The Critical Link: Opportunities & Challenges in Natural Gas & NGL Infrastructure

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North American Oil and Gas Infrastructure
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Forward-looking statements

The reports, filings, and other public announcements of The Williams Companies, Inc. (Williams) and Williams Partners L.P. (WPZ) may contain or incorporate by reference statements that do not directly or exclusively relate to historical facts. Such statements are "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. We make these forward-looking statements in reliance on the safe harbor protections provided under the Private Securities Litigation Reform Act of 1995. You typically can identify forward-looking statements by various forms of words such as "anticipates," "believes," "seeks," "could," "may," "should," "continues," "estimates," "expects," "forecasts," "intends," "might," "goals," "objectives," "targets," "planned," "potential," "projects," "scheduled," "guidance," "in service date" or other similar expressions. These forward-looking statements are based on management's beliefs and assumptions and on information currently available to management and include, among others, statements regarding:

> Amounts and nature of future capital expenditures;
> Expansion and growth of our business and operations;
> Financial condition and liquidity;
> Business strategy;
> Cash flow from operations or results of operations;
> The levels of dividends to Williams stockholders and of cash distribution to WPZ unitholders;
> Seasonality of certain business segments; and
> Natural gas, natural gas liquids, and crude oil prices and demand.

Forward-looking statements are based on numerous assumptions, uncertainties and risks that could cause future events or results to be materially different from those stated or implied in this presentation. Many of the factors that will determine these results are beyond our ability to control or predict. Specific factors that could cause actual results to differ from results contemplated by the forward-looking statements include, among others, the following:

> Whether Williams has sufficient cash to enable it to pay current and expected levels of dividends;
> Whether WPZ has sufficient cash from operations to enable it to pay current and expected levels of cash following establishment of cash reserves and payment of fees and expenses, including payments to WPZ’s general partner;
> Availability of supplies, market demand, volatility of prices, and the availability and cost of capital;
> Inflation, interest rates, -- and in the case of Williams fluctuation in foreign exchange-- and general economic conditions (including future disruptions and volatility in the global credit markets and the impact of these events on our customers and suppliers);
> The strength and financial resources of our competitors;
Forward-looking statements

> Ability to acquire new businesses and assets and integrate those operations and assets into our existing businesses, as well as expand our facilities;
> Development of alternative energy sources;
> The impact of operational and development hazards;
> Costs of, changes in, or the results of laws, government regulations (including safety and climate change regulation and changes in natural gas production from exploration and production areas that we serve), environmental liabilities, litigation, and rate proceedings;
> Williams’ costs and funding obligations for defined benefit pension plans and other postretirement benefit plans;
> WPZ’s allocated costs for defined benefit pension plans and other postretirement benefit plans sponsored by its affiliates;
> Changes in maintenance and construction costs;
> Changes in the current geopolitical situation;
> Our exposure to the credit risk of our customers and counterparties;
> Risks related to strategy and financing, including restrictions stemming from our debt agreements, future changes in our credit ratings and the availability and cost of credit;
> Risks associated with future weather conditions;
> Acts of terrorism, including cybersecurity threats and related disruptions; and
> Additional risks described in our filings with the Securities and Exchange Commission (“SEC”).

Given the uncertainties and risk factors that could cause our actual results to differ materially from those contained in any forward-looking statement, we caution investors not to unduly rely on our forward-looking statements. We disclaim any obligations to and do not intend to update the above list or to announce publicly the result of any revisions to any of the forward-looking statements to reflect future events or developments.

In addition to causing our actual results to differ, the factors listed above may cause our intentions to change from those statements of intention set forth in this announcement. Such changes in our intentions may also cause our results to differ. We may change our intentions, at any time and without notice, based upon changes in such factors, our assumptions, or otherwise.

With respect to WPZ, limited partner interests are inherently different from the capital stock of a corporation, although many of the business risks to which we are subject are similar to those that would be faced by a corporation engaged in a similar business.

Investors are urged to closely consider the disclosures and risk factors in Williams’ annual report on Form 10-K filed with the SEC on Feb. 28, 2012, WPZ’s annual report on Form 10-K filed with the SEC on Feb. 28, 2012 and each of our quarterly reports on Form 10-Q available from our offices or from our websites at www.williams.com and www.williamslp.com.
Williams’ presence well diversified

Williams has $25 billion in infrastructure projects – planned, under negotiation and potential – through 2017
**Disruptive, quick and some surprises**

**Then**
2004 - 2008

- **$7.91** – average natural gas price at Henry Hub
- U.S. shale gas production grows 273% to **2.2 Tcf**
- North America’s gas-using industry in a weakened competitive position
- U.S. pursues **LNG imports** to meet domestic demand
- **Crude-based feedstock** abroad is advantaged over U.S. natural gas
- U.S. petchem industry **heads abroad**

**Now**
2010 - 2012 YTD

- **$3.83** average at Henry Hub; YTD for 2012 is **$2.45**
- Forecast **sub-$5 through 2022**
- U.S. shale production grows to **6.8 Tcf** in 2011
- **Supply overhang – 100+ years** and growing
- U.S. pursues **LNG exports**
- Low-cost, domestic natural-gas as feedstock provides U.S. industry **huge competitive advantage**
- U.S. **trade surplus** in basic chemicals and plastic – **$16.4 billion**
Shale gas continues to boost gas supply...

> Since late 2011, U.S. dry gas production averages ~ 64 Bcf/d
  - Highest production peak since 1973
  - Approximately 30% higher than where we were 10 years ago
> Conventional production projected to decline by roughly 10% over the next five years
> Associated gas expected to rise 1.5 bcf/d in 2012
> Shale gas fills the gap – other sources decline while overall U.S. production steadily rises.
> Total production via shale resources is already roughly equivalent to conventional production, and will represent twice as much of supply by 2017.
Resulting in a compelling long-term supply and demand outlook

North American Supply

North American Demand

PIRA: Natural Gas Market Outlook, September 2012
The shale-gas model of diminishing production costs, faster supplies

- **Exploration**
  - Vertical testing
  - Core analysis, determine reserve estimates
  - Seismic, optimize horizontal orientations

- **Testing & Verification**
  - Horizontal testing, refine D&C techniques

- **Development Drilling**
  - Cost reductions, build efficiencies, extended laterals

- **Manufacturing**
  - Multi-well pad drilling

Cost to produce natural gas
Re-ordered market fundamentals create opportunities

Cost to produce natural gas

Demand for natural gas and natural gas products infrastructure

Accelerating demand for natural gas, mid-decade

Crude-to-natural gas ratio vs. historical levels

Emerging nations’ demand for plastics
Power gen, heating demand gets real

+5 Bcf/d
30 gigawatts
within 50 miles

+60% of ConEd’s existing peak-day
Industry gets the natural gas advantage

Steel

Agriculture

Petrochemical

North American Annual Fuel Cost Comparison
$/lb of coke equivalent

Purchased Coke

Natural Gas (coke equivalent)

Pulverized Coal Injection (coke equivalent)

2011 Delivered Ammonia Costs
2011* USS/Tonne

Cash Costs

Freight to US

Middle East

Trinidad

Russia – Yuzhny

Ukraine Port Plant

Source: Fertecon, OMS, PotashCorp. *Forecast.

2011 Global Ethylene Cash Cost by Site
(Dollars per Ton)

Source: IHS, Gary Adams, Jan. 25, 2012, AFPM

Source: US Steel

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And still more infrastructure for shale gas – to optimize value of liquids

- Large-scale facilities with pipeline access to markets
- Long-term contracts support capital investments
- For producers, liquids create major economic uplift and lower net cost of production
- Global market dynamics drive advantage
Rich shale-gas development leading to rapidly growing NGL supplies

Forecast of US NGL Extraction from Gas Processing (1,000 BPD)

- Total NGLs
- Propane, Butanes, Natural Gasoline
- Ethane
There is only one use for Ethane

- Natural Gas Production → Wet Natural Gas → Gathering → Processing → Dry Natural Gas
- Crude Oil Production → Refining → Refined Petroleum Products → Lt & Hvy Naphtha → Refinery Gas Liquids → Natural Gas Liquids
- Imports

Ethane → Other

- NGLs
  - Ethane: 100%
  - Propane: 65%
  - N - Butane: 50%
  - Iso - Butane: 70%
  - N. Gasoline
  - Motor Gasoline Blendstock: 30%
  - Residential/Commercial: 30%

- Petchem Industry
  - Ethylene: 50%
  - Polypropylene: 40%
  - Other propylene uses
  - Polyethylene: 60%
  - Other ethylene uses: 50%

- Power Plants
- Intrastate Gas Pipelines
- Interstate Gas Pipelines
- Heating

- Butadiene
- Other

We make energy happen.”
Petrochemical industry fundamentals have changed

> Crude-to-gas ratio has changed dramatically; global ethylene feedstock is naphtha
> U.S. ethane-based ethylene is cost advantaged
> Petrochemical demand is growing
> Globally ethylene short

**Global Ethylene Cost Curve, 2005 & 2011**
US ethylene cracker feedslate reflects growing demand for ethane

Source: IHS Chemical and Goldman Sachs Research.

Goldman Sachs, Americas: Chemicals: Commodity, May 2012
**Gulf Coast NGL demand increasing**

US Gulf Coast NGL ethane demand continues to increase
Propane and butane will be over-supplied in North America – leading to development of additional export facilities, primarily in the Gulf Coast region

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**Expansions of U.S. ethylene plants**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
<th>Billon LB/yr</th>
<th>Est. Ethane Cracking Capacity (MBPD)</th>
<th>Est. Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dow</td>
<td>St. Charles, La</td>
<td>1.8</td>
<td>53</td>
<td>Q4 2012</td>
</tr>
<tr>
<td>Westlake</td>
<td>Lake Charles, La</td>
<td>0.2</td>
<td>7</td>
<td>Q3 2012</td>
</tr>
<tr>
<td>Williams</td>
<td>Geismar, La</td>
<td>0.6</td>
<td>18</td>
<td>Q3 2013</td>
</tr>
<tr>
<td>INEOS</td>
<td>Chocolate Bayou, La</td>
<td>0.3</td>
<td>8</td>
<td>Q4 2012</td>
</tr>
<tr>
<td>Westlake</td>
<td>Lake Charles, La</td>
<td>0.3</td>
<td>8</td>
<td>2014</td>
</tr>
<tr>
<td>LyondellBasell</td>
<td>Laporte, Tx</td>
<td>0.9</td>
<td>26</td>
<td>2014</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>4.0</strong></td>
<td><strong>119</strong></td>
<td></td>
</tr>
</tbody>
</table>

**New U.S. ethylene plants announced or under consideration**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
<th>Billon LB/yr</th>
<th>Est. Ethane Cracking Capacity (MBPD)</th>
<th>Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formosa</td>
<td>Pt Comfort, Tx</td>
<td>1.8</td>
<td>53</td>
<td>2016</td>
</tr>
<tr>
<td>Exxon</td>
<td>Baytown, Tx</td>
<td>3.3</td>
<td>99</td>
<td>2016</td>
</tr>
<tr>
<td>Dow</td>
<td>Freeport, Tx</td>
<td>3.3</td>
<td>99</td>
<td>2017</td>
</tr>
<tr>
<td>CP Chem</td>
<td>Cedar Bayou, Tx</td>
<td>3.3</td>
<td>99</td>
<td>2017</td>
</tr>
<tr>
<td>Shell</td>
<td>Western, Pa</td>
<td>2.6</td>
<td>79</td>
<td>2018</td>
</tr>
<tr>
<td>Sasol</td>
<td>Lake Charles, La</td>
<td>2.6</td>
<td>79</td>
<td>2018</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>16.9</strong></td>
<td><strong>507</strong></td>
<td></td>
</tr>
</tbody>
</table>

**New propane export terminals**

<table>
<thead>
<tr>
<th>Capacity (MBPD)</th>
<th>Company</th>
<th>Location</th>
<th>Capacity (MBPD)</th>
<th>Start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Targa</td>
<td>Mid 2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>EPD</td>
<td>Late 2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Vitol/Coastal Caverns</td>
<td>Q1 2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Targa</td>
<td>Q3 2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>COP/TransMont./Oxy</td>
<td>Q3 2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>610</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Ethylene plant expansions by 2015 should add ~100 MBPD of ethane demand**

**New ethane cracking capacity could be ~500 MBPD**

**New propane/butane export terminals online by 2015: ~600 MBPD**

**One PDH facility online and one more by 2016**
Leading to numerous natural gas liquids infrastructure opportunities:
Real-world quiz

Question:
Which can you build for less dollars per mile of pipeline?

Constitution Pipeline
122 miles, large-diameter, interstate pipeline
Northeast Pennsylvania to Upstate New York
Steel cost of $660k/mile
Hilly terrain

Keathley Canyon Connector
200 miles, large-diameter, high-pressure
Gulf of Mexico, >215 miles SW of New Orleans; 7,000' of water
Steel cost of $920k/mile
Hostile terrain
Real-world answer tells a story

Constitution Pipeline
122 miles, large-diameter, interstate pipeline
Northeast Pennsylvania to Upstate New York
Steel cost of $660k/mile
Hilly terrain

$4.8 million per mile

Regulators: doze ns overlapping

Keathley Canyon Connector
200 miles, large-diameter, high-pressure
Gulf of Mexico, >215 miles SW of New Orleans; 7,000' of water
Steel cost of $920k/mile
Hostile terrain

$1.7 million per mile

Rates are 600%-1,100% higher for new-builds and expansions on and around our Transco system in the Eastern U.S. than on the existing system.

Translating the cost-per-mile effect
Energy cycle needs retooling:

What’s not working

Overlapping Regulations

33 intertwined permitting entities on a 33-mile pipeline
Overlapping jurisdictions
Conflicting parameters to satisfy requirements

Delays Time

Value leakage is harsh
• 18-month infrastructure delay drops typical single-well IRR 30%
Complexity drives infrastructure lag
3:1 ratio, permitting time to construction time

Distorted Market Signals

Traditional signals inadequate
• Rig count
• Storage report
• WWOI?

Misreads drive volatility

(2) Northeast Production Monitor, Data Warehouse
The case for retooling the infrastructure engine

What must happen

> Consolidate regulatory jurisdiction to end overlaps
> Adopt energy policy that addresses timely, effective development of energy infrastructure
> Acknowledge infrastructure lag as key market signal
> Earlier commitment to infrastructure
> Clarify eminent domain laws

What’s at stake

> Promise of shale gas
> Economic engine
> Benefits of cleaner fuel, domestic, here now
> Global advantage that ripples throughout the US economy, trade
> High-volume jobs emerge
  – Construction
  – Infrastructure operations
  – Manufacturing