

**October 21, 2014
Portsmouth, NH**



Interstate Transmission Pipeline Update

Presentation to:

***New England Pipeline Safety
Representatives Seminar***

Thomas Kiley
Northeast Gas Association



NGA'S ANTITRUST COMPLIANCE PROCEDURES

Adopted by the NGA Board of Directors on June 4, 2003

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, refusals to deal with any company, and the like.

Continued on NGA web site...

<http://www.northeastgas.org/about-nga/antitrust-guidelines>

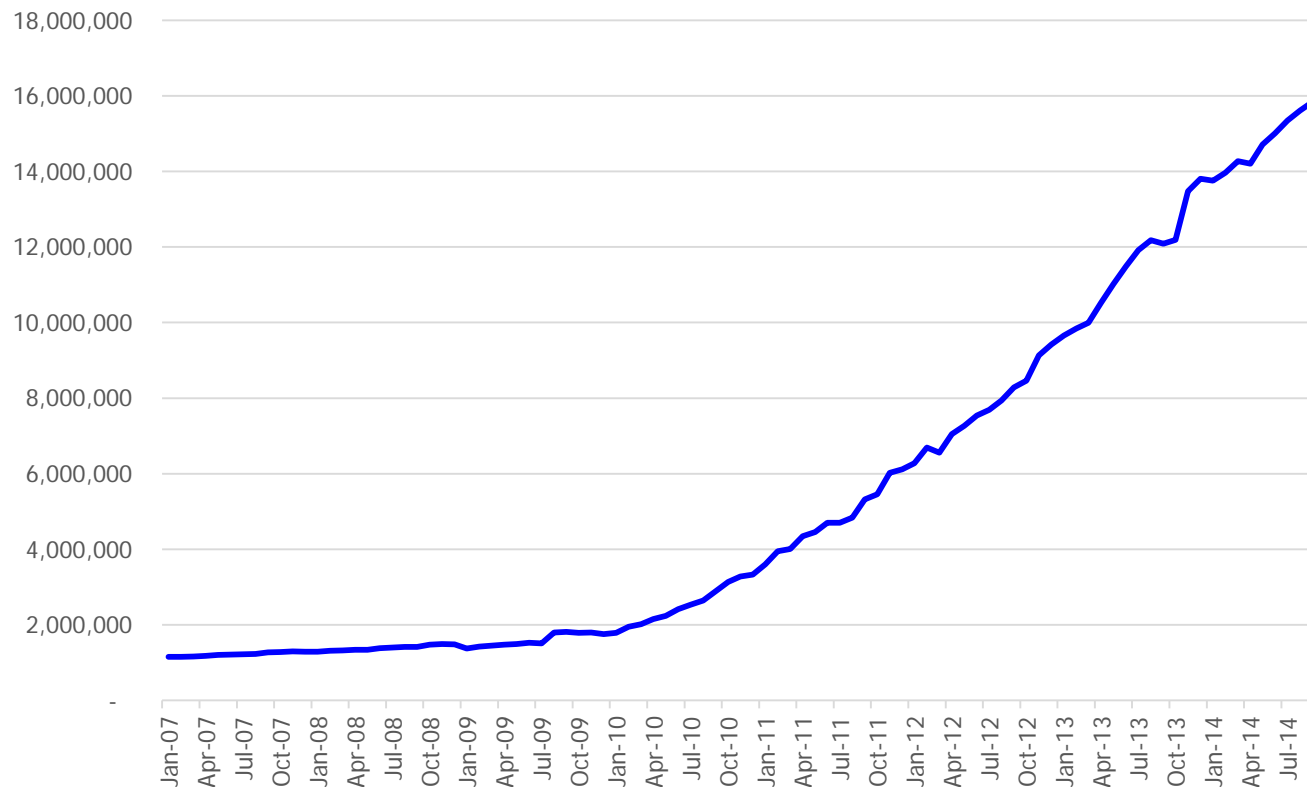
Topics

- ◆ Macro Trends
- ◆ Expansion Developments in the Region
- ◆ Gas & Power Generation
- ◆ Proposed Transmission Infrastructure

Marcellus Shale Production: Rapid, Sustained Rise



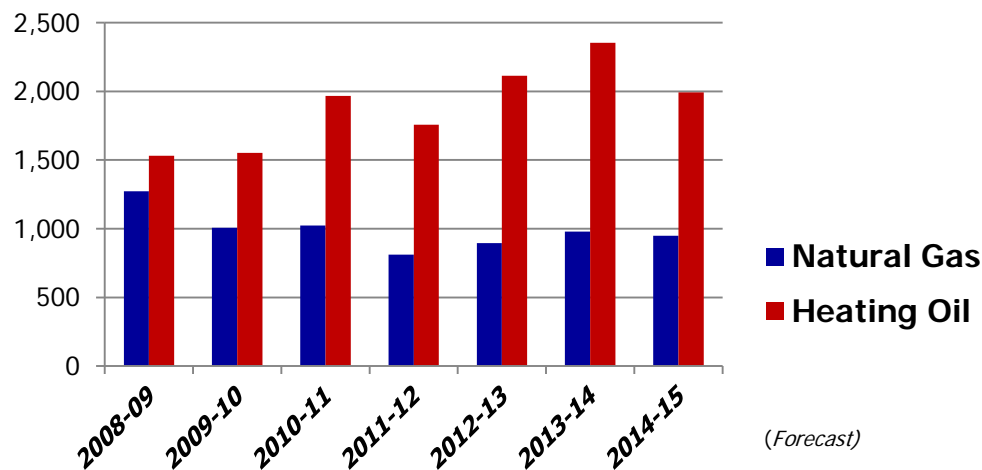
Marcellus Natural Gas Production, 2007-14



Source: U.S. EIA, 9-14

Demand: Growth Shaped by Price Advantage

Average Consumer Expenditures for Heating Fuels, \$, 2008-2014



Source: U.S. EIA, Oct. 7, 2014. Natural gas data is for Northeast states of CT, ME, MA, NH, NJ, NY, PA, RI, VT. Heating oil is U.S. average.

Source: U.S. EIA, 10-14

Percent of Homes, Main Heating Fuels, Northeast 2005-2013

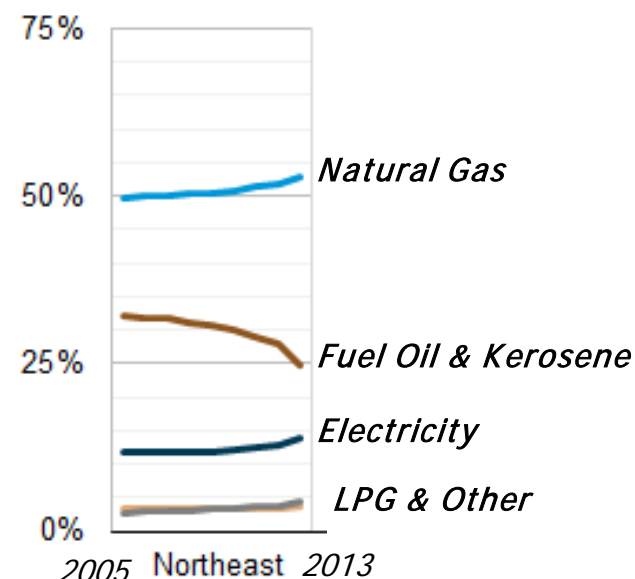


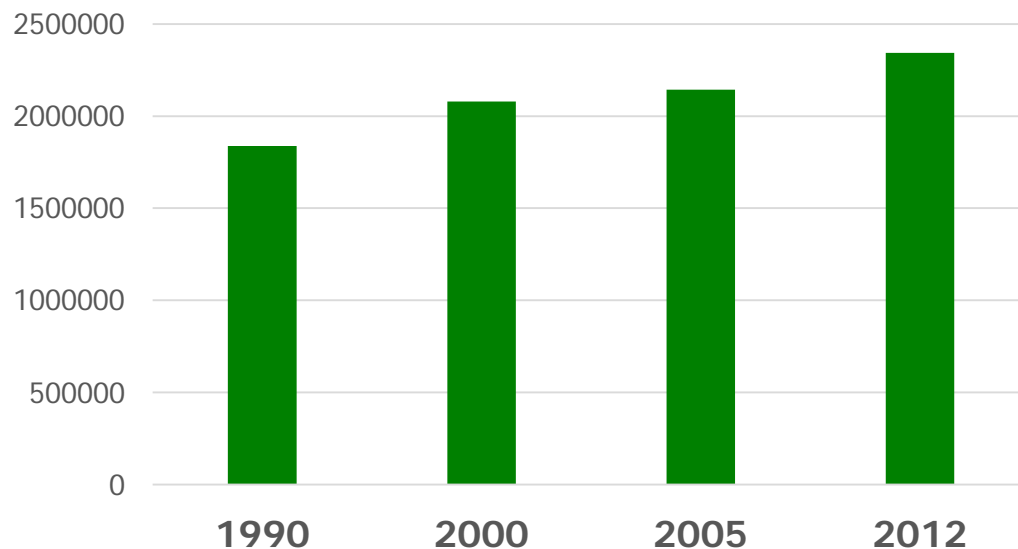
Chart: U.S. EIA, 9-14

Home Heating Sector Choosing Natural Gas



Source: U.S. EIA, 10-14

**Growth in Natural Gas Residential Customers,
New England, 1990 - 2012**



**500,000+ residential gas customers added
Since 1990 - a nearly 30% increase**

**Percent of Homes, Main
Heating Fuels, Northeast
2005-2013**

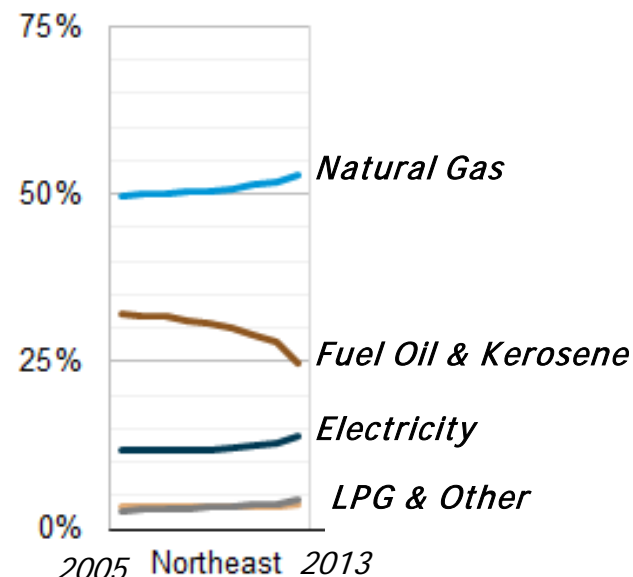


Chart: U.S. EIA, 9-14

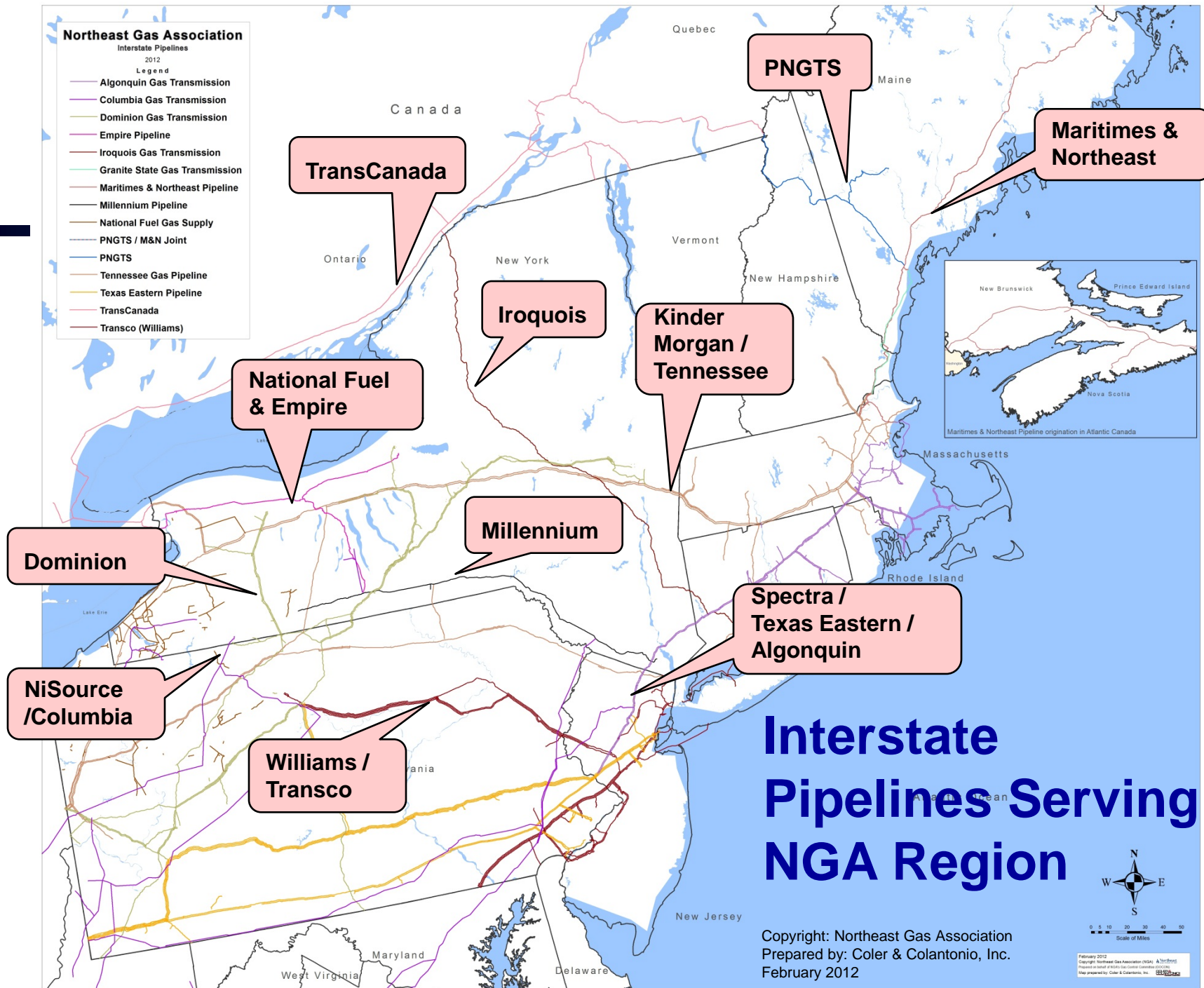
Northeast Gas Association

Interstate Pipelines

2012

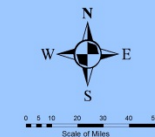
Legend

- Algonquin Gas Transmission
- Columbia Gas Transmission
- Dominion Gas Transmission
- Empire Pipeline
- Iroquois Gas Transmission
- Granite State Gas Transmission
- Maritimes & Northeast Pipeline
- Millennium Pipeline
- National Fuel Gas Supply
- PNGTS / M&N Joint
- PNGTS
- Tennessee Gas Pipeline
- Texas Eastern Pipeline
- TransCanada
- Transco (Williams)



Interstate Pipelines Serving NGA Region

Copyright: Northeast Gas Association
Prepared by: Coler & Colantonio, Inc.
February 2012



February 2012
Copyright: Northeast Gas Association (NGA) All Rights Reserved
Prepared by: Coler & Colantonio, Inc.
Map prepared by: Coler & Colantonio, Inc.

Role of LNG

- ◆ LNG is key to meeting peak day demand in the region – especially New England
- ◆ Two LNG import terminals are operating
- ◆ LDCs in NE, NY, NJ utilize LNG for peak-shaving



Distrigas facility, part of GDF SUEZ NA



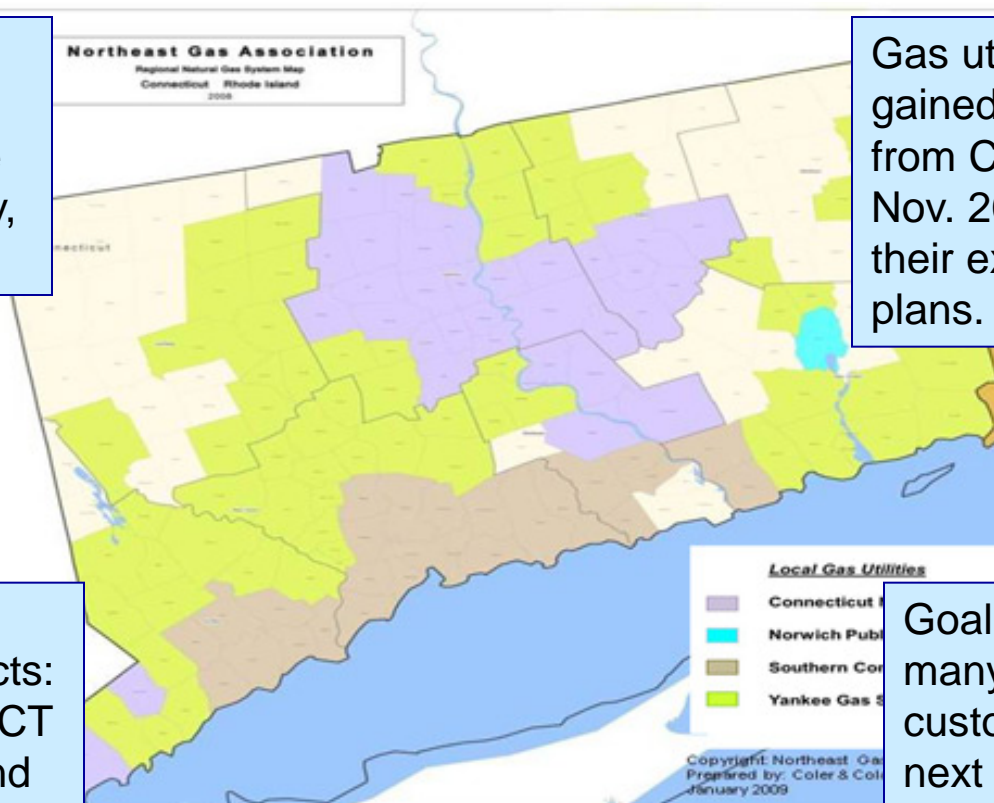
Canaport LNG. Photo courtesy of Repsol

Connecticut

Gov. Malloy released Comprehensive Energy Strategy, Feb. 2013

Gas utilities gained approval from CT PURA in Nov. 2013 for their expansion plans.

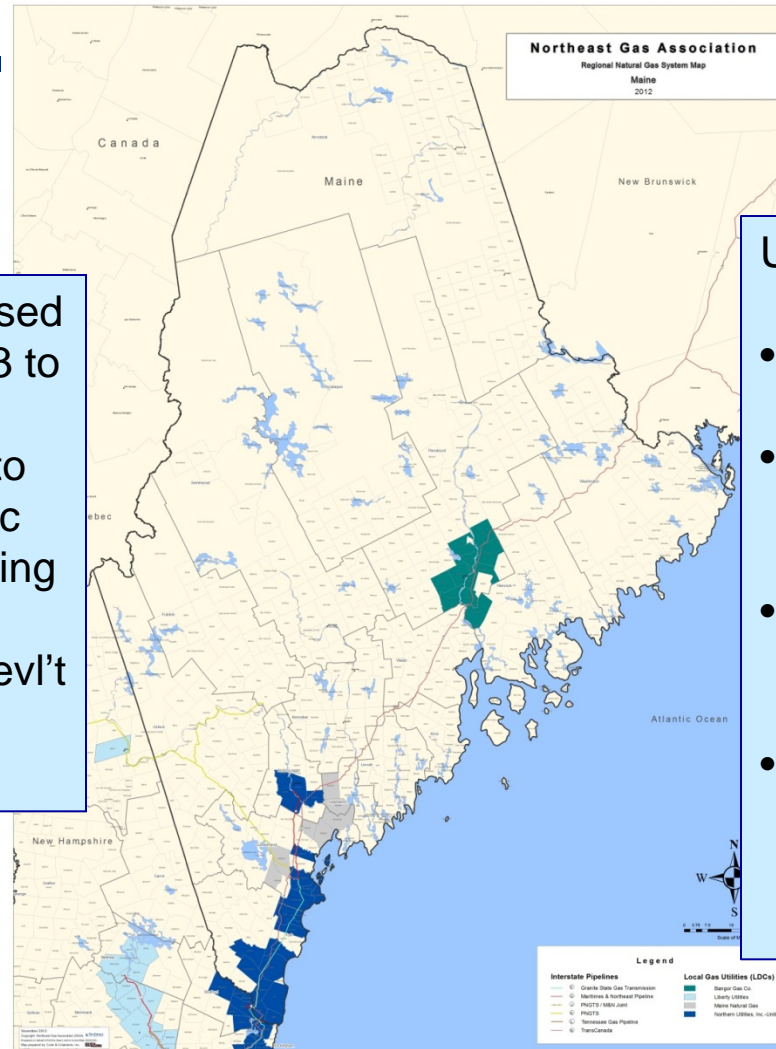
Proposed pipeline projects: Tennessee's "CT Expansion" and Spectra's "AIM."



Goal: to add as many as 280,000 customers in next 10 years.

Maine

Legislature passed bill in June 2013 to enable PUC to contract for up to 200 million cubic feet of gas. Trying to “jumpstart” infrastructure dev’t in the state.

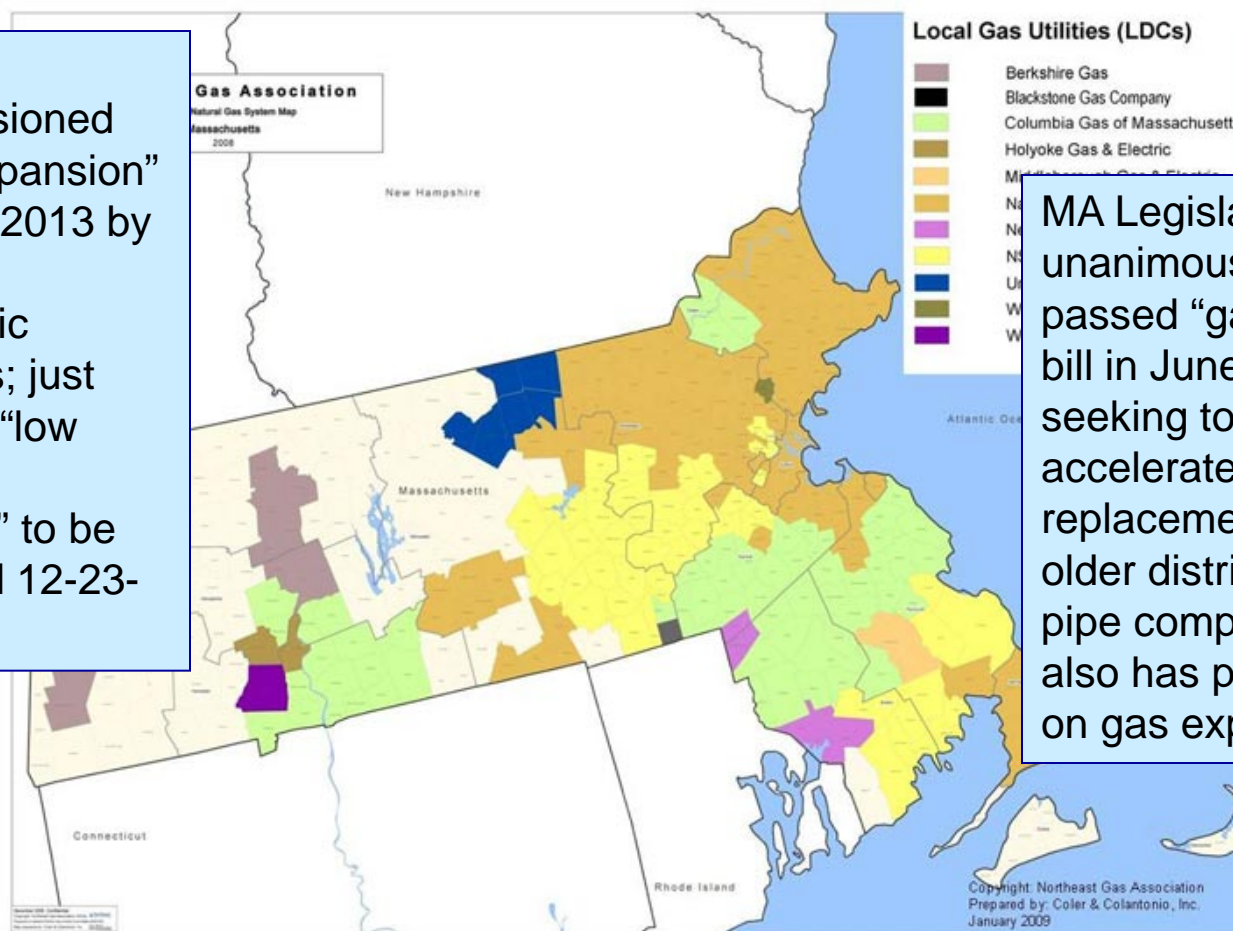


Utility expansions:

- **Unitil** conversions,
- **Maine Natural Gas** “Kennebec Valley” project,
- new LDC with **Summit Natural Gas**,
- **Bangor Gas** and its “Loring Pipeline”

Massachusetts

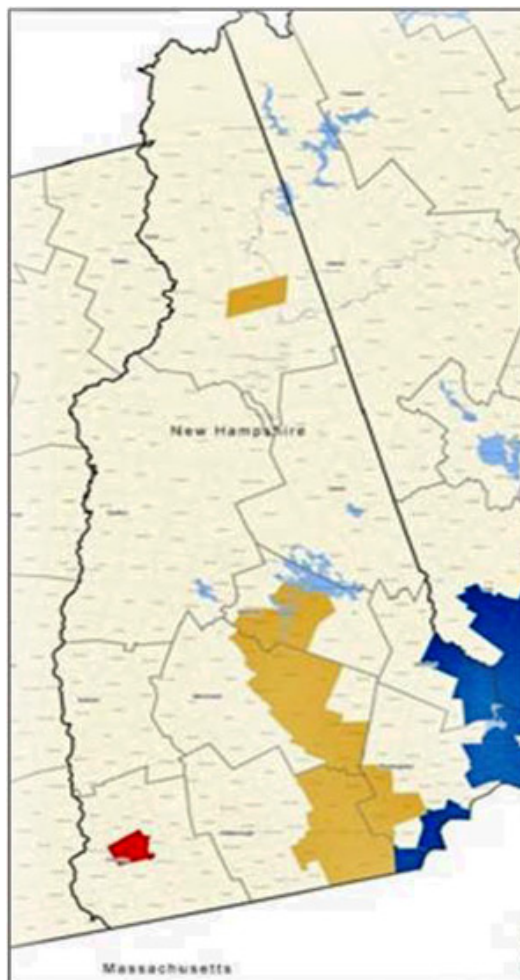
DOER
commissioned
“Gas Expansion”
study in 2013 by
Sussex
Economic
Advisors; just
initiated “low
demand
analysis” to be
released 12-23-
14



MA Legislature
unanimously
passed “gas leaks”
bill in June –
seeking to
accelerate
replacement of
older distribution
pipe components; it
also has provision
on gas expansion

New Hampshire

CNG “virtual pipeline” and LNG plants planned at several points – to be fueled by LDC and pipeline systems



Proposed pipeline expansions:

- PNGTS “C2C”
- Tennessee’s “Northeast Energy Direct”
- Spectra’s “Atlantic Bridge”

Rhode Island

Infrastructure replacement program advancing – with regulatory participation from PUC

RHODE ISLAND



Vermont

Addison Natural Gas Project –
Phase I
approved by
PSB in Dec.
2013

Extending
distribution
system south to
Middlebury by
2015.

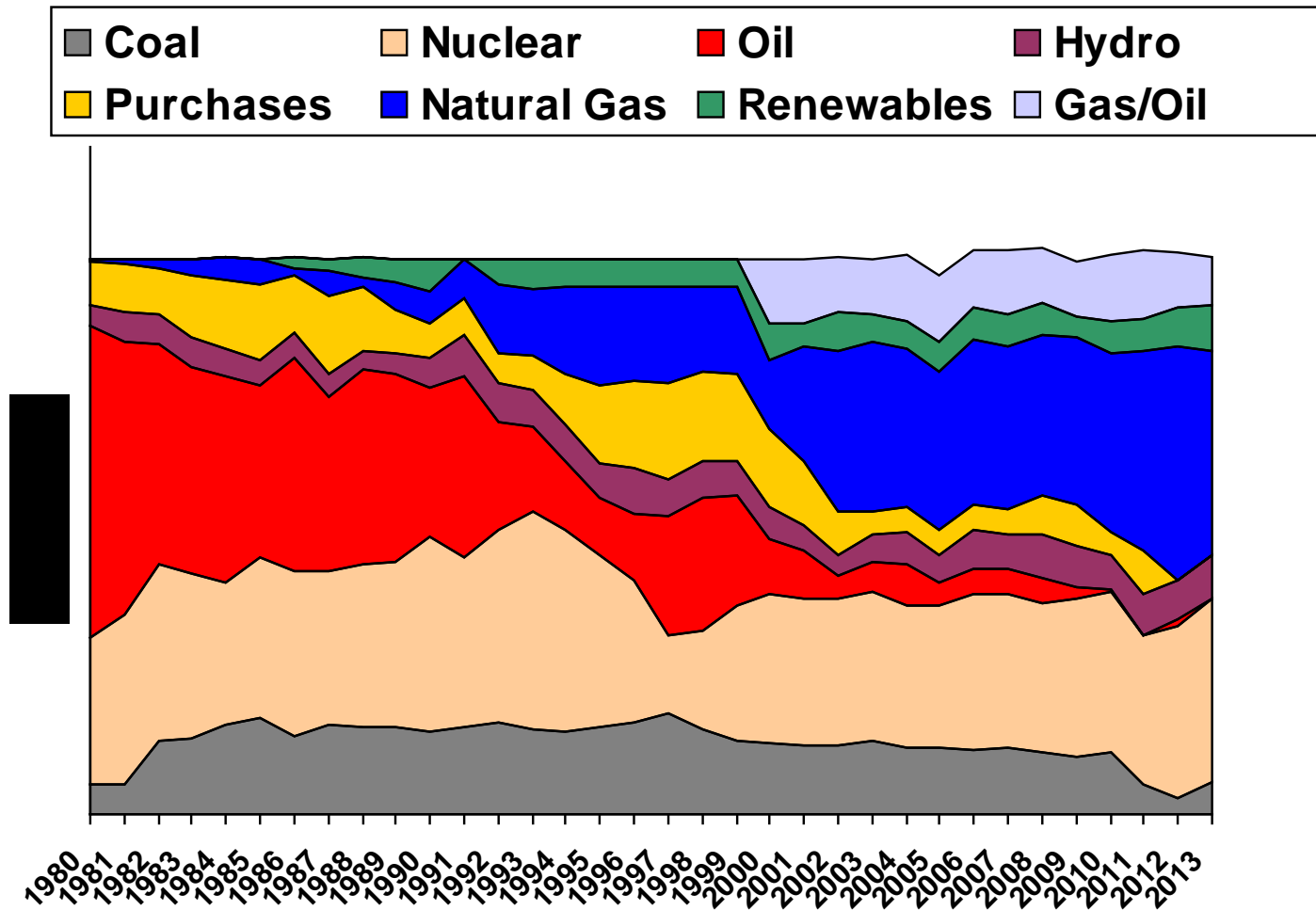


Future ***proposed***
phases:

Phase 2:
Extend line
under Lake
Champlain to
serve further
towns in paper
mill in
Ticonderoga, NY.

Phase 3:
Extension to
serve Rutland.

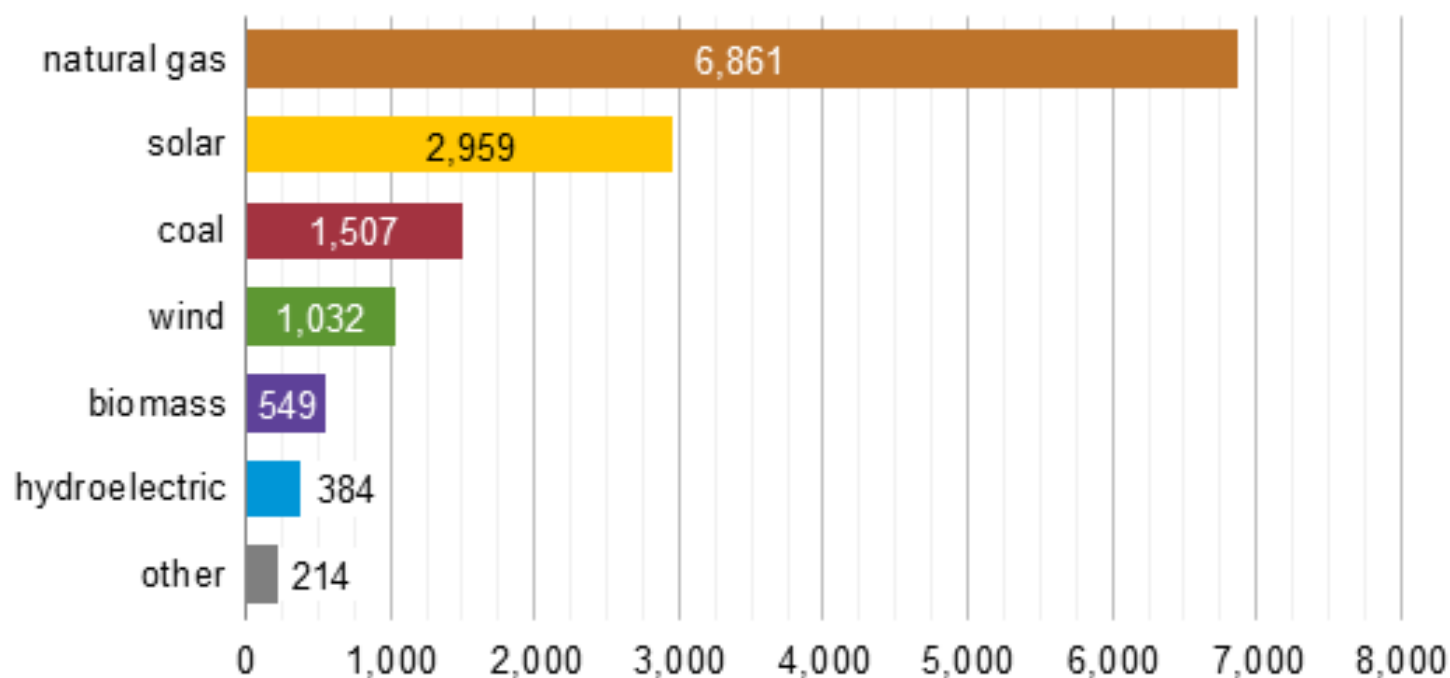
New England's Changing Electric Generation Fuel Mix



Currently natural gas is about 46% of total capacity. Data source: NEPOOL, ISO-NE

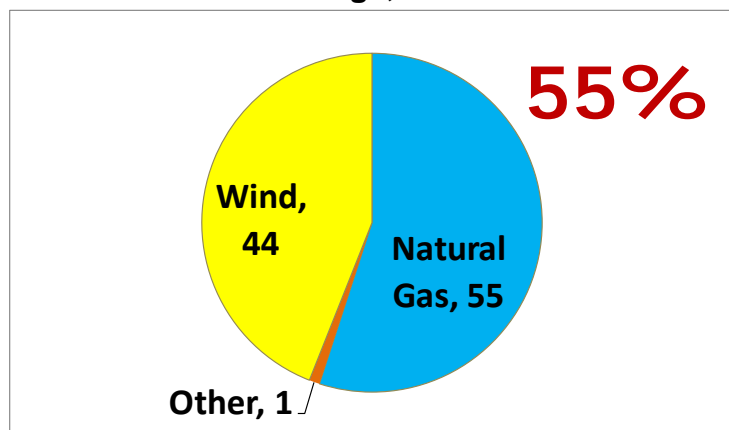
Gas for Power Gen Nationally

U.S. power plant capacity additions in 2013
megawatts (MW)

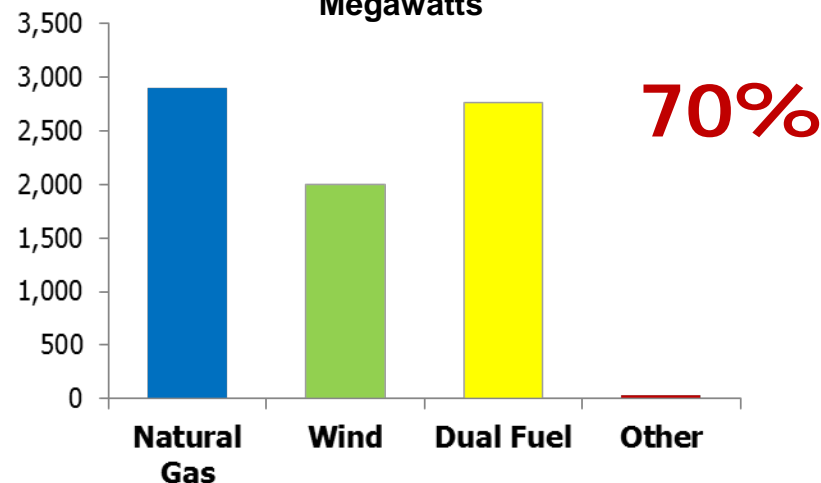


Proposed Power Plants by Fuel, Northeast

**GENERATOR PROPOSALS IN THE
ISO NEW ENGLAND QUEUE**
Percentage, 2014

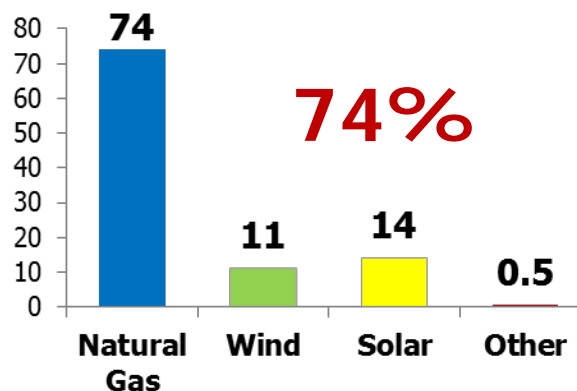


NEW YORK ISO SYSTEM, 2014
Proposed Power Projects by Fuel Type
Megawatts

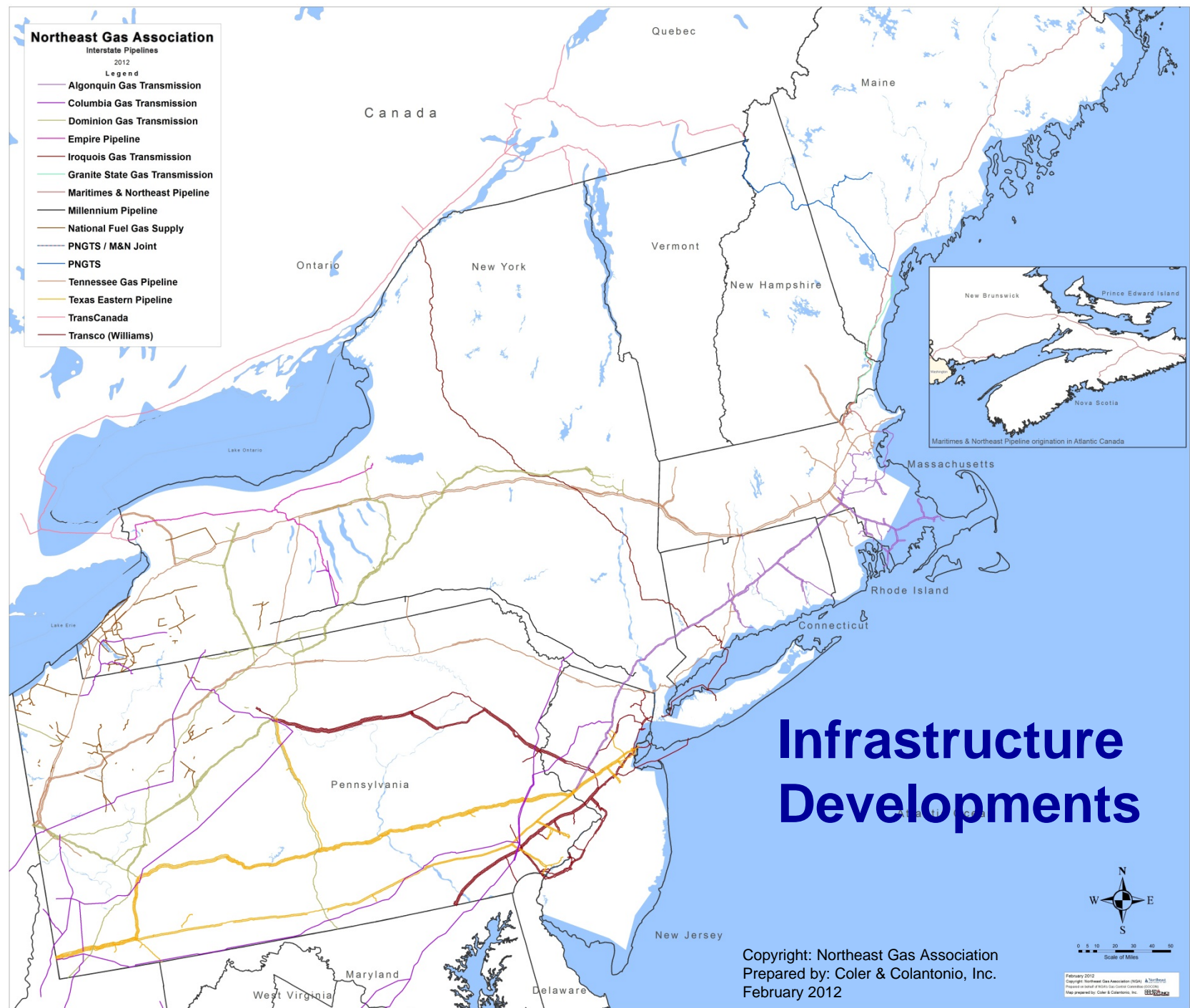


Source: NY ISO

NEW JERSEY, 2013
Queued Capacity by Fuel Type,
Percentage (In-State Only)
Approx. 9,351 MW



Source: PJM



Interstate Transmission Projects In-Service in 2013: *All outside New England*

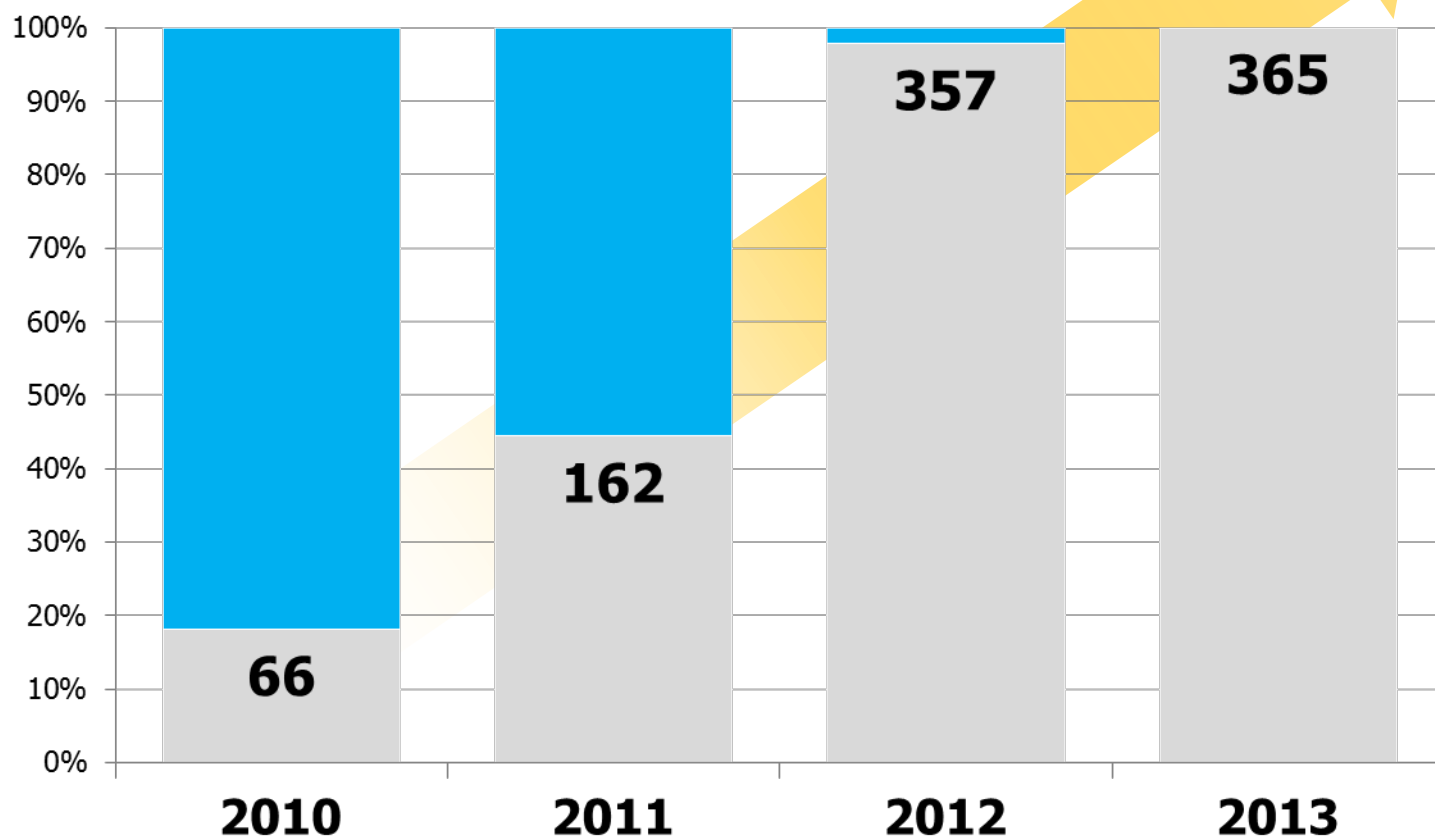
- ◆ Tennessee's "Northeast Upgrade": **636 MMcf/d**
- ◆ Tennessee's "MPP Project": **240 MMcf/d**
- ◆ Millennium's "Minisink Compressor": **150 MMcf/d**
- ◆ National Fuel Gas's "Line N": **30 MMcf/d**
- ◆ Transco's "Northeast Supply Link": **250 MMcf/d**
- ◆ Spectra's "NJ-NY Expansion": **800 MMcf/d**



Photo courtesy of Spectra Energy

Days with Zero Interruptible Capacity

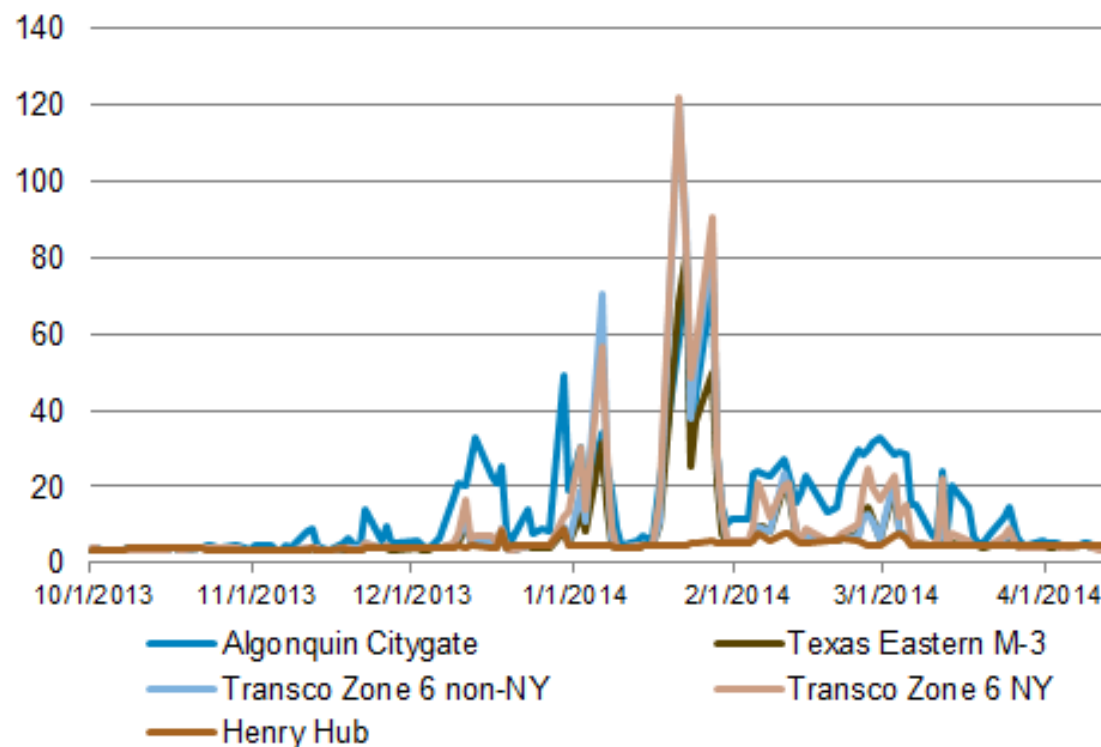
(Algonquin Gas Transmission)



Northeast Spot Prices: New heights in winter

Northeastern and Mid-Atlantic prices, winter 2013-2014

dollars per MMBtu



Source: *Natural Gas Intelligence*

Gas & Power Generation

- Renewed focus on gas & electric coordination – on NY-ISO, ISO-NE and PJM systems; EIPC study underway; Scheduling, communications – and infrastructure?
- Strong coordination & communications is in place among pipeline industry and electric grid operators in the region; NGA Gas Supply Task Force also plays a role.
- For natural gas industry in New England, central issue remains the over-reliance of the power sector on “non-firm” or interruptible gas capacity.
- New pipeline infrastructure needed and will help – but will (can?) the regional power sector invest in its share of pipeline capacity?

LDCs Can & Are Signing Up – but Power Gens?

Spectra's AIM Project

Shippers:

- UIL Holdings
- Northeast Utilities
- National Grid
- NiSource
- City of Middleborough, MA
- City of Norwich, CT

TGP's Connecticut Expansion Project

Shippers:

- UIL Holdings
- Northeast Utilities

TGP's Northeast Energy Direct Project

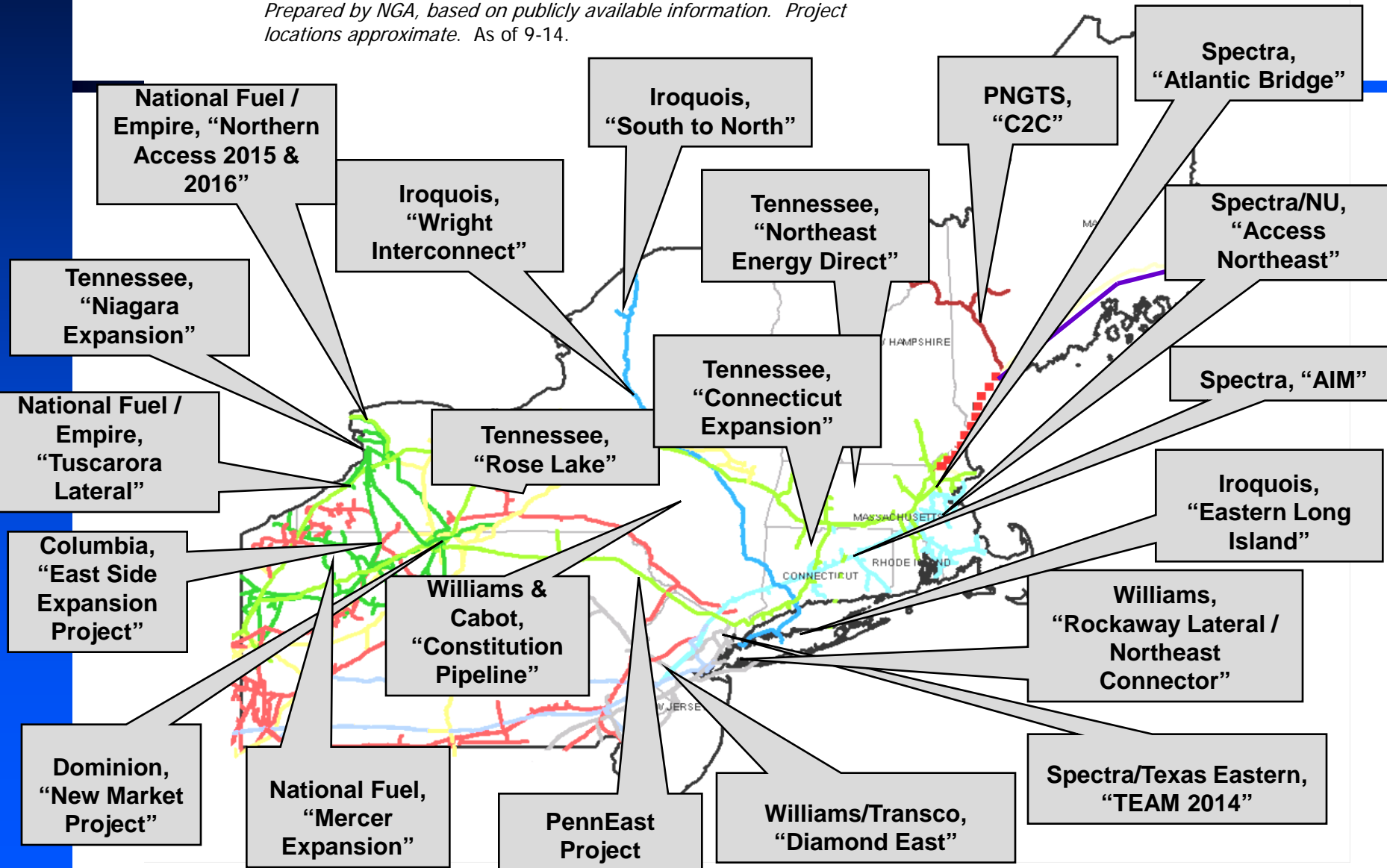
Initial Shippers:

- 9 LDCs, @ 500,000 Dth/d

Proposed Pipeline Projects



Prepared by NGA, based on publicly available information. Project locations approximate. As of 9-14.



Algonquin Incremental Market (AIM) Project



Purpose:

Provide growing New England demand with access to abundant regional natural gas supplies

Project Scope:

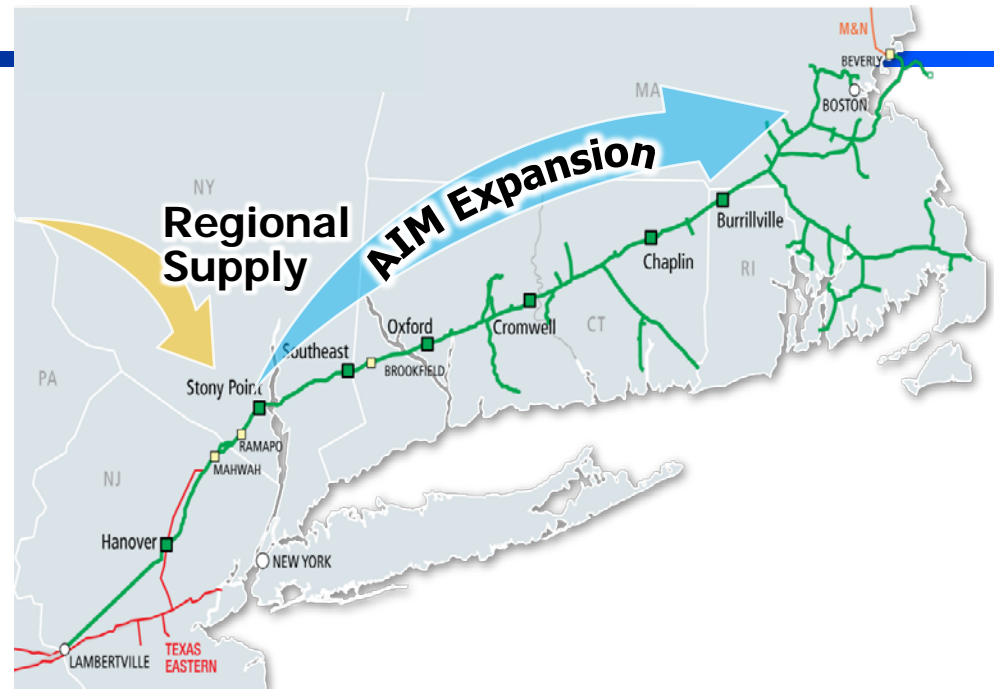
- Providing more than 342 MMcf/d of additional capacity to move Marcellus production to Algonquin City Gates
- CapEx: ~\$1 B

Customers:

- UIL Holdings
- Northeast Utilities
- National Grid
- NiSource
- City of Middleborough, MA
- City of Norwich, CT

Project Status:

- FERC pre-filing commenced June 2013
- Filed FERC application February 2014
- Receive FERC certificate 1Q15
- Commence construction 2Q15
- In-service 2H16



Facilities:

- Take up and relay portions of existing 26" with 42"
- Additional horsepower at almost every compressor station
- Expansion of constrained parts of the pipeline system
- Upgrades of meter stations to accommodate incremental flow

Chart courtesy of Spectra Energy

Connecticut Expansion Project: Kinder Morgan



Purpose:

TGP upgrading its existing system within New York, Massachusetts and Connecticut

Project Scope:

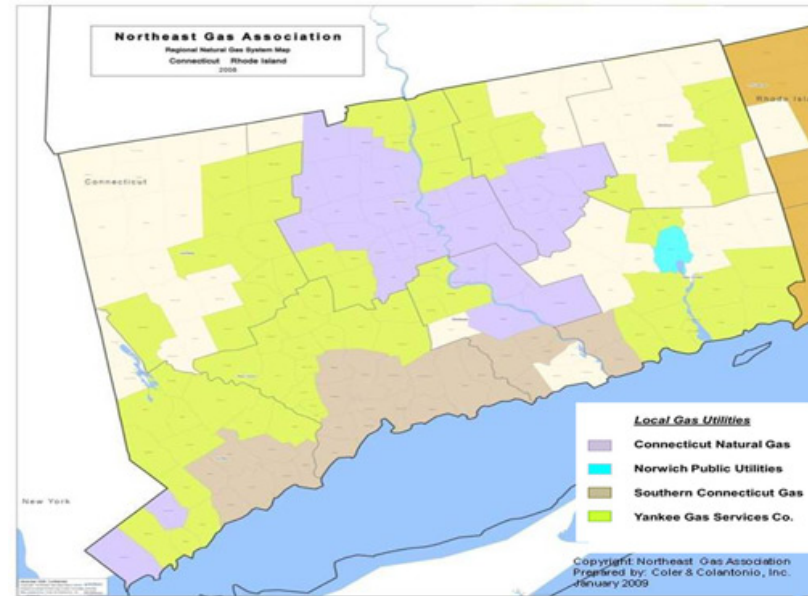
- Providing 72 MMcf/d of additional capacity to meet utility demand
- CapEx: ~\$87.5 million

Customers:

- UIL Holdings (CT Natural Gas, Southern CT Gas)
- Northeast Utilities (Yankee Gas)

Project Status:

Outreach Meetings – Ongoing
FERC Certificate Application filing – July 31, 2014
Proposed Construction Commencement – November 2015
Proposed In-Service Date– November 2016



Facilities:

- approximately 13.26 miles of 24-inch and 36-inch diameter pipeline looping in Albany County, N.Y., Berkshire and Hampden Counties, Mass. and Hartford County, Conn., minor modifications at one compressor station in Mass., and installation of minor appurtenant facilities

Atlantic Bridge Project: Spectra Energy

Atlantic Bridge



Moving abundant, economic supplies of natural gas from the Marcellus & Utica to constrained New England markets



Project Scope:

- CapEx: ~\$900 MM
- Capacity: 175 MMcf/d (with potential to 300 MMcf/d)

Customers:

- Late stage negotiations with various local distribution companies in New England and Atlantic Canada

Project Status:

- Estimated in-service: 2H17

Preliminary Facilities

- New compressor station, upgrades of existing compressor stations and meter station modifications
- Pipeline looping and take-up and relay

Northeast Energy Direct: Kinder Morgan



Purpose:

TGP upgrading its existing system within New York, Massachusetts and Connecticut

Project Scope:

- Providing from 0.8 up to 2.2 Bcf/d of additional capacity to meet market demand

Customers:

9 LDCs, with capacity of 500,000 Dth/d
The Berkshire Gas Company
Columbia Gas of Massachusetts
Connecticut Natural Gas Corporation
Liberty Utilities (EnergyNorth)
National Grid
Southern Connecticut Gas Corporation

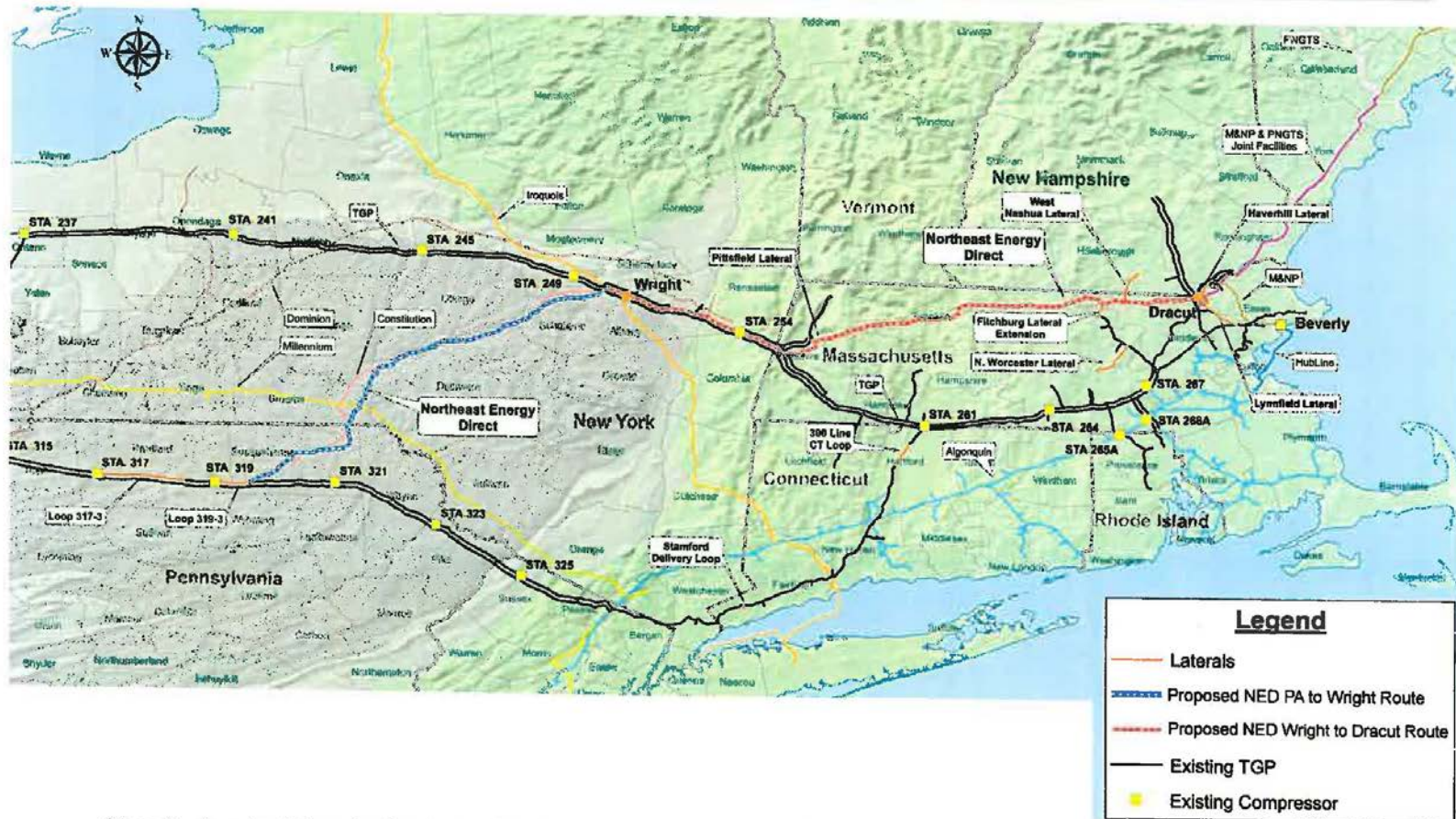
Proposed Facilities:

32 miles of looping of the existing TGP 300 Line in Pennsylvania
135 miles of greenfield pipeline from the TGP 300 Line to Wright, N.Y.
52 miles co-located with the existing TGP 200 Line in New York and Massachusetts
125 miles of greenfield pipeline in Massachusetts to Dracut, Mass.
Lateral construction and modification of existing laterals to serve markets
Modifications to existing and construction of new compressor stations and meter stations

Project Status:

Project Development and Commercial Negotiations – Ongoing
Outreach Meetings at state, local and town level – Ongoing
Route Selection and Permit Preparation – Ongoing
Planned FERC filing – Sept. 2015
Proposed Construction Start Date – January 2017
Proposed In-Service Date – November 2018

Proposed Northeast Energy Direct Route



**Any final route determination is subject to surveying, land acquisition and easements, environmental impact assessments, permitting and stakeholder input.*

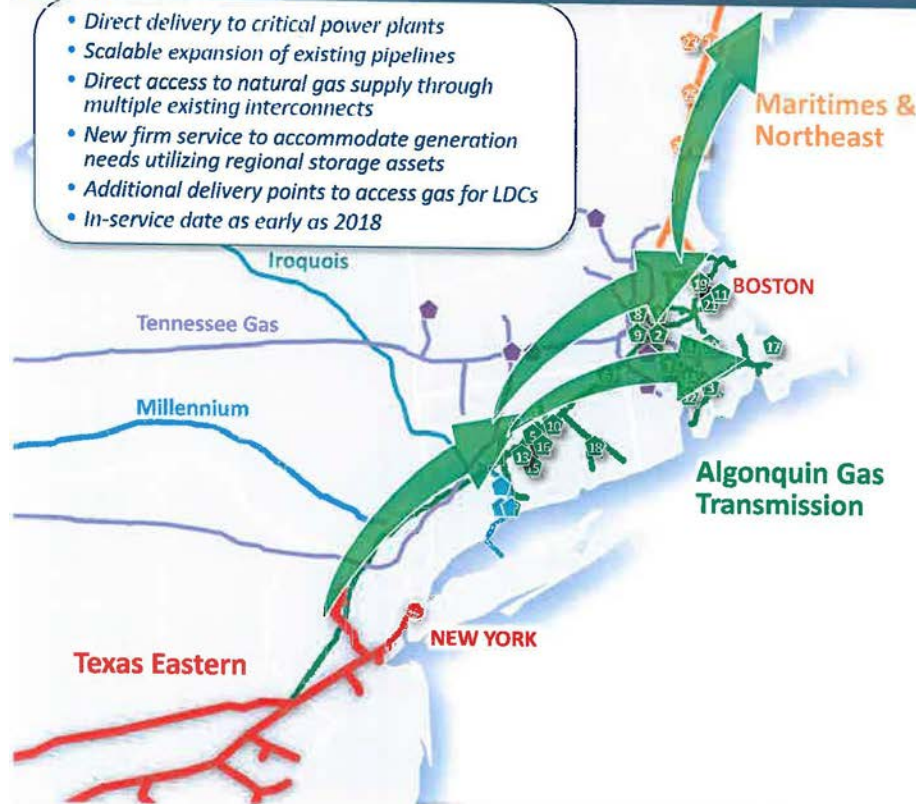
KINDER MORGAN

Access Northeast Project: Spectra Energy & NU

Access Northeast Project New England Reliability Solution

 Spectra
Energy

- Direct delivery to critical power plants
- Scalable expansion of existing pipelines
- Direct access to natural gas supply through multiple existing interconnects
- New firm service to accommodate generation needs utilizing regional storage assets
- Additional delivery points to access gas for LDCs
- In-service date as early as 2018



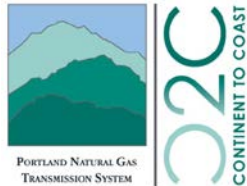
Generation served by AGT

- 1 ANP Bellingham
- 2 Bellingham
- 3 Dartmouth Power
- 4 Dighton Power
- 5 Kleen Energy
- 6 Lake Road
- 7 Manchester Street
- 8 Milford Power
- 9 Ocean State Power
- 10 Genconn Power
- 11 Fore River
- 12 Tiverton
- 13 Wallingford Energy
- 14 Brayton Point
- 15 CMEEC - Pierce Power
- 16 Middletown
- 17 Mirant Canal
- 18 Montville
- 19 Potter Street (BELD I)
- 20 TMLP
- 21 Watson Generating (BELD II)

Generation served by M&N

- 22 Newington
- 23 Casco Bay
- 24 Bangor Gas
- 25 Westbrook
- 26 PSNH-Newington

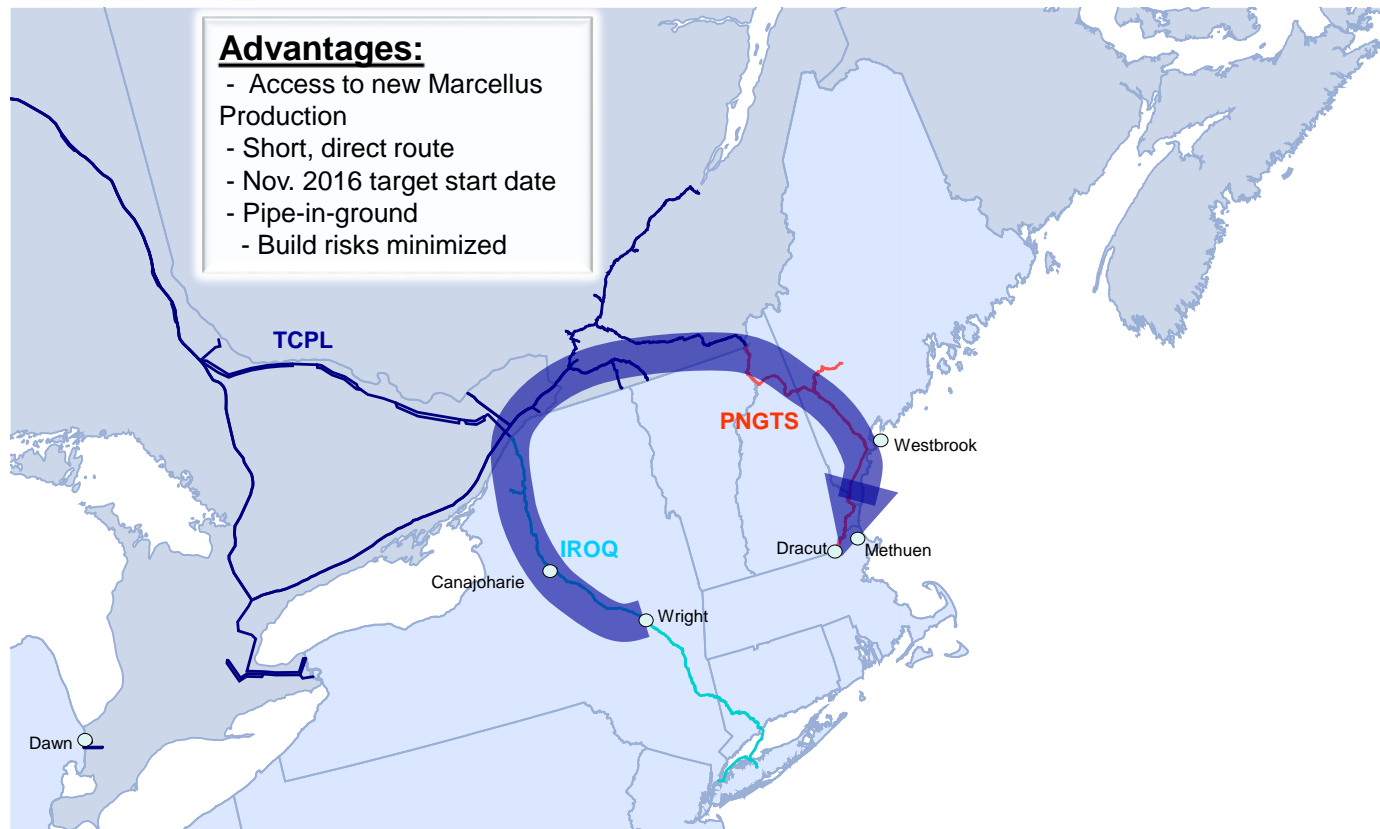
PNGTS's "C2C Project"



Wright to PNGTS

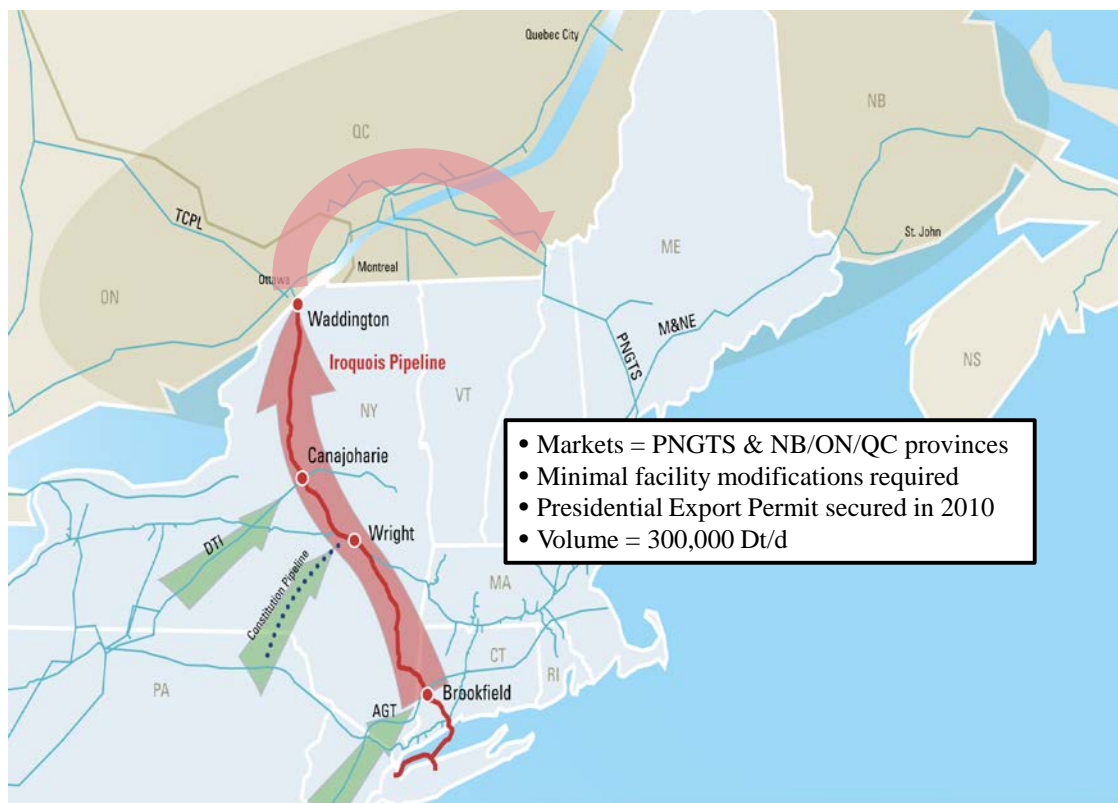
Advantages:

- Access to new Marcellus Production
- Short, direct route
- Nov. 2016 target start date
- Pipe-in-ground
- Build risks minimized



Iroquois' "SoNo Project"

Iroquois' SoNo Project (*Mainline Flow Reversal*)



Also on the Horizon...



Photo of Clean Energy's NG fueling station, Pembroke, NH, which opened in July 2014.

- Growth in off-system deliveries of CNG, via “virtual pipeline”.
- Companies in the market include:
 - Global CNG
 - iNatGas
 - NG Advantage
 - Xpress Natural Gas
 - Irving Oil

New England Governors' Energy Infrastructure Initiative / NESCOE



The New England Governors last December announced a joint energy initiative designed to accelerate regional cooperation on expanding renewable energy and energy infrastructure in New England. The governors said that they would advocate “for greater integration and utilization of renewable generation; development of new natural gas pipeline infrastructure; maximizing the use of existing transmission infrastructure; investment, where appropriate, in new transmission infrastructure; and continuation of the inclusion of energy efficiency – and the addition of distributed generation – in load forecasting and transmission planning.”

Summary

- ◆ Marcellus production in the Northeast continues to be robust, leading to greater supply availability and lower price opportunities.
- ◆ New gas pipeline development activity continues to be active in the NY/NJ/PA area, to move new area supplies to markets. Infrastructure for New England several years away – and contingent on pipeline commitments.
- ◆ Lessons learned from last winter: infrastructure is important, as is inter-industry coordination.



***Thank you and enjoy
the Seminar...***