North Dakota... The rush hour commute
North Dakota Facts

- Statehood: November 2, 1889 - 39th State
- Population: 642,200 - 3rd least populated state
- **Total area** North Dakota: 70704 square miles - 19th largest state
- Capital: Bismarck
- **Agriculture**: Sugar beets, wheat, cattle, barley, sunflowers, milk.
- **Major Industries**: Oil & Gas, Coal, Light Manufacturing
- Largest Cities: Fargo, Bismarck, Grand Forks, Minot, Mandan, Dickinson
North Dakota

- Budget surplus approaching $1B, GDP growth of 7.3%
- Unemployment < 4%, Tax cuts occurring
- Job growth 2005- 5,000  2011- 25,000
- **Open and receptive policy makers**
- NDIC (Governor, AG, Ag. Commissioner) provides stability
- **Pro-business attitude**
- Recently ranked #1 Business Climate in U.S.
- **Promotes incentives, not penalties or barriers**
- Solid Strategy for Job Creation
- ND Petroleum Council and it’s member companies work very closely together to promote the oil & gas industry with very positive results.
Oil Production

• December production = 343,000 barrels of oil per day (BOPD)
  ► North Dakota is now the 4th largest oil producing state
    ■ (after TX, AK, CA)
  ► Previous oil boom in 80’s
    ■ topped out at 148,000 BOPD in August 1984
  ► Currently 163 rigs drilling in North Dakota
  ► Studies indicate there are at least 4 billion barrels in recoverable reserves in the Bakken Formation

• New forecast indicates we will collect $1.4 billion in oil taxes in the current biennium

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Cory Fong, Tax Commissioner
RESERVES: Production could push state past Alaska and California

By JAMES MACPHERSON
The Associated Press
(01/03/11)

BISMARCK, N.D. -- Government and industry officials believe North Dakota's oil patch contains more than twice the amount of oil previously estimated and that the state's already record crude production will double within the decade, putting it ahead of Alaska's.

If the forecast is correct, North Dakota could leapfrog in a few years from the fourth-biggest oil producing state to No. 2, trailing only Texas.

"It's a pretty rosy picture," said Lynn Helms, director of the North Dakota Department of Mineral Resources. "We have a huge amount of drilling still in front of us."

Helms said the state currently is pumping about 350,000 barrels of crude per day and was on pace to produce about 110 million barrels in 2010, up from 79.7 million last year and more than double the amount produced less than three years ago.
H.O. Bakken No.1

(Photos from the William E. "Bill" Shemorry Photograph Collection, property of the Williston State College Foundation; Photo 1, Harry Bakken, mother Mary Bakken, and (standing) Henry Bakken were photographed by the late Bill Shemorry for a story appearing in the Williams County Farmers Press on July 12, 1951, the day before drilling commenced on the H.O. Bakken No. 1; Photo 2, the H.O. Bakken No. 1 as photographed by Bill Shemorry in 1951. )
Sinclair

Productive Bakken sized for rate and recovery

Productive Three Forks Formation
Bakken Horizontal Wells

- Traditional Vertical Well
- Horizontal Well

Bakken Shale

Middle Bakken

Three Forks Shale
Well Fracturing in the Bakken

- 1-4 million gallons of fluid
- 1-4 million lbs of sand
- Open hole, stage completions (15-40 stages), dual laterals (MB & TF)
- 50-110 BPM, 6,000-14,000 HHP
ND average monthly rig count
Rigs operating in ND

164 rigs
(January 7)

- 120 full time jobs supported by each drilling rig
- 1,050-1,250 semi-loads to drill and frac each Bakken well
Nearly 13,000 new jobs were created between 2005-2009.
Total business volume grows from $4.2 billion in 2005 to $12.7 in 2009.
Positive benefits of oil industry viewed favorably

An overwhelming majority (87%) either agree or strongly agree that the oil industry provides positive benefits to the people of North Dakota.
ND oil production & price

1,900 Bakken and Three Forks wells drilled and completed
19,000 – 47,000 more new wells possible in thermal mature area
P90=5 – P50=7 – P10=11 billion barrels
$822 million paid in state/local taxes in ‘09

ND residents received $559 million in lease/royalty payments in ‘09
Oil Taxes

- North Dakota has two oil tax types
  - Oil & Gas Production Tax (GPT) 5%
  - Oil Extraction Tax (OET) 6 ½%
  - Majority of the state’s oil production is subject to the combined 11.5% tax rate
North Dakota Oil & Gas Tax Collections

Trends in Oil and Gas Tax Collections

<table>
<thead>
<tr>
<th>Fiscal Years</th>
<th>Gross Production Tax</th>
<th>Oil Extraction Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>24.8</td>
<td>46.0</td>
</tr>
<tr>
<td>2002</td>
<td>17.1</td>
<td>36.5</td>
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<tr>
<td>2003</td>
<td>22.6</td>
<td>43.5</td>
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<tr>
<td>2004</td>
<td>25.6</td>
<td>47.5</td>
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<tr>
<td>2005</td>
<td>45.6</td>
<td>74.0</td>
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<tr>
<td>2006</td>
<td>61.8</td>
<td>104.4</td>
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<td>2007</td>
<td>67.2</td>
<td>118.8</td>
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<tr>
<td>2008</td>
<td>188.0</td>
<td>209.4</td>
</tr>
<tr>
<td>2009</td>
<td>185.8</td>
<td>221.5</td>
</tr>
<tr>
<td>2010</td>
<td>280.6</td>
<td>302.1</td>
</tr>
</tbody>
</table>

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5% Gross Production Tax

Breakdown of the 1%

- State General Fund 66.7%
- Oil Impact Fund 33.3%

Breakdown of the 4%

<table>
<thead>
<tr>
<th>State General Fund</th>
<th>Oil &amp; Gas Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>$0 - $2,000,000</td>
</tr>
<tr>
<td>25%</td>
<td>$2,000,000 - $3,000,000</td>
</tr>
<tr>
<td>50%</td>
<td>$3,000,000 - $4,000,000</td>
</tr>
<tr>
<td>75%</td>
<td>$4,000,000 - $18,000,000</td>
</tr>
<tr>
<td>90%</td>
<td>Over $18,000,000</td>
</tr>
</tbody>
</table>

Schools 35%
Counties 45%
Cities 20%

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6 1/2% Oil Extraction Tax

60%
State General Fund
($71M cap) per Biennium

Oil & Gas Research Fund
(2% up to $4M cap) per Biennium

Permanent Oil & Gas Trust Fund
($ Over $71M cap)

20%
Water Resources Trust Fund

20%
Education Purposes

50% Common School Trust Fund
50% Foundation Aid Stabilization Fund

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Distribution of 2009-11 Biennial Revenues based on September 2010 Preliminary Forecast

- **Permanent Oil Tax Trust Fund**: $886 Million
- **State General Fund**: $71 Million
- **Counties, Cities, School Districts, Infrastructure**: $168 Million
- **Impact Grant Fund**: $8 Million
- **Oil & Gas Research Fund**: $4 Million
- **Common School Trust Fund**: $69 Million
- **Foundation Aid Stabilization Fund**: $69 Million
- **Three Affiliated Tribes**: $30 Million
- **Resources Trust Fund**: $137 Million

*Distribution of 2009-11 Biennial Revenues based on September 2010 Preliminary Forecast

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Legacy Fund

• Creates a constitutional trust fund – a savings account
• The Legacy Fund will receive 30% of oil tax revenue
  ► Oil and Gas Gross Production Tax
  ► Oil Extraction Tax

• The Legacy Fund Parameter:
  ► Principal & Interest in the Legacy Fund
    ► Cannot be spent until July 1, 2017
  ► Expenditures will require 2/3’s vote (both House & Senate)
  ► Will be limited to 15% spent in any given biennium
What does every new oil well mean to North Dakota?

• A typical ND oil well produces for an average of 37 years.
  ▪ If economical, additional secondary recovery efforts can be made to extend the life of the well.

• In those 37 years, an average oil well:
  ▪ Produces 838,000+ barrels of oil (60 bopd)
  ▪ Generates $57 million in gross profit
  ▪ Pays $5,775,000 in taxes
    • Gross production tax - $2,665,000
    • Extraction tax - $2,813,000
    • Sales tax - $297,000
  ▪ Pays royalties to mineral owners of $9,520,000
  ▪ Pays salaries of $1,552,000
  ▪ Has operating expenses of $1,666,000

• The average cost of completing a well in North Dakota in 2010 was $6.1 million.
Bakken Boom How Big/How Long

• Many Challenges/Opportunities
  – Workers
  – Housing
  – Water
  – Pipeline Space
  – Road Impacts
  – Infrastructure Funding
  – Road Safety – Impatient Drivers
Oil Can! Program

Guiding principles

• Listen first
• Develop partnerships
• Respect others
Oil Can! Program

- Townhall Meetings
- Royalty/Surface Owner Info Center
- Economic Impact Studies
- Drive Safely Campaign
- Legislative Tours
- Teacher/Student Seminars
- Bakken Cookfest
State of North Dakota- Promoting North Dakota’s Oil & Gas Industry

- Bakken tax incentives
- Tribal Tax Agreement
- Bakken water infrastructure planning
- More funding for oil counties
- Willingness to develop tax structures that are simple, competitive, and predictable
- Creating the Oil and Gas Research Council
- Merging the Oil and Gas Division and Geological Survey to form the Department of Mineral Resources
- Creating the Pipeline Authority
- Passing the pipeline footprint bill
- Incentives for natural gas infrastructure
- Shallow gas tax holiday
- CO2 sales tax and extraction tax exemptions
- CO2 storage rules and regulations
- Unitization of Cedar Hills oilfield
- Lowering the unitization requirement to 60%
- Forest Service Permitting Committee
Questions
Direct impact grows from $1.3 billion in 2005 to $4.9 billion in 2009.
North Dakota Oil Price & Production

North Dakota Oil Statistics
Monthly Production and Tesoro Field Price for Sweet Crude
2000 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Price</th>
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<tbody>
<tr>
<td>2000</td>
<td>32.70</td>
<td>$25.78</td>
</tr>
<tr>
<td>2001</td>
<td>31.70</td>
<td>$21.00</td>
</tr>
<tr>
<td>2002</td>
<td>30.80</td>
<td>$21.18</td>
</tr>
<tr>
<td>2003</td>
<td>29.20</td>
<td>$25.97</td>
</tr>
<tr>
<td>2004</td>
<td>31.10</td>
<td>$35.83</td>
</tr>
<tr>
<td>2005</td>
<td>35.50</td>
<td>$51.09</td>
</tr>
<tr>
<td>2006</td>
<td>39.90</td>
<td>$57.86</td>
</tr>
<tr>
<td>2007</td>
<td>45.10</td>
<td>$64.36</td>
</tr>
<tr>
<td>2008</td>
<td>62.70</td>
<td>$89.63</td>
</tr>
<tr>
<td>2009</td>
<td>79.70</td>
<td>$52.36</td>
</tr>
</tbody>
</table>

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Tax rate should be comparable to other oil-producing states

Majority (52%) either agree or strongly agree that the oil industry in ND should be taxed at a rate that is comparable to the taxes charged by other oil-producing states.
Environment protection receives high marks

Majority (72%) either agree or strongly agree that the oil industry in ND takes appropriate steps to protect the environment.
Williston Basin Oil and Gas History

- First production established in 1951
  - Madison Group largest producer
  - Red River, Interlake, Duperow and Tyler very significant as well
  - Conventional structural and stratigraphic plays over time

- Bakken History
  - Conventional traps and “bailout completions” 1950s-60s
  - Depositional edge play 1970s-80s
  - Horizontal wells in upper Bakken shale late 1980s-90s
  - Risky and drilling/completion complications
  - Middle Bakken horizontal wells in Elm Coulee Field, Richland Co., MT 2001
  - North Dakota Middle Bakken 2004-present
  - Driven by drilling and completion technology
Bakken Lithofacies

Tight oil resource play

- Target interval is Middle Bakken
- Consider the complete Bakken interval as a hydrocarbon system (reservoir and source)
- Mixed lithology
  - Dolomite is important
- Produces strictly oil and gas but very tight
  - Perm: 0.010 - 0.125 md
  - Porosity: 4 - 6%
  - Wells have Kh 0.5-8 md/ft over 8000+’ of open hole
Subsurface Structure

- Lodgepole
- Upper Bakken
- Middle Bakken
- Lower Bakken
- Three Forks
- Sanish