North Dakota Crude Oil

Barrels of Oil Per Day

- 0
- 1949
- 1956
- 1963
- 1970
- 1977
- 1984
- 1991
- 1998
- 2005
- 2012

Values:
- 50,000
- 100,000
- 150,000
- 200,000
- 250,000

Chart shows the increase in barrels of oil produced per day from 1949 to 2012.
North Dakota Oil Production and Price

ND Sweet Price $/barrel

Barrels per Day

North Dakota Oil Production and Price

ProdPriceTable'!$S$451

Bakken - Three Forks Maximum
Bakken - Three Forks Most Likely
$/Barrel History & DOE-EIA Projected
$/Barrel Most Likely
$/Barrel Maximum
Williston Basin Production* & Export Capacity

Future Basin Production

“The Big Question”

*Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.
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North Dakota Crude Oil Pipelines

Fall 08 - 92,000 BOPD
July 09 - 120,000 BOPD
Williston Basin Production* & Export Capacity

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Phase V: 110,000 BOPD

Additional 51,600 BOPD

January 1, 2010
Williston Basin Production* & Export Capacity

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EOG Rail Facility Details

- New facility at Stanley, ND
- Two 60,000 bbl tanks constructed
- First Unit Train Departed Dec 31, 2009
Images Provided By: EOG Resources
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Several Exciting Developments For Post 2010 Crude Oil Transport

- Enbridge BPEP
- Kinder Morgan Bakken Crude Project
- Keystone Interconnect Feasibility Study
- Unit Train Development
- Others Still Looking at Opportunities
Enbridge BPEP
(Bakken Pipeline Expansion Project)
Potential Bakken Pipeline Expansion

**Enbridge Pipelines (North Dakota)**

- Bakken Pipeline Expansion Project: Berthold to Cromer
- Phase 7 Beaver Lodge Looping Project: Beaver Lodge to Berthold

**EPND Phase 7 Gathering Projects:** SORTI, Dunn, Plaza and McGregor
• In March, non-binding indications of interest were received from potential shippers

• Gathering pipelines could be in-service Q3 2011

• Beaver Lodge looping could provide up to 115,000+ BOPD into Cromer, MB by Q3 2012
Kinder Morgan Bakken Crude Project
Kinder Morgan Bakken Crude Project

- Propane
- Lt. Sweet Bakken Crude
- Propane

Natural Gasoline
Kinder Morgan Bakken Crude Project

- McHenry County, ND
  - Crude Receipt Truck Rack near Hwy 2

- Connection to Koch Wood River PL to:
  - Flint Hills Resources Pine Bend Refinery, and
  - Marathon Oil Minnesota Refinery in St. Paul, MN

- Connection to Marathon Oil Detroit Refinery in Detroit, MI

- Connection to Sunoco Logistics Marysville PL to:
  - Sunoco Toledo Refinery, and
  - BP-Husky Refinery in Toledo, OH
Keystone Pipeline

- Initial capacity 435,000 Bbl/d
- Construction Complete
- Line fill commenced Q4 2009
- In-service Q2 2010

Images and information prepared by TransCanada’s Keystone Project Team
Keystone Cushing Extension

- New 36” pipeline to be built from Steele City to Cushing
- Increases capacity to Wood River/Patoka and Cushing to 590,000 barrels per day
- In-service Q1 2011

Images and information prepared by TransCanada's Keystone Project Team
Keystone XL Pipeline

- New 36” pipeline construction
- Initial capacity 700,000 BOPD
- In-service Q4 2012

Images and information prepared by TransCanada's Keystone Project Team
Keystone Interconnect Study

- Shortest Route
- Lowest Capital Investment
- Following Bakken Development Trend
- Lowest Tariff
- 55,000 BOPD Initial Design
# Study Overview

<table>
<thead>
<tr>
<th>Route</th>
<th>North</th>
<th>East</th>
<th>West</th>
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<tbody>
<tr>
<td>Pipeline Length</td>
<td>169 Miles</td>
<td>240 Miles</td>
<td>188 Miles</td>
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<tr>
<td>System</td>
<td>10”</td>
<td>10”</td>
<td>10”</td>
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<tr>
<td>System Capital Cost (Millions)</td>
<td>$195</td>
<td>$242</td>
<td>$210</td>
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<td>Pipeline Cost/Mi</td>
<td>$602M</td>
<td>$621M</td>
<td>$615M</td>
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<tr>
<td>Ops Cost ($/bbl)</td>
<td>$0.26</td>
<td>$0.31</td>
<td>$0.26</td>
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<tr>
<td>Tariff @ 15% IRR ($/BBL)</td>
<td>$4.24</td>
<td>$5.25</td>
<td>$4.59</td>
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<tr>
<td>Interface Volume*</td>
<td>18.5MBBL</td>
<td>10.9MBBL</td>
<td>20.8MBBL</td>
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*Interface Volume per Batch Shipped on TransCanada/Keystone Pipelines
Larger batch sizes equals less interface volume on a percentage basis.
Interconnect Next Steps

Shipper Identification
- Volumes
- Location

Desired Market
- Cushing/Gulf
- Illinois

Shipper Commitment
- Terms
- Pricing
Williston Basin Production* & Export Capacity

- **Enbridge BPEP 2**
- **Enbridge BPEP 1** & **Kinder Morgan**
- **Enbridge Pipeline**
- **Butte Pipeline**
- **Tesoro Refinery**

**Projects still in the proposed or internal review process**

*Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.*
**Projects still in the proposed or internal review process**

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North Dakota Truck Imports/Exports

Information collected through the United States International Trade Commission’s *Interactive Tariff and Trade DataWeb*
Greetings

Season’s Greetings from the North Dakota Pipeline Authority! While the temperature in North Dakota is dropping fast, the activity in North Dakota’s oilfields is heating up. With more rigs moving into the basin, improved well completion techniques, and quicker spud to spud times, North Dakota petroleum production is expected to grow for many years to come. Along with the growing crude oil production, several exciting transportation expansion projects are very near completion, with many more in the works. For additional project information, past newsletters, maps, reports, and more, please visit the Pipeline Authority website, www.pipeline.nd.gov.

Enbridge Phase VI Expansion Update

The much anticipated Enbridge Phase VI Expansion is nearly complete. Scheduled to be in service on January 1, 2010, the expansion will increase Enbridge’s mainline capacity from 500,000 barrels per day (BOPD) to 161,600 BOPD. Once complete, Enbridge North Dakota will have more than doubled its 2007 system capacity of 80,000 BOPD.

More good news is that Enbridge has no intentions of stopping at 161,600 BOPD and is actively working to gain support from interested shippers for the proposed Portal Reversal Expansion Project or PREP. As proposed, PREP would allow Enbridge to transport an additional 30,000 BOPD by 2011 and up to an additional 115,000 BOPD by 2013.

North Dakota Pipeline Authority

State Capitol 14th Floor • 600 E. Boulevard Ave. Dept. 405 • Bismarck, ND 58505-0840
Phone: (701) 220-6227 • Fax: (701) 328-2820
E-mail: jkringstad@gmail.com • www.pipeline.nd.gov

Statistics

<table>
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<tr>
<th></th>
<th>Aug-09</th>
<th>Sept-09</th>
<th>Oct-09</th>
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<tbody>
<tr>
<td>Average Daily Oil Production, BOPD</td>
<td>232,355</td>
<td>238,265</td>
<td>239,067</td>
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<tr>
<td>Average Daily Gas Production, MMCFD</td>
<td>286.66</td>
<td>259.76</td>
<td>253.04</td>
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<td>Wells Producing</td>
<td>4,545</td>
<td>4,579</td>
<td>4,606</td>
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<tr>
<td>Average Rig Count</td>
<td>45</td>
<td>51</td>
<td>56</td>
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</table>

As of December 16, 2008, there are 77 active rigs in North Dakota.

Prairie Rose Pipeline Nears Completion

An unexpected construction specification change has delayed the startup of the Pecan Prairie Rose Pipeline until Mid-January, 2010. The new 75 mile, 12 inch pipeline is designed to transport up to 80 million cubic feet of unprocessed natural gas per day from Mountrail County to an interconnect with the Alliance Pipeline near Towner, ND.

Proposed Baker Storage Enhancement

Williston Basin Interstate Pipeline Company is developing a project to increase firm deliverability from its Baker gas storage field in eastern Montana. With current firm storage withdrawal rates of 115 million cubic feet per day (MMCFD), Williston Basin sees an opportunity to add an additional 125MMCFD of firm withdrawal capacity, which would more than double the firm withdrawal rate from Baker. Along with the gas storage field upgrades, Williston Basin is planning a pipeline expansion to transport the increased, firm storage volumes to an interconnect with the Northern Border Pipeline in North Dakota. The project has a proposed in-service date of 2012 and an open season is expected in January 2010.

Natural Gas Storage Explained

During the mid 1900’s, natural gas grew in popularity as a winter heating fuel. As a result, natural gas markets began experiencing seasonal demand swings that needed to be managed using underground storage operations. Depleted natural gas fields are most often targeted for storage due to existing infrastructure and reservoir knowledge. During the summer months when demand is low, natural gas is injected into storage and when demand increases in the winter months, natural gas is withdrawn for consumer use.
"Pipelines are really the energy lifelines of almost every daily activity. Pipelines play a role in everyone's lives and are essential to the nation's industries. Yet few people are aware of the work done by the country's 200,000-mile petroleum pipeline network that delivers the products that are integral parts of America's economy. It is a network that delivers the nation's crude oil and petroleum products (such as gasoline, jet fuel, home heating oil) reliably, safely, efficiently, and economically." ~ Pipeline 101

To learn more about pipeline operations, safety, construction, and more, please visit:

Supply Line Video
North Dakota Pipeline Authority

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