

June 24, 2019
Hot Springs, VA

Economic & Environmental Impact of Natural Gas Infrastructure

Presentation to:

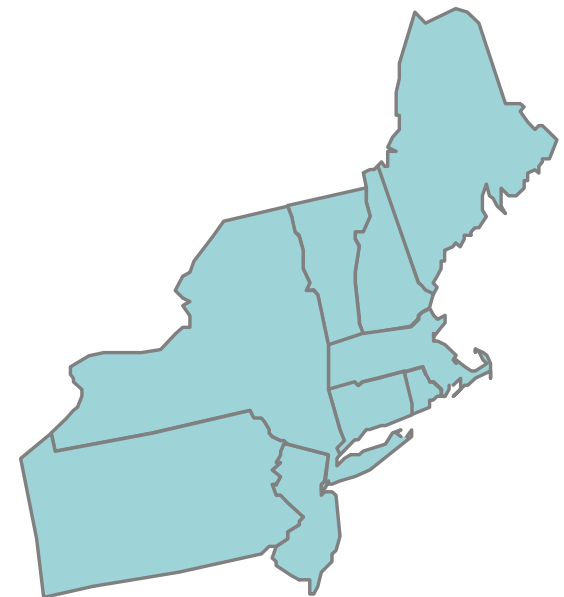
MACRUC 24th Annual Education Conference



Tom Kiley
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 importers, suppliers and transporters
- ◆ Over 350 “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

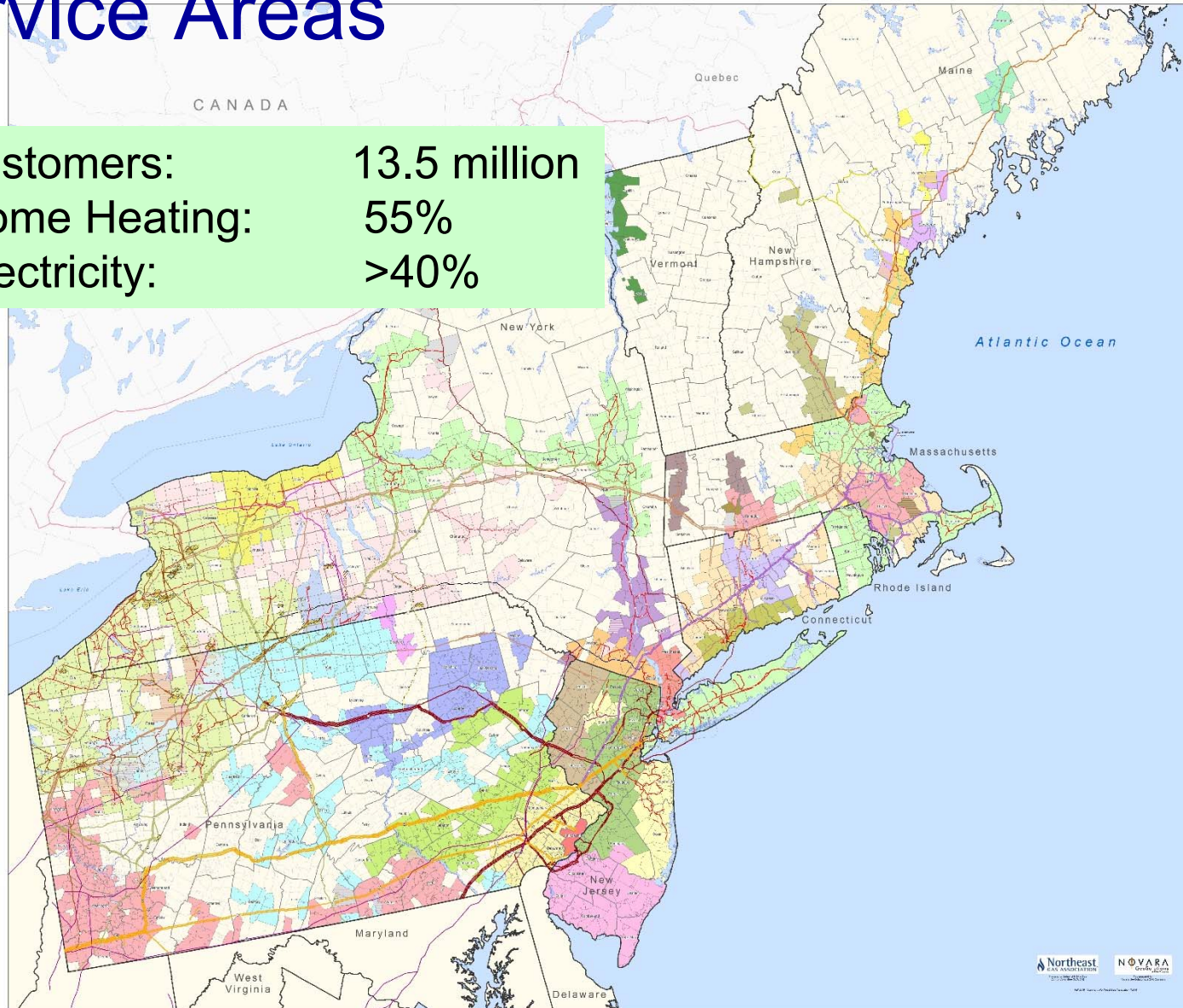
In all NGA operations and activities, you must avoid any discussions or conduct that might violate the antitrust laws or even raise an appearance of impropriety. The following guidelines will help you do that:

- **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.

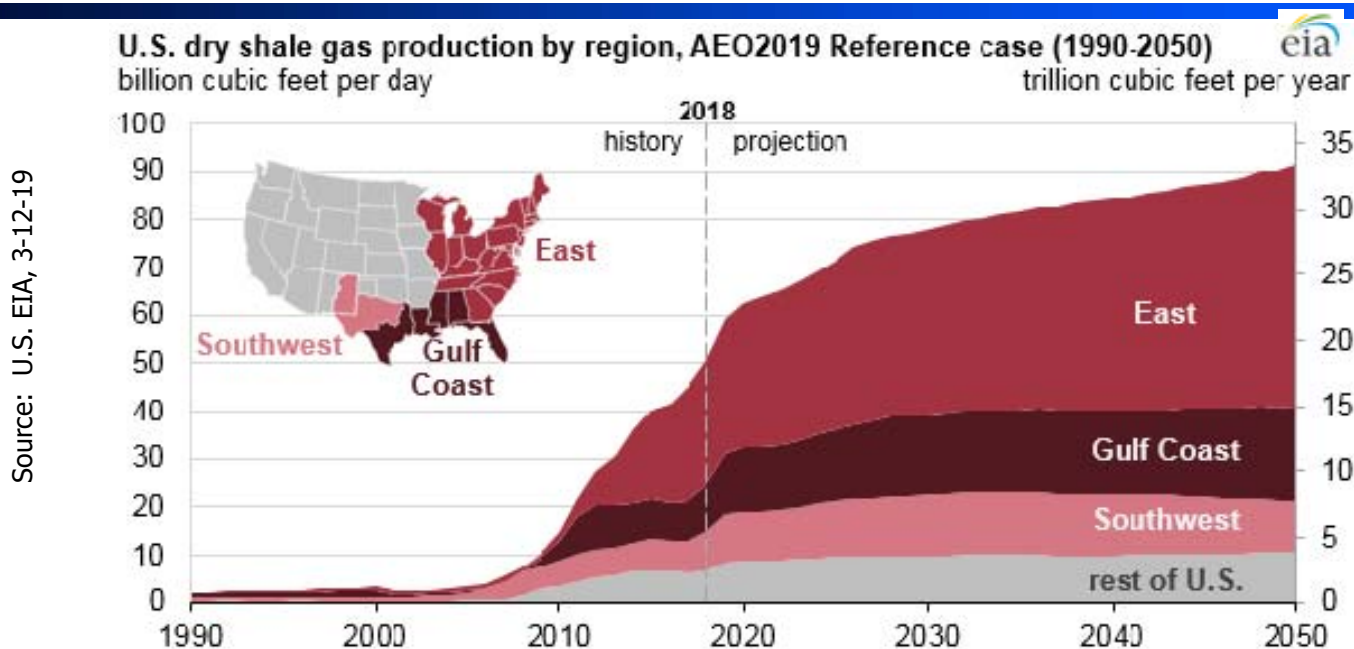
Northeast U.S. Natural Gas Service Areas



Gas Customers: 13.5 million
% of Home Heating: 55%
% 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.”

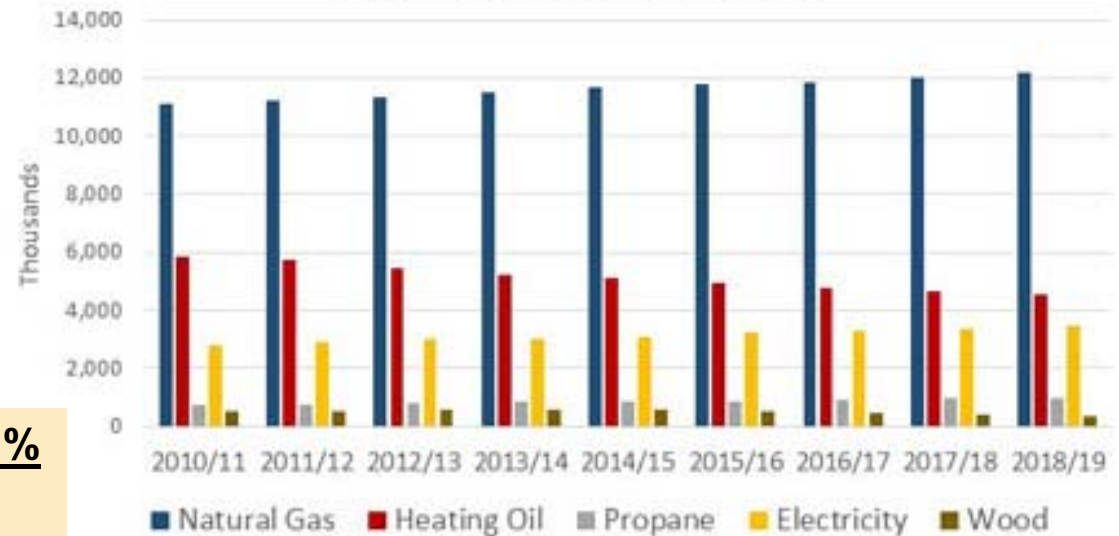
Customer Growth Continues in Residential Sector



Northeast Homes, Fuel Type %

Natural Gas:	55%
Heating Oil:	22%
Electricity:	15%

Households by Primary Fuel Type,
Northeast U.S., 2010-2018



Source: U.S. EIA, 10-10-18

Since 2010, natural gas has added over 1 million new household customers in the Northeast states.

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**

Proposed Additions to Generating Capacity

	Natural Gas	Wind	Solar & Other Renewables	Energy Storage
NY ISO	5,894 MW	4,746 MW	734 MW	385 MW
ISO-NE	3,089 MW	11,316 MW	3,261 MW	1,381 MW
NJ (PJM)	6,783 MW	3,537 MW	472 MW	257 MW
PA (PJM)	11,467 MW	925 MW	1,081 MW	144 MW

Data sources for table:

ISO-NE, April 2019 web posting

NY ISO, "2019 Load & Capacity Data Report." "Natural Gas" category is both natural gas and dual-fuel.

"2018 New Jersey State Infrastructure Report," released May 2019 by PJM

"2018 Pennsylvania State Infrastructure Report," released May 2019 by PJM

Note: capacity numbers for wind & solar are nameplate capacity; data refers to interconnection queues.

Moratoria or New Service Limitations, in MA & NY

