40 YEARS

OUTLOOK 2015

40th Annual Economic Outlook Seminar

Presented by Northwestern Energy and the Bureau of Business & Economic Research

THE NEW

AMERICAN ENERGY REVOLUTION

RESHAPING MONTANA

By Patrick M. Barkey
Things Have Changed Since 1976

**Gas Mileage, U.S. Fleet**

- 1976: 12.5 MPG
- 2014: 24.1 MPG

**Energy per Dollar of GDP**

- 1976: 13.3 mBTU
- 2014: 6.2 mBTU

**SO2 Emissions, U.S.**

- 1980: 155 ppb
- 2014: 29.4 ppb
The Revolution is Very Recent

Vehicle-Miles Travelled: Growing Since World War II
Stagnant Since 2007

U.S. Crude Oil Production: Declining since 1970
Up by 92% since 2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Williston Wages Per Job</th>
<th>North Dakota Resource Taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>$32,016</td>
<td>$186 mil.</td>
</tr>
<tr>
<td>2013</td>
<td>$73,057</td>
<td>$3.2 billion</td>
</tr>
</tbody>
</table>
Financial Contributions To Counties via Treasure State Endowment Program Due to Montana Coal Sector

Total TSEP Grants $180.9 million
Total Funded Project Costs $826.1 million

TSEF Grants
- No Grants
- 1 - 1,500,000
- 1,500,001 - 3,000,000
- 3,000,001 - 4,500,000
- 4,500,001 - 6,000,000
- 6,000,001 - 11,000,000

Calendar 2013 Coal Tons
- 0
- 1 - 500,000
- 500,001 - 900,000
- 900,001 - 3,000,000
- 3,000,001 - 6,500,000
- 6,500,001 - 21,000,000

Author: Terry W. Johnson, BBER, Natural Resource & Energy Research Program
Oil Markets Deliver a Surprise

The Global, National and State Economic Outlook

Patrick M. Barkey, Director
Bureau of Business and Economic Research
University of Montana
National and Global Developments

• Best six month performance of the U.S. economy since well before the recession
• Evidence of stronger, more bullish small business activity
• Global outlook dims
• Declining oil prices reverberating around the world
Economic Performance Finally Meeting Expectations
Forecasts of U.S. Real GDP Growth, Percent

Source: IHS, Inc.
U.S. Labor Market is Getting Better

**Quarterly Job Growth, U.S.**

- **10.5 million jobs**

**Working Part-Time for Economic Reasons, U.S.**

- **04 06 08 10 12 14**
Taking a Tour of Global Growth, 2007

Real GDP Growth, Percent

- Canada: 2.0%
- United States: 1.8%
- Mexico: 1.8%
- Eurozone: 3.1%
- Russia: 8.5%
- China: 14.2%
- Japan: 2.2%
- Brazil: 9.8%
- India: 9.8%
Taking a Tour of Global Growth, 2009

- United States: -2.8%
- Brazil: -0.3%
- Canada: -2.7%
- Eurozone: -4.5%
- Russia: -7.8%
- Japan: -5.5%
- China: 9.2%
- India: 8.5%
Taking a Tour of Global Growth, 2014

Real GDP Growth, Percent

- United States: 2.2%
- Brazil: 1.5%
- Japan: 0.4%
- Canada: 2.4%
- Eurozone: 0.8%
- Russia: 0.5%
- China: 7.6%
- India: 5.5%
U.S. Outlook Summary

• Self-sustaining cycle of income growth and consumer spending
• Stronger dollar
• No inflation
• Higher interest rates
• An island of growth in the global economy for how long?
Montana’s Growth: More Balanced, but Slower

- Growth patterns starting to look more like ten years ago
- The commodity boom is over, will agriculture prices follow?
- Labor markets are quietly getting tighter
- Tourist and visitor spending growth appears healthy
- Bakken price point has been reached
MOVIE TICKETS \$9.00
CONCERT SEATS \$80.00
WATER IN A BOTTLE \$1.50
LATTE \$4.00
FOAM \$4.25
HAZELNUT \$5.00
STADIUM BEER \$7.00

Actually, most prices look outrageous when you put them on tall signs in big numbers.
IMF Commodity Price Indices (2005 = 100)

Source: International Monetary Fund
Oilfield Investments Have Been a Big Driver of the U.S. Economy

Oilfield Investment Share of Nonresidential Structures Investment, U.S.
Investment Response to Price Shock

Percent

Quarter

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Excluding Mining and Oil

Total

Mining and Oil

Percent

-8.00 -7.00 -6.00 -5.00 -4.00 -3.00 -2.00 -1.00 0.00 1.00 2.00
Richland 15.4%
Gallatin 6.4%
Madison 10.2%
Yellowstone -1.6%

Montana’s Recent Growth
Percent Change in Real Wages and Salaries

Fiscal Year

-2 -1 0 1 2 3 4

2008 2009 2010 2011 2012 2013 2014
Montana Growth in Real Wages, FY2013-FY2014, $ Millions

- Total
- Agriculture and Fish
- Mining
- Utilities
- Construction
- Manufacturing
- Wholesale Trade
- Retail Trade
- Transportation & Warehousing
- Information
- Finance
- Real Estate
- Professional Business Services
- Management of Companies
- Administrative Support
- Education
- Health Care
- Arts & Entertainment
- Accommodations & Food
- Other Services
- Public Administration
Where’s the Growth?
Total Real Wage Growth, $ million

Difference between Inflation-adjusted Wages and Salaries, FY2014 vs. FY2013
Decomposing Oil and Gas Growth

Montana Oil and Gas Earnings by Year

- Total
- Extraction
- Support
- Drilling

$ Millions

2005 2006 2007 2008 2009 2010 2011 2012 2013
Outlook for Key Industries

Energy and Mining:


Composition of Earnings in Montana’s Basic Industries, 2012-14
Agriculture and Related:

Coming off a tremendous financial year.

Composition of Earnings in Montana’s Basic Industries, 2011-13
Tracking Montana’s High Tech Companies

Bee Alert Technology
Purity Systems, Inc.
Sunburst Sensors
Rivertop Renewables
Visual Learning Systems
Endobiologics
AquilaVision
TerraEchos
Transynaptic Technologies
GT NeuroPharma
Sinapis Pharma
Submittable

Oracle
Microbion
Siafu Technology
Montana Molecular
Ticket River
Zoot Enterprises
Elation Corp.
Montana Photonics
LMG Security
Change in Nonfarm Earnings, Montana, 2012-2018

<table>
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<tr>
<th>Year</th>
<th>Actual</th>
<th>Projected</th>
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<tbody>
<tr>
<td>'12</td>
<td>3.6</td>
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<tr>
<td>'13</td>
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<td>2.8</td>
<td>2.6</td>
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<tr>
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<td>2.5</td>
</tr>
<tr>
<td>'17</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>'18</td>
<td>2.5</td>
<td></td>
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Questions?