

March 18, 2020

Update on New England Natural Gas Developments

Presentation to:

ISO-NE Planning Advisory Committee



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Northeast Gas Association

Topic Areas

- Recent winter.
- Infrastructure developments.
- Regional developments.
- Safety & mutual aid.

About NGA

- ◆ Non-profit trade association
- ◆ Local gas utilities (LDCs) serving New England, New York, New Jersey, Pennsylvania
- ◆ Several interstate pipeline companies
- ◆ LNG importers, suppliers and transporters; CNG suppliers
- ◆ Over 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.

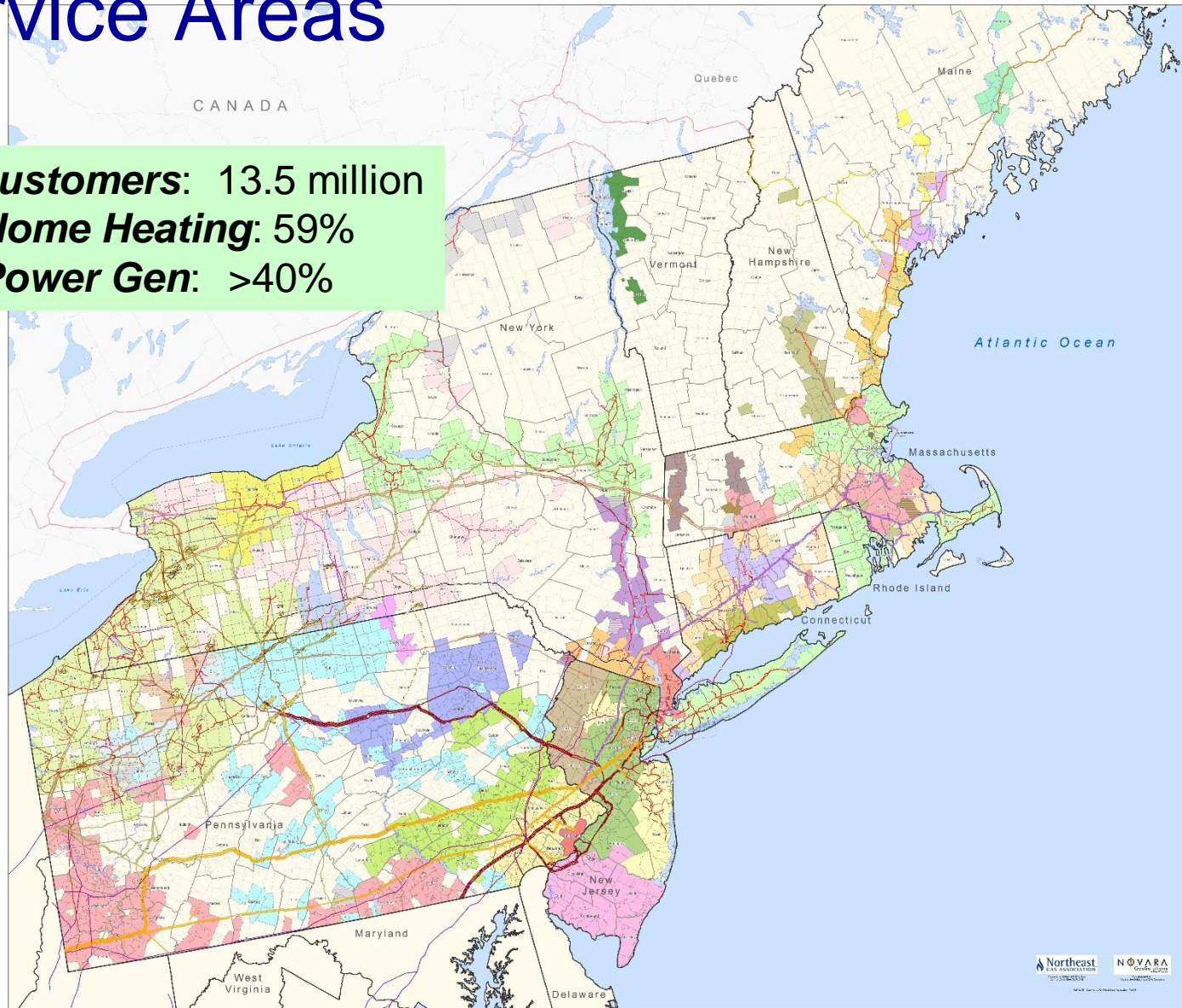
Antitrust Guidelines

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.

Northeast U.S. Natural Gas Service Areas

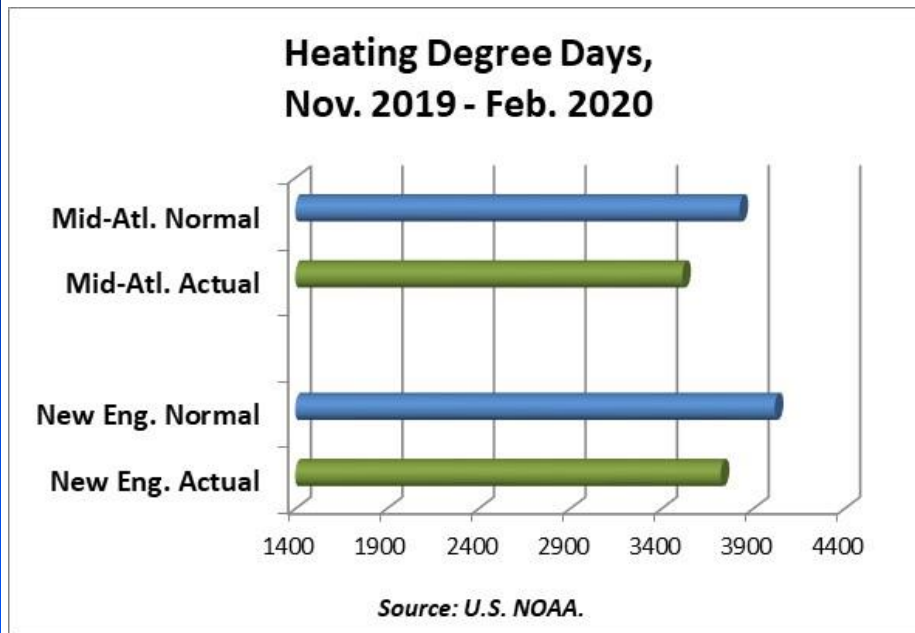
Gas Customers: 13.5 million
% of Home Heating: 59%
% of Power Gen: >40%



RECENT WINTER



Winter Season, in Brief



New England: 7.3% warmer

Mid-Atlantic: 8.2% warmer

- No extended cold periods, no dramatic weather or sendout.
- Pipelines operated well. Algonquin completed its integrity management review at end of Dec. '19. LNG facilities operated fine.
- Four monitoring calls held of NGA Gas Supply Task Force – no actions needed.
- Regular communications with ISOs in region, NPCC. 7.

National Storage Position: *Above the Curve*

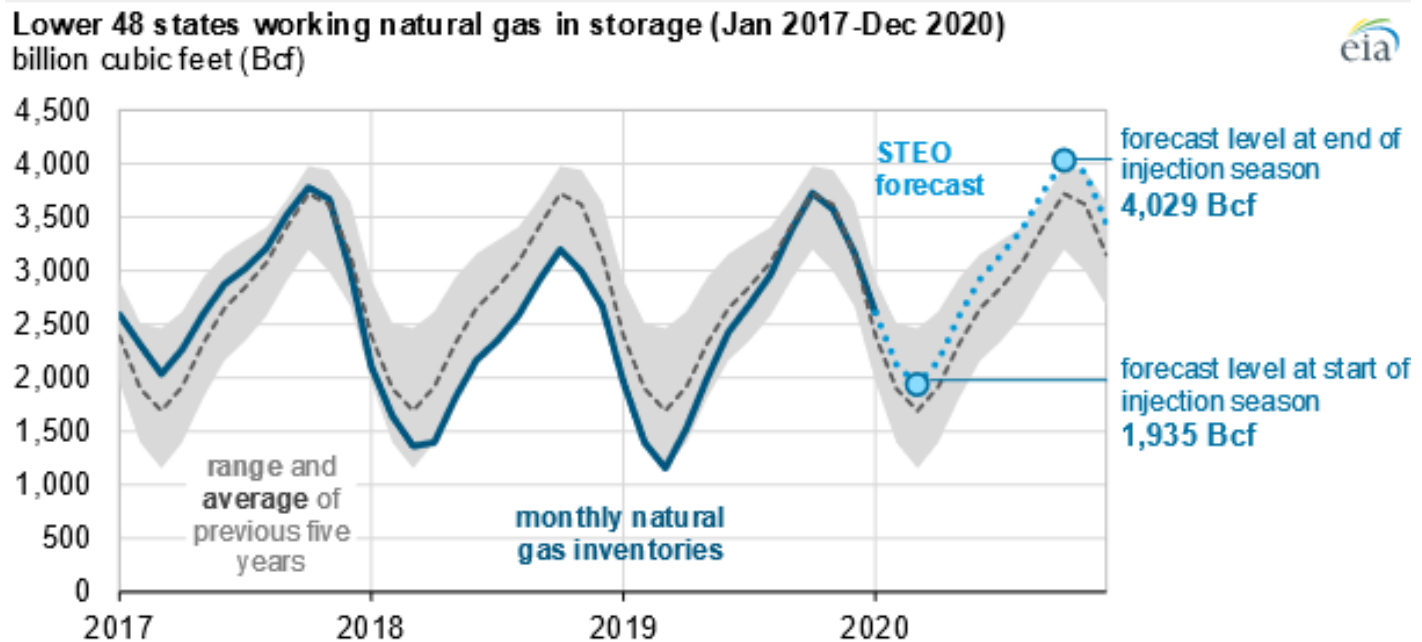
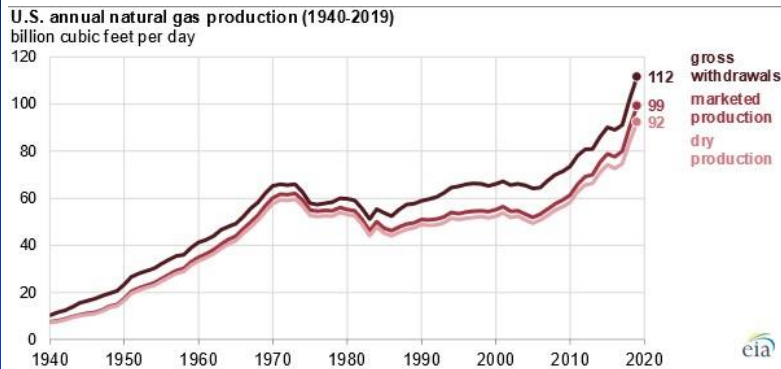


Chart: U.S. EIA, 2-24-20

EIA projects U.S. stocks by the end of this October could be at highest level ever.

As of week ending March 6, stocks are at 2 trillion cubic feet (Tcf), which is 12% higher than the five-year average. East region stocks are 20% higher.

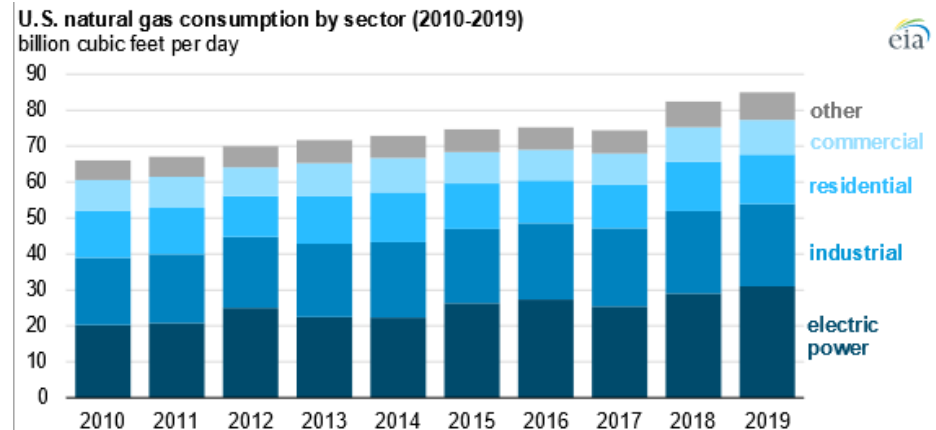
U.S. Production & Consumption Set New Records Last Year



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

Dry production level was 92.2 Bcf/d.

Charts: U.S. EIA, March 2020

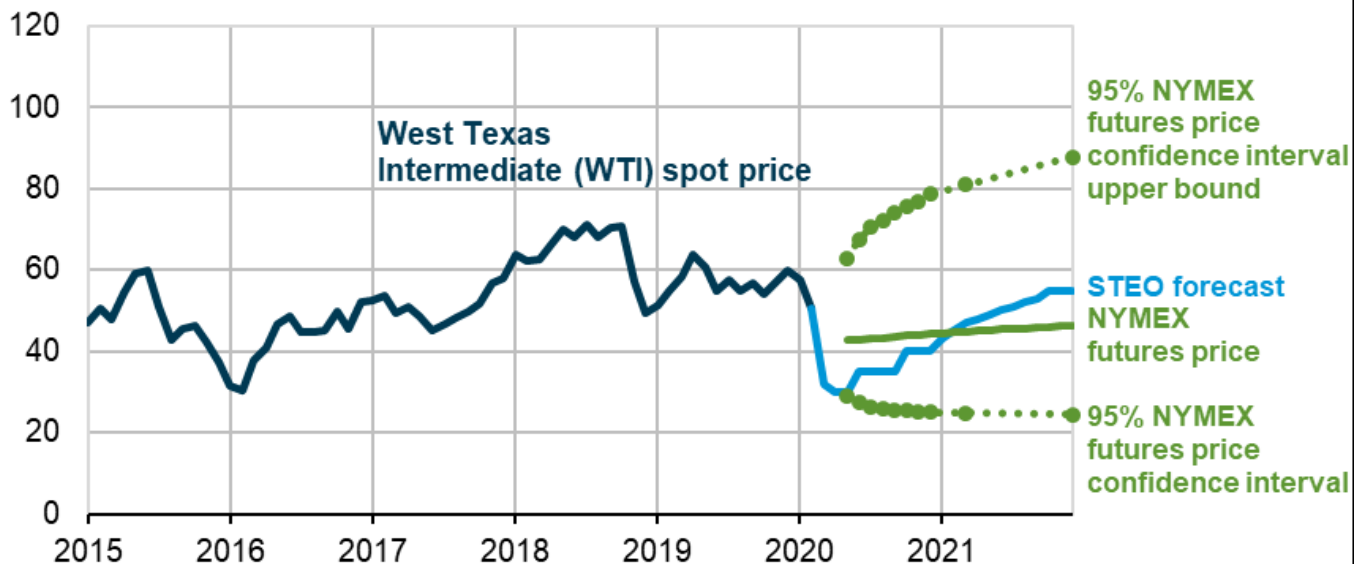


U.S. natural gas consumption in 2019 set new all-time record: **85 Bcf/d**.

EIA: “U.S. natural gas consumption grew in the electric power sector by 2.0 Bcf/d, or 7%, but remained relatively flat in the commercial, residential, and industrial sectors.”

U.S. Commodity Price Trends & Forecast: Oil

West Texas Intermediate (WTI) crude oil price and NYMEX confidence intervals
dollars per barrel

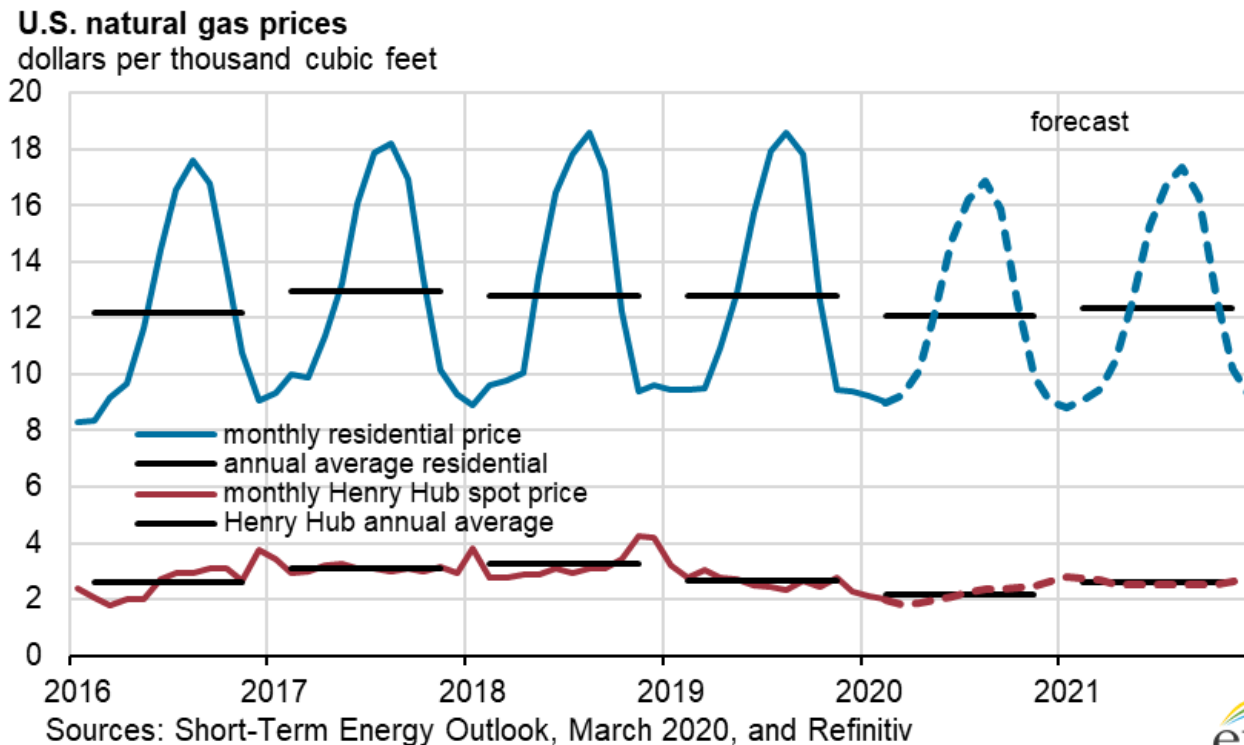


Note: Confidence interval derived from options market information for the five trading days ending Mar 9, 2020. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: Short-Term Energy Outlook, March 2020, and CME Group



U.S. Commodity Price Trends & Forecast: Natural Gas



INFRASTRUCTURE DEVELOPMENTS



Recent & Current Pipeline Projects, 2019-20

2019 Projects, New England:

- ◆ PNGTS: “Portland XPress” [phase 2]
- ◆ PNGTS: “Westbrook XPress” [phase 1]

2020 Projects, New England:

- ◆ Enbridge: “Atlantic Bridge Project” [2nd phase]
- ◆ PNGTS: “Portland XPress” [phase 3]
- ◆ Tennessee: “Station 261 Upgrade”



Projects with Delayed Timeline

- ◆ Williams (Transco): “Northeast Supply Enhancement”
- ◆ AGL, NJ utilities, Enbridge: “PennEast”
- ◆ National Fuel Gas: “Northern Access”
- ◆ Williams/Cabot: “Constitution” [*withdrawn, Feb. 2020*]



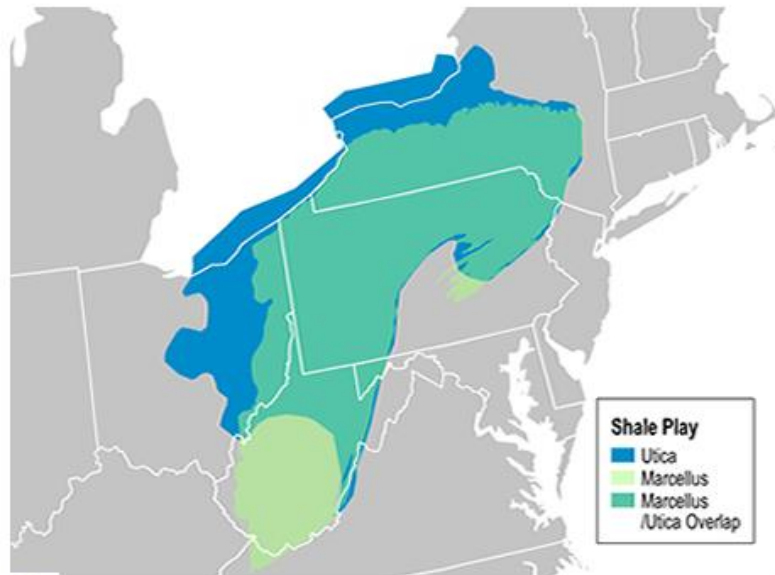
REGIONAL DEVELOPMENTS



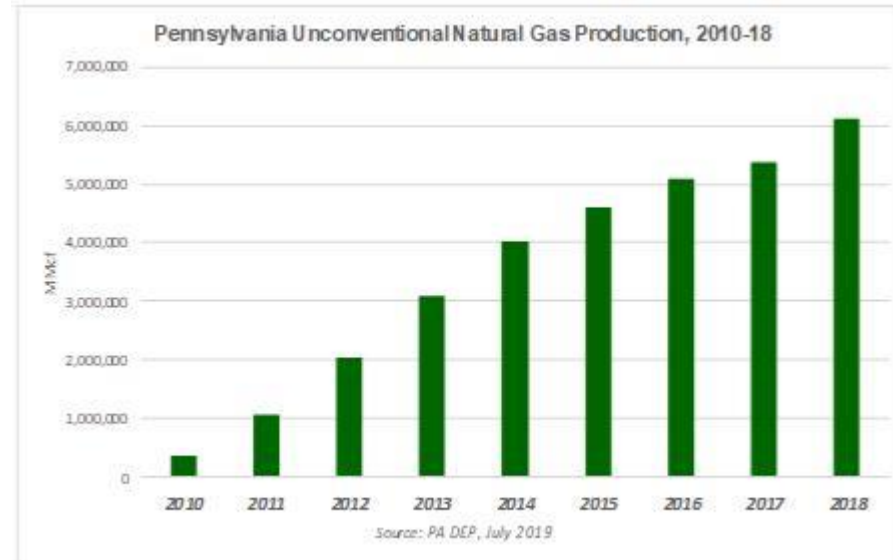
Appalachian Production

Utica and Marcellus shale plays

Source: U.S. EIA, 7-14



Source: U.S. Energy Information Administration.

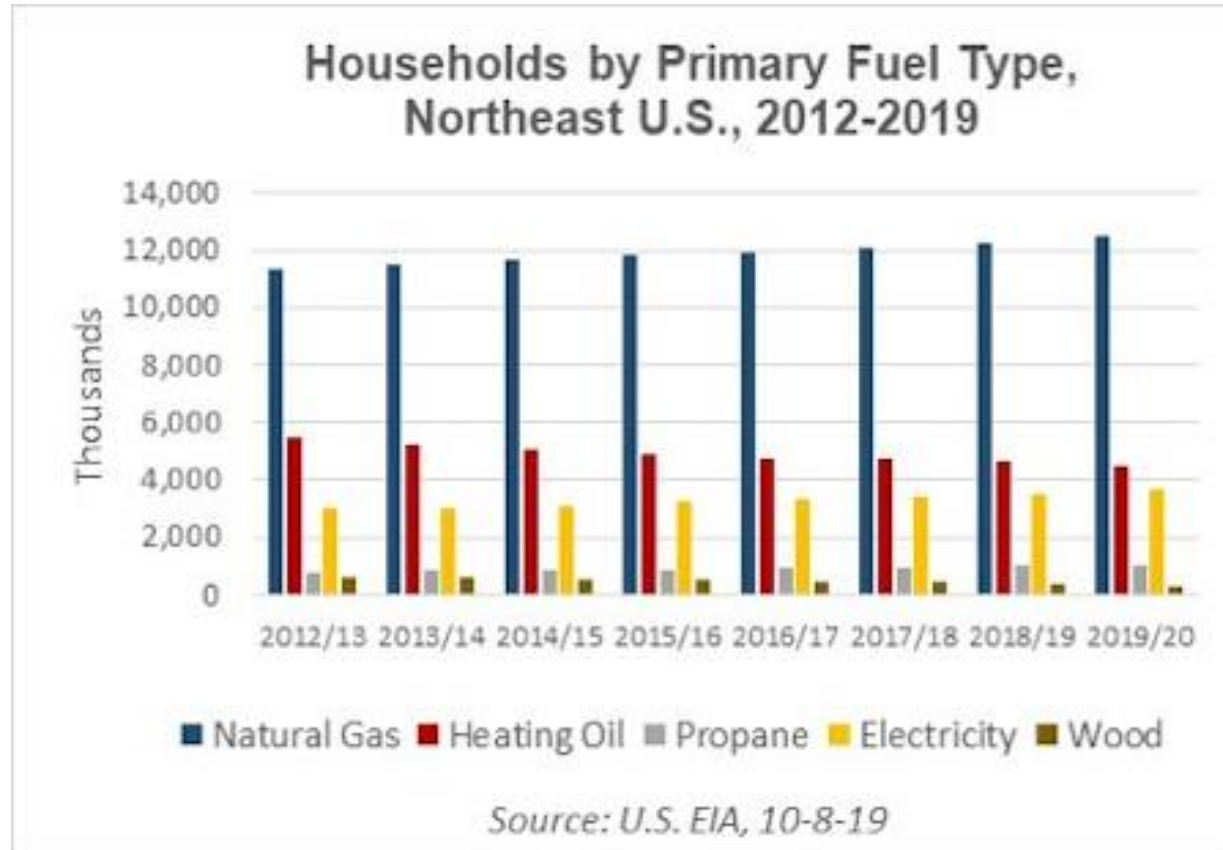


U.S. natural gas production in 2019 set new all-time record: **92 Bcf/d.**

Marcellus Shale producing ~**32 Bcf/d.**

PA is 2nd largest gas producing state in U.S.

Residential Customer Growth in Region Has Continued



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

Current Residential Heating Fuel Mix by Region



New England Homes, Fuel Type %

Natural Gas:	40%
Heating Oil:	35%
Electricity:	14%

Northeast Homes, Fuel Type %

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

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



NRG Canal 3
Sandwich, MA
333 MWs
Online June 2019



Exelon West Medway
Medway, MA
200 MWs
Online June 2019

Proposed Municipal Gas Bans

Summer 2019: Berkeley and San Jose, CA passed ordinances to halt new natural gas installations in buildings/homes.

Nov. 2019: Brookline, MA town meeting approves by-law to prohibit fossil fuels to heat new commercial or residential buildings starting in January 2021. Must be approved by Attorney General.

Dec. 2019: Ordinance Committee of Cambridge City Council approves motion to prohibit new natural gas connections in city buildings; now goes to full Council for consideration. City Solicitor observes that such a prohibition might not be legal.

Dec. 2019: NGA offered testimony at Cambridge public hearing objecting to proposed ordinance – citing energy affordability & customer choice as chief reasons.

Harvard's Planning Office submitted a letter to the Ordinance Committee, posing some questions:

“What analysis has been done to determine that a prohibition of natural gas is feasible?”

“Does the existing electrical infrastructure have the capacity to take on this significant additional load that would occur if this were adopted?”

“Would oil still be allowed?”

Environmental Issues – GHG

MA GHG Emissions by Sector

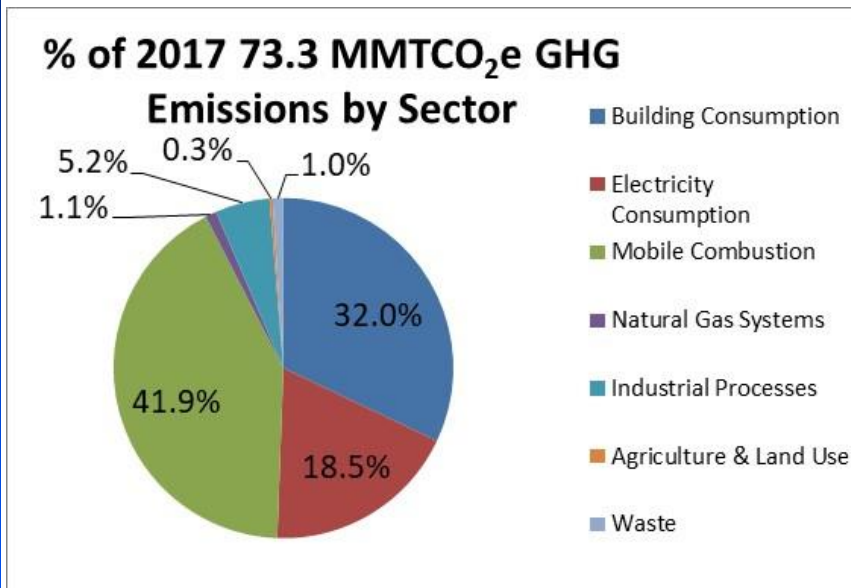


Chart: MA DEP, GHG Emissions Inventory, 1990-2017, released 2020

CT GHG Emissions by Sector

Connecticut Emissions by Sector (MMTCO₂e)

	1990	2001	2016	2017
Transportation	15.6	17.8	15.4	15.5
Electric Power				
Consumption	11.9	12.3	9.3	9.3
Generation	12.1	11.4	8.6	8.6
Residential	8.3	8.5	6.4	6.6
Industrial	3.2	3.7	3.6	3.6
Commercial	3.8	4.3	3.9	4.0
Waste	1.4	1.7	2.03	1.97
Agriculture	0.35	0.33	0.25	0.24
NG leakage	0.75	0.47	0.26	0.24
Generation-base Accounting Total	45.6	48.2	40.5	40.0
Consumption-based Accounting Total	45.3	49.2	41.2	40.6

Consumption-based Accounting
10.5% below 1990 levels
17.4% below 2001 levels

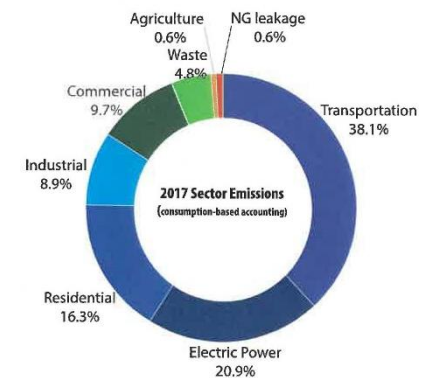


Chart: CT PURA, 2017 GHG Emissions Inventory, released Jan. 2020

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). According to CT PURA’s recent GHG inventory, “natural gas leakage” sector equals <1% of total.

Environmental Issues – Methane

MA CH₄ Emissions, 1990-2017

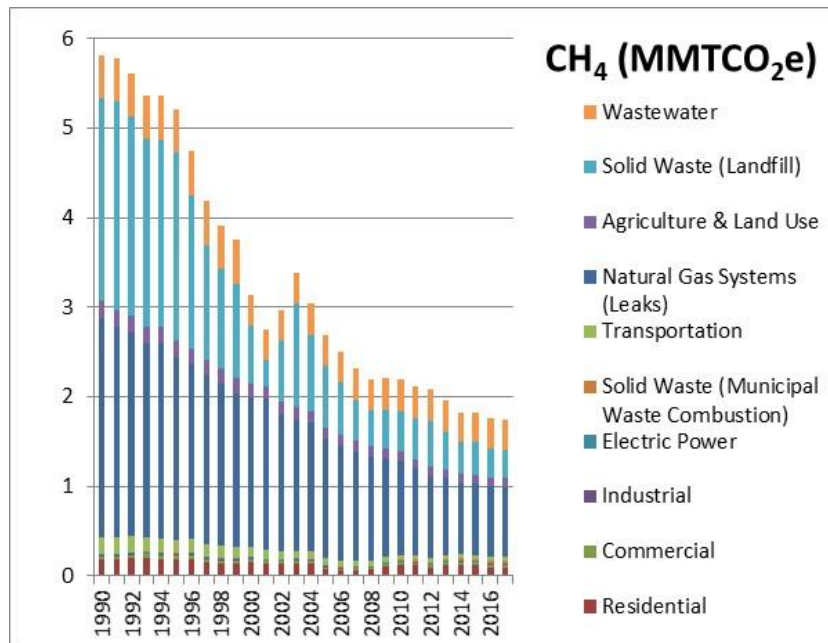
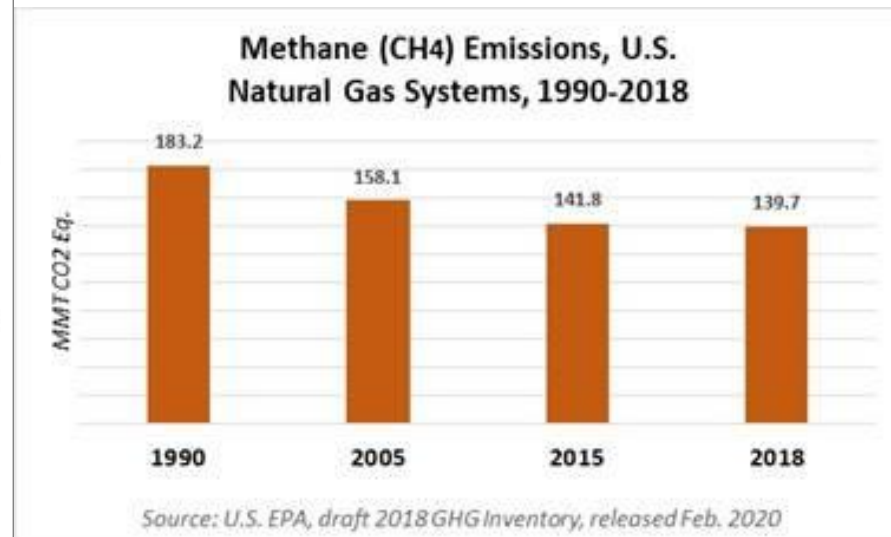


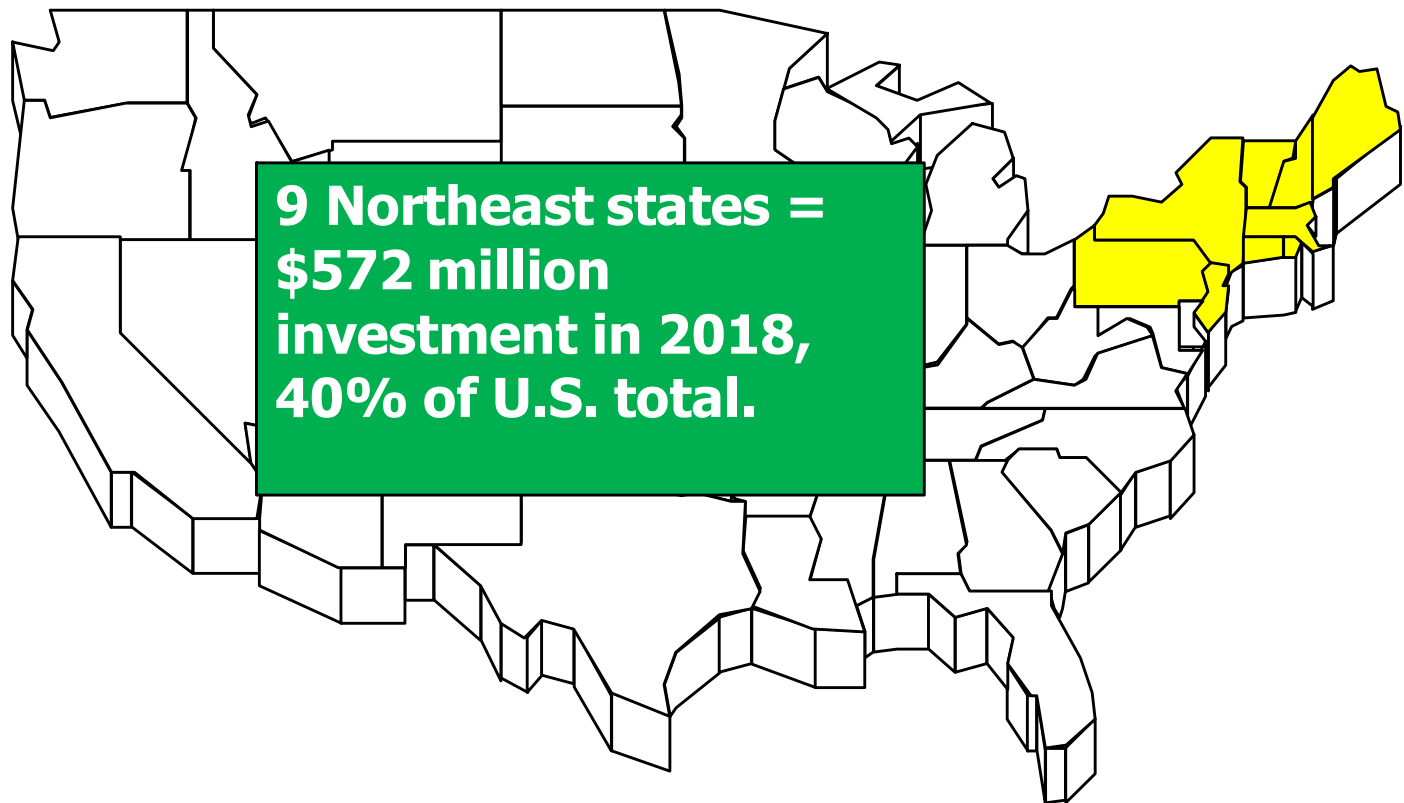
Chart: MA DEP, GHG Emissions Inventory, 1990-2017, released 2020

U.S. CH₄ Emissions Related to “Natural Gas Systems”



Methane emissions from natural gas systems in MA have declined by 68% since 1990, according to MA DEP’s latest GHG inventory report. Nationally, methane emissions from natural gas systems are down ~24% since 1990.

Northeast States Lead U.S. in Gas Efficiency Investments



Source: ACEEE, "2019 State Energy Efficiency Scorecard", released Sept. 2019

SAFETY & MUTUAL AID



Safety System Review

Post-Merrimack Valley


- ◆ Overpressurization incident on Sept. 13, 2018 in Lawrence, MA, impacting Lawrence, Andover, N. Andover.
- ◆ NTSB issued several urgent safety recommendations in mid-Nov. 2018. Final report issued in Sept. 2019. The safety issues addressed include “adequacy of natural gas regulations, project documentation, project management, risk assessment, emergency response and safety management systems.”
- ◆ NGA & several member utilities working with consultant (The Blacksmith Group) to develop “**Pipeline Safety Management System**” for MA (and other states’) gas utilities.




NGA's Annual Regional Market Trends Forum



Postponed

A circular inset image showing a blue sky with white clouds and green trees, set against a background of a green, textured surface.

**NGA 2020 Regional Market
Trends Forum -
“Natural Gas in the Northeast”
April 23, 2020
Hartford, CT**

The logo for the Northeast Gas Association, featuring a stylized flame icon to the left of the text "Northeast GAS ASSOCIATION".

Questions?