

***December 4, 2019
Montreal, Quebec***

Natural Gas Update

***The Northeast Power Coordinating Council
General Meeting***



Stephen Leahy
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

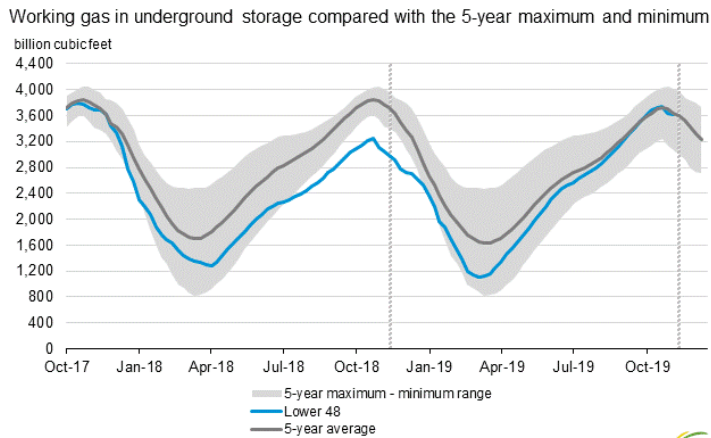
- ◆ Winter Outlook
- ◆ Natural Gas Market Update
- ◆ Infrastructure Developments in Last Year

Winter Outlook

- ◆ Storage levels in good position
- ◆ U.S. gas production higher again this year – another new annual output record
- ◆ LNG imports to region significant for winter peak market; CNG also providing volumes at particular constrained points
- ◆ Commodity price stable throughout the year – but local constraints (such as in the Northeast) can lead to short-term volatility
- ◆ Enbridge system review underway



Storage Position; Regional Price Hub Variations



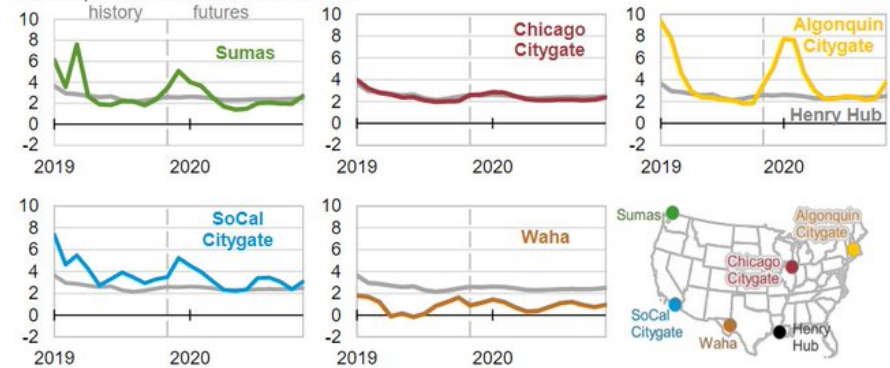
Source: U.S. Energy Information Administration



- Storage rebounded well throughout 2019 nationally
- At 5-year average level as of late November

Source: U.S. EIA

Monthly natural gas spot and futures prices at selected hubs (Jan 2019-Dec 2020)
dollars per million British thermal units



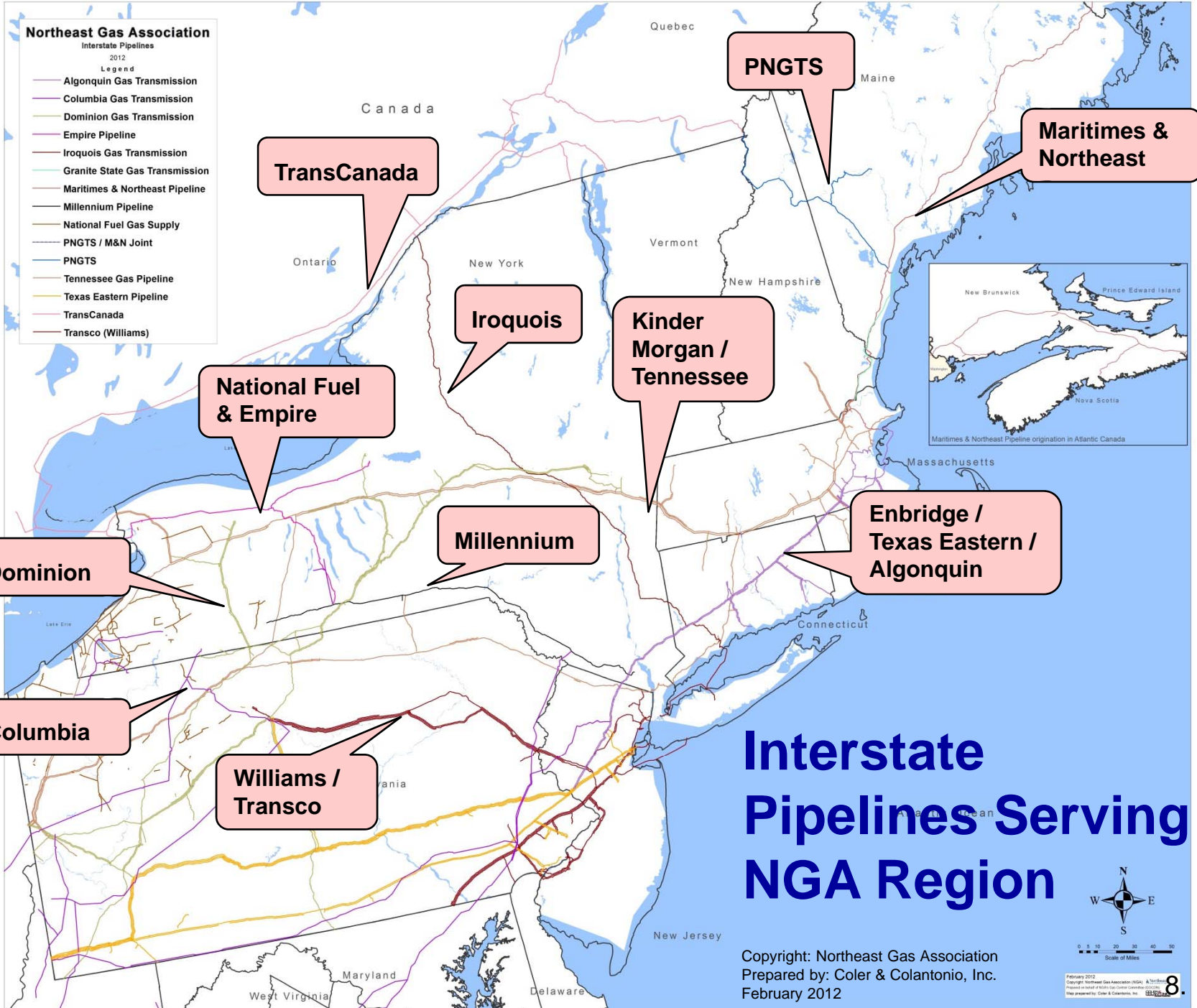
Source: U.S. Energy Information Administration, based on S&P Global Platts
 Note: Futures prices reflect settlements as of November 20, 2019.

- New England market hub (Algonquin citygate) shown in upper right corner in yellow
- Projected by EIA to be again the highest market price area in U.S.

Source: U.S. EIA, 11-22-19

Natural Gas Market Update

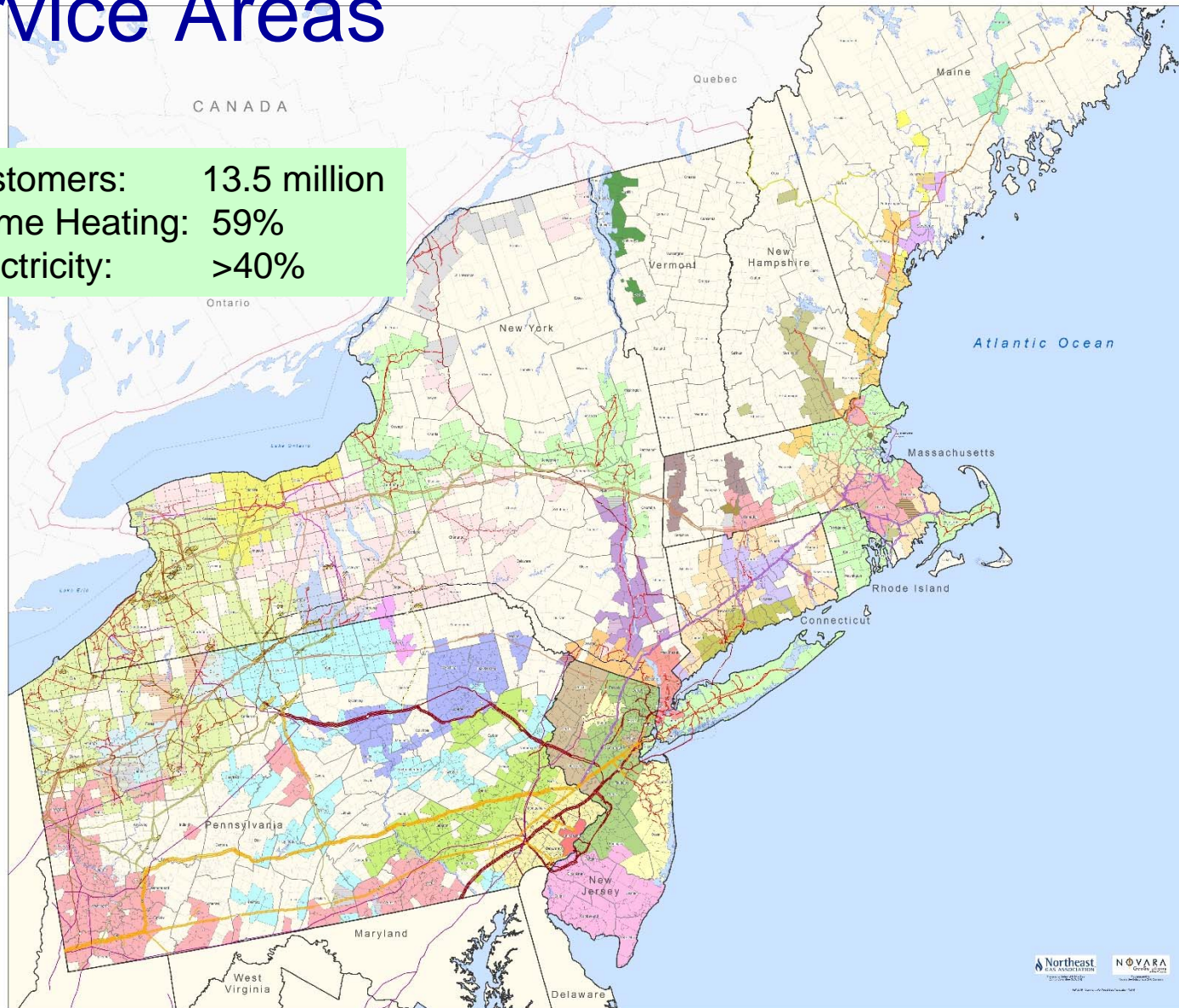




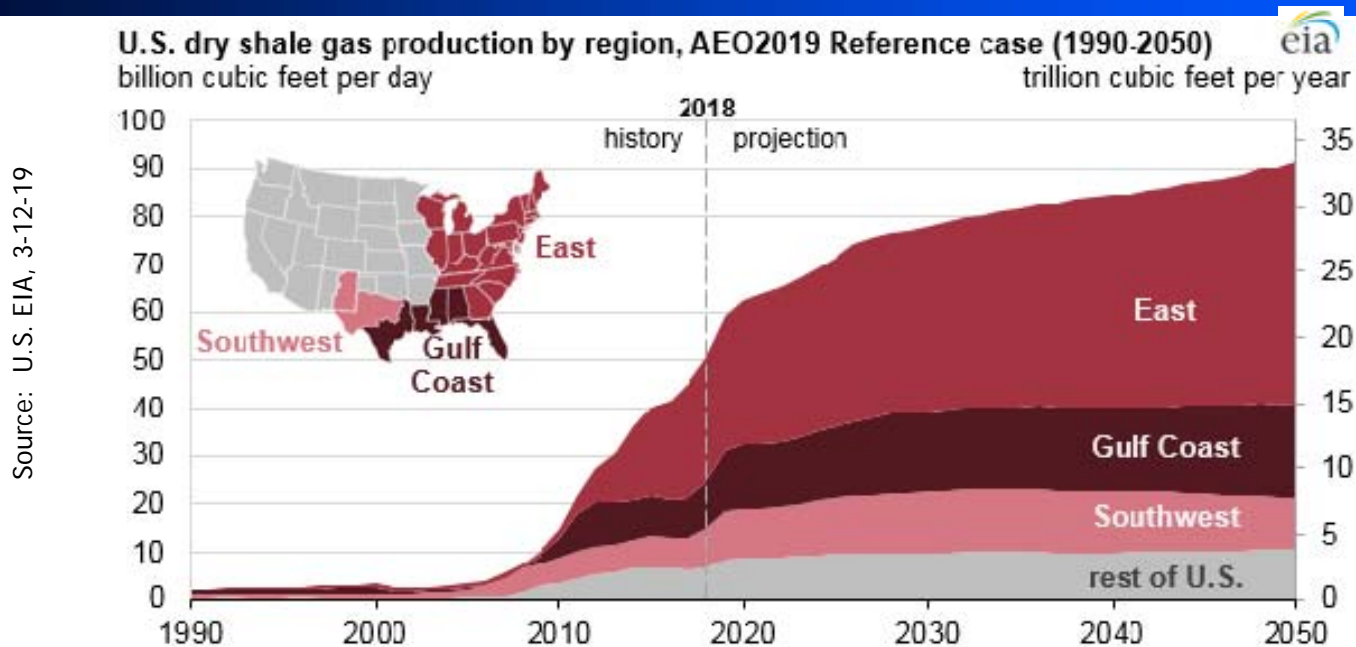
Interstate Pipelines Serving NGA Region

Northeast U.S. Natural Gas Service Areas

Gas Customers: 13.5 million
% of Home Heating: 59%
% of Electricity: >40%



EIA Outlook: Northeast Gas Production Remains Robust



U.S. natural gas production achieved record annual output in 2018, 11% over 2017 level. Looking ahead to long-term forecast, U.S. EIA, March 12, 2019:

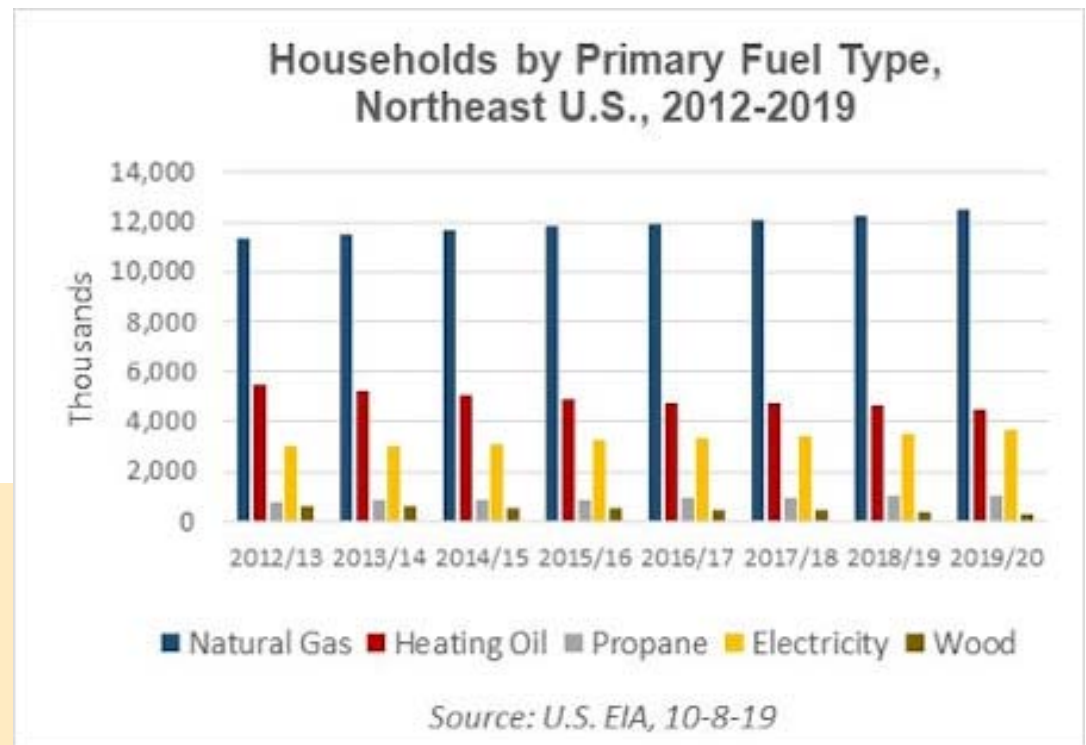
“Total U.S. dry natural gas production... is driven by continued development of the Marcellus and Utica shale plays in the East region... Dry shale natural gas production in the East accounts for over half of this growth as production more than doubles during the projection period from 24 Bcf/d in 2017 to 50 Bcf/d in 2050 in the Reference case.”

Customer Growth Continues in Residential Sector



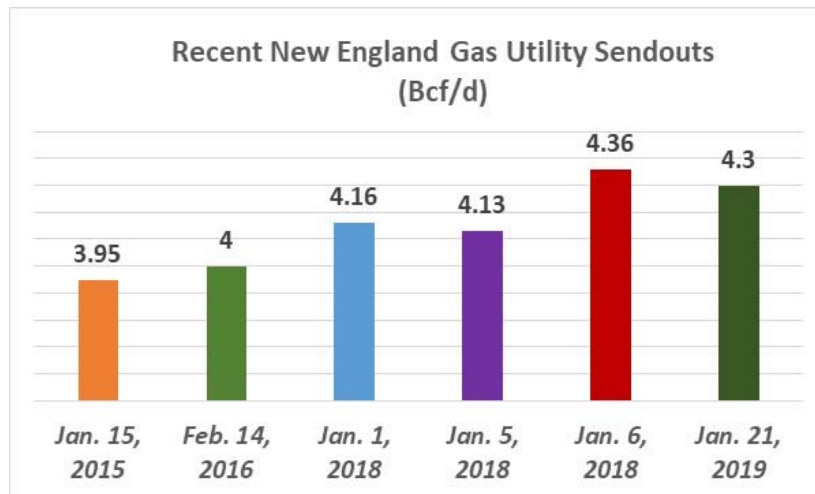
Northeast Homes, Fuel Type %

Natural Gas:	59%
Heating Oil:	21%
Electricity:	16%



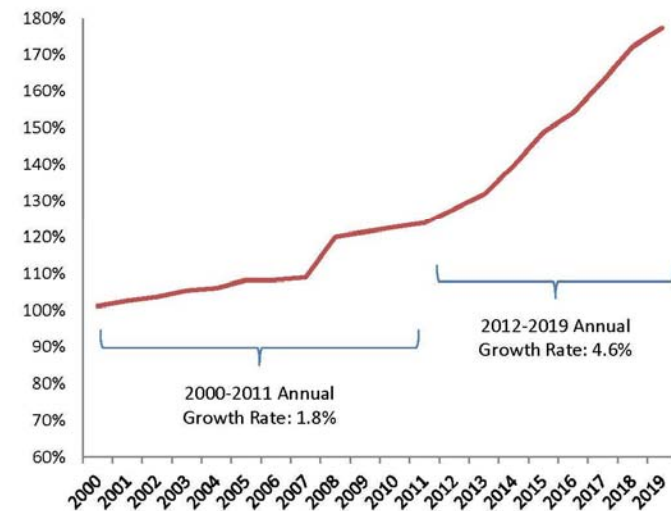
Since 2012, natural gas has added over 1 million new household customers in the Northeast states.

Increasing Peak Day Demand



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

Con Edison Peak Day Natural Gas Demand (Weather-Normalized, Compared to 2000)

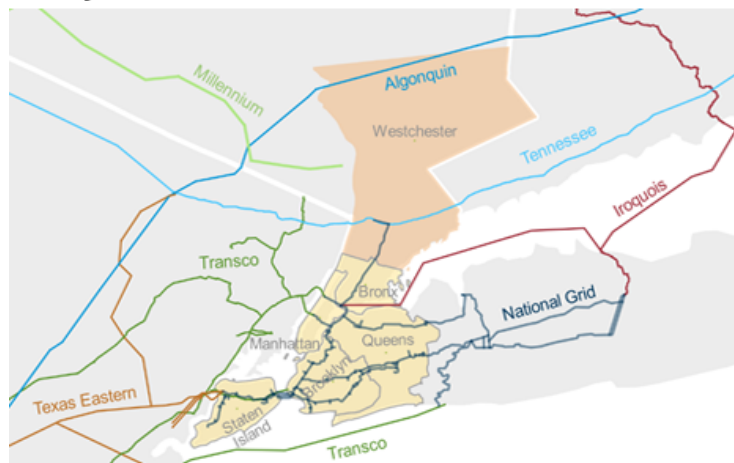


“Supply and demand increasingly out of balance
 – ~50% peak growth in last 10 years
 – Last new supply added in 2013
 – Use of delivered services rising”

Source: Con Edison, 4-25-19, at NGA Forum

Current Limitations in Downstate NY, Future Options

Pipeline infrastructure for New York City and Westchester County



 Source: U.S. Energy Information Administration

Map: U.S. EIA, May 2019

Con Edison

Moratorium on new services in parts of Westchester County, announced March 2019. Utility announced plans with TGP and IGT this spring for future development (proposed to be in place in 2023), as well as non-pipe options.

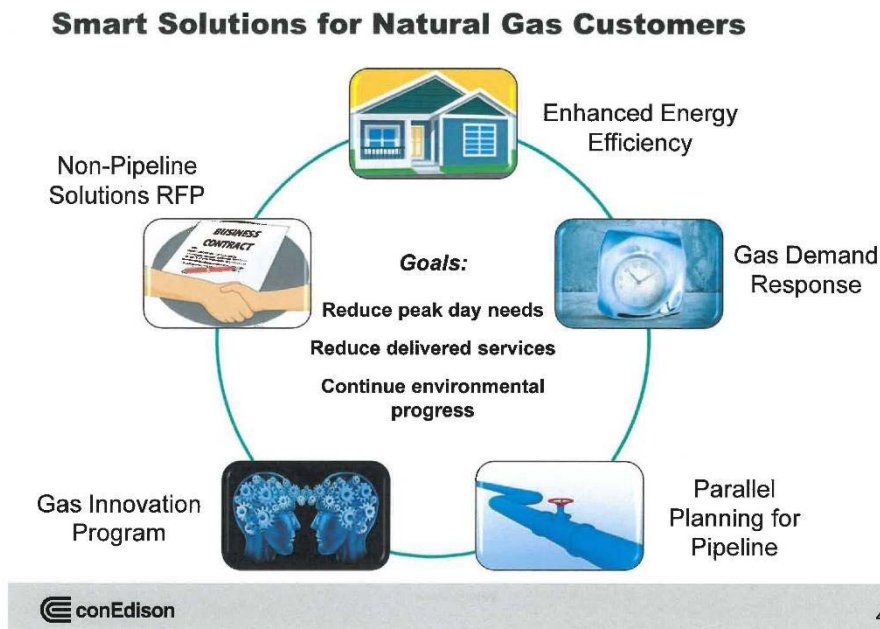
National Grid

Utility announced in May 2019 that it “has stopped processing all applications for new or expanded gas service in Brooklyn, Queens and on Long Island.”

FERC had approved Transco’s “NESE Project” to supply National Grid on May 3. On May 15, NYS DEC denied water quality certificate for project. On Nov. 25, Utility announced agreement with State of NY to lift moratorium and look at range of future supply options. Long-term plan to be in place in Fall 2021.

New Approaches: Con Ed's "Smart Solutions"; National Grid's "Future of Heat"

Con Edison: 2018 / 2019 "Smart Solutions"



National Grid: April 2019 "Delivering the Future of Heat"

A **green gas tariff** that will give downstate customers the choice to supplement their natural gas usage with RNG

A **power-to-gas** pilot project that would produce RNG to help demonstrate the technical and economic potential of converting excess renewable electricity to hydrogen through electrolysis of water.

A **hydrogen blending study** to assess how much hydrogen can safely be blended into the existing system.

A **program to facilitate RNG interconnections** by lowering the cost to connect RNG facilities to our network.

An enhanced **gas demand-response program** that will give customers the choice to modify their gas consumption in response to price signals.

An expanded **geothermal pilot** to test out a utility-ownership business model and its ability to complement gas network operations.

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**



**CPV Valley Energy Center
Wawayanda, NY
680 MWs
Online Fall 2018**



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

Enbridge System Integrity Review Currently Underway



Ongoing Pipe Inspection for System Integrity, with Reduced Pressures

Following incident on system in Kentucky in August, Enbridge is conducting an Integrity Management Program investigation on several pipelines on its system, including Texas Eastern and Algonquin which serve the Northeast. Actual cause of KY pipeline failure has not been determined. Assessing pipe systems manufactured by particular manufacturer, on issues such as “long seam weld fusions and hard spots.”

Enbridge has implemented “early winter pressure restrictions” during this review process.

FERC Summary, 10-19

"Algonquin Gas Transmission and Texas Eastern Transmission have announced capacity reductions to accommodate pipeline safety and integrity testing. The restrictions vary by both location and magnitude; however, the publicly available schedules posted by the companies suggest most restrictions should end by December. Staff will continue to monitor the timelines and any potential impacts on natural gas and electric markets."

Infrastructure Developments



Projects Recently Completed / Entered Service in 2019

- ◆ Millennium: “Eastern System Upgrade”
- ◆ Williams (Transco): “Rivervale South to North”
- ◆ PNGTS: “Portland XPress” [phase 2]
- ◆ PNGTS: “Westbrook” [phase 1]
- ◆ Enbridge: “Lambertville East”



Projects Delayed by State Review Process

- ◆ National Fuel Gas: “Northern Access”
- ◆ Williams (Transco): “Northeast Supply Enhancement”
- ◆ Williams/Cabot: “Constitution”
- ◆ Iroquois, “Wright Interconnect”
- ◆ AGL, NJ utilities, Enbridge: “PennEast”





Questions?