

## North America

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Fossil Fuels | Natural Gas

# Northeast Programs Aim to Ensure Winter Electricity Reliability amidst Pipeline Constraints

## New England Will Rely on Winter Reliability Programs that Support Oil-Fired Generation in the Short-Term to Mitigate Continued Natural Gas Pipeline Constraints

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Policy Brief

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#### Key Takeaways:

- ISO-New England's Winter Reliability Programs offer incentives to oil-fired generators to hold increased inventory to meet peak winter demand
- Precedence for firm service contract holders of local distribution companies over interruptible contracts of gas fired generators contribute to supply shortfalls in times of peak demand
- Initial northeast natural gas pipeline expansion is expected to be complete by November 2016, with more significant expansion projected for completion by 2018

#### Entities Mentioned:

- Federal Energy Regulatory Commission
- ISO-New England
- Kinder Morgan
- Massachusetts Department of Energy Resources
- Northeast Utilities
- Spectra Energy

#### Related Research

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[FERC Natural Gas Market Reforms Aim to Address Winter Reliability Concerns](#)

[Oil and Gas Production on Federal Lands Slowed by Permitting Challenges](#)

## Winter Reliability Programs Aim to Mitigate Impacts of Pipeline Constraints

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The Northeast faces increasing natural gas supply challenges as the region continues to rely on natural gas-fired generation to meet summer and winter peak demand. Currently, three pipelines provide the majority of the region's natural gas supply – Algonquin Gas Transmission, Maritimes & Northeast Pipeline (Maritimes), and Tennessee Gas Pipeline. This capacity is insufficient to meet generators' peak demand because much of the pipeline capacity is dedicated to firm service contracts holders – often local distribution companies (LDCs) to service residential, commercial, and industrial gas consumers.

**FERC-required firm service contracts limit pipeline construction for gas-fired generation**

New pipeline construction has lagged despite the increased demand for natural gas power generation. This is due, in part, to rules set by the Federal Energy Regulatory Commission (FERC) that require evidence of demonstrated market need, often through long-term (10-year or more) firm transportation service contracts. Since gas-fired peak power generators most often utilize interruptible contracts due to inconsistent annual gas requirements, new pipeline capacity is not built to meet their needs.

### Winter Reliability Programs Address Short-Term Needs

To mitigate the impacts of lagging new pipeline construction, ISO-New England (ISO-NE) has turned to Winter Reliability Programs (WRP) to ensure system reliability during times of winter peak demand. The ISO-NE WRP is an incentive program to compensate primarily oil-fired generators and new demand response resources for increased winter availability.

**ISO-NE Winter Reliability Programs partially mitigate pipeline constraints during peak winter demand**

The first ISO-NE WRP – approved by FERC in October 2013 – aimed to procure up to 2.4 million megawatt hours (MWh) of energy through increased oil-fired generator inventory, demand response, and increase reliability through dual-fuel use and market monitoring. The ISO accepted bids for 1.95 million MWh, and increased oil inventories proved instrumental in meeting demand as gas-fired generation lacked access to fuel. The Deputy Commissioner of the Massachusetts Department of Energy Resources stated in April 2014 that “ISO-NE would have been challenged to keep lights on without the program this past winter.”

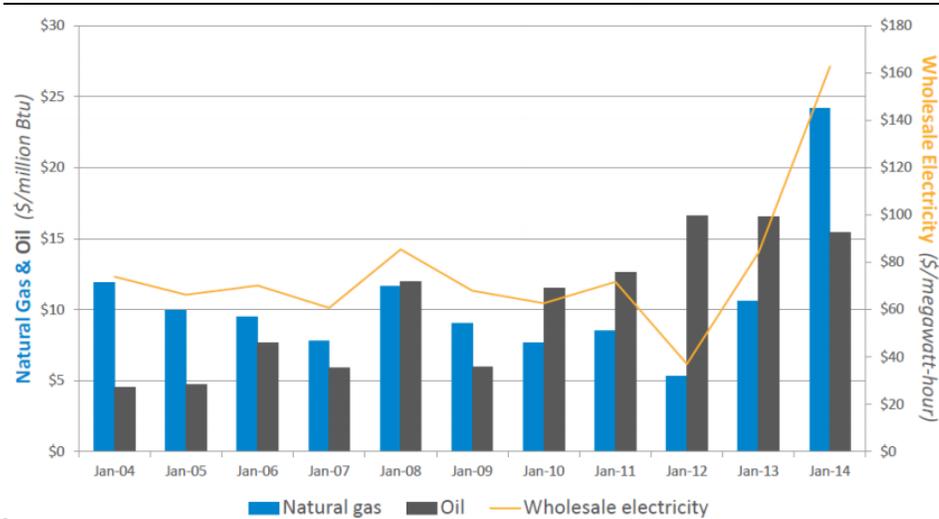
On September 9, 2014, FERC accepted ISO-NE's Transmission, Markets and Services Tariff revisions to aid its 2014/2015 WRP (Docket No. ER14-2407-000). The new WRP addresses continued pipeline constraints, oil inventory challenges, and planned retirement of non-gas generation otherwise capable of producing 2.6 million MWh – Salem 3 (coal), Salem 4 (oil), and Vermont Yankee (nuclear) – in 2014. Under the revised tariff, ISO-NE incentivizes oil-fired generators to establish inventory ahead of the winter season by compensating oil-fired generators \$18 per barrel for “the lesser of their December 1 and March 15 inventory.” The new WRP also continues last winter's dual fuel and demand response compensation programs. Bids to

participate in the program are due by October 1, and ISO-NE must initiate the stakeholder process to assess 2015/2016 needs by January 1, 2015.

## Regional Natural Gas Constraints and Price Spikes Likely to Continue in the Short-Term

Significant increases in natural gas production has led to low natural gas prices and increased reliance on natural gas-fired generation in the Northeast. However, during peak winter demand events in January 2014, competition for limited gas supply increased, causing commensurate gas and wholesale electricity price spikes (Figure 1). To meet demand, wholesale markets turned to available, lower cost oil resources.

**Figure 1 – Winter Gas and Electricity Prices (New England)**

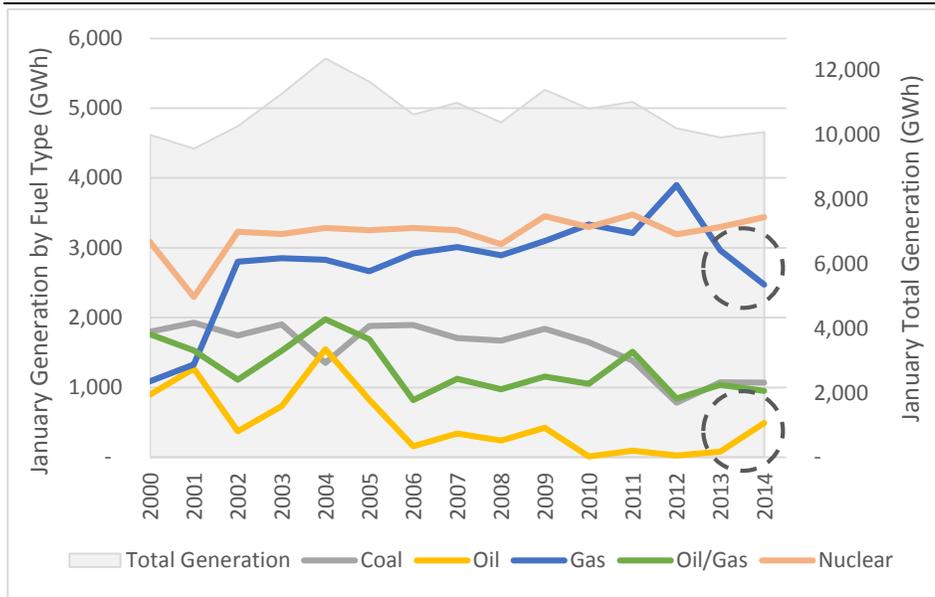


Source: Massachusetts Department of Energy Resources

According to ISO-NE, the region burned more than 2.7 million barrels of oil from December 1, 2013 to February 28, 2014. Gas-fired generation in January 2014 dropped 493 gigawatt-hours (GWh) when compared to January 2013 levels (Figure 2), and this generation was almost entirely made-up by oil-fired generation (411 GWh). The continued ISO-NE Winter Reliability Programs aim to make up for ongoing winter natural gas pipeline constraints, with partial relief expected to begin in 2016 through new pipeline capacity. However, the region will continue to see natural gas and electricity price spikes if similar cold-weather events persist.

**Oil-fired generation made up for natural gas-fired shortfall in January-February 2014**

**Figure 2 – January 2014 ISO-NE Generation - Total and Select Fuel Sources (2000 - 2014)**



Source: EnerKnol analysis of ISO-NE data

## Significant Capacity Relief Expected by 2018-2019

While northeast natural gas pipeline projects continue to lag behind winter demand, the region is expected to get partial relief in November 2016 and through a series of pipeline expansion projects.

- Spectra Energy’s Algonquin Incremental Market (AIM) project would provide approximately 342 million cubic feet per day (MMcf/d), primarily to firm service-holding LDCs across Connecticut, Rhode Island, and Massachusetts. The FERC issued a project draft Environmental Impact Statement (Docket No. CP14-96-000) on August 6, 2014. The comment period deadline is September 29, 2014.
- Kinder Morgan’s Tennessee Gas Pipeline Connecticut Expansion Project (CT Expansion) would provide Connecticut, Massachusetts, and New York with up to 72 MMcf/d. Kinder Morgan filed FERC Certificate Application on July 31, 2014.

In the near term, the pipelines will not fully alleviate peak natural gas supply constraints, and ISO-NE will address the impact of these pipeline additions in planning future Winter Reliability Programs.

### Larger-Scale Projects Seek approval for 2018-2019 Completion

A series of recently-announced projects would provide significant northeast natural gas transmission relief in 2017-2019.

**Initial natural gas pipeline expansions expected by 2016/2017 winter**

**The Northeast could see more than 3 bcf/d additional natural gas pipeline capacity by November 2018**

- Spectra Energy's Atlantic Bridge project would expand the Algonquin and Maritimes pipelines by 100 to 600 MMcf/d. The company expects a November 2017 in-service date.
- Spectra Energy announced on September 16, 2014 the Access Northeast project – an equal partnership with Northeast Utilities – to provide up to 1 bcf/d through additional expansion of the Algonquin and Maritimes pipelines. The project is expected to be in service by November 2018, pending FERC approvals.
- Kinder Morgan applied to FERC's environmental assessment pre-filing process on September 15, 2014 (Docket No. PF14-22) to provide up to 2.2 bcf/d of natural gas through its Northeast Energy Direct (NED) Project. The "core" project facilities are expected to be in service by November 1, 2018.

## Disclosures Section

### RESEARCH RISKS

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Regulatory and Legislative agendas are subject to change.

### AUTHOR CERTIFICATION

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