



Gas-Fired Power Generation in Eastern New York and its Impact on New England's Gas Supplies

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Introduction

- Air emission regulations, low capital costs, efficient heat rates, and competitively priced natural gas supplies have combined to increase gas demand for power generation in the Northeast United States.
- New England's gas-fired generators now increasingly compete for gas supplies with other gas consumers, including gas-fired generators located in New York.
- New England's access to gas supplies is limited, particularly during cold periods in the winter.

Key Findings

- **During periods of peak gas consumption, generators in New York and New England compete for the available gas supply.**
- **New York generators have two principal advantages in accessing gas supplies:**
 - New York generators are “upstream” of New England’s generators.
 - New York’s electric market commitment schedules currently provide NY generators a timing advantage in acquiring gas supplies within the daily gas market.
- **When gas-fired generators make gas nominations in excess of their final needs to ensure fuel supplies, this behavior contributes to gas price volatility and an inefficient use of gas infrastructure.**
 - Because New England’s generators are located downstream of New York’s generators and are already subject to pipeline constraints, they are more likely to be exposed to the pressure reductions created by this behavior.
- **Due to pipeline infrastructure constraints and interregional electric-day issues, operational challenges during peak demand periods are likely to persist.**
 - FERC requires firm contracts to build new gas pipeline capacity, a cost that is not directly supported by current electric market cost recovery mechanisms.

New England's Gas Supply Access

- Three factors contribute to New England's gas supply access issues, leading to price volatility and increased price risk.
 - Pipeline infrastructure constraints
 - Competing sources of gas demand with differences in interregional gas nomination scheduling
 - Unscheduled gas consumption

Elaborating on the Factors Leading to Limited Gas Supplies

- ***Pipeline infrastructure constraints:***

Increasing New England's pipeline capacity has proven difficult, as pipeline expansions depend on firm capacity contracts, an uneconomic option for most gas-fired generators given the changing nature of gas demands during the year. As a result, pipelines have not expanded to meet the needs of power generators, and the generators have relied primarily on interruptible pipeline service or capacity release contracts rather than firm service contracts. The pipeline constraints, coupled with more stringent U.S. Department of Transportation (DOT) Pipeline Hazardous Materials Safety Administration (PHMSA) maintenance and inspection requirements, will continue to plague New England's markets, likely leading to persistent gas price volatility.

Elaborating on the Factors Leading to Limited Gas Supplies – cont'd

- ***Competing sources of gas demand with mismatches in scheduling that disadvantages New England generation:***

Because of the differences in the wholesale electric market schedules between the New York Independent System Operator (NYISO) and ISO-NE, New England generators learn of their gas requirements after the New York generators have already learned of theirs. As a result, New England generators compete for gas supply and transportation in a less liquid gas market. Likewise, the earlier electric market timing advantage for NYISO allow New York markets earlier access to gas trading. As a result, ISO-NE's gas-fired power generators may not be able to access necessary gas supplies and are exposed to significant gas price volatility, particularly on cold winter days.

Elaborating on the Factors Leading to Limited Gas Supplies – cont'd

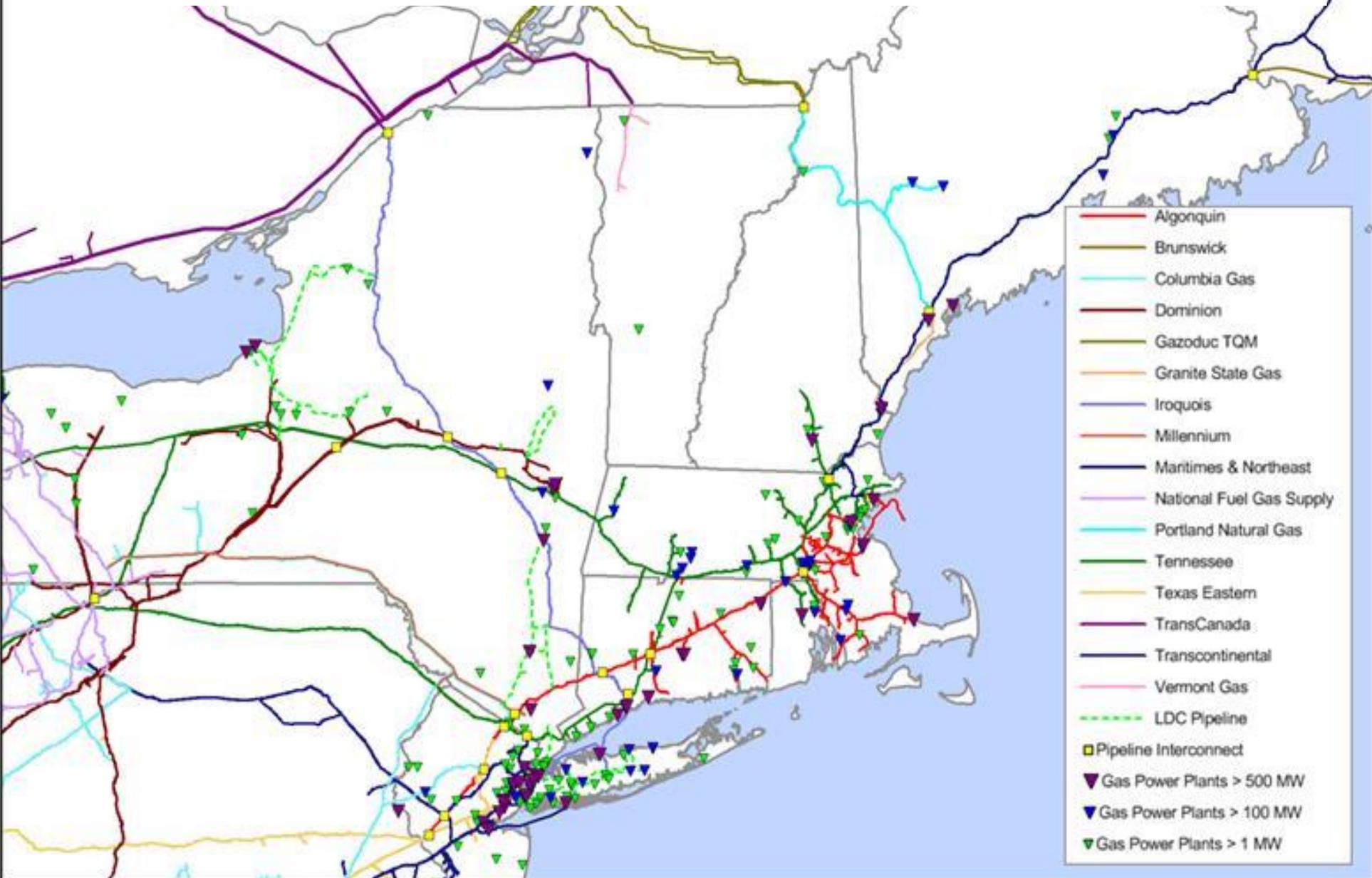
- ***Occasional events where gas that has not been scheduled and confirmed by the pipeline is consumed:***

On any given day, a gas shipper on a pipeline may find itself “out of balance” to some degree for the entire gas day. The pipeline’s tariff contains penalty and payment provisions for these types of events. From the perspective of the gas pipelines, however, these tariff provisions are intended to address occasional and unavoidable events. They are not intended to be used as “services” available for use at a shipper’s discretion. At the same time, gas-fired generators in New England are under pressure to make competitive power commitments despite uncertainty regarding pipeline deliverability. Thus, there are days when gas-fired generators make gas nominations in excess of their final needs to ensure fuel supplies, contributing to gas price volatility and inefficient use of gas infrastructure.

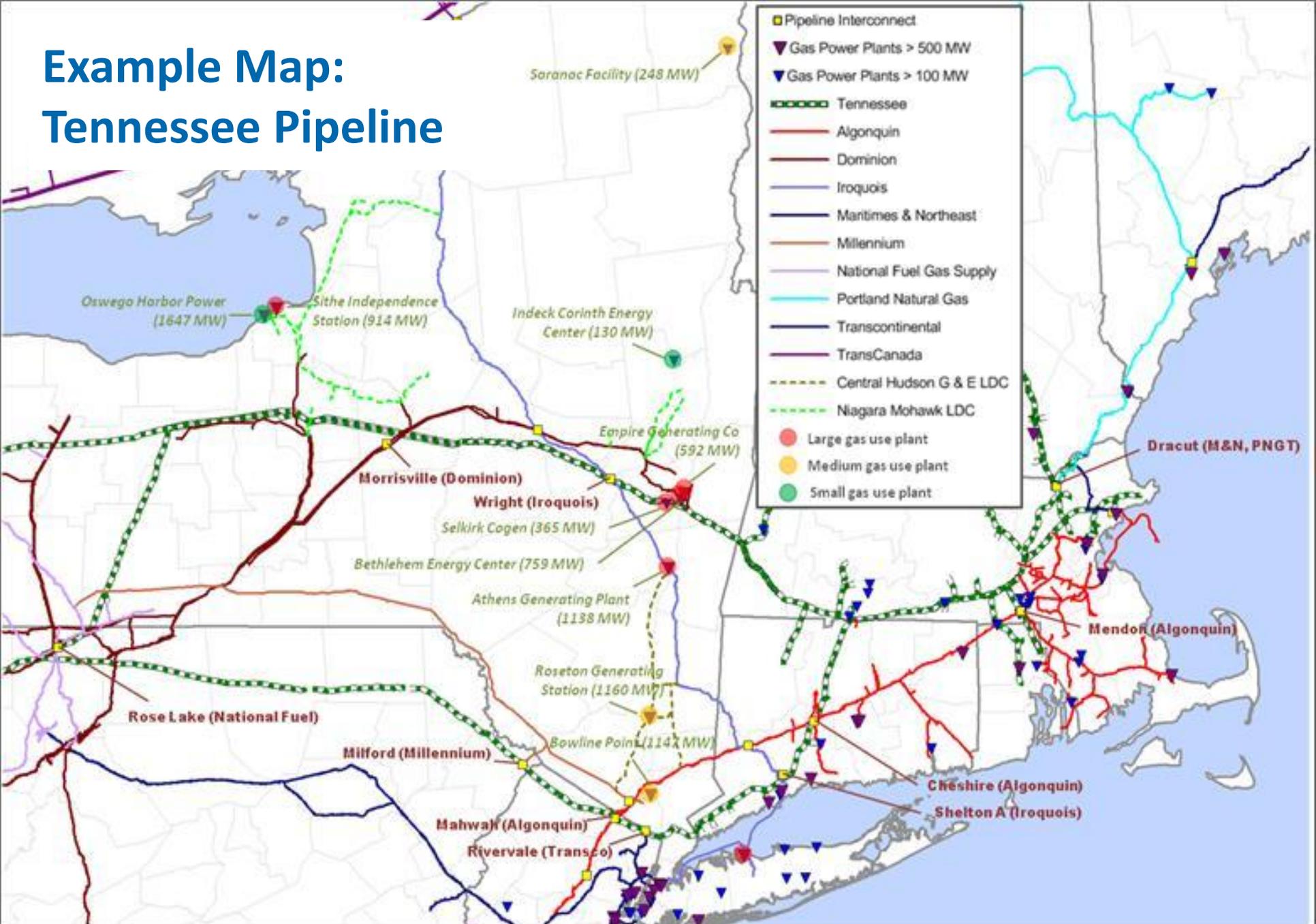
Geography and Physics of Gas Pipelines Affects Generators in New England

- Generators in New York are generally located “upstream” of generators in New England.
- The ability to maintain delivery pressure to generators in New England can be affected by conditions upstream.
 - Gas use by a generator or other consumer in excess of the volume that has been nominated, confirmed and scheduled by the pipeline (aka “unauthorized overruns”) can create pressure conditions that impact the ability of a downstream generator to operate.

Pipeline Infrastructure Serving New England



Example Map: Tennessee Pipeline



Market Timelines for ISO-NE and NYISO

- Timeline differences impact competition for gas.
 - Electric market commitment schedules in NYISO provide New York generators a timing advantage in acquiring gas supplies within the daily market.
 - The earlier electric market timing advantage for NYISO allow New York markets earlier access to gas trading.
 - New England generators often compete for gas supply and transportation in a less “liquid gas” market.
 - The spot market for gas is most “liquid” for gas purchased and scheduled for delivery in the “timely cycle.”
 - Gas purchased and scheduled “intra-day” trades in a much less liquid market.

Commitment Timing versus Gas Market Nominations for ISO-NE and NYISO

