

*January 8, 2020
Tewksbury, MA*

Looking Ahead - Challenges & Opportunities for the Region's Natural Gas Industry

AEENE Energy Forum



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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.

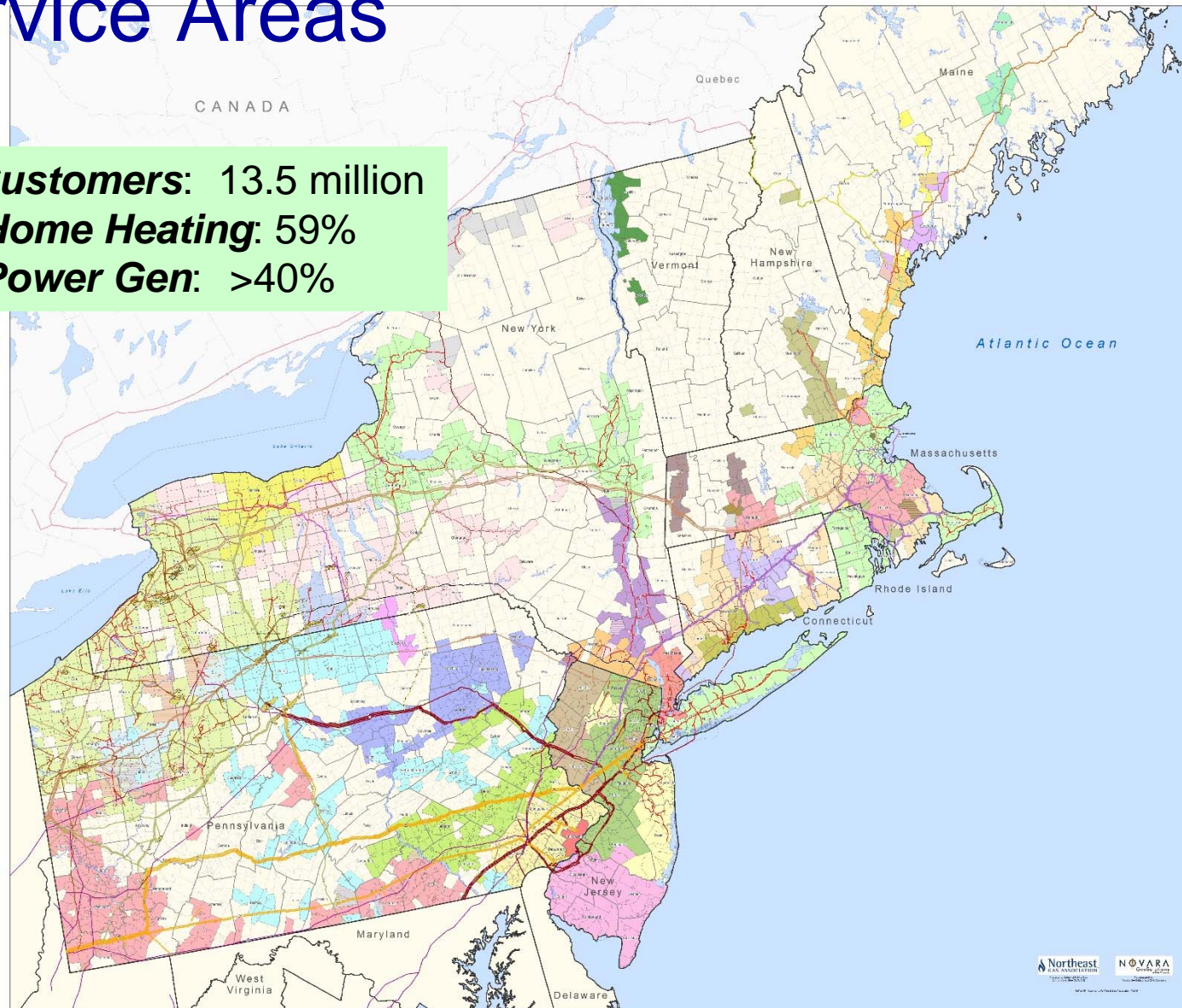
Topics

- ◆ System Overview
- ◆ Some Growth Trends
- ◆ Utility Approaches to Decarbonization
- ◆ System Constraints; Proposed Municipal Bans on New Gas Connections
- ◆ Safety

Northeast U.S. Natural Gas Service Areas



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



Residential Customer Growth Has Continued

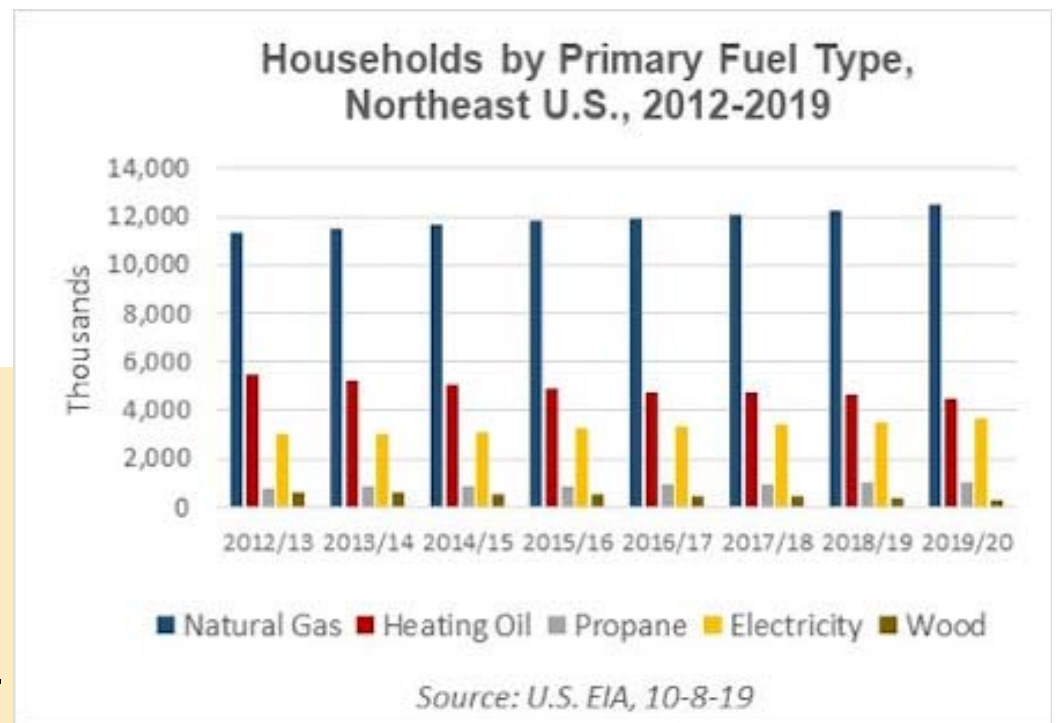


Northeast Homes, Fuel Type %

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

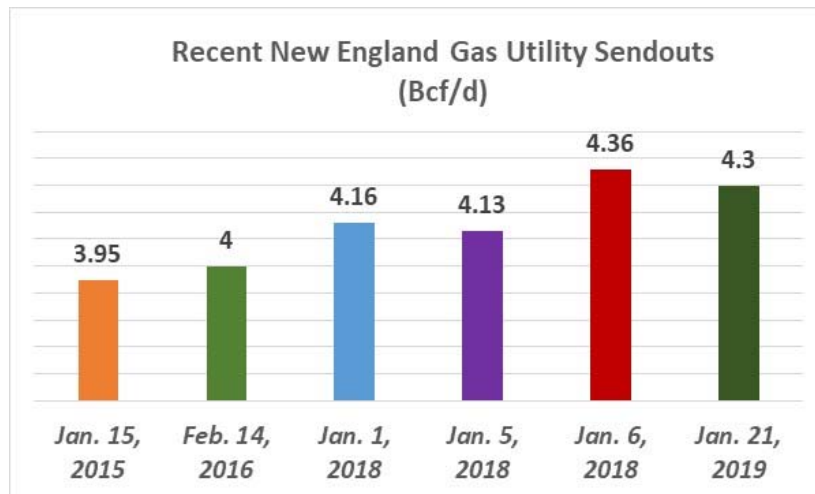
New England Homes, Fuel Type %

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

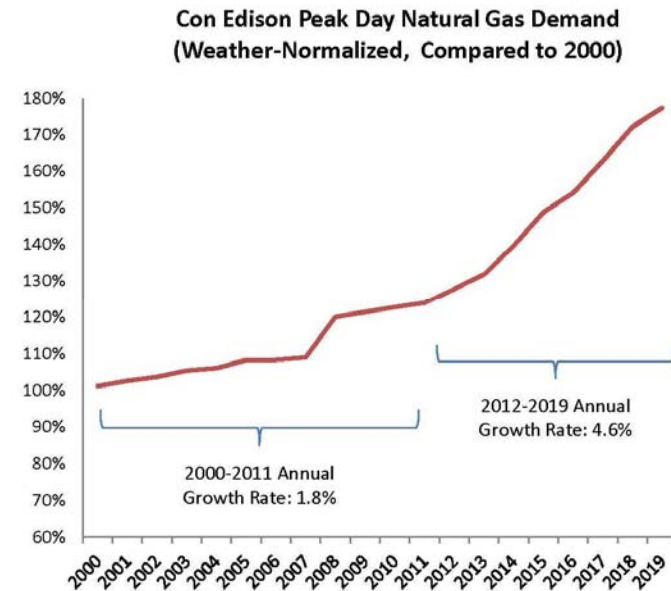


Since 2012, natural gas has added over 1 million new household customers in the Northeast states.

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

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
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

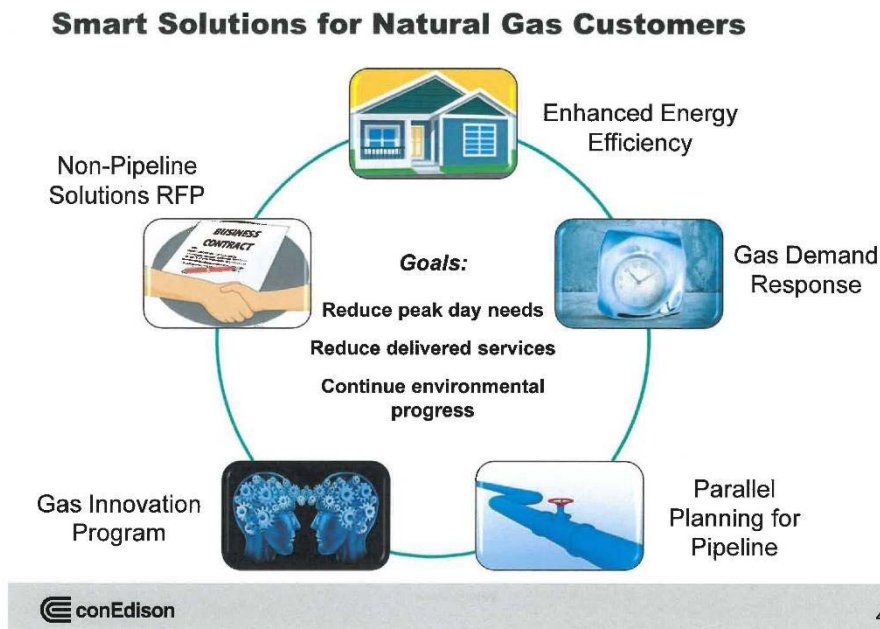


Exelon West Medway
Medway, MA
200 MWs
Online June 2019

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.

New Approaches: Eversource; Vermont Gas



Eversource Announces Goal to be Carbon Neutral by 2030

- reducing energy use by improving the efficiency of its 69 facilities and reducing fleet emissions of its 5200 vehicles;
- continuing to enhance the electric transmission and distribution system to reduce line losses;
- reducing sulfur hexafluoride (a potent greenhouse gas) in gas-insulated electric switchgear;
- replacing remaining bare steel and cast-iron natural gas distribution main lines to improve safety and help prevent methane leaks

Source: Eversource, 12-19

VGS Targets Elimination of Greenhouse Gas Emissions by 2050

3 Measures to Help Achieve 30% Reduction by 2030:

- doubling energy efficiency savings with a \$20 million upfront investment;
- significantly expanding renewable natural gas for customers;
- strengthening partnerships to advance projects such as district energy in Burlington and Middlebury, and a net zero home pilot program

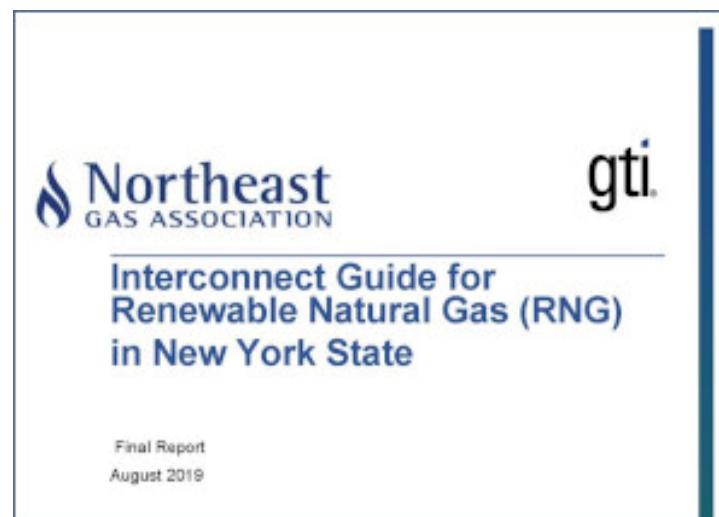
Source: VGS, 11-19

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.

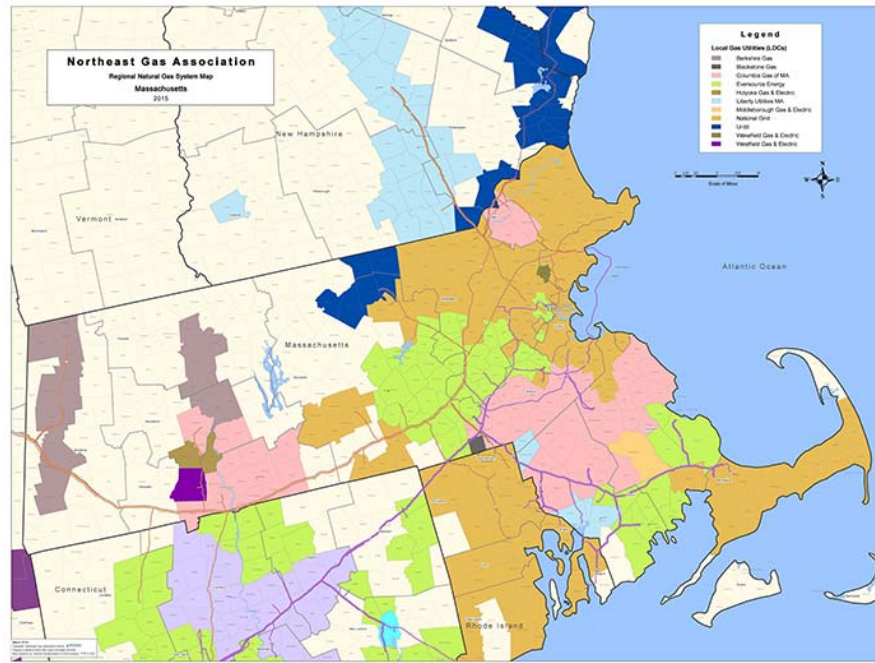
Several gas utilities in the Northeast are looking to incorporate RNG into their supply mix.



Moratoria Enacted by Several Gas Utilities in MA

There are currently 5 natural gas utilities in MA that have implemented restrictions on new gas service interconnections, due to limitations on pipeline supply availability in-state.

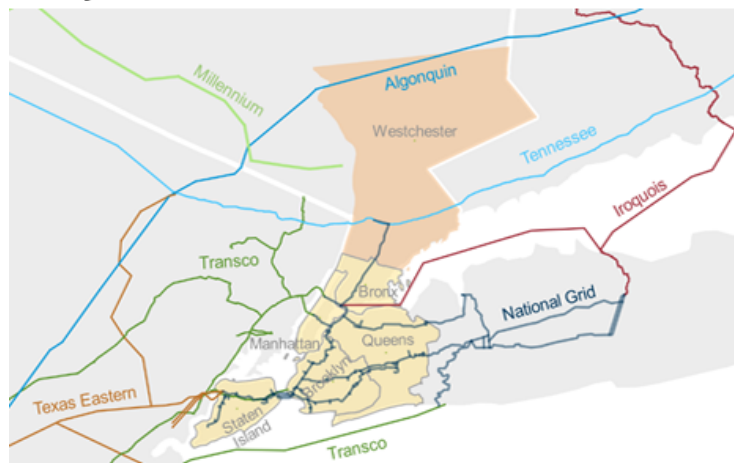
Communities impacted:



Amherst
Deerfield
Easthampton
Greenfield
Hadley
Hatfield
Holyoke
Middleborough
Montague
Northampton
Sunderland
Wakefield
Whately

Constraints 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 had “stopped processing all applications for new or expanded gas service in Brooklyn, Queens and on Long Island.”

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.

Proposed Municipal Gas Bans: An Emerging Topic



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.

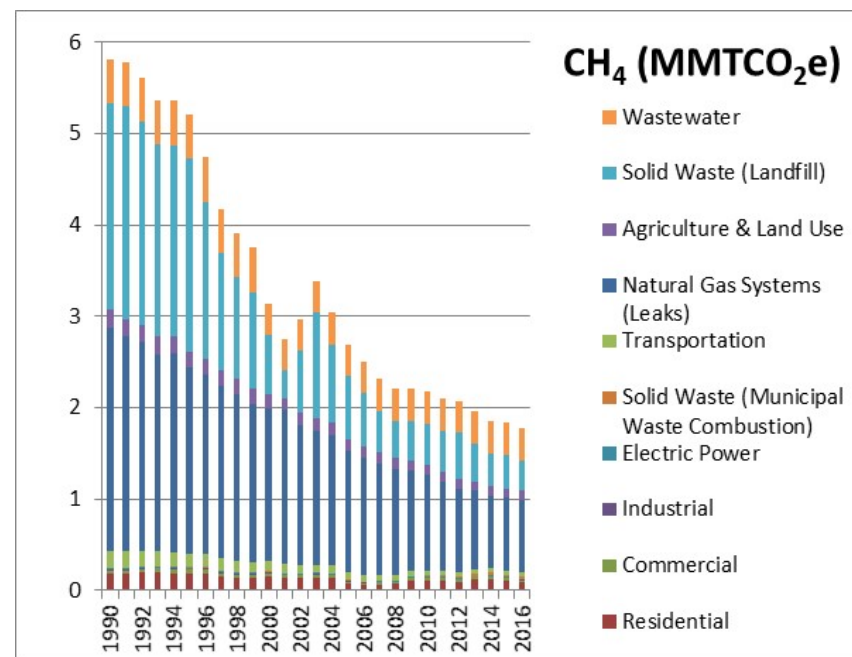
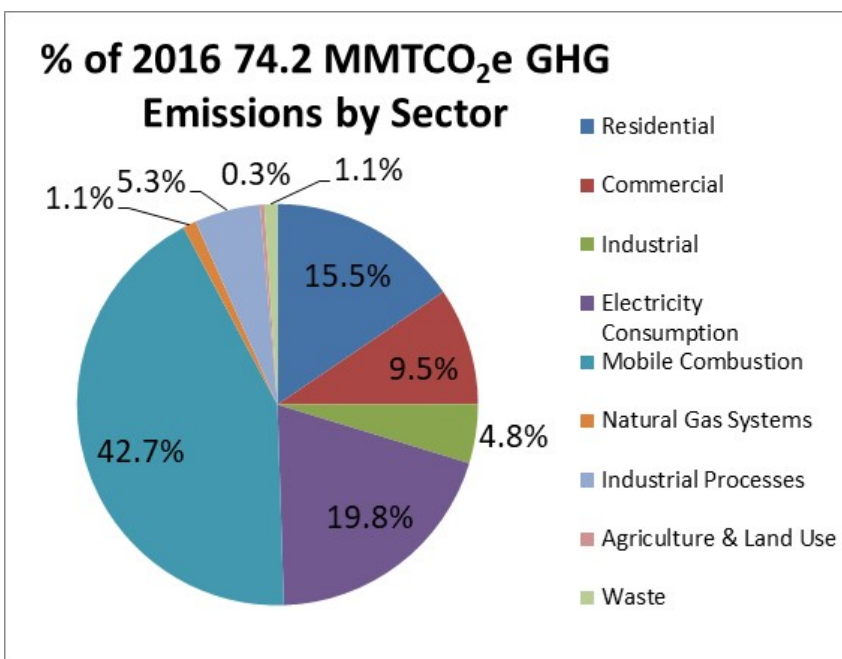
Harvard's Planning Office submitted a letter to the Ordinance Committee, asking some questions:

“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, Methane



Charts: MA DEP, GHG Emissions Inventory, 1990-2016, released 2019

Methane emissions from natural gas systems in MA have declined by 67% since 1990, 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).

Safety Systems 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.

