North Dakota Pipeline Authority
House Energy and Natural Resources Committee
January 11, 2013
Crude Oil

Understanding production potential

Understanding current transportation dynamics and potential transportation constraints

Understanding current and future market conditions
Crude Oil

**Understanding production potential**

Understanding current transportation dynamics and potential transportation constraints

Understanding current and future market conditions
Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.
Forecasting Williston Basin Oil Production, BOPD

Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.
Forecast Assumptions

Drilling Rigs

- North Dakota - 1
- North Dakota - 2
- Montana - 1


Values range from 0 to 250.
Forecast Assumptions

Completed Wells

- North Dakota - 1
- North Dakota - 2
- Montana - 1

Crude Oil

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Understanding current and future market conditions
Challenges*
1) Moving oil out of the Williston Basin
2) Moving oil within the Williston Basin

*Modified from Bridger and Belle Fourche Pipelines
Williston Basin Oil Transportation

Prelim Nov 2012

- Pipeline Export: 33%
- Tesoro Refinery: 57%
- Truck to Canadian Pipelines: 8%
- Estimated Rail: 2%
Estimated ND Rail Export Volumes

Barrels Per Day

Prelim November 2012
BNSF Crude Rail Locations

🌟 Existing
1) Dore – Musket – Unit
2) Dore - Manifest
3) Trenton – Savage – Manifest/Unit
4) Williston – Red River Supply – Manifest
5) Epping – Inergy Midstream – Unit
6) Tioga – Hess - Unit
7) Manitou – Plains - Unit
8) Ross – Bakken Transload - Manifest
9) Stanley – EOG – Unit
10) Berthold – Enbridge – Unit (Full Q1/13)
11) Minot – ND Port Services- Manifest
12) Zap/Republic – Basin Transload - Unit
13) Eland – BOE - Unit
14) Dickinson – Centennial - Manifest
15) Gascoyne – Enserco – Manifest/Unit

🌟 Planned
1) Fryburg – Great Northern – Unit (Feb-13)
CP Crude Rail Locations

*Existing*

1) Stampede – US Development
2) Donnybrook - Centennial
3) New Town – Dakota Plains
4) Van Hook – US Development
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Challenges*
1) Moving oil out of the Williston Basin
2) Moving oil within the Williston Basin

*Modified from Bridger and Belle Fourche Pipelines
North Dakota Crude Gathering

- Truck: 74%
- Pipeline: 26%

February 2012 Data
North Dakota Crude Gathering
Crude Oil

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Pipeline Challenges Outside ND
Crude Oil Prices – January 10, 2013

- Clearbrook: $89.19
  - WTI - $5.00

- Cushing: $94.19

- Brent: $112.65
  - WTI + $18.46

Source: U.S. Energy Information Administration
Pipeline Challenges Outside ND
Developing Projects to Watch...
$6.2 Billion – Light Oil Market Access

1. Canadian Mainline Terminal Capability ($0.6B)
2. Sandpiper Project ($2.5B)
3. U.S. Mainline Expansion ($1.8B)
   a) Superior to Flanagan
   b) Chicago Area Connectivity
4. Eastern Access Upsize ($0.5B)
   a) Line 6B Expansion
   b) Line 9 Reversal Expansion
5. Southern Access Extension ($0.8B)

Legend:
- ENB Funding
- EEP Funding
- ENB/EEP Joint Funding
TransCanada Mainline Conversion
Natural Gas
Top Two Natural Gas Misconceptions

“Natural gas is just a byproduct of oil production with very little economic value.”

“Nothing is being done to address natural gas flaring in western North Dakota.”
Rich Bakken Natural Gas

Raw Natural Gas (1500+ BTU) → Processing Plant

- Consumer Quality Natural Gas
  - Methane ($3.45 MMBTU)
- Natural Gas Liquids (8-12 Gallons Per Thousand Cubic Feet)
  - Ethane
  - Propane
  - Butane
  - Natural Gasoline
Williston Basin Gas Production

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Natural Gas Gathering Challenge
First Time Gas Sales Per Month
ND Gas Gathering Statistics

- Wells With Gas Sales or Lease Use
- Wells Without Gas Sales
Rich Bakken Natural Gas

Raw Natural Gas (1500+ BTU) → Processing Plant
  - Consumer Quality Natural Gas
    - Methane ($3.45 MMBTU)
  - Natural Gas Liquids (8-12 Gallons Per Thousand Cubic Feet)
    - Ethane
    - Propane
    - Butane
    - Natural Gasoline
ND Gas Plant NGL Production

Barrels Per Day

- Feb-03
- Aug-03
- Feb-04
- Aug-04
- Feb-05
- Aug-05
- Feb-06
- Aug-06
- Feb-07
- Aug-07
- Feb-08
- Aug-08
- Feb-09
- Aug-09
- Feb-10
- Aug-10
- Feb-11
- Aug-11
- Feb-12

- Ethane
- Y-Grade
- Natural Gasoline
- Butane
- Propane

37
North Dakota NGL Potential

Assumptions

- No Flaring
- 8 Gal/MCF
- All liquids extracted
Moving Future NGL Volumes

Transportation Options

- Trucking Regionally
- Rail Transportation
- Vantage Pipeline (Ethane)
- ONEOK Bakken Pipeline (Y-Grade)
- Alliance Pipeline (Rich Gas)
- New Pipeline Infrastructure??
ND Natural Gas Pipelines

Williston Basin Interstate Pipeline

Alliance Pipeline

Northern Border Pipeline

2.37 BCFD

1.51 BCFD
Natural Gas Study
Open Capacity Leaving N. Dakota Is Tight

- Northern Border and Alliance Serve As the Primary Routes to Transport Gas From the Region.
- Each Have Limited Open Mainline Capacity to Carry Additional Williston Supply.
Source: BENTEK Energy July 2012 Report
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