Natural Gas Pipeline Expansion: Do We Still Need It?

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A Natural Gas Invasion

Proposed Pipeline Projects

- Empire, "North Expansion"
- National Fuel, "Empire - Northern Access"
- Dominion, "New Market Project"
- Dominion, "Valley Lateral"
- Spectra, "NJDNE, "Pembroke Project"
- Spectra, "Valley Lateral"
- Spectra, "CGL"
- Spectra, "CGL 2"
- Spectra, "Clarion"
- Williams, "North East Expansion"
- Williams, "Lake Erie, "Allegany Access"
- Williams, "Ohio Union, "Northern Supply"
- Williams, "New York Gas Expansion Project"
How Did We Get Here?

- Corporate Affiliations – EDCs, LDCs, Transmission
- Energy Prices Winter 2013-14
- Support of New England states
- Electric consumer gas subsidy

Pending Regulatory Proceedings - Pipeline Fights

- FERC Pipeline Approval Process
- States Determination of Authority
- Precedent Agreement Approvals
States Acting Contrary to Law and Science

• IPCC and State Laws- 80% by 2050
• Subsidies for gas undermine clean energy policies and funding

Energy Markets Exacerbate Problem

• Over 50% of region’s electricity is gas generated
• Market design – Gas oriented
• 2300 MW of new gas generation in 2015-16
Ongoing Parallel Strategies

- ISO Markets Initiative
- Grid modernization
- Maximize energy efficiency
- Perpetuate renewables development
- Expand EV and storage programs
Forward Looking Statement

This presentation may contain certain information that is forward-looking and is subject to important risks and uncertainties. The words "anticipate", "expect", "believe", "may", "should", "estimate", "project", "outlook", "forecast" or other similar words are used to identify such forward-looking information. Forward-looking statements in this presentation are intended to provide information regarding TransCanada and its subsidiaries, including management's assessment of PNGTS' future financial and operations plans and outlook. Forward-looking statements in this document may include, among others, statements regarding the anticipated business prospects and financial performance of PNGTS, expectations or projections about the future, and strategies and goals for growth and expansion. All forward-looking statements reflect TransCanada's beliefs and assumptions based on information available at the time the statements were made. Actual results or events may differ from those predicted in these forward-looking statements. Factors that could cause actual results or events to differ materially from current expectations include, among others, the ability of PNGTS to successfully implement its strategic initiatives and whether such strategic initiatives will yield the expected benefits, the operating performance of PNGTS, the availability and price of energy commodities, capacity payments, regulatory processes and decisions, changes in environmental and other laws and regulations, competitive factors in the pipeline and energy sectors, construction and completion of capital projects, and the current economic conditions in North America. By its nature, forward looking information is subject to various risks and uncertainties, which could cause actual results and experience to differ materially from the anticipated results or expectations expressed. PNGTS undertakes no obligation to update publicly or revise any forward-looking information, whether as a result of new information, future events or otherwise, except as required by law.
The Cost of Uncertainty to Maine

Real Costs of Uncertainty

- Continued price volatility
- Project delays
- Legal battles
- Reactive stakeholder engagement
- Risk of extreme weather seasons

"Buildability"

- What project is most likely to get built?

PNGTS: Buildable Expansion

HOW:
- Add Compression at Existing Facilities
  - Maximize upstream build in Canada

RESULT:
- Increase capacity from 210Dth/day up to 500 Dth/day, using newest 24”/30” pipeline thru NH, ME and MA
  - Increments OK – large critical mass not required

Use existing infrastructure to increase supply
PNGTS’ Efficient Expansion

PNGTS: Part of Major North American Energy Network

Natural Gas Pipelines
- 56,100 miles of pipelines
- Transports more than 25% of continental demand

Natural Gas Storage
- More than 664 Bcf of capacity

Canada’s Largest Private Sector Power Generator
- 17 power facilities, 10,500 MW
- Diversified portfolio, including wind, hydro, nuclear, solar and natural gas

Liquids Pipeline System
- Keystone Pipeline System: 2,700 miles, 545,000 /d

TransCanada Pipelines: 11.81%
TC PipeLines, LP: 49.90%
GazMetro: 38.29%
**PNGTS: Efficient Expansion Possible**

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<th>Existing Capacity</th>
<th>Start Date</th>
<th>Volume, Dth/day</th>
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<td>86,000</td>
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<td><strong>32,000</strong></td>
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<table>
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<tr>
<td>Increments OK</td>
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**Time is NOT on Our Side!**

- Each project that fails to get built resets the clock
- More non-natural gas facilities going offline
- Increased oil usage increases emission levels
- Lack of storage for renewables slows development
- Discussing, debating, analyzing for years
- Need to reach in-service certainty prior to 2020

**What project is most likely to get built?**
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Natural Gas: Where do we go from here?

Pipeline Expansion – Do we still need it?
Randall S. Rich
October 6, 2016

Mythbusters

• We don’t need more natural gas or pipelines – we can use solar, wind, and other renewables
• Methane leaks from natural gas production outweigh the benefits of gas
• Hydraulic fracturing is dangerous and threatens the water table
• Look Mom, I can light our water on fire!
Truthland

• Natural gas is the premier fuel for power generation, heating, and home uses
• Gas is the primary feedstock for polyethylene and plastics – many products we take for granted today
• Transportation of natural gas by pipeline is safe and efficient
• Production of natural gas is technologically advanced and producers have an incentive to avoid waste
• Don’t forget, oil and gas saved the whales!
Natural Gas Infrastructure Development–Midwest

- Energy Transfer-Rover
- Talgrass Energy-REX Clarington West
- Dominion-Lebanon West II
- Spectra-Adair Southwest

Midwest via Ohio (4.3)

Graph showing MMcf/d from 2016 to 2020:
- Adair Southwest
- Rover
- REX Clarington West Project
- Lebanon West II

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Randall S. Rich
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Total market demand for all of M&NP and PNGTS peaks at ~600,000 Dth/d, and market growth is limited, so there is ample gas supply and transportation capacity to serve these markets for the foreseeable future.
MAINE NATURAL GAS DEMAND HISTORY

Residential and commercial demand is growing (albeit the magnitude of growth is relatively small), and power generation demand has become sporadic due to gas supply availability.

Source: Ventyx

MAINE NATURAL GAS MARKETS
Daily Gas Deliveries by Pipeline: Nov 2011 – Feb 2016

The decrease in gas demand is due primarily to the power generation markets, with the shutdown of the Bucksport plant being the primary cause of the decline in these markets.

Source: Ventyx
PNGTS AND M&NP SUPPLY/DEMAND BALANCE
Excess Supply for AGT/TGP on High Demand Days

Excess gas from PNGTS/M&NP serves AGT and TGP markets during critical periods of high demand.

Source: Ventyx and Repsol proprietary data

WORLDWIDE LNG PRICE FORECAST
Very Competitive with Proposed Peaking LNG Facilities

The long-term LNG price forecast indicates that both Atlantic and Pacific basin LNG will be much more cost effective for serving peak-day demand than new peaking LNG capacity in Maine.

Source: IHS January 2016 Price Forecast
The current demand/capacity gap of ~5 Bcfd is expected to double to ~10 Bcfd by 2025, which will dampen LNG price increases during that period.

GAS SUPPLY SERVICE FROM RENA
Multiple Benefits to Maine

- LNG Supply Availability
  - The well-documented worldwide LNG supply glut will make New England an attractive destination for LNG cargoes for the foreseeable future.

- Immediate Service Availability (Facilities are already in place.)
  - No facility siting risk
  - No project execution risk
  - No permitting risk
  - No cost overrun risk

- Definitive Capacity Costs
  - Capacity contracts are in place and fees are fixed.

- Flexible Contract Term
  - While long-term (>5 years) contracts are not required, they are available under various structures that provide competitive solutions.

- Reliability
  - RENA has never failed to meet a firm natural gas delivery obligation.
Safe Harbor Statement

Some of what we’ll discuss today concerning future company performance will be forward-looking information within the meanings of the securities laws. Actual results may materially differ from those discussed in these forward-looking statements, and you should refer to the additional information contained in Spectra Energy and Spectra Energy Partners’ Forms 10-K and other filings made with the SEC concerning factors that could cause those results to differ from those contemplated in today’s discussion. As this is a joint presentation, the terms “we,” “our,” and “us” refer to Spectra Energy and/or Spectra Energy Partners, as appropriate.

Reg G Disclosure

In addition, today’s discussion includes certain non-GAAP financial measures as defined under SEC Regulation G. A reconciliation of those measures to the most directly comparable GAAP measures is available on our website.
LDC’s & Industrial Customers are Participating in Pipeline Expansions

The AIM & Atlantic Bridge Projects are designed to provide access to abundant regional natural gas supplies to growing demand markets in New England & Atlantic Canada

**AIM**
- Capacity: ~340 MMcf/d
- FERC Application Submittal: February 2014
- Received FERC Certificate: March 2015
- Target In-Service: 2H16

**Atlantic Bridge**
- Capacity: ~135 MMcf/d
- FERC Application Submittal: Oct 2015
- FERC Certificate Target: 2H16
- Target In-Service: 2H17

Access Northeast Fueling Gas-Fired Power in New England

“...ultimately, improving the natural-gas delivery infrastructure in New England... will have the most impact on addressing the reliability, price volatility, and negative emission impacts during winter.”

— ISO New England 2016 Regional Electricity Outlook
**In the Winter New England Shifts to Coal & Oil**

- **Winter 2014-2015 Fossil Fuel Mix (MWh)**

<table>
<thead>
<tr>
<th>Month</th>
<th>Oil</th>
<th>Coal</th>
<th>Natural Gas / LNG</th>
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<tbody>
<tr>
<td>December</td>
<td></td>
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<tr>
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<tr>
<td>February</td>
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**Source:** ISO-NE, Gordan van Welie presentation, November 2015

**Firm Transportation Improves Reliability**

- **Access Northeast will increase the generation capacity with firm pipeline contracts to approximately 45%**

Access Northeast will increase the generation capacity with firm pipeline contracts to approximately 45%
Environmental Benefits – Meaningful Emission Reductions

Access Northeast can reduce regional emissions by displacing coal & oil-fired power generation with cleaner natural gas generation

3.4MM tons of CO₂ emissions avoided/year

emissions could be reduced
• CO₂ by 25%
• SO₂ by 90%
in a single winter

...this is like removing
650,000 cars
from the road every year!

3.4MM tons of CO₂ emissions avoided/year