Jason Brunsell
Director, Commercial Development

“The Role of NGLs After the Crude Oil Market Downturn”
Gathering and Transportation
- ~8,800 miles of gathering and transmission lines
- 11 Bcf of natural gas storage capacity

Gas Processing
- 13 plants with 3.4 Bcf/d of total net inlet capacity
- 1 plant with 120 MMcf/d of net inlet capacity under construction

NGL Transportation, Fractionation and Storage
- ~570 miles of liquids transport line
- 7 fractionation facilities with 252,000 Bbl/d of total net capacity
- 3.1 MMBbl of underground NGL storage

Crude, Condensate and Brine Handling
- 200 miles of crude oil pipeline
- Barge and rail terminals
- 500,000 Bbl of above ground storage
- 100 vehicle trucking fleet
- 8 brine disposal wells
Supply & Demand Imbalance

World Liquid Fuels Production and Consumption Balance

Source: Short-Term Energy Outlook, March 2015
Oversupply causes Crude Price to Fall

West Texas Intermediate ($/bbl)

WTI ($/bbl)  EIA Forecast ($/bbl)
Operating Rigs – 28 years

![Graph showing rig count, WTI, and Henry Hub prices over 28 years](image-url)
Operating Rigs – Last 180 days

[Graph showing rig count and commodity value trends over time from August 2014 to February 2015. The graph includes lines for Oil Rig Count, Gas Rig Count, WTI ($/MMBTU), and Henry Hub ($/MMBTU).]
Natural Gas Liquids (NGLs)

- Liquids extractable from Natural Gas after separated from Crude Oil
- Most are gases at atmospheric pressure
- Components:
  - Ethane
  - Propane
  - Isobutane
  - Normal Butane
  - Pentanes+ (Natural Gasoline)
NGL Supply and Demand

**NGL Supply Sources**
- Gas Processing
  - 80% (2,150 MBPD)
- Crude Oil Refining
  - 15% (390 MBPD)
- Overland & Waterborne Imports
  - 5% (135 MBPD)

**NGLs Supplied**
- Ethane -- 42%
- Propane – 28%
- Normal Butane – 7%
- Iso-Butane – 9%
- Natural Gasoline – 14%
- Ethane – 12%
- Propane – 71%
- Mixed Butanes – 17%
- Propane – 77%
- Mixed Butanes - 15%
- Pentane Plus – 8%

**NGL End Uses**
- Primary Petrochemicals
  - 55% (1,455 MBPD)
- Space Heating & Other Fuel Uses
  - 19% (500 MBPD)
- Motor Gasoline & Blendstocks
  - 19% (510 MBPD)
- Ethanol Denaturing
  - <1% (20 MBPD)
- Fuel Exports
  - 6% (190 MBPD)

**NGLs Consumed**
- Ethane -- 98%
- Propane -- 36%
- N-Butane – 26%
- Natural Gaso - 11%
- Propane – 54%
- Ethane – 2%
- N-Butane – 66%
- Iso-Butane – 100%
- Natural Gaso – 72%
- Natural Gaso – 7%
- Propane – 10%
- N-Butane – 7%
- Natural Gaso - 10% (diluent)

1%'s represent the composition of NGL mix from primary sources.

2% of a NGL supplied that is consumed by a market.

Source: EnVantage
Dry Gas vs. Wet Gas
1 MMCF (Million ft^3) of Gas
February 2015 Pricing

<table>
<thead>
<tr>
<th></th>
<th>“Dry” 2 GPM Gas</th>
<th></th>
<th>“Wet” 4 GPM Gas</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Natural Gas</td>
<td>$2,616</td>
</tr>
<tr>
<td>Ethane</td>
<td></td>
<td>$24</td>
<td></td>
</tr>
<tr>
<td>Propane</td>
<td></td>
<td>$254</td>
<td></td>
</tr>
<tr>
<td>Isobutane</td>
<td></td>
<td>$110</td>
<td></td>
</tr>
<tr>
<td>Normal Butane</td>
<td></td>
<td>$95</td>
<td></td>
</tr>
<tr>
<td>Pentanes+</td>
<td></td>
<td>$384</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$3,483</td>
<td></td>
</tr>
</tbody>
</table>

- Wet Gas Plays still net an 20.4% sales premium on an MMCF
- Wet Gas also likely yield much higher margin on accompanying Condensate or Crude Oil
Typical NGL Concentrations (in GPM)

Rich Shale Play Corridors

<table>
<thead>
<tr>
<th>Rich Plays</th>
<th>NGL (GPM) Content*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalon/Bone Springs**</td>
<td>4.0 to 5.0</td>
</tr>
<tr>
<td>Bakken**</td>
<td>4.0 to 9.0</td>
</tr>
<tr>
<td>Barnett</td>
<td>2.5 to 3.5</td>
</tr>
<tr>
<td>Cana-Woodford</td>
<td>4.0 to 6.0</td>
</tr>
<tr>
<td>Eagle Ford***</td>
<td>4.0 to 9.0</td>
</tr>
<tr>
<td>Granite Wash</td>
<td>4.0 to 6.0</td>
</tr>
<tr>
<td>Green River**</td>
<td>3.0 to 5.0</td>
</tr>
<tr>
<td>Niobrara**</td>
<td>4.0 to 9.0</td>
</tr>
<tr>
<td>Marcellus (Rich)</td>
<td>4.0 to 8.0</td>
</tr>
<tr>
<td>Utica</td>
<td>4.0 to ??</td>
</tr>
</tbody>
</table>

* gpm – gallons of NGLs per 1000 cu. ft.
** Oil Shale Plays
*** Both an Oil and Gas Shale Play
How Do Different Plays Compare?

Crude Oil $50/bbl; Natural gas $2.75/MMbtu

February 2015

- Bakken (Williston) 5%
- Niobrara -10% 3%
- Piceance -10% 3%
- Anadarko 6%
- Permian Delaware 6%
- Granite Wash -2% -7%
- Eagle Ford Oil 4% -3%
- Haynesville -4% -7%
- Utica Dry 1% -8% -11%
- Utica Wet -2% -8%
- Marcellus Dry -2% -11%
- Marcellus Wet -2% -8%

* Crude @Cushing, Gas @ Henry Hub; Excludes lease costs
Plays with 25% Reduction in Well Costs

Crude Oil $50/bbl; Natural gas $2.75/MMbtu

- Bakken (Williston): 16%
- Niobrara: 17%
- Piceance: 19%
- Anadarko: 20%
- Delaware: 9%
- Permian: 19%
- Granite Wash: 4%
- Haynesville: 5%
- Eagle Ford Oil: 17%
- Eagle Ford Wet: 8%
- Utica Wet: 15%
- Marcellus Dry: 14%/-2%
- Utica Dry: 13%/0%
- Marcellus Wet: 9%/1%

* Crude @Cushing, Gas @ Henry Hub; Excludes lease costs
Producers’ Focus in 2015/2016

• Adjust Drilling Portfolios to maximize cash flow
  • Oil = $9.50/MMBTU
  • NGL = $6.00/MMBTU
  • Gas = $3.50/MMBTU

• Focus on reducing costs per well drilled
  • Huge pressure on well services companies to reduce cost
  • Single pad / multiple well technologies

• Target drill sites that minimize infrastructure builds
  • Drilled wells that have high connection costs are being left unconnected
Counter forces

• “Hold By Production” leases
  • Expire if Producers don’t drill and produce
  • Creates artificial pressure on Producers to drill even when short-term economics are negative

• Location and Infrastructure impact NGL returns
  • Local markets can be too small or seasonal
  • Primary markets can be too far
  • No pipeline connectivity
Questions?

Jason Brunsell
Director of Commercial Development NGLs
Jason.Brunsell@EnLink.com
(713) 739-3256