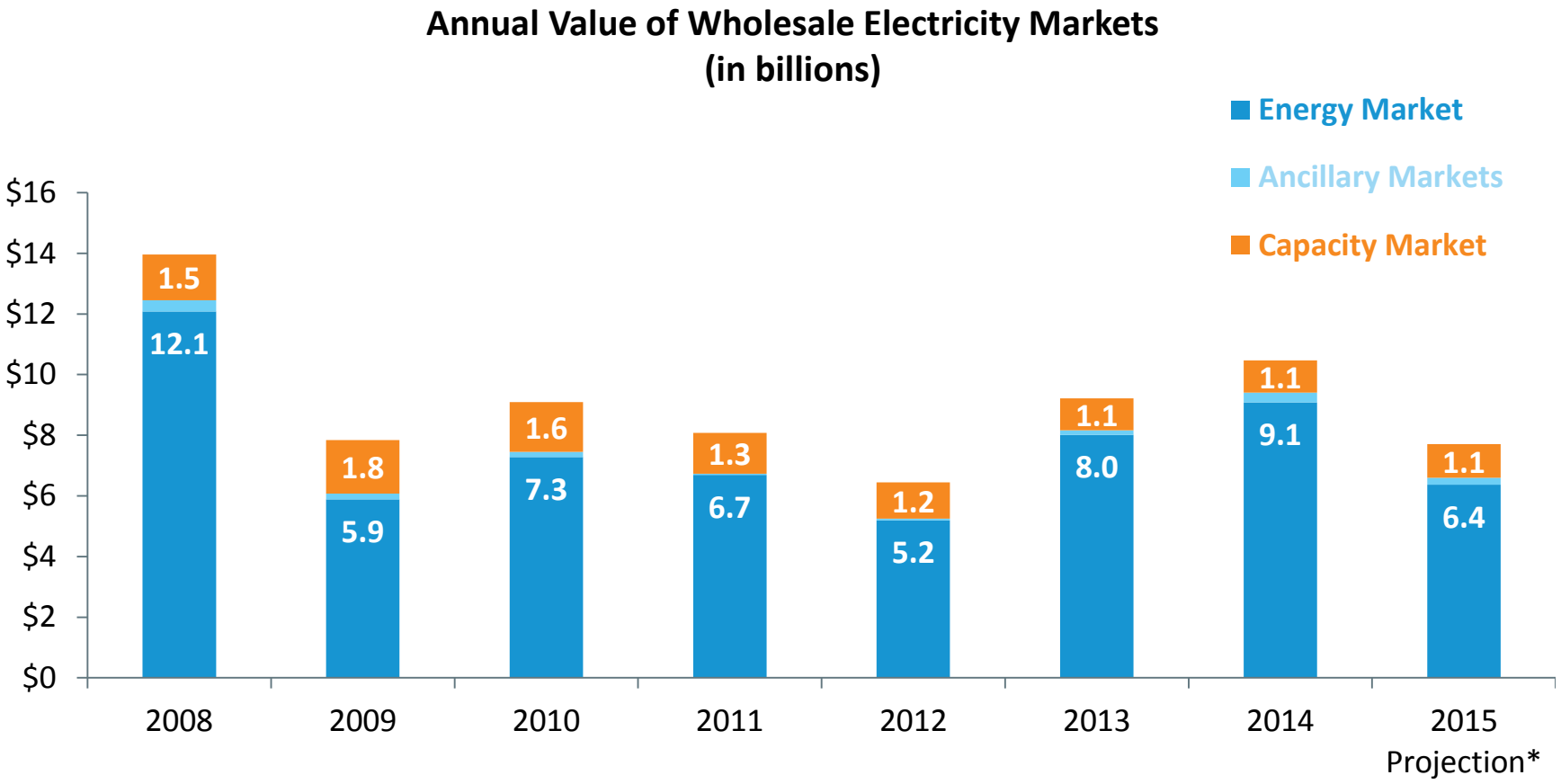
- 17 existing resources (totaling 728 MW) announced plans to permanently retire their units by June 1, 2019
- **Pilgrim Nuclear Power Station** (677 MW) was the largest resource to submit an NPR request for FCA #10
- An NPR request triggers a **reliability review** by ISO New England to determine whether the resource is needed for reliability
  - Must be completed within 90 days
- Regardless of the outcome of the review, the ISO does not have the authority to prevent a resource from retiring
- ISO New England will present the results of its reliability review of Pilgrim Nuclear Power Station during the **December 16, 2015** Reliability Committee meeting



WHOLESALE MARKET COSTS

Wholesale Electricity Costs Reflect Market Conditions

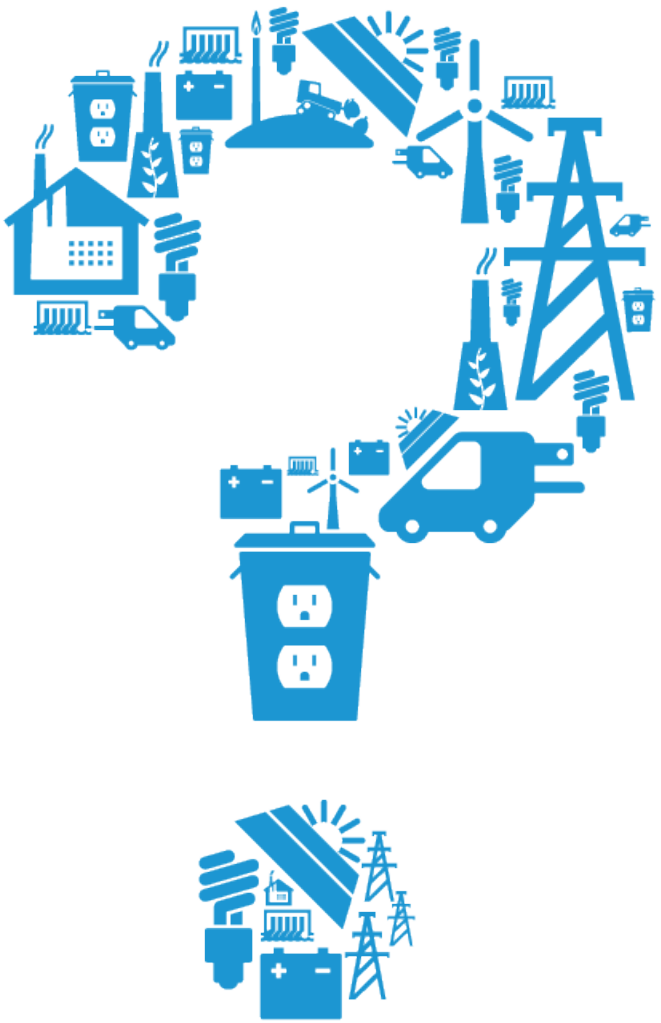
Annual wholesale market costs have ranged from $6 billion to $14 billion



Source: 2014 Report of the Consumer Liaison Group, Appendix C

***** The 2015 Projection is the sum of Jan-Oct actuals and Nov-Dec projections. For the Nov-Dec projections, the Energy Market values are based on 2014 Nov-Dec actuals; the Ancillary Market values reflect the 2015 YTD monthly average held constant for the remainder of the year; and the Capacity Market values reflect the October 2015 value held constant for the remainder of the year. **Note**: Jan-Oct actuals reflect preliminary data subject to reconciliation.

Questions



For More Information…

- Subscribe to the ***ISO Newswire***
  - *ISO Newswire* is your source for regular news about ISO New England and the wholesale electricity industry within the six-state region
- Log on to **ISO Express**
  - ISO Express provides real-time data on New England's wholesale electricity markets and power system operations
- Follow the ISO on **Twitter**
  - @isonewengland
- Download the **ISO to Go App**
  - ISO to Go is a free mobile application that puts real-time wholesale electricity pricing and power grid information in the palm of your hand