Natural Gas in the Region - Current & Future Role

EBC Energy Resources Webinar

June 18, 2020

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Northeast Gas Association
About NGA

- Non-profit trade association
- Local gas utilities (LDCs) serving New England, New York, New Jersey, Pennsylvania
- Several interstate pipeline companies
- LNG & CNG suppliers
- ~ 400 “associate member” companies, from industry suppliers and contractors to electric grid operators
- www.northeastgas.org
NGA’S ANTITRUST COMPLIANCE PROCEDURES

Adopted by the NGA Board of Directors on June 20, 2018

Objective

The Northeast Gas Association (NGA) and its member companies are committed to full compliance with all laws and regulations, and to maintaining the highest ethical standards in the way we conduct our operations and activities. Our commitment includes strict compliance with federal and state antitrust laws, which are designed to protect this country’s free competitive economy.

Responsibility for Antitrust Compliance

Compliance with the antitrust laws is a serious business. Antitrust violations may result in heavy fines for corporations, and in fines and even imprisonment for individuals. While NGA’s attorneys provide guidance on antitrust matters, you bear the ultimate responsibility for assuring that your actions and the actions of any of those under your direction comply with the antitrust laws.

Antitrust Guidelines

In all NGA operations and activities, you must avoid any discussions or conduct that might violate the antitrust laws or even raise an appearance of impropriety. The following guidelines will help you do that:

- Do consult counsel about any documents that touch on sensitive antitrust subjects such as pricing, market allocations, anti-employee poaching practices, refusals to deal with any company, and the like.

https://www.northeastgas.org/compliance_docs.php
Topics

- System Overview
- Natural Gas Market Trends
- Utility Approaches to Decarbonization
- Pathways Forward
Key Points

• Natural gas has grown to be a preferred fuel for homes, businesses and the power sector in the last 2 decades.

• The region has made significant advances in reducing air pollution and staying on target for meeting 2020 GHG reduction goals …thanks in large measure to gas.

• Going forward, the gas industry is working to lower its carbon content and reduce its environmental impact, recognizing its environmental responsibility.

• The region’s energy system is in transition; the natural gas pathway remains part of the discussion.
Northeast U.S. Natural Gas Service Areas

**Gas Customers:** 13.5 million

**% of Home Heating:** 59%

**% of Power Gen:** 52%
Maine has one, in Lewiston.

**LNG Imports & Storage**

Everett LNG has 3.4 Bcf of storage available at its facility in Everett, MA. Trucking terminal as well.

Northeast Gateway offshore Cape Ann, MA, can inject gas from vessel to underwater Pipeline.

LNG plays a key role in balancing the market.

LNG trucking is also a means of deliveries supplies to the region, from Quebec, PA.

Repsol has approx. 10 Bcf of storage available at its Canaport LNG facility in Saint John, N.B. Interconnects with M&NE Pipeline.
CNG Deliveries

- Compressed natural gas (CNG) stations in several states provide fuel for vehicle/trucks and also fuel supply for truck deliveries to *off-system customers* – from paper mills to medical centers

- Building the market prior to development of gas distribution or transmission system
  - e.g., Middlebury, Vermont as “gas island” by NG Advantage, with gas sourced at Vermont Gas
REGIONAL MARKET DEVELOPMENTS
U.S. Production & Consumption Set New Records Last Year

U.S. natural gas production in 2019 set new all-time records.

U.S. natural gas consumption in 2019 set new all-time record: $85\text{ Bcf/d}$.

Charts: U.S. EIA, March and April 2020
Since 2012, natural gas has added over 1 million new household customers in the Northeast states.
Increasing Peak Day Demand

- Most LDCs in Northeast set multiple sendout records in last few winters.

- New England natural gas utilities collectively set 3 new sendout records the first week of Jan. 2018 – with new all-time peak set on 1-6-18, at close to 4.4 Bcf.

“Supply and demand increasingly out of balance
– ~50% peak growth in last 10 years
– Last new supply added in 2013
– Use of delivered services rising”

Source: Con Edison, 4-25-19, at NGA Forum
ACEEE has released several studies that see value in converting homes heated with heating oil and propane to electricity, but find less value in converting natural gas homes, especially in colder climates: “But for many homes, electrification may not currently make sense and as a result, natural gas use will likely continue for decades, particularly in the North.”

Some Recent Additions to Gas Generation Capacity

Footprint Power
Salem Harbor
Salem, MA
674 MWs
Online June 2018

CPV Towantic Energy Center
Oxford, CT
805 MWs
Online June 2018

PSEG Power
Bridgeport Harbor Station 5
Bridgeport, CT
485 MWs
Online June 2019

NRG Canal 3
Sandwich, MA
333 MWs
Online June 2019

Exelon West Medway
Medway, MA
200 MWs
Online June 2019

Cricket Valley Energy
Dover, NY
1,100 MWs
Online Spring 2020
Tufts University, Medford, MA

New central energy plant that went fully operational in 2018 - providing energy-efficient cogeneration technology to produce electricity as well as steam, fueled by natural gas. The university noted in fall 2018 that the plant is "Sustainable, cost-efficient, and environmentally friendly... a powerful addition to campus."

Harvard University, Allston, MA

New district energy facility will be fully operational in 2020. Harvard: "It has been designed to be as flexible as possible so emerging technologies can be incorporated over time as the University works towards its climate action goals to be fossil fuel-free by 2050 and fossil fuel-neutral by 2026. The facility currently relies on natural gas because that’s the dominant lowest carbon fuel source available for this scale of facilities in the New England region.”
Northeast States Lead U.S. in Gas Efficiency Investments

9 Northeast states = $572 million investment in 2018, 40% of U.S. total.

Emissions Reductions, Power Sector

New England Grid

Annual Emissions of NOx, SO2, and CO2, 2001 to 2018 (kilotons)

<table>
<thead>
<tr>
<th>Year</th>
<th>NOx</th>
<th>SO2</th>
<th>CO2</th>
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<td></td>
<td>Kilotons (short)</td>
<td>Kilotons (short)</td>
<td>Kilotons (short)</td>
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<td>2001</td>
<td>59.73</td>
<td>200.01</td>
<td>52.991</td>
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<td>2002</td>
<td>56.49</td>
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<td>2011</td>
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<td>2012</td>
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<td>2013</td>
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<td>2014</td>
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<td>2015</td>
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<td>2016</td>
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<td>2017</td>
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<tr>
<td>2018</td>
<td>15.61</td>
<td>4.95</td>
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<td>Percent Reduction, 2001-2018</td>
<td>74</td>
<td>99</td>
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Table: ISO-NE, May 2020

New York Grid

Figure 1: Emissions Rates from Electric Generation in New York: 2000-2019

Chart: NY ISO, June 2020
According to MA DEP’s latest GHG inventory report, natural gas systems in MA = 1.1% of total state GHG emissions (it was 2.6% in 1990). Gas system leaks declined by 67% since 1990.
UTILITY APPROACHES TO DECARBONIZATION
Renewable Natural Gas (RNG) - Lower Carbon Input

Renewable Natural Gas (RNG), also known as bio-methane or biogas, is pipeline quality gas derived from biomass that is fully interchangeable with natural gas. The future natural gas network could include renewable gas from dairy farms, waste water treatment plants, landfills, wood waste and food waste plants.

Several gas utilities in the Northeast are looking to incorporate RNG into their supply mix.

NGA & GTI study:
https://www.northeastgas.org/renewable_natural_gas.php
The Road Ahead

- Massachusetts government looking at **2050 roadmap**, including role of gas.

- Regional policy interest in advancing *electrification in transportation & building sectors*.

- Gas companies continue to advance *decarbonization* measures, system upgrades, and new technologies.