

Supply/Pipeline/Reducing the Basis Differential

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Office of the Public Advocate

Natural Gas: Continued Growth in Maine
October 9, 2014

Tim Schneider

Maine Public Advocate

Things we know

- Winter electricity price spikes in New England are the result of insufficient pipeline capacity
- Nothing will improve before the winter of 2016-17

Other things we know

- AIM and TGP-CT will come online in November 2016
- Canadian offshore resources will continue to decline
- More than 3000 MW of non-gas fired generation in New England will retire by 2017
- Marcellus gas will be plentiful and inexpensive relative to alternative fuels
- Demand from New England LDCs will grow and they will purchase pipeline capacity to meet this demand
- No evidence of pipeline capacity investment by other market participants

Things we don't know

- What other pipelines will be constructed and how much additional capacity they will provide
- How generators will respond to ISO-NE Pay for Performance changes to the Forward Capacity Market
- Future of regional efforts (including legality of cost allocation mechanism)
- Impact of US LNG exports
- Will Maine enter into an ECRC?

Stein's Law

"If something cannot go on forever, it will stop."

-Herbert Stein

Natural Gas: Continued Growth in Maine?

Supply/Pipeline/ Reducing the Basis Differential

How Maine Would Select
among Competing ECRC Proposals

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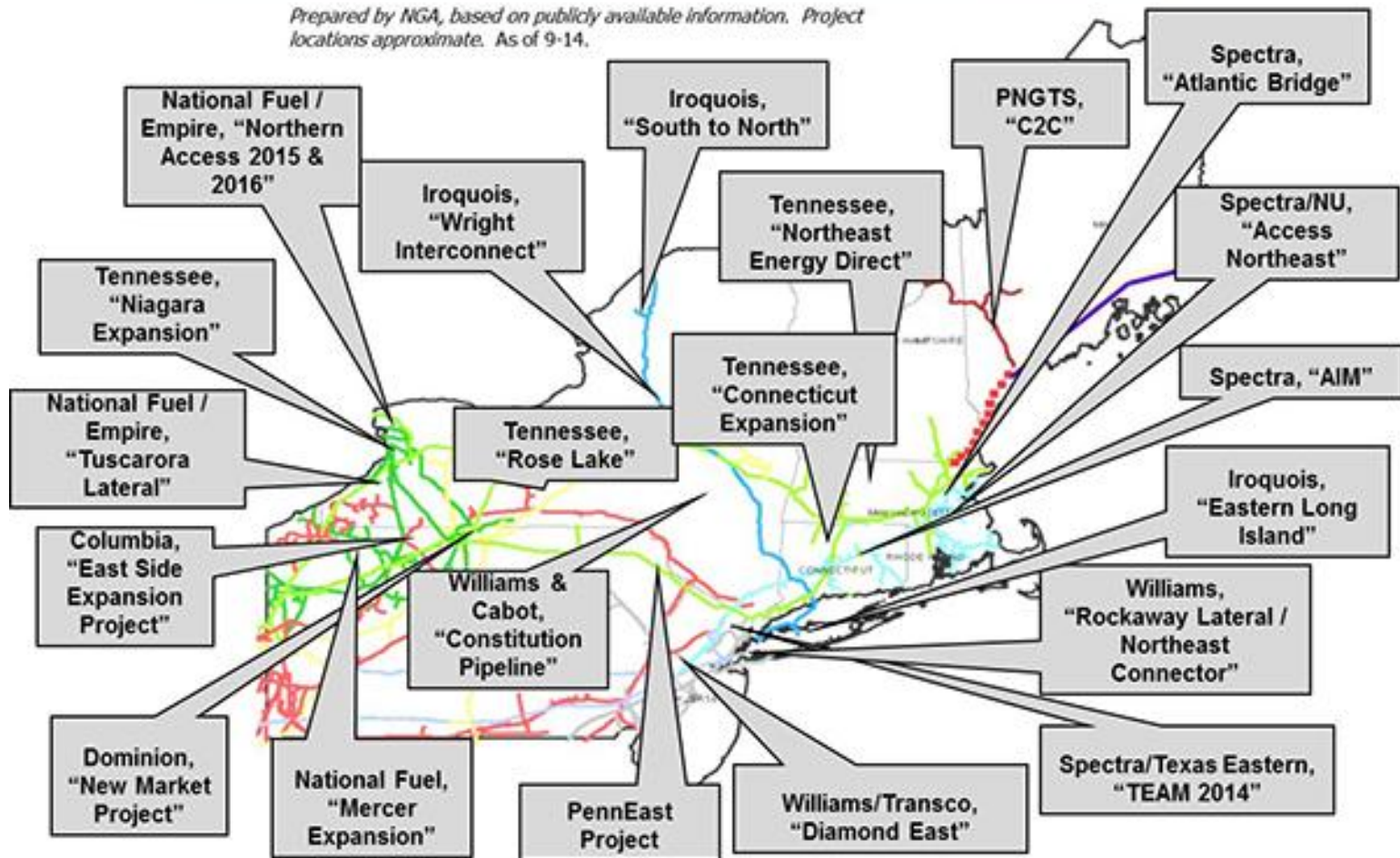
Gas in the Northeast



Source: US Energy Information Administration

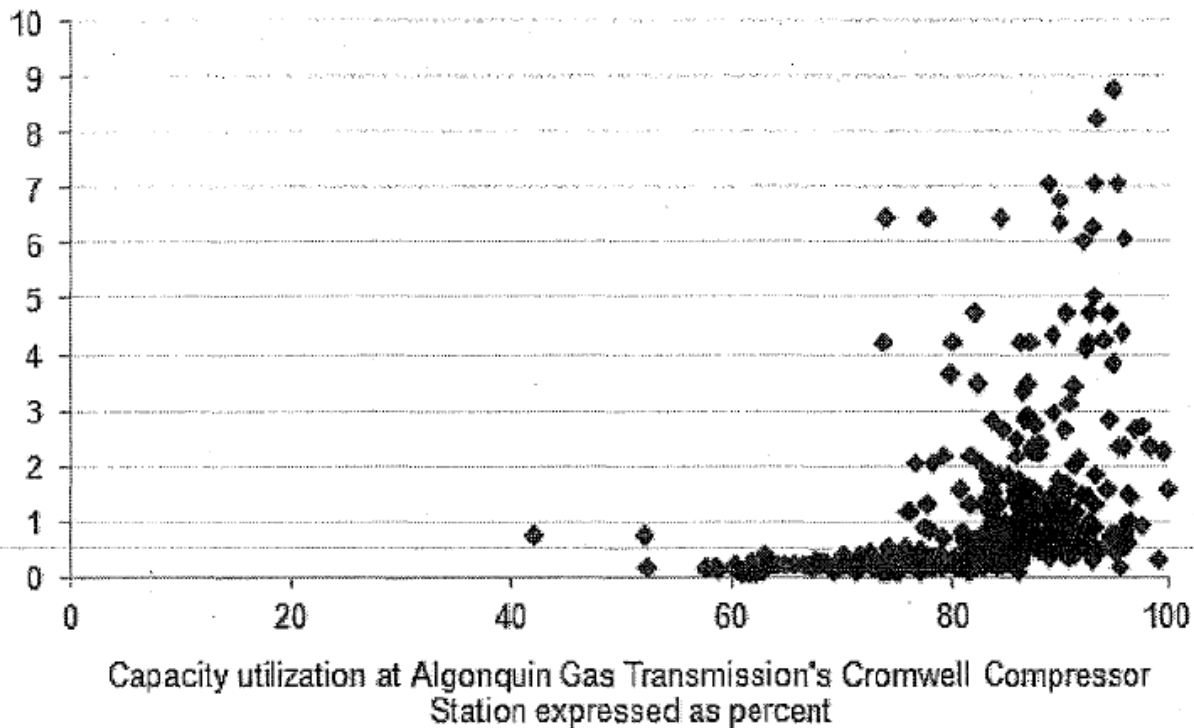
Proposed Pipeline Projects

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



Determining Regional Gas Needs

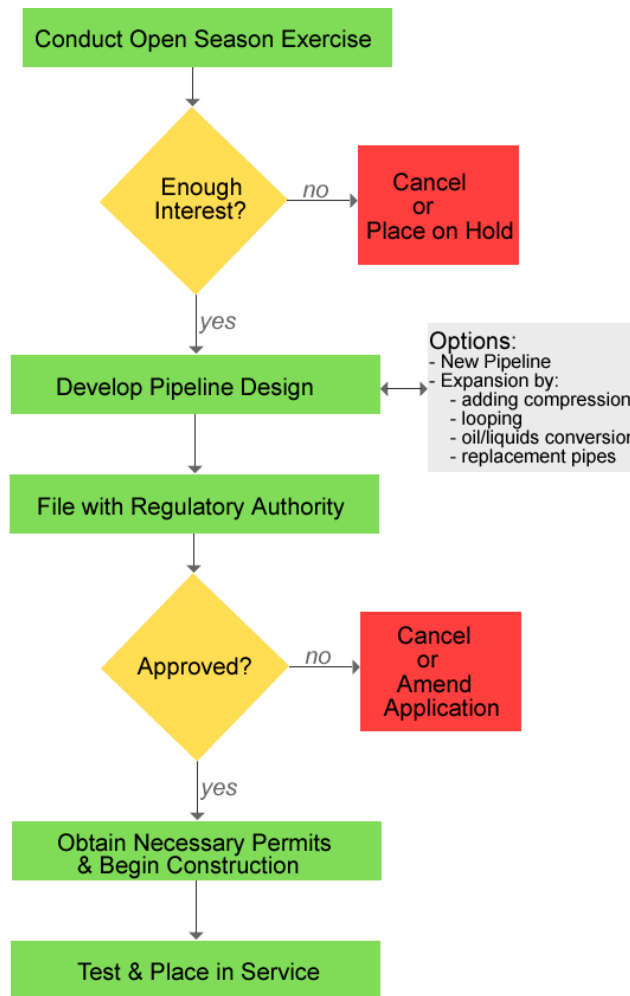
Daily spread between spot prices for the Algonquin Citygate and Henry Hub trading points, January 1, 2012 - December 31, 2012
dollars per million British thermal units



Key Issues in Selecting an ECRC

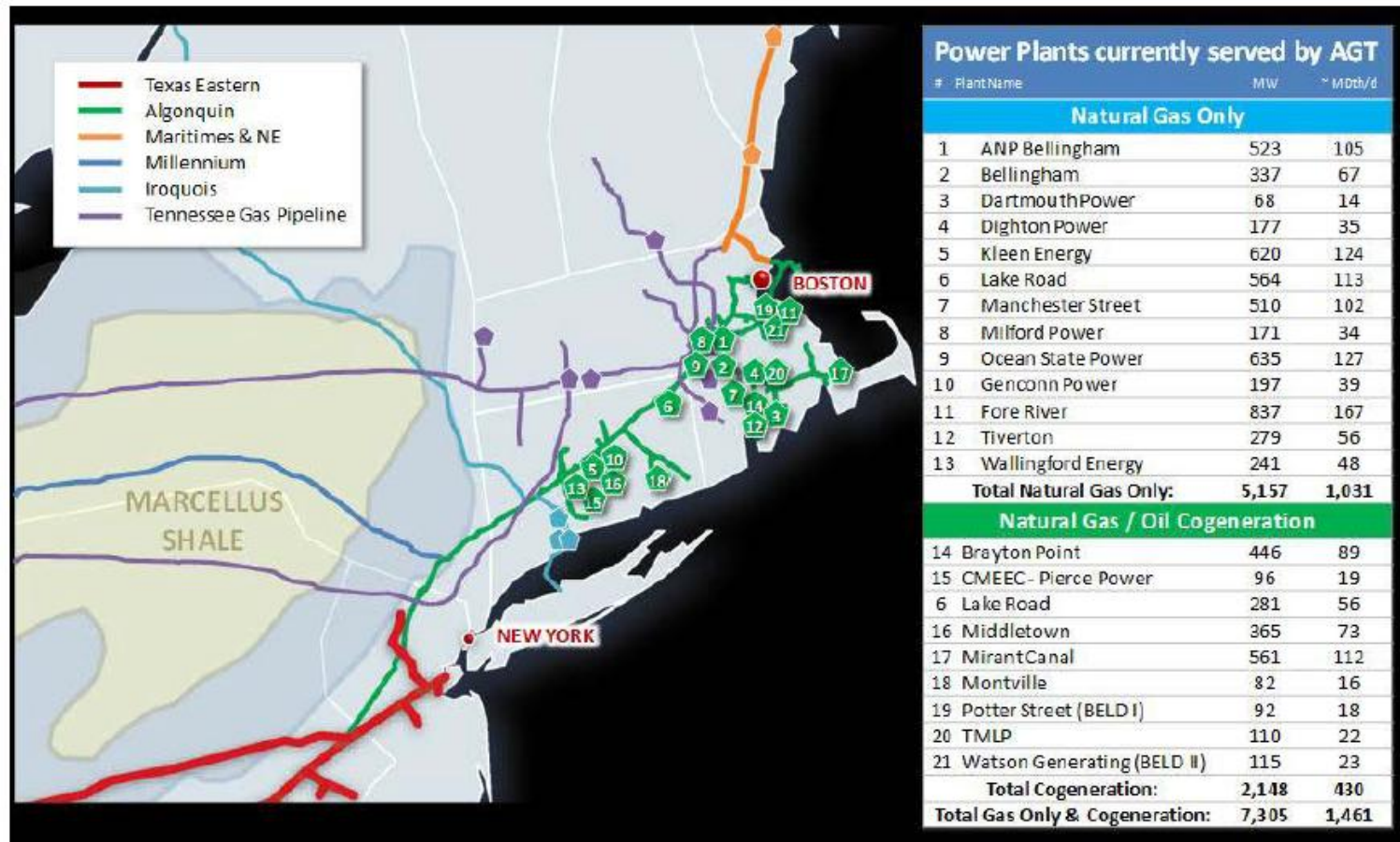
- The Current Options on the Table:
 - PNGTS: Canada to Coast (C2C)
 - Tennessee Gas: Northeast Energy Direct (NED)
 - Spectra Energy: Atlantic Bridge (AB), Access Northeast (a/k/a NESCOE)
- Standards for evaluating among proposals:
 - Incremental “take-up-and relay” v. “greenfield” pipeline
 - Delivery Point(s) to end users, and geography (Maine v. elsewhere in New England)
 - Receipt Points(s) of gas supply, and liquidity. Applicable trading hub(s)
 - Types of product: volume, term, scalability, flexibility of delivery/receipt points
 - Project schedule: in-service date, and likelihood of meeting projections
 - Financial and technical expertise
 - Financial bid: price per dekatherm, including cost from supply region to Maine
 - Frequency of nominations

Development and Expansion Process for Natural Gas Pipeline Projects



Source: EIA

Receipt/Delivery Points



Process of Selection

- RFP vs. Adjudication
- Formal vs. Informal scoring system
- Time Frame for Submission, Review, and Award



Maine Natural Gas Conference

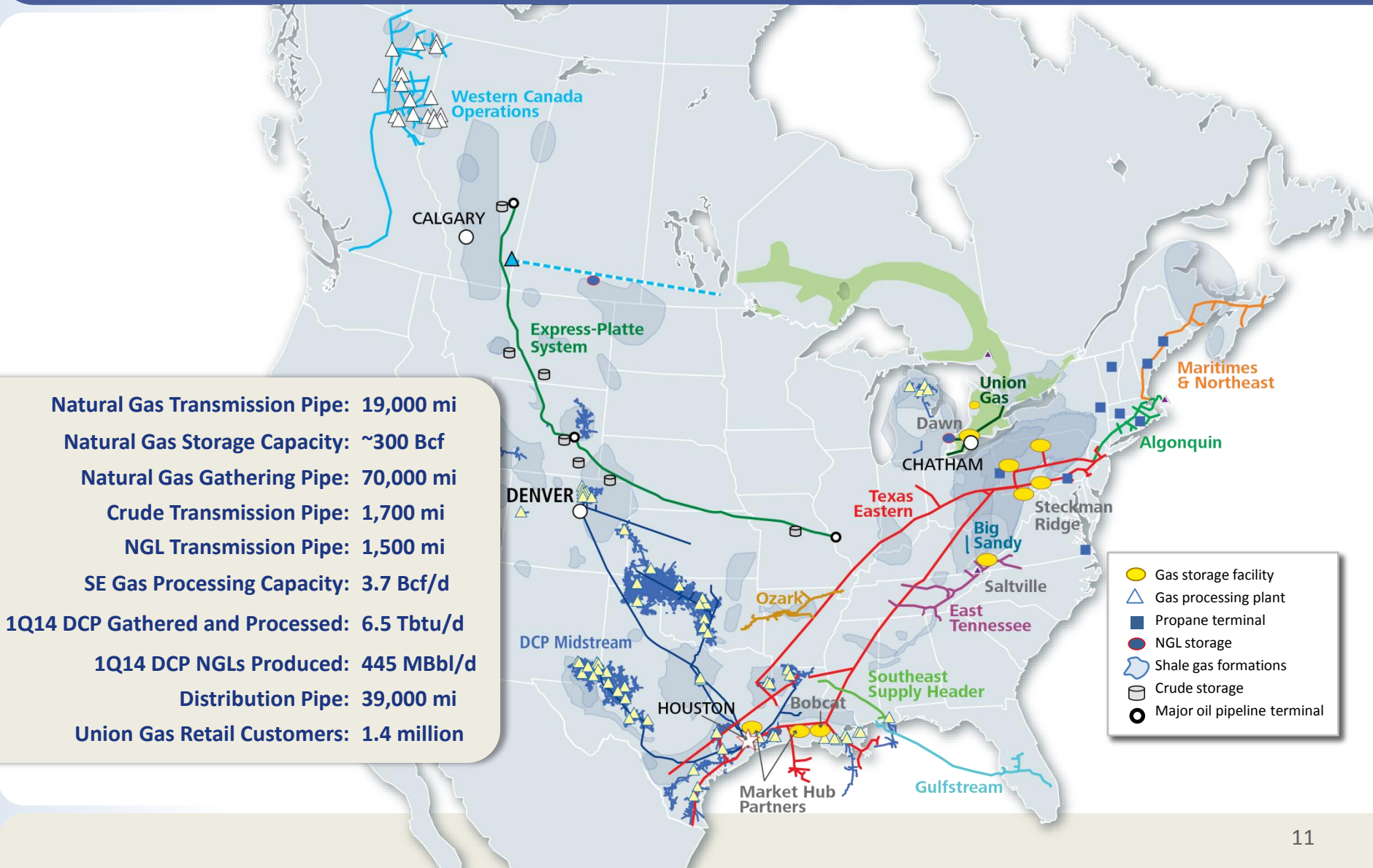
Meeting Maine's Natural Gas Infrastructure Needs

Greg Crisp

General Manager, Business Development



Our Strong Portfolio of Assets



Natural Gas Transmission Pipe: 19,000 mi

Natural Gas Storage Capacity: ~300 Bcf

Natural Gas Gathering Pipe: 70,000 mi

Crude Transmission Pipe: 1,700 mi

NGL Transmission Pipe: 1,500 mi

SE Gas Processing Capacity: 3.7 Bcf/d

1Q14 DCP Gathered and Processed: 6.5 Tbtu/d

1Q14 DCP NGLs Produced: 445 MBbl/d

Distribution Pipe: 39,000 mi

Union Gas Retail Customers: 1.4 million

- Gas storage facility
- △ Gas processing plant
- Propane terminal
- NGL storage
- ⬭ Shale gas formations
- Crude storage
- Major oil pipeline terminal

Algonquin Incremental Market (AIM) Expansion

Purpose:

- To provide growing New England demand with access to abundant regional natural gas supplies

Project Scope:

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

Customers (15 year terms):

- LDC Affiliates of:
 - UIL Holdings
 - Northeast Utilities
 - National Grid
 - NiSource
- City of Norwich
- Middleborough

Project Status:

- Pre-filed with FERC Jun 2013
- Filed FERC application Feb 2014
- Expect FERC certificate 1Q15
- Commence construction 2Q15
- In-service 2H16



Preliminary Facilities:

- Take up segments of 26" pipeline and replace with 42"; one segment of 36" loop; reinforcement of existing laterals; construction of new lateral
- Horsepower additions and modifications at 5 existing compressor stations
- New meter station installations and modifications to existing meter stations

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

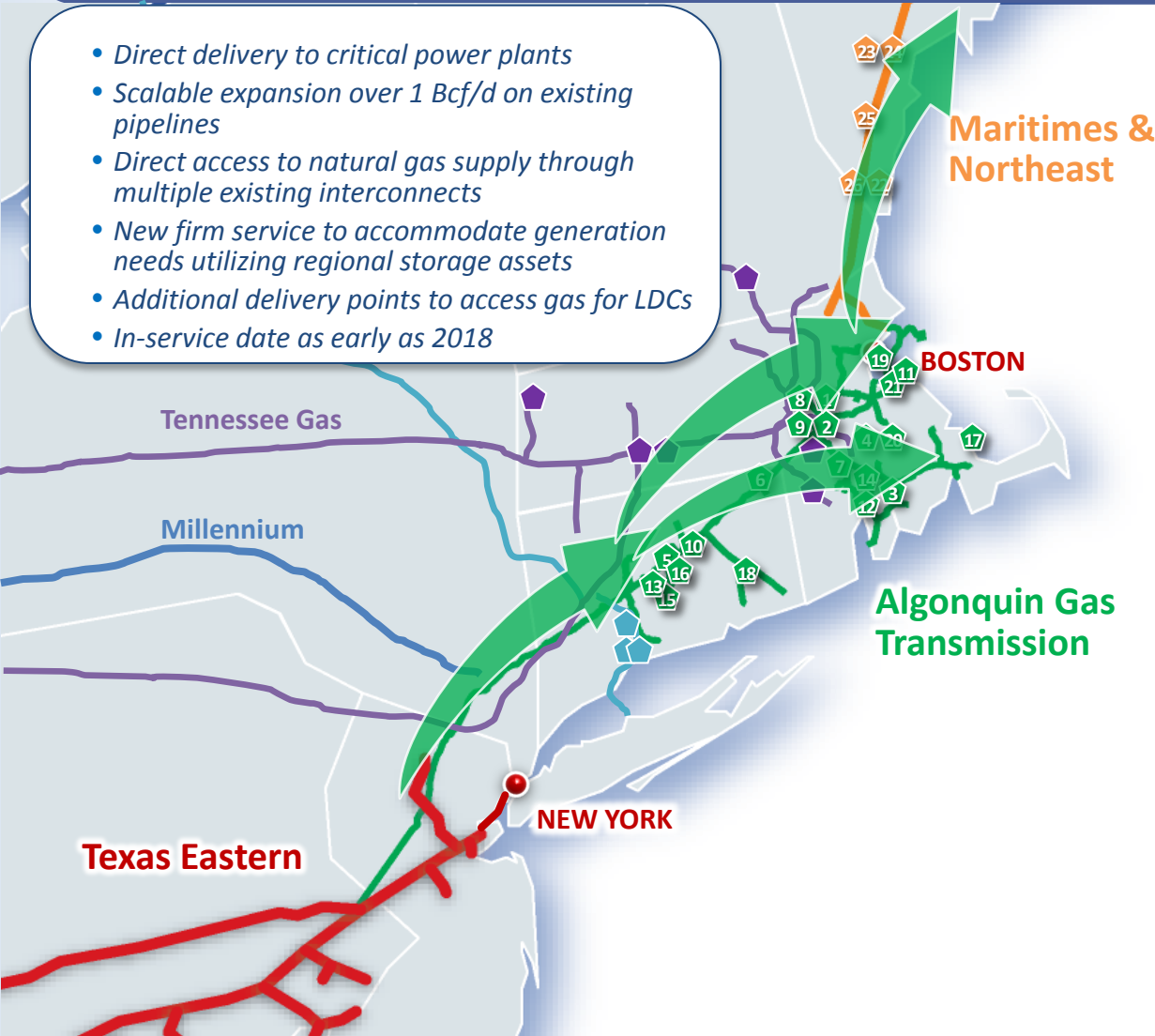
Preliminary Facilities

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

Access Northeast Project

New England Reliability Solution

- Direct delivery to critical power plants
- Scalable expansion over 1 Bcf/d on 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	Genncon 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



Tennessee Gas Pipeline
Company, L.L.C.
a Kinder Morgan company

Natural Gas: The Best Path Forward for Maine?

Sponsored by Pierce Atwood LLP and Verrill Dana, LLP

***Tennessee Gas Pipeline Company, L.L.C.
Northeast Energy Direct (NED) Project***

A Transformative Energy Solution for Maine

October 9, 2014

Curtis Cole, Director, Business Development



Forward-Looking Statements / Non-GAAP Financial Measures

This presentation contains forward-looking statements. These forward-looking statements are identified as any statement that does not relate strictly to historical or current facts. In particular, statements, express or implied, concerning future actions, conditions or events, future operating results or the ability to generate revenues, income or cash flow or to make distributions or pay dividends are forward-looking statements. Forward-looking statements are not guarantees of performance. They involve risks, uncertainties and assumptions. Future actions, conditions or events and future results of operations of Kinder Morgan Energy Partners, L.P., Kinder Morgan Management, LLC, El Paso Pipeline Partners, L.P., and Kinder Morgan, Inc. may differ materially from those expressed in these forward-looking statements. Many of the factors that will determine these results are beyond Kinder Morgan's ability to control or predict. These statements are necessarily based upon various assumptions involving judgments with respect to the future, including, among others, the ability to achieve synergies and revenue growth; national, international, regional and local economic, competitive and regulatory conditions and developments; technological developments; capital and credit markets conditions; inflation rates; interest rates; the political and economic stability of oil producing nations; energy markets; weather conditions; environmental conditions; business and regulatory or legal decisions; the pace of deregulation of retail natural gas and electricity and certain agricultural products; the timing and success of business development efforts; terrorism; and other uncertainties. There is no assurance that any of the actions, events or results of the forward-looking statements will occur, or if any of them do, what impact they will have on our results of operations or financial condition. Because of these uncertainties, you are cautioned not to put undue reliance on any forward-looking statement. Please read "Risk Factors" and "Information Regarding Forward-Looking Statements" in our most recent Annual Reports on Form 10-K and our subsequently filed Exchange Act reports, which are available through the SEC's EDGAR system at www.sec.gov and on our website at www.kindermorgan.com.

We use non-generally accepted accounting principles ("non-GAAP") financial measures in this presentation. Our reconciliation of non-GAAP financial measures to comparable GAAP measures can be found in the appendix to this presentation and on our website at www.kindermorgan.com. These non-GAAP measures should not be considered an alternative to GAAP financial measures.

A Different Kind of
ENERGY COMPANY



Northeast Energy Direct Project

A Transformative Energy Solution for Maine





The Energy Crisis in Maine

Maine Needs an energy solution that will

Reduce Energy Costs

And

Enhance Electric Reliability

Transformative NED Project is a long-term market solution that provides the level of capacity to significantly reduce basis differentials in New England and provide the breadth of access to existing and new electric generation facilities ideally suited to serve the ISO-NE Hub



Maine Energy Crisis – High Energy Costs

Unprecedented gas capacity constraints on existing pipelines

(Source: ISO-NE, EIA.gov)

Highest and most volatile gas commodity costs in the nation

(Source: ISO-NE, EIA.gov)

BloombergBusinessweek Global Economics

Energy

Northeast's Record Natural Gas Prices Due to Pipeline Dearth

By Matthew Phillips | February 06, 2014

BOSTON BUSINESS JOURNAL

Mass. faces gas shortage despite national surge

Despite abundant new sources of natural gas, New England faces shortages — and may pay the price

CONCORD MONITOR

New England seeks to expand natural gas delivery network

By STEPHEN SINGER

Associated Press

Thursday, January 23, 2014

(Published in print: Friday, January 24, 2014)

Portland Press Herald

MONDAY, MARCH 31, 2014

March 3

Study: Adding natural gas capacity could cut Maine electric bills by \$120 million annually

Some environmental groups, however, have questioned whether the region is best served by becoming more dependent on the fuel.

By Tux Turkel | turkel@pressherald.com
Staff Writer

THE RECORDER

Gas line limits boost New England electricity prices

Associated Press

Wednesday, March 18, 2014

(Published in print: Wednesday, March 19, 2014)

lowellsun.com

ISO: Gas-pipeline shortage boosts electricity prices

The Lowell Sun

UPDATED: 03/18/2014 08:54:08 AM EDT

0 COMMENT

HOLYOKE (AP) -- A lack of pipelines into New England is making natural gas costlier, pushing up wholesale electricity prices in the region by 35 percent last year, the region's electric grid operator said Tuesday.

wcvb.com

Insufficient pipelines boosting natural gas price

ISO-New England says price up to \$56.06 per megawatt hour

Published: 2:58 PM EDT Mar 18, 2014



Maine Energy Crisis – Electric Reliability

United States Senate
WASHINGTON, DC 20540

December 20, 2013

The Honorable Ernest Moniz
Secretary
U.S. Department of Energy
1000 Independence Ave SW
Washington, DC 20585

Dear Secretary Moniz:

We write to express our concern about the natural gas and energy market challenges facing the New England region and the effect that high energy prices are having on consumers and businesses in our states. We were very encouraged to learn that the first Interagency Quadrennial Energy Review will focus on energy infrastructure. Given that New England faces some of the highest natural gas prices in the nation, we urge you to consider the unique regional challenges facing New England as the Department of Energy undertakes this review.

New England states currently rely heavily on natural gas for electricity production and residential heating, with natural-gas-fired plants producing 52 percent of the power generated in the New England region in 2012. The predominance of natural gas for power generation has resulted in our region's electric supply being one of the closest in the nation, but New England's energy infrastructure has not kept pace and the region's electric and natural gas systems have become increasingly interdependent. According to the Federal Energy Regulatory Commission (FERC), the New England market is particularly at risk for service disruption due to limited pipeline capacity into the region. This not only threatens reliability but also results in more volatile natural gas and power prices during periods of high demand. The Governors of our states – similarly recognizing these challenges – recently announced a commitment to advancing a regional energy infrastructure initiative that would support cooperative investments in energy efficiency, new and existing renewable generation, natural gas pipelines, and electric transmission.

While New England continues to make strides in increasing the use of renewable sources of energy, our region's success in improving air quality, reducing pollution, and transitioning to a clean energy economy relies on the availability and reliability of affordable natural gas resources. Despite the abundance of domestic natural gas resources and low natural gas prices elsewhere in the United States, the high demand for natural gas to meet heating and electricity needs, coupled with significantly constrained pipeline capacity into the region, has driven up natural gas and wholesale electricity prices and threatened reliability in New England. According to the U.S. Energy Information Administration (EIA), New England often sees natural gas spot prices higher than the national average. This past winter, the average price at the Algonquin Citygate trading point (a widely used index for New England natural gas) was over \$6/MMBtu. In contrast, the natural gas spot price at Henry Hub (the price point for natural gas futures traded on the NYMEX) was \$3.43/MMBtu – nearly half the price.

Jack Reed
United States Senator

Susan Collins
United States Senator

Sheldon Whitehouse
United States Senator

Angus King, Jr.
United States Senator

Richard Blumenthal
United States Senator

Chris Murphy
United States Senator

Jesse Shaheen
United States Senator

Kelly Ayotte
United States Senator

Patrick J. Leahy
United States Senator

Howard Sanders
United States Senator

Charles A. Schumer
United States Senator

Elizabeth Warren
United States Senator

LETTER FROM THE NEW ENGLAND U.S. SENATE DELEGATION TO DEPARTMENT OF ENERGY SECRETARY MONIZ – December 13, 2013

“ According to the Federal Energy Regulatory Commission (FERC), the New England market is particularly at risk for service disruption due to limited pipeline capacity into the region. This not only threatens reliability but also results in more volatile natural gas and power prices during periods of high demand.”

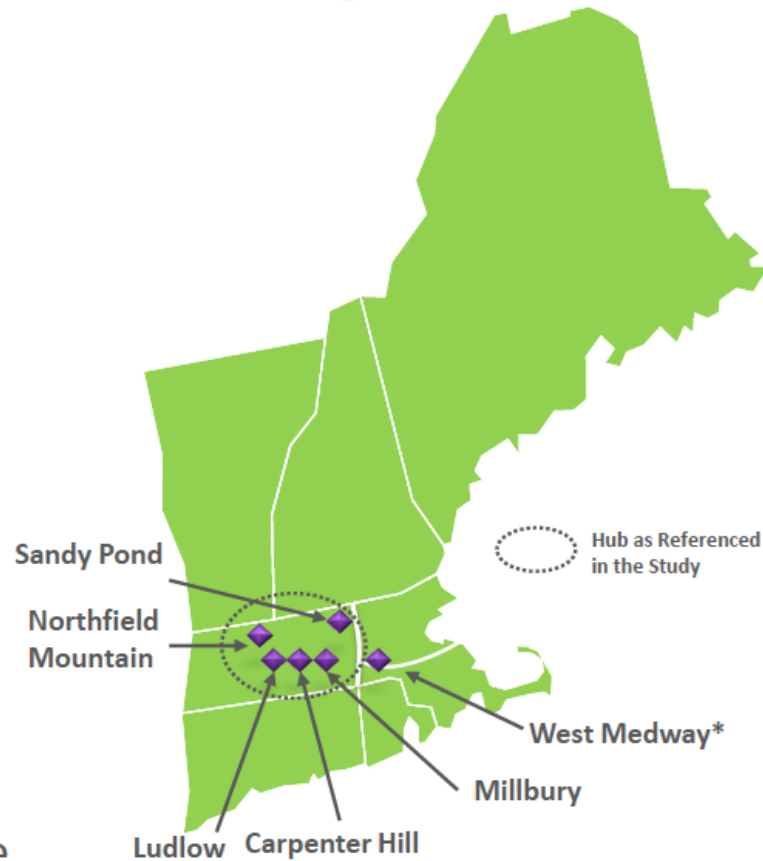
“ Energy infrastructure in the region is simply inadequate to meet demand and has been a key factor in the energy price volatility.”



ISO-NE – The Role of the Hub

Application of New England Trading “Hub”

- New England Trading Hub (Hub) is a central trading location in energy market where no significant energy congestion is expected
 - 32 electrical buses/nodes in West-Central Massachusetts make up the Hub
 - Interconnection of new proxy generation at the Hub was represented by six 345 kV buses/nodes*
- Replacement resources needed were envisioned to be integrated at the Hub



* W. Medway 345 kV is electrically close to, but not in the defined Trading Hub

Source: ISONE





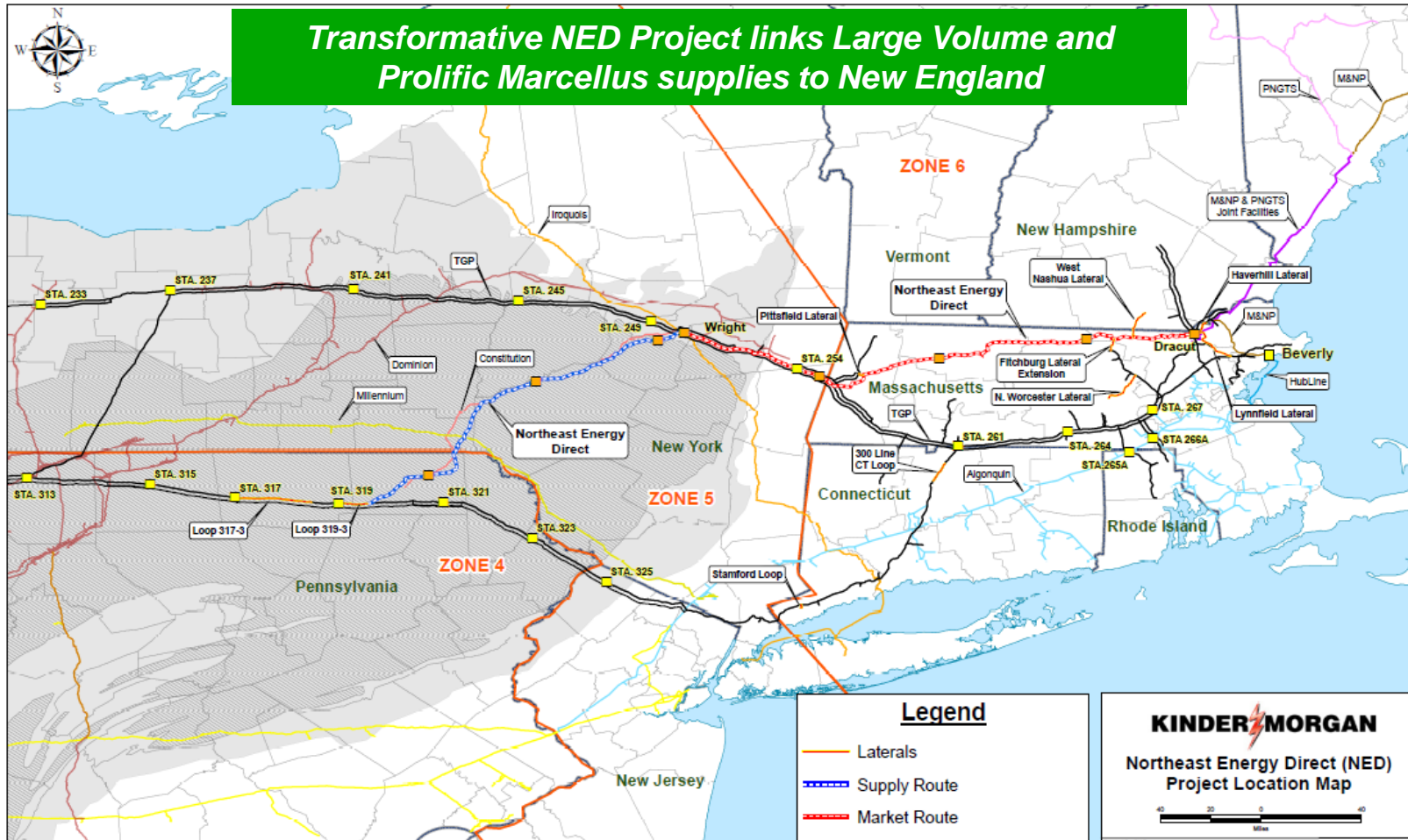
ISO-NE – The Threat to Hub Reliability

Overall Observations

- If 8,300 MW retire by 2020, resource adequacy needs dictate replacement capacity of at least 5,900 MW plus almost 800 MW of new energy efficiency reflected in EE forecast
- With the currently planned system configuration at least 900 MW of the 5,900 MW replacement capacity must be in specific locations due to transmission constraints
 - 500 MW must be in SEMA
 - 400 MW must be in Connecticut
- Approximately 5,000 MW may need to be integrated into Hub
 - Transmission may be needed to make resources deliverable to the Hub
 - From Hub power can be delivered to the load



Northeast Energy Direct Project – Full Path



* Any final route determination is subject to surveying, land acquisition and easements, environmental impact assessments, permitting and stakeholder input. Final route will be finalized in any FERC Certificate that has been issued.

KINDER MORGAN

Northeast Energy Direct (NED) Project Location Map

Created by: 08/08 Date: 07/2014

0 20 40 Miles

PLEASE RECOGNIZE KINDER MORGAN AS THE LEADER IN THE ENERGY INDUSTRY. TO THIS PROJECT, WE ARE COMMITTED TO THE HIGHEST STANDARDS OF SAFETY AND ENVIRONMENTAL PROTECTION. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF INTEGRITY AND ETHICS. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF CUSTOMER SERVICE. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF COMMUNITY ENGAGEMENT. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF TRANSPARENCY AND ACCOUNTABILITY. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF INNOVATION AND EXCELLENCE. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF SUSTAINABILITY AND RESPONSIBILITY. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF INTEGRITY AND ETHICS. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF CUSTOMER SERVICE. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF COMMUNITY ENGAGEMENT. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF TRANSPARENCY AND ACCOUNTABILITY. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF INNOVATION AND EXCELLENCE. WE ARE COMMITTED TO THE HIGHEST STANDARDS OF SUSTAINABILITY AND RESPONSIBILITY.



Northeast Energy Direct Project – Market Path

Project Details

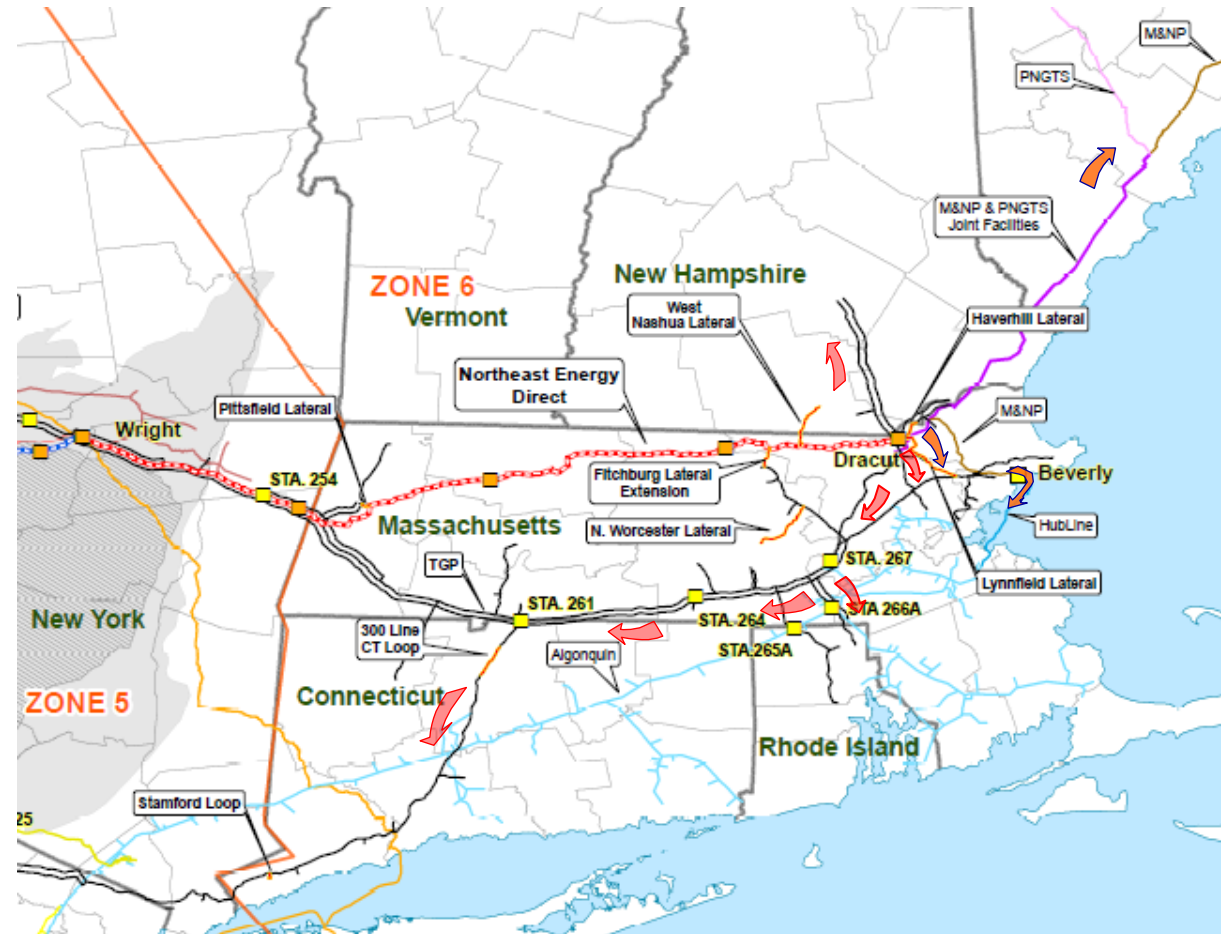
- In-Service: November 2018
- Scalable Volume: 0.8 – 2.2 Bcf/d
- ~177 miles new and co-located pipe
- ~73 miles of market delivery laterals

Market Reach

- MA, CT, RI, NH, NY directly, and
- High pressure feed to Maine markets, and
- Existing & Future Power Generation
 - Direct MA, RI, NH, CT
 - Supplies M&NP, PNGTS, AGT
 - NESCOE/FERC cost recovery pending
 - Expected growth due to EPA Requirements

Market Benefits

- Liberates key bottlenecks
- Supply Optionality: Wright, NY “Hub”
- Nonstop Incremental Access to Marcellus w/ NED - Supply and Constitution Pipeline
- Reduces energy costs region-wide
- Spurs economic growth region-wide
- Incrementally enhances existing New England pipeline grid region-wide
- Creates opportunity to expand gas service in New England – new markets, new growth



Transformative NED Project is a long-term market solution that provides the level of capacity to significantly reduce basis differentials in New England and provides breadth of access to existing and new electric generation facilities ideally suited for the ISO-NE Hub



The Best Path Forward for Maine – the NED

- ✓ **Transformative**
 - Only Project that Brings **Incremental** Gas Directly from the Marcellus Region
- ✓ **Lower Cost with Market**
- ✓ **Scalable**
- ✓ **Reducing Energy Costs for New England**
 - Only a **Large Scale Project will Significantly Reduce Basis**
 - CES Study in the ECRC Proceeding found that adding 2 Bcf/d of pipeline capacity will generate **\$3B/year** in savings potential for energy consumers
- ✓ **Enhance Electric Reliability**
 - Only the TGP NED Project provides access to gas-fired generation on **TGP's system** and the entire **Northeast pipeline grid**
 - NED/TGP ideally suited to serve **ISO-NE Trading Hub**

Contacts



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a Kinder Morgan company

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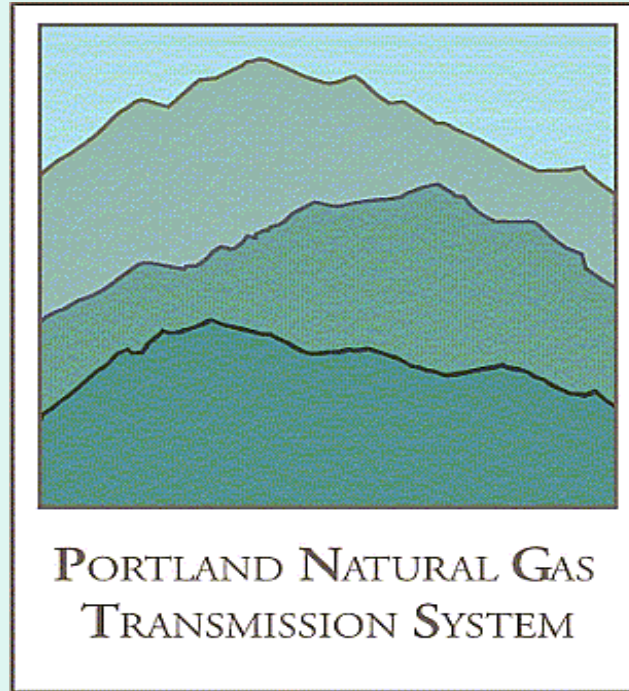
Dodson Skipworth

Account Director, Northeast

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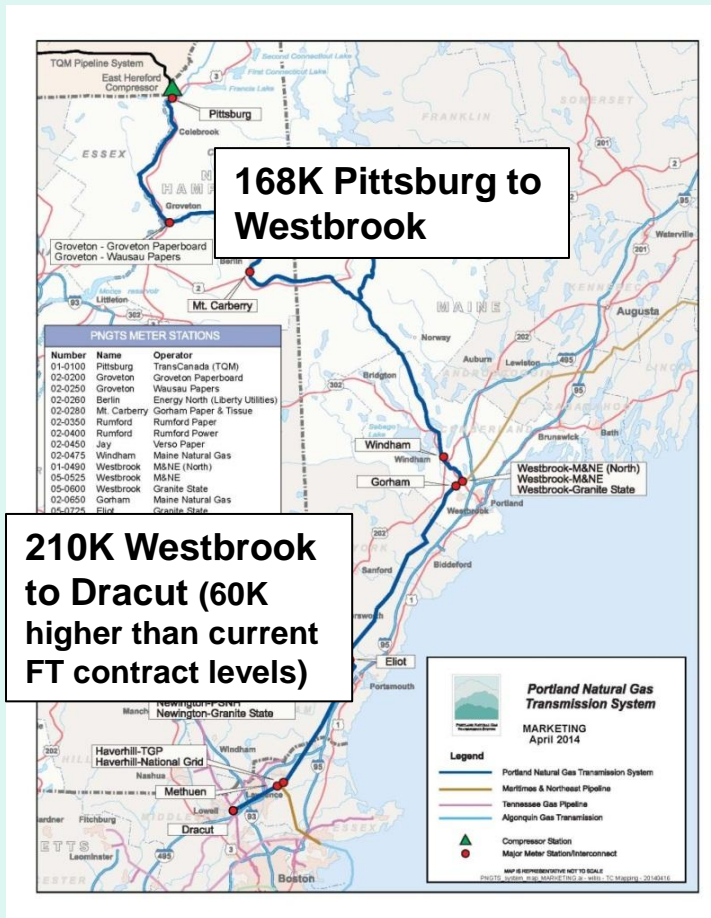


PNGTS Update

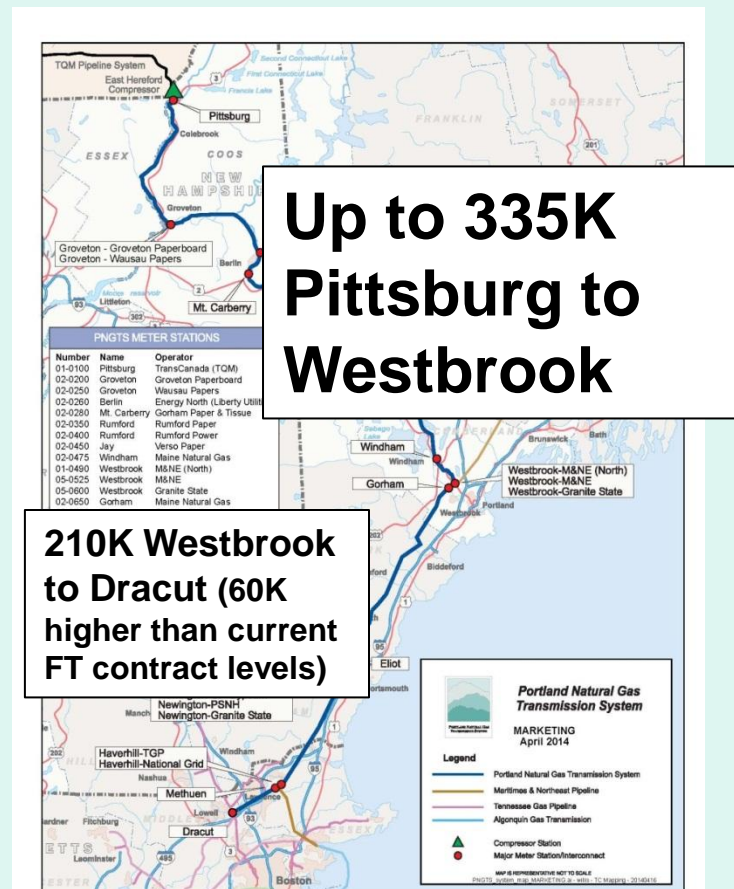
***Maine Natural Gas Conference
October 9, 2014***

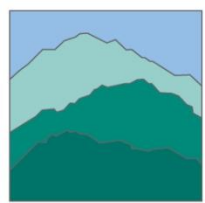
C2C Capacity for Maine

Current



C2C Capabilities

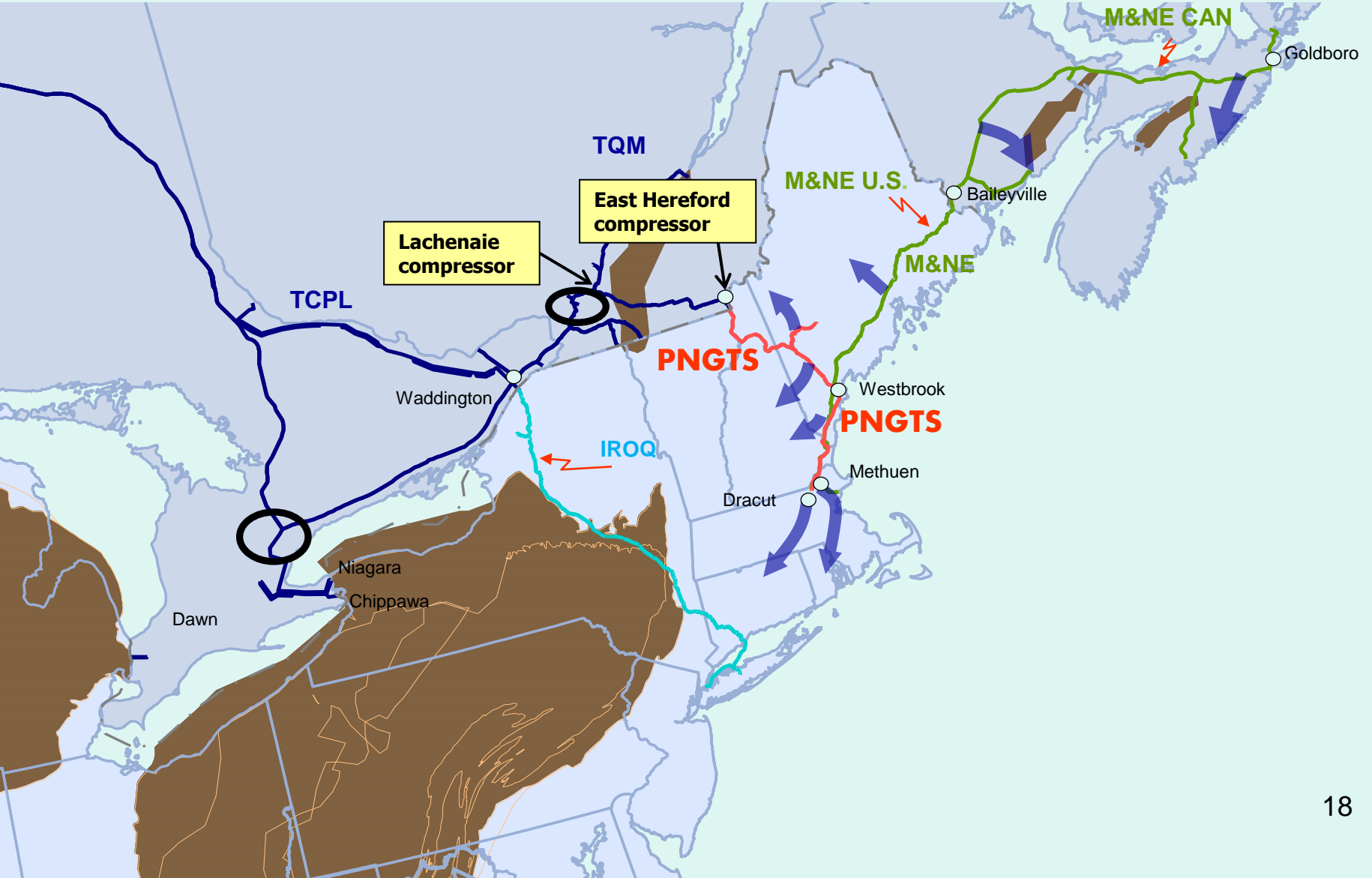


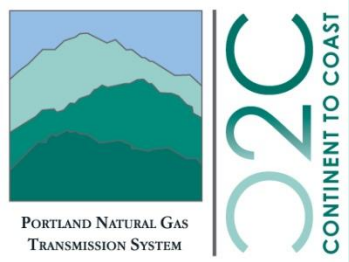


PORTLAND NATURAL GAS
TRANSMISSION SYSTEM

C2C
CONTINENT TO COAST

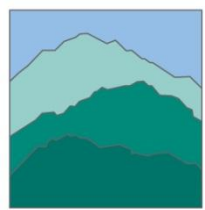
C2C Expansion Mechanism





C2C Update

- Extended deadline to accommodate upstream capacity acquisition
 - TCPL shippers awaiting National Energy Board (“NEB”) Rate decision
 - Hearings completed in Sept. 2014
 - Decision expected 4Q 2014/Early 2015
- Discussing/Negotiating terms with interested parties

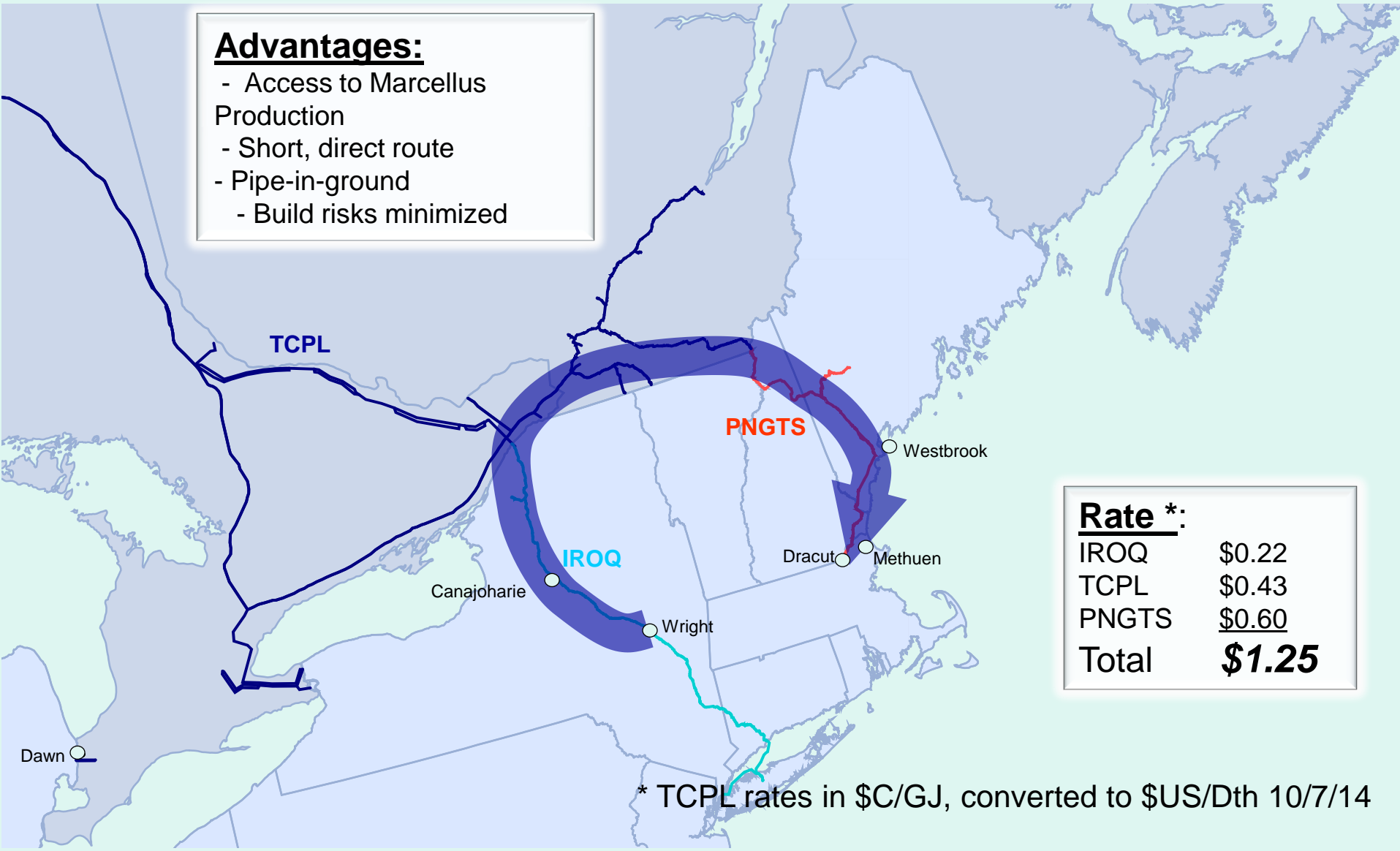


2020
CONTINENT TO COAST

Wright to PNGTS (Using TCPL Settlement Rates)

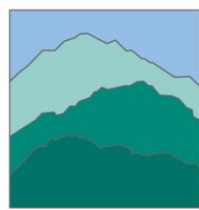
Advantages:

- Access to Marcellus Production
- Short, direct route
- Pipe-in-ground
- Build risks minimized



Rate *:	
IROQ	\$0.22
TCPL	\$0.43
PNGTS	<u>\$0.60</u>
Total	\$1.25

* TCPL rates in \$C/GJ, converted to \$US/Dth 10/7/14

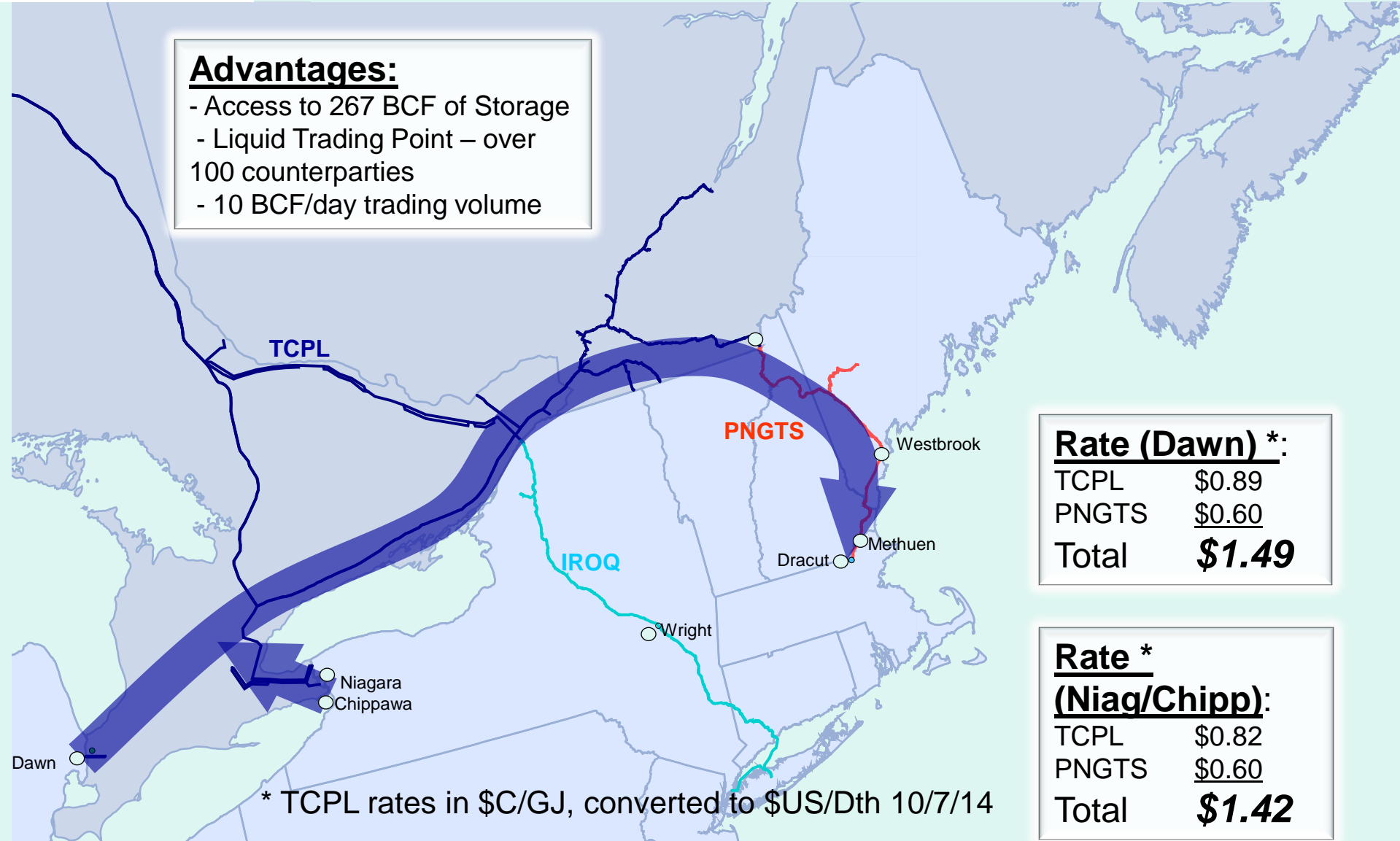


020
CONTINENT TO COAST

Dawn/Niag/Chipp to PNGTS (Using TCPL Settlement Rates)

Advantages:

- Access to 267 BCF of Storage
- Liquid Trading Point – over 100 counterparties
- 10 BCF/day trading volume



Rate (Dawn) *:	
TCPL	\$0.89
PNGTS	<u>\$0.60</u>
Total	\$1.49

Rate * (Niag/Chipp):	
TCPL	\$0.82
PNGTS	<u>\$0.60</u>
Total	\$1.42

* TCPL rates in \$C/GJ, converted to \$US/Dth 10/7/14