The Montana Oil Boom: Community Prospects, Revenue and Tax Policy

By MARK HAGGERTY AND JULIA HAGGERTY, PhD

Associated Press Photo

Headwaters Economics is an independent, nonprofit research group based in Bozeman, Montana. Our mission is to improve community development and land management decisions in the West.

Community Prospects

"A few years ago, [we] set a goal that Mountrail County would be a better place to live and work as this oil play works itself out over the next 30 years."

-Dave Hynek, County Commissioner, Mountrail Co., ND

Feb. 12, 2012

Photo: N. Shipman

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Community Prospects

Photo: R. Dawson

Community Prospects

Oil field waste poses new challenge for eastern Montana

Mar 1, 2013 | 8 Comments

There are about 5,000 oil wells in western North Dakota and eastern Montana producing around 700,000 barrels of oil a day, according to the U.S. Energy Information Administration. The Bakken oil boom also produces tens of thousands of tons of industrial waste annually — everything from oil-soaked rags to rusting drilling equipment.

How to dispose of this constant stream of

Community Prospects

Photo: A. Gulliford

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Community Prospects

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Western Colorado Struggles as Energy Jobs Fade

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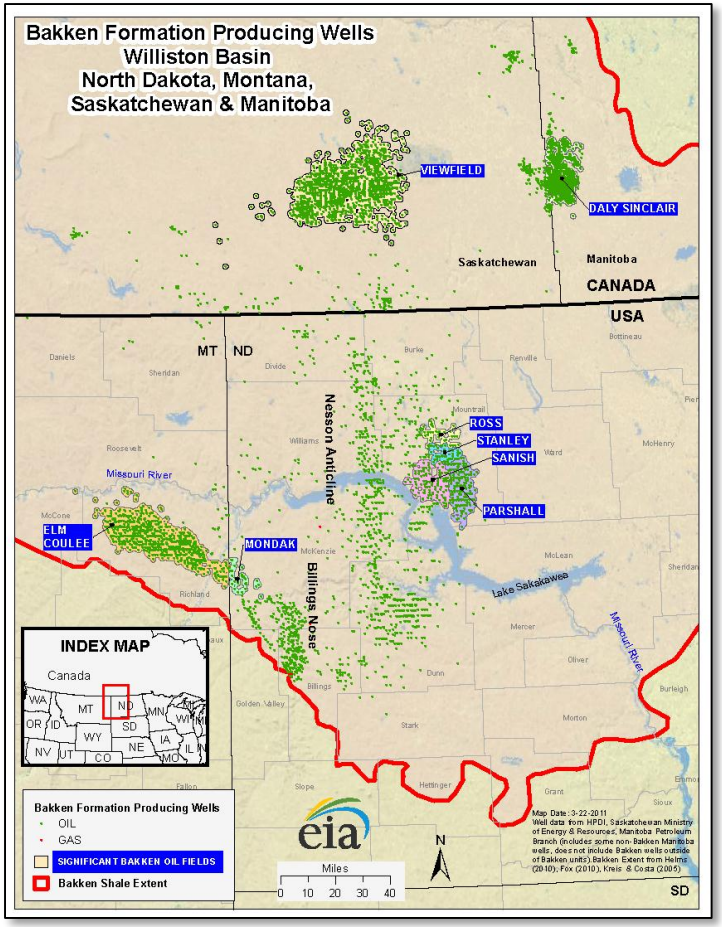
Overview



1. What Makes Today's Shale Booms so "Big"?
2. State Energy Taxation Strategies and their Impacts
3. Current Issues in Montana

HEADWATERS ECONOMICS

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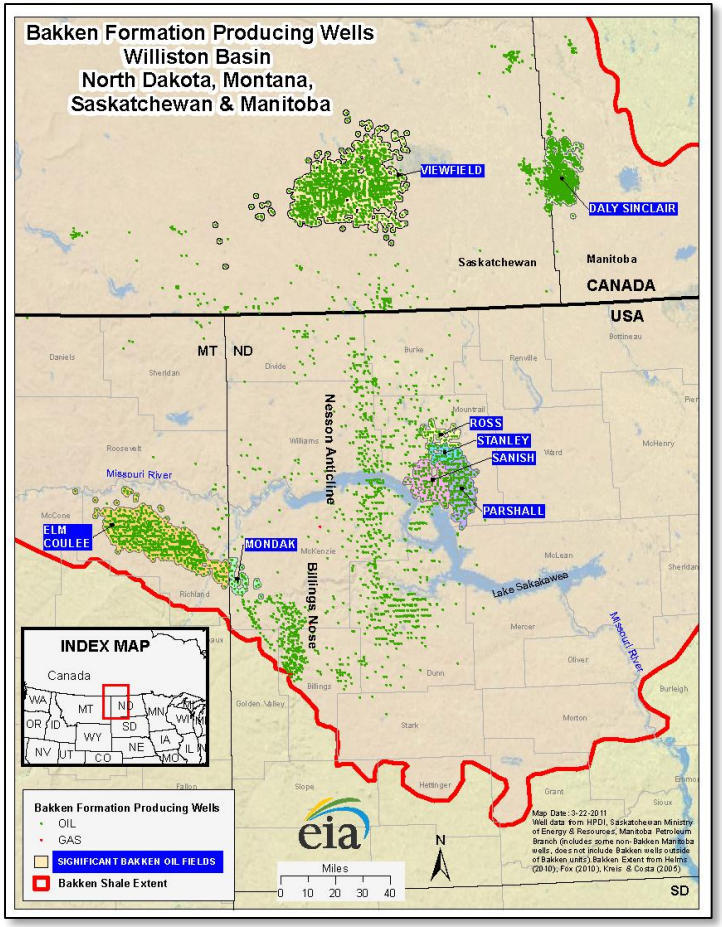

1. **What Makes Today's Shale Booms so "Big"?**
2. State Energy Taxation Strategies and their Impacts
3. Fiscal Policy in Practice: State Comparisons

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Today's Shale: Bottom of Resource Triangle

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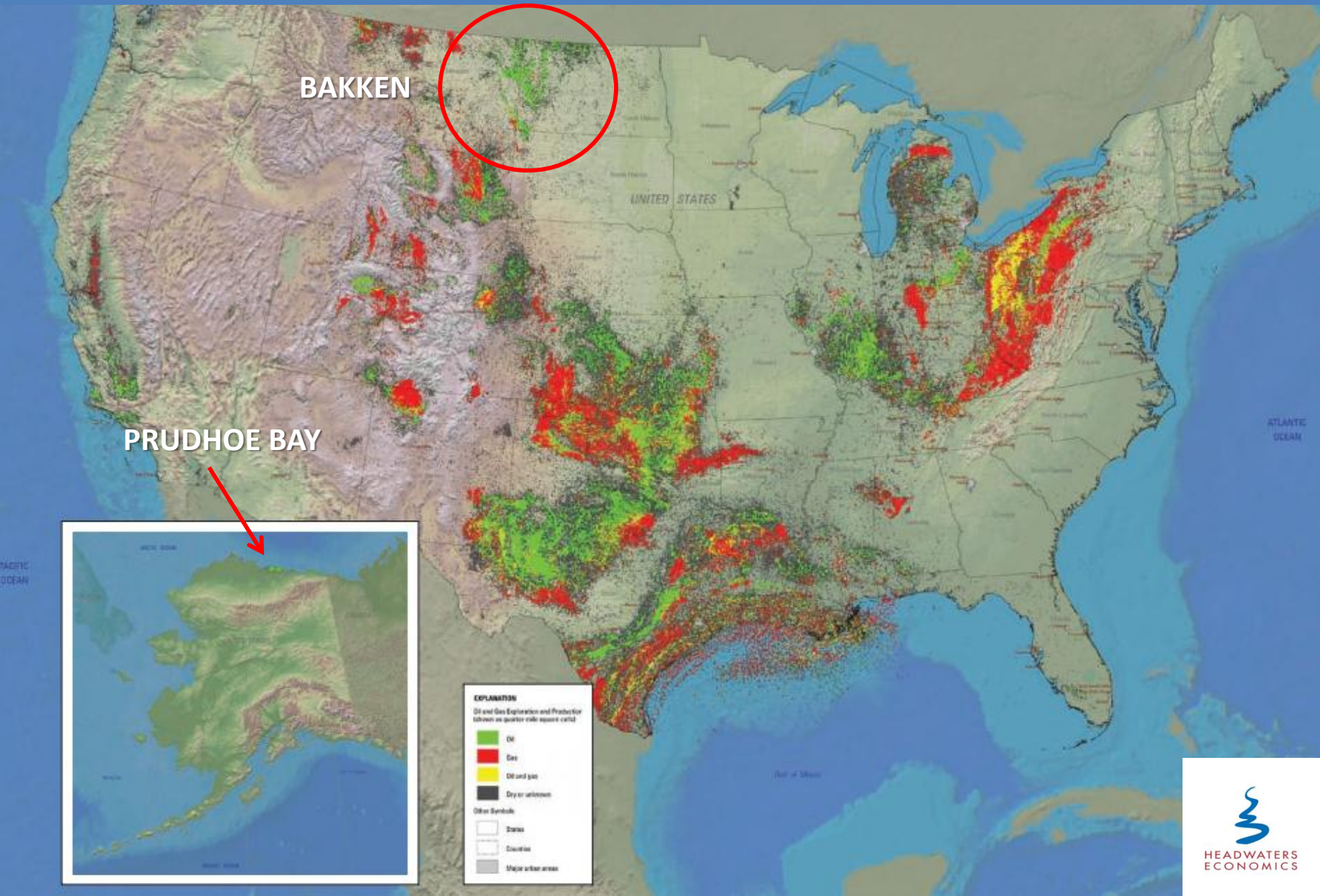
Today's Shale: Bottom of Resource Triangle



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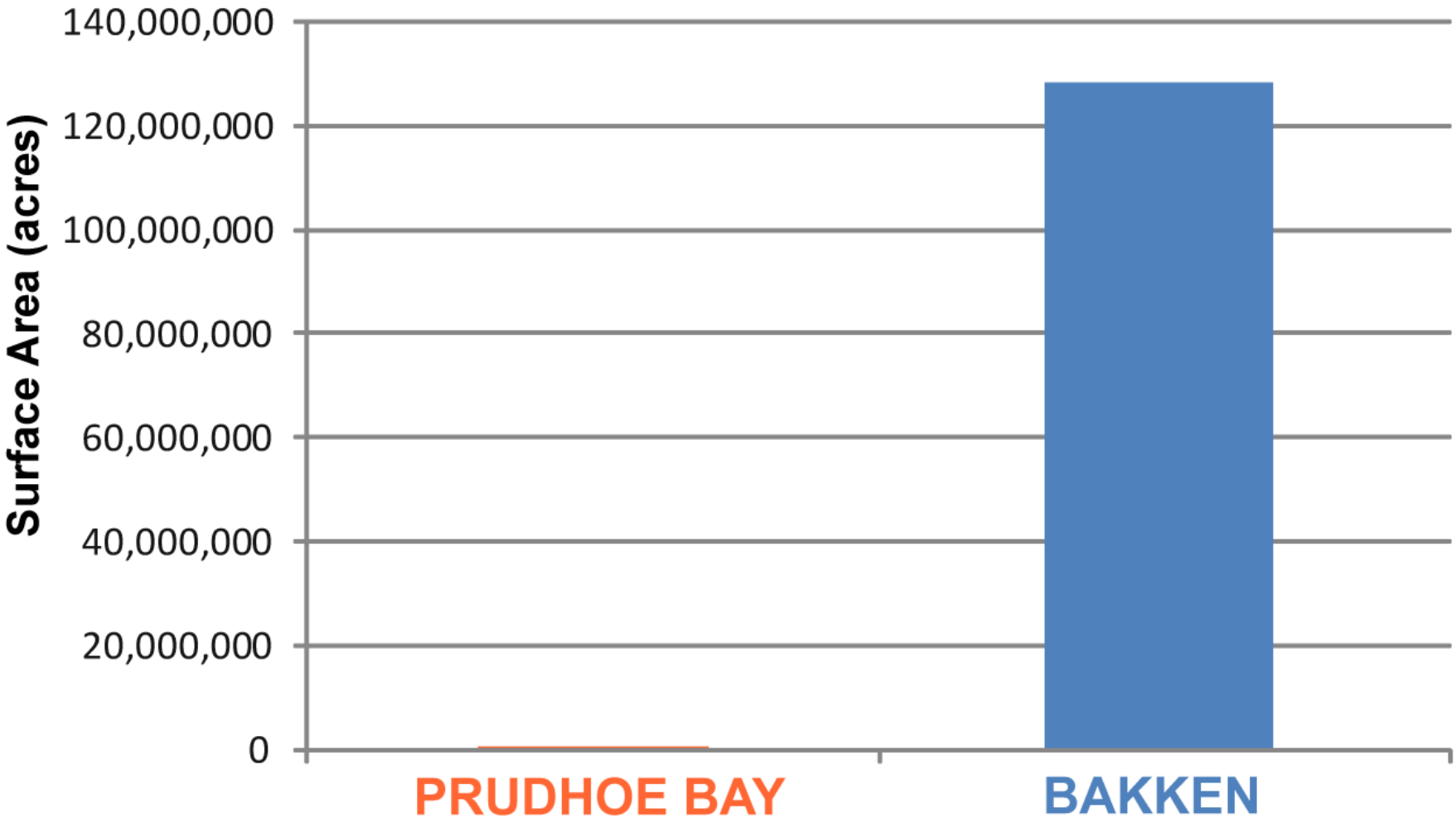
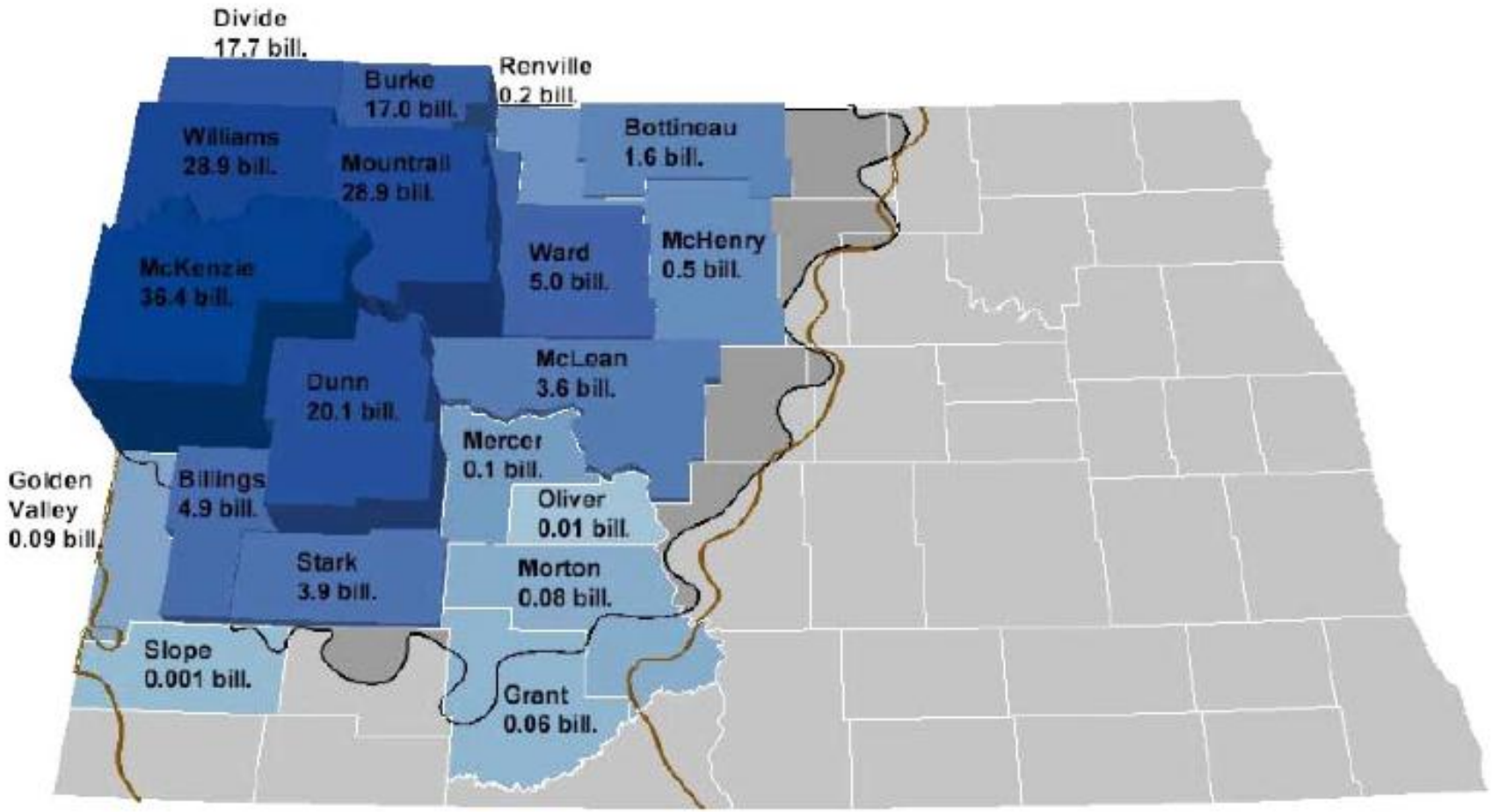
Today's Shale: Dispersed

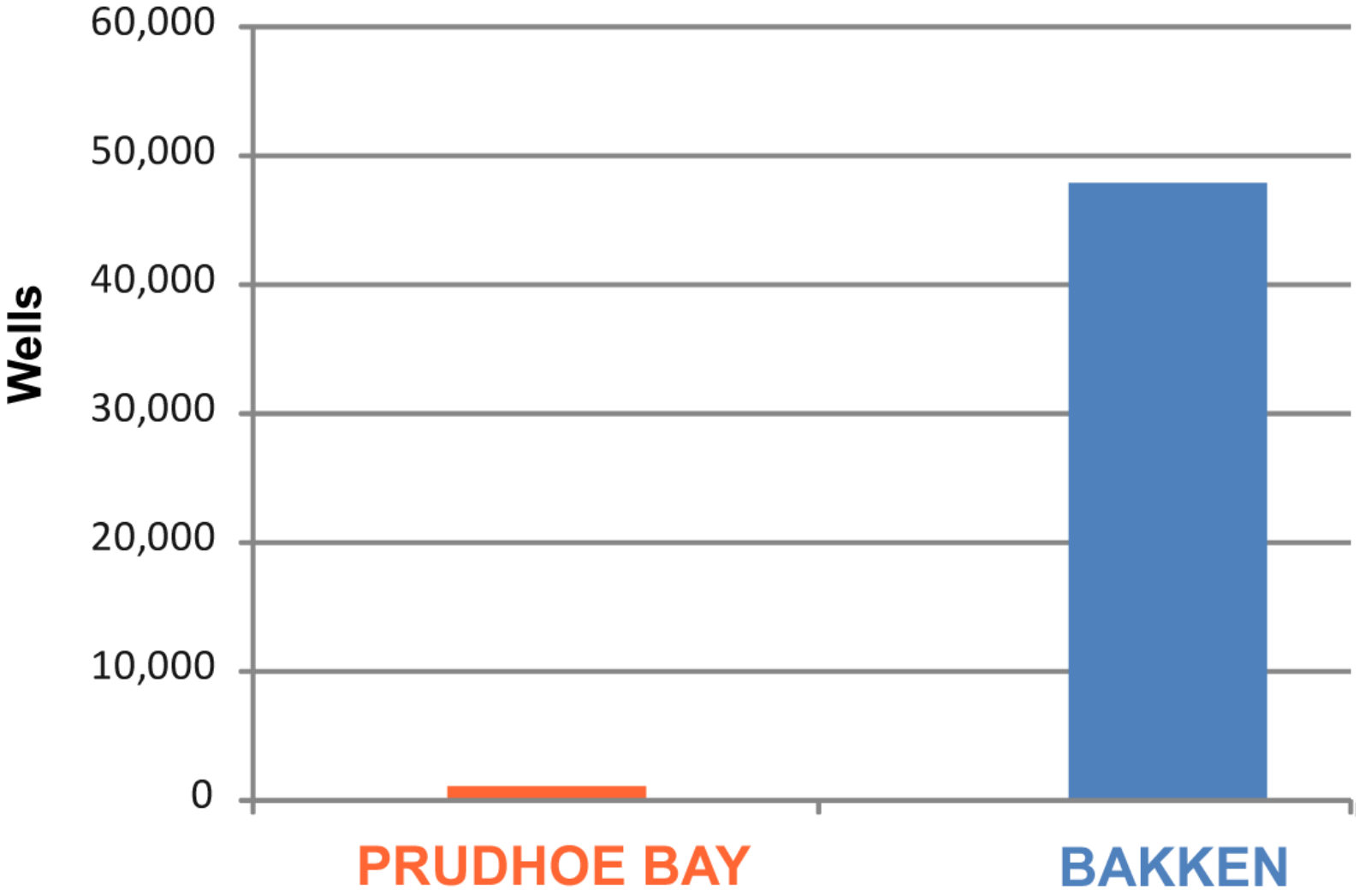


Today's Shale: Uneven

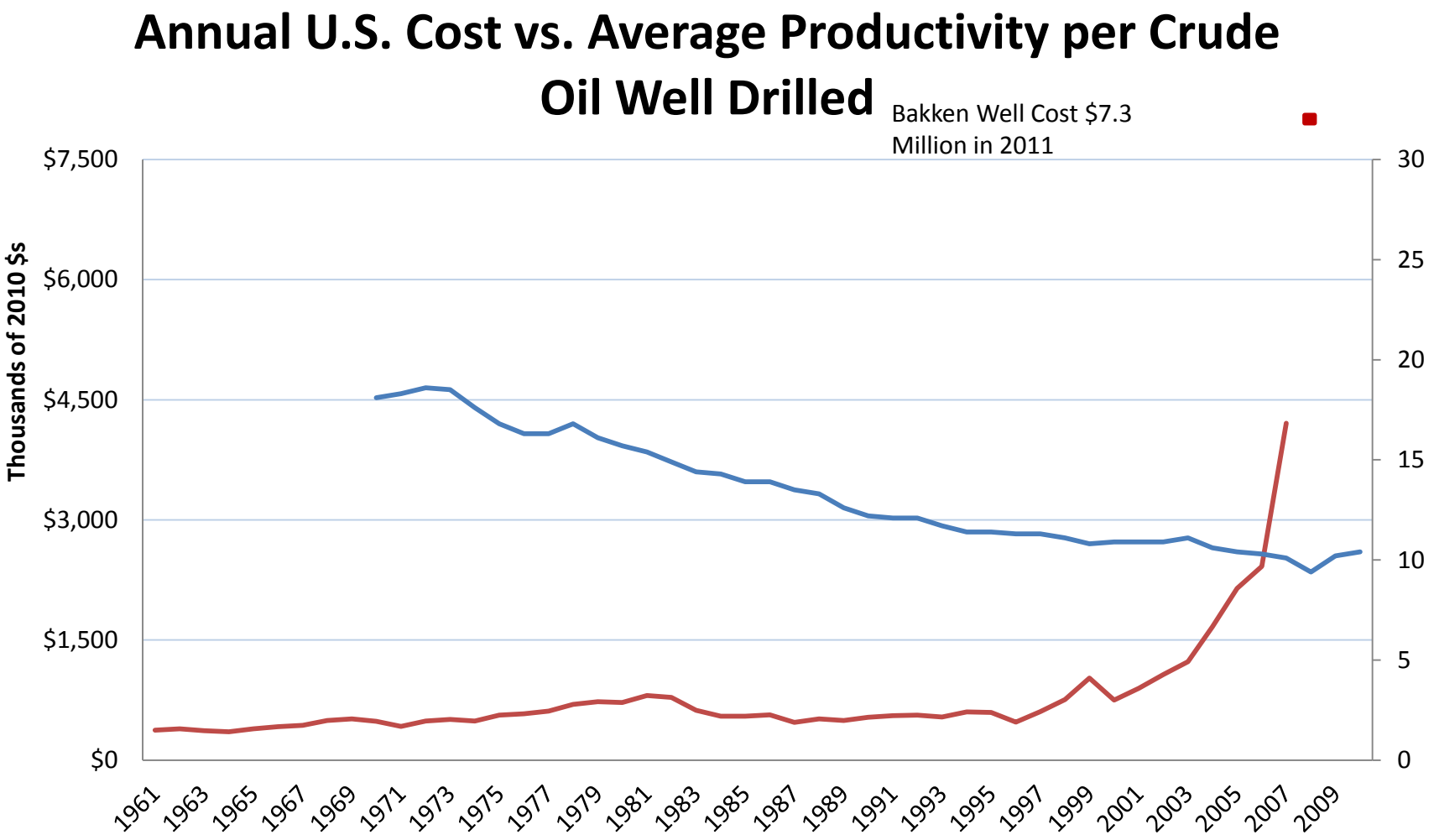


Source: North Dakota Department of Mineral Resources, Oil and Gas Commission, estimates of original oil in place by county. https://www.dmr.nd.gov/oilgas/presentations/ActivityandProjectionsWilliston2010-08-03.pdf

Today's Shale: Intensive Production



Today's Shale: Costly



EIA, Cost of Crude Oil and Natural Gas Wells Drilled and Lynn Helmes, Director North Dakota Oil and Gas Commission.

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Today's Shale: Offshore Model

Photo: Watford City Housing

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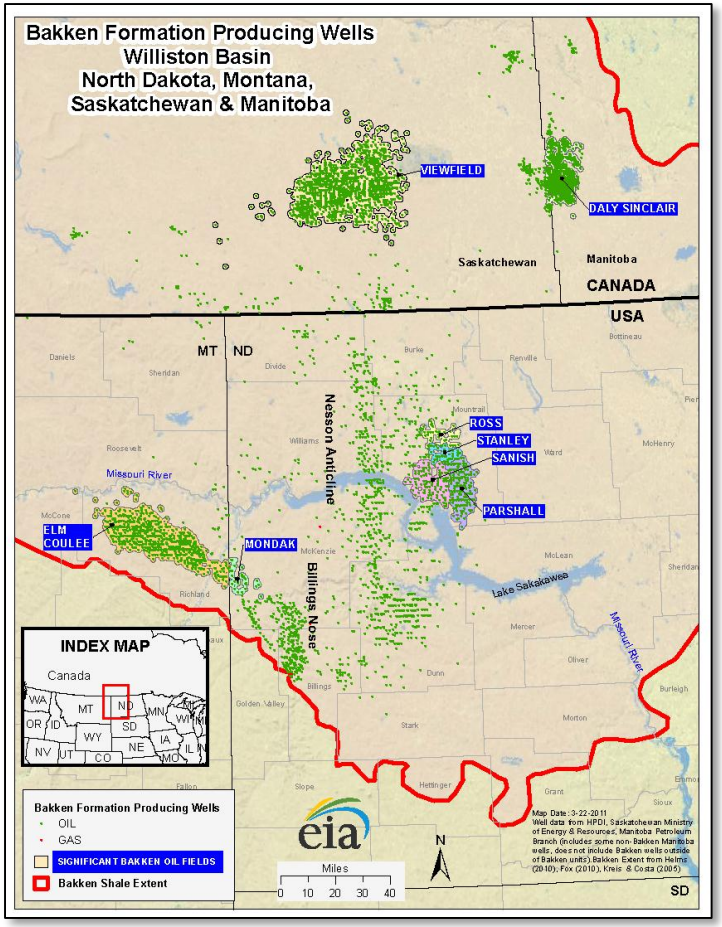
Today's Shale: Community Prospects

Photo: Richland County, MT.

Overview



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Why Fiscal Policy Matters to Community Prospects

One: Fossil fuel extraction pays its way through effective impact mitigation.

Two: Fossil fuel extraction supports economic diversification and resilience.

Three: Fossil fuel extraction leaves a lasting legacy in the form of a permanent fund.

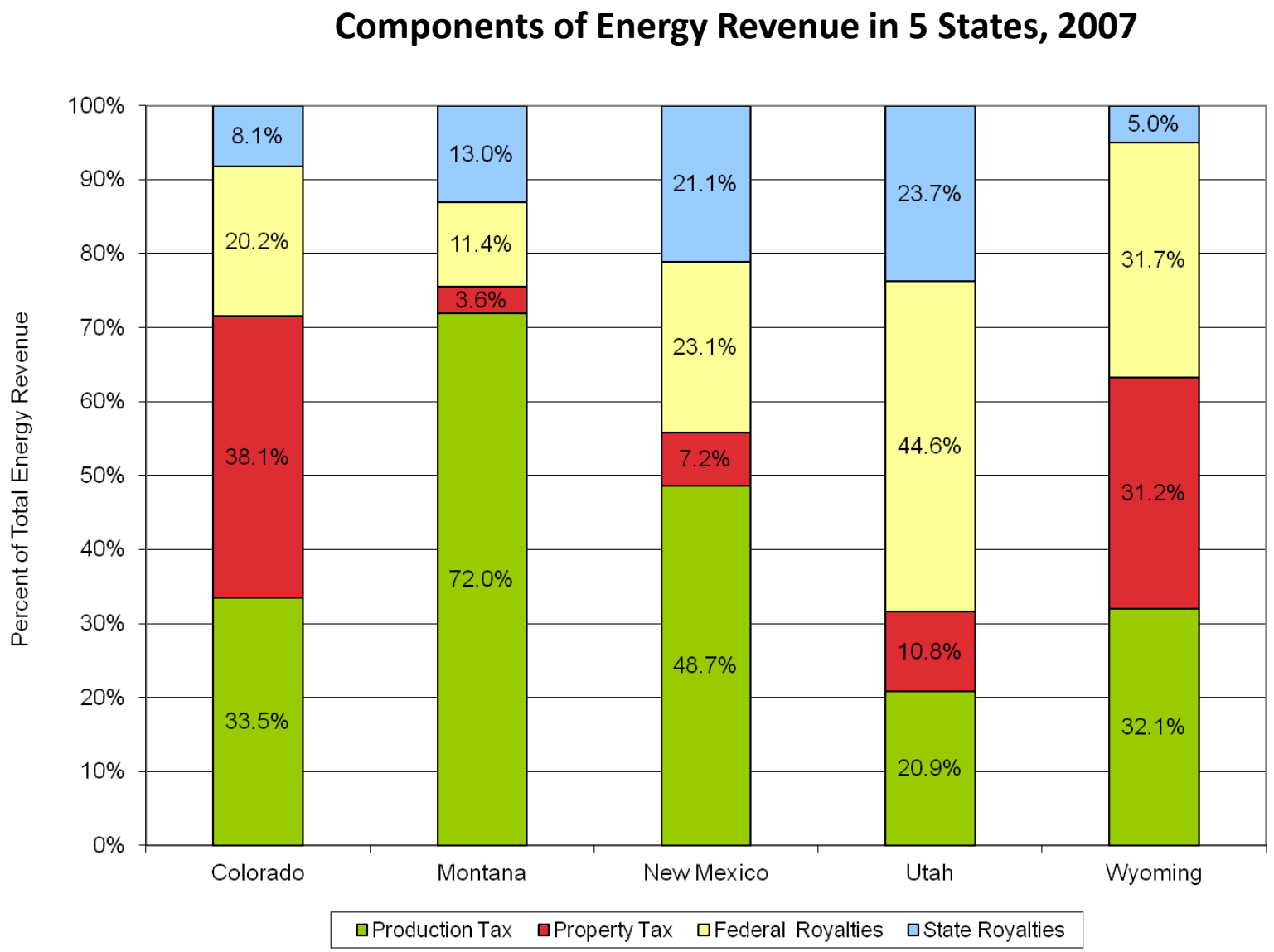
Components of Energy Taxation

Production (Severance) Taxes: State tax on value of resource extracted. Compensation for value of lost wealth.

Royalties: Leases, bonuses, rents, collected by federal, state, tribal, private landowners.

Property Taxes: Tax on resource as well as business property (e.g., pipelines, equipment, etc.)

Components of Energy Taxation



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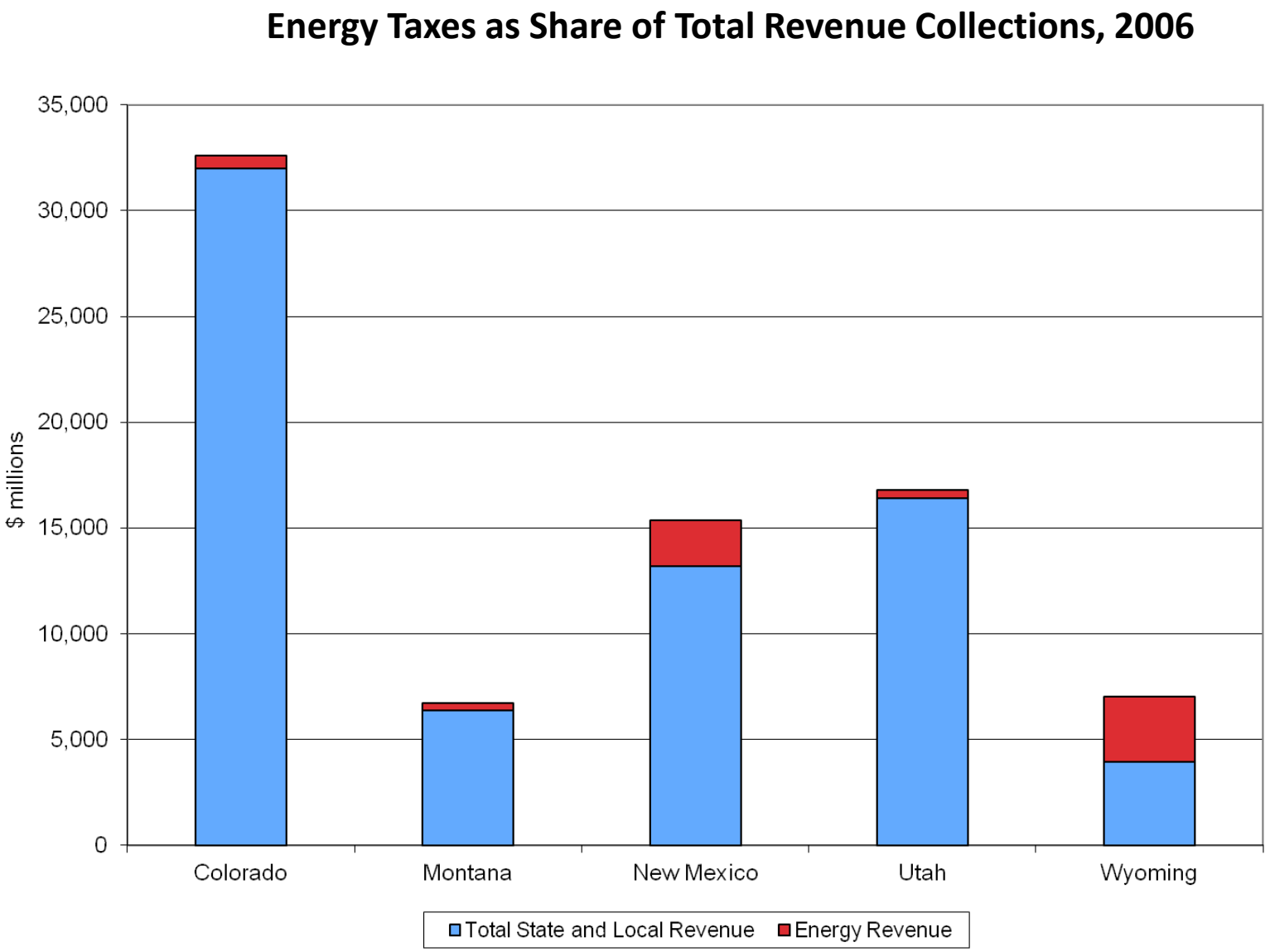
Components of Energy Taxation



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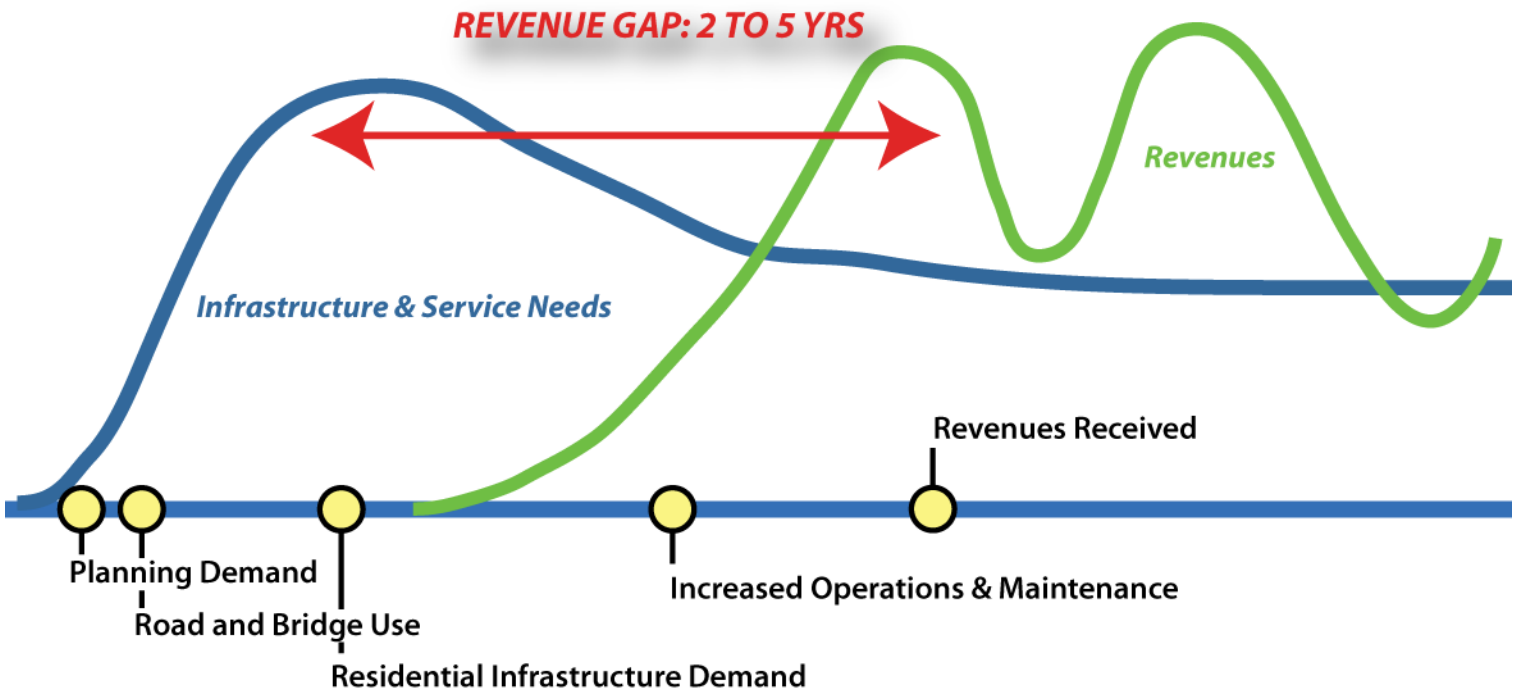
Obstacles to Effective Fiscal Policy

1. Timing
2. Distribution
3. Volatility
4. Amount

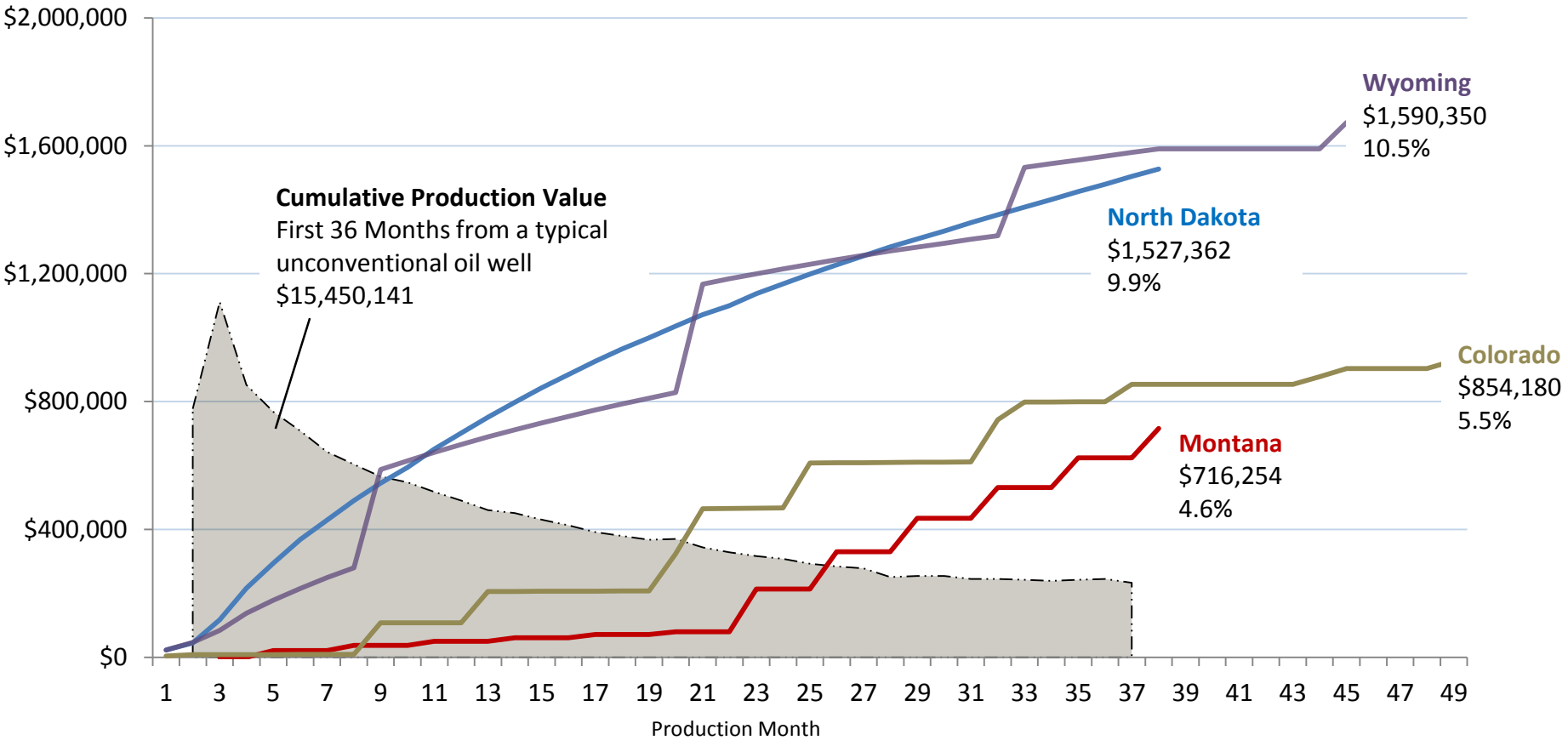
Timing



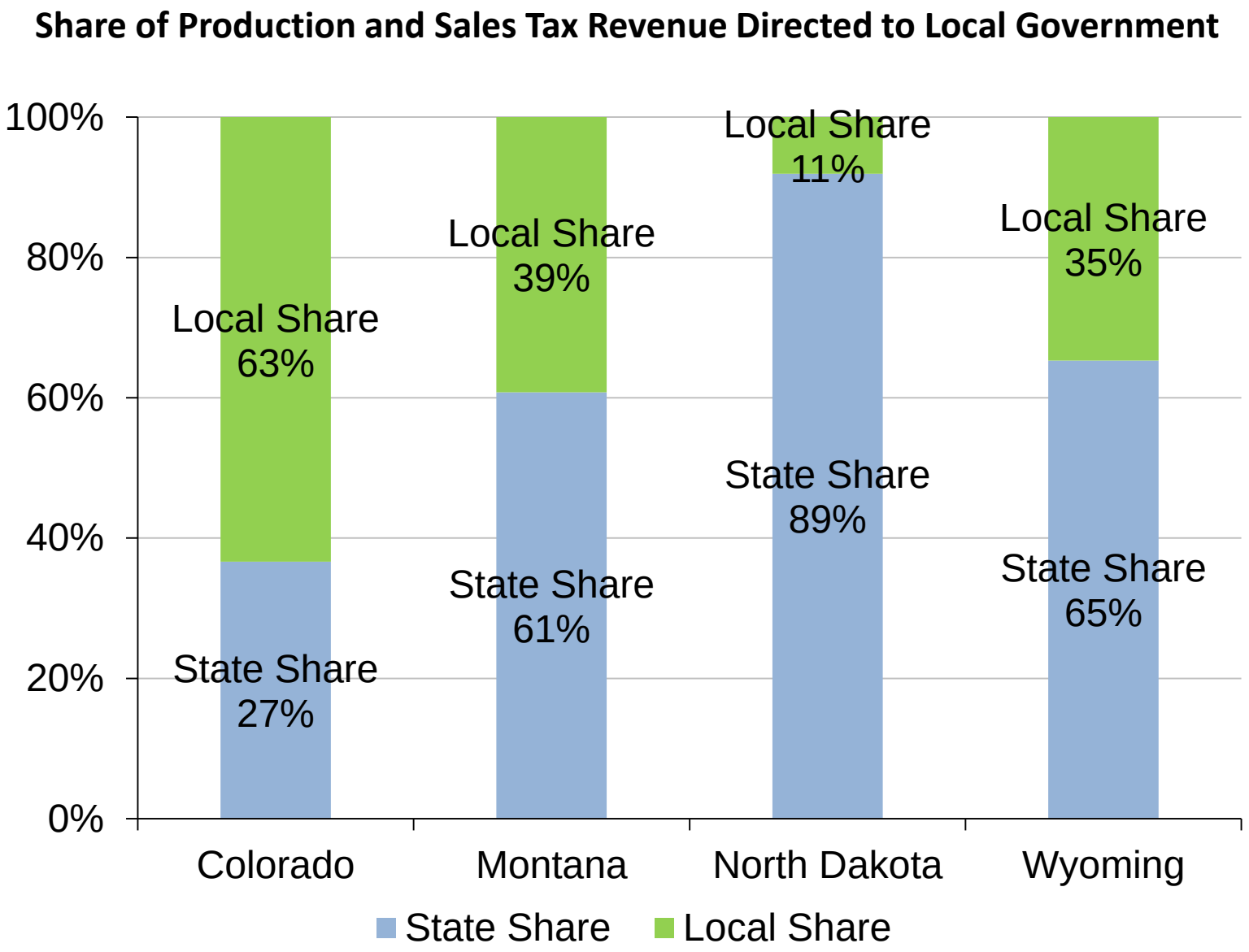
Adapted from BBC Research & Consulting, 2008

Revenue Timing

Impact of State Energy Tax Policies on Potential Collections using Value of Production of a Typical Unconventional Oil Well over 36 Months



Distribution



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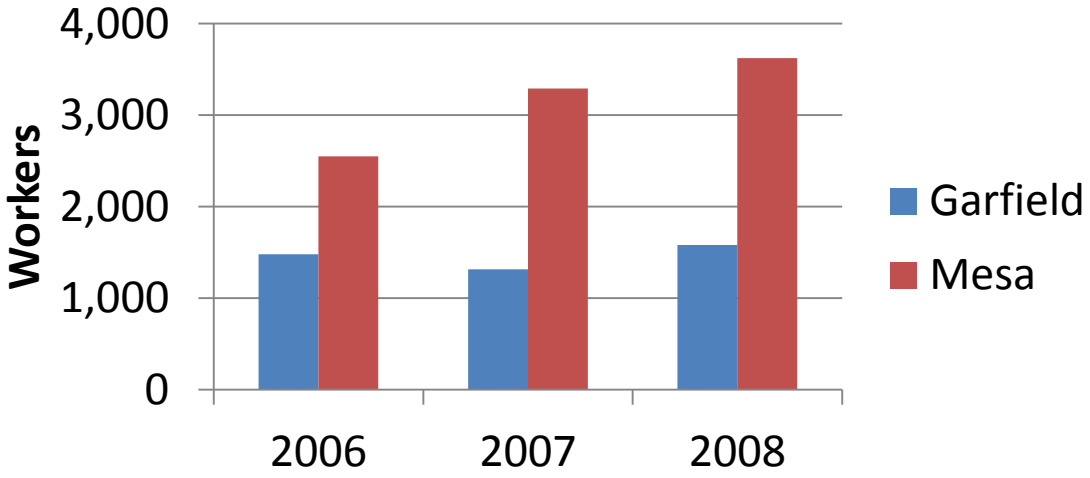
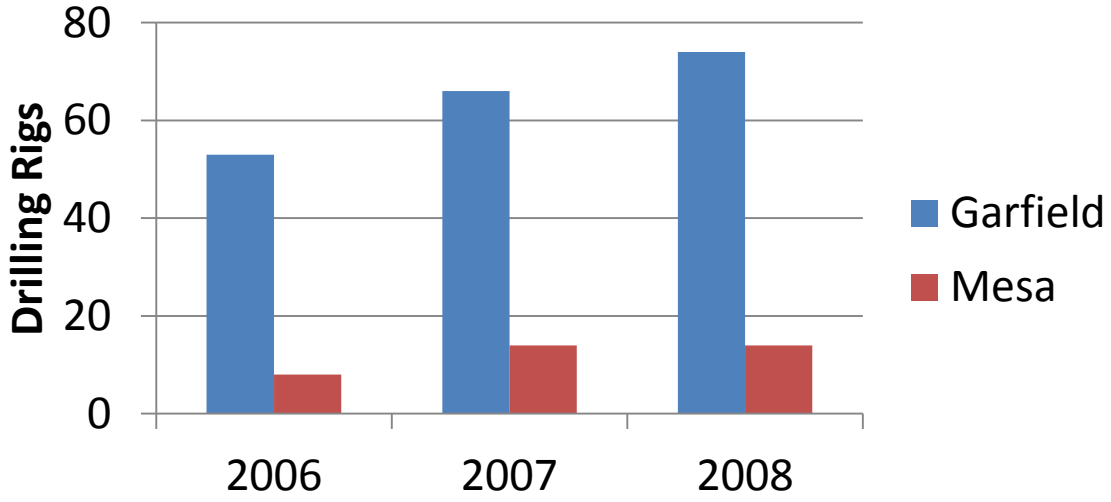


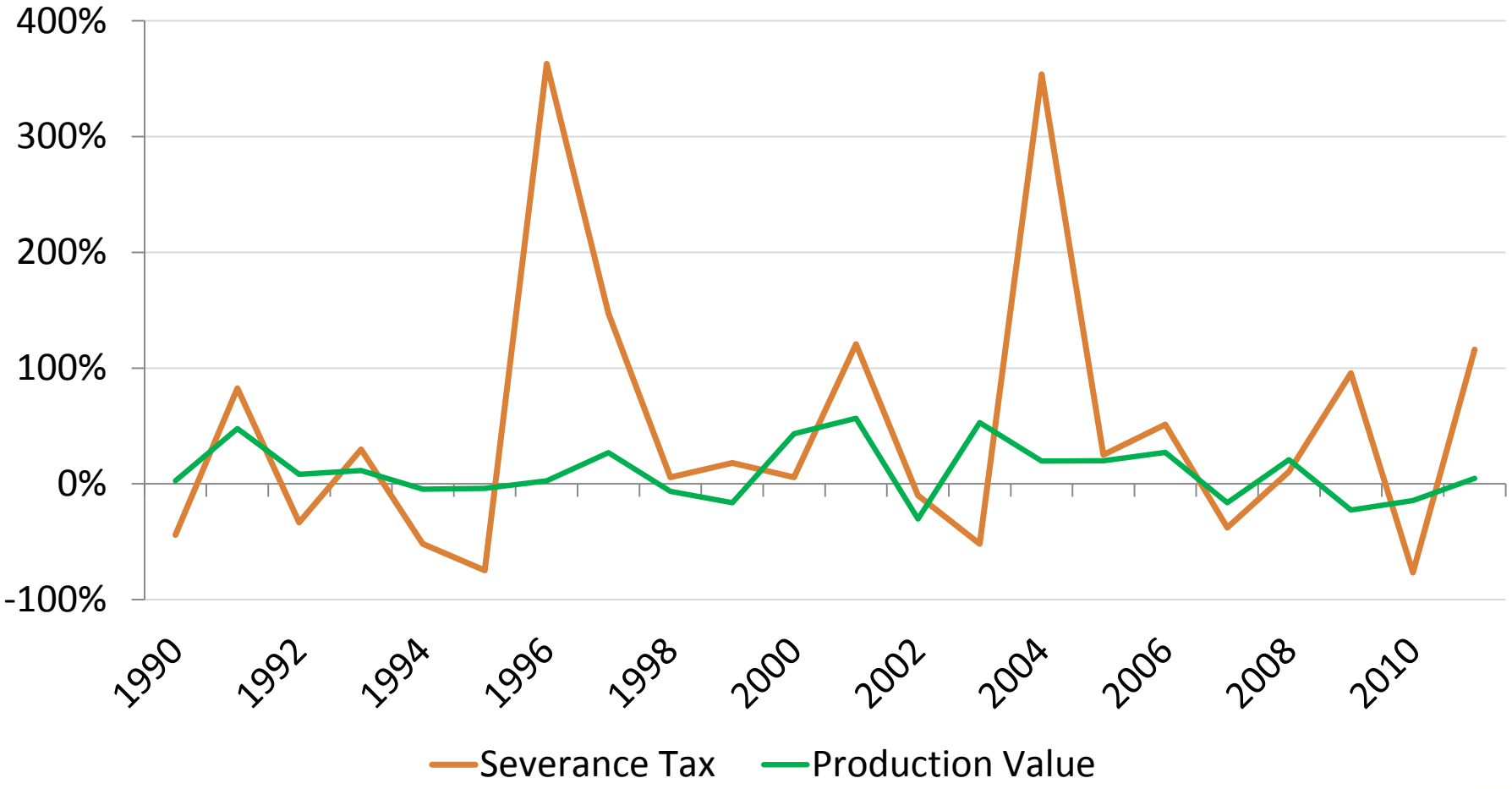
Oil and Gas Workers by Place of Residence



Drilling Activity by County

Volatility

Annual Percent Change in Natural Gas Severance Tax Collections and Production Value, Colorado, 1990–2011



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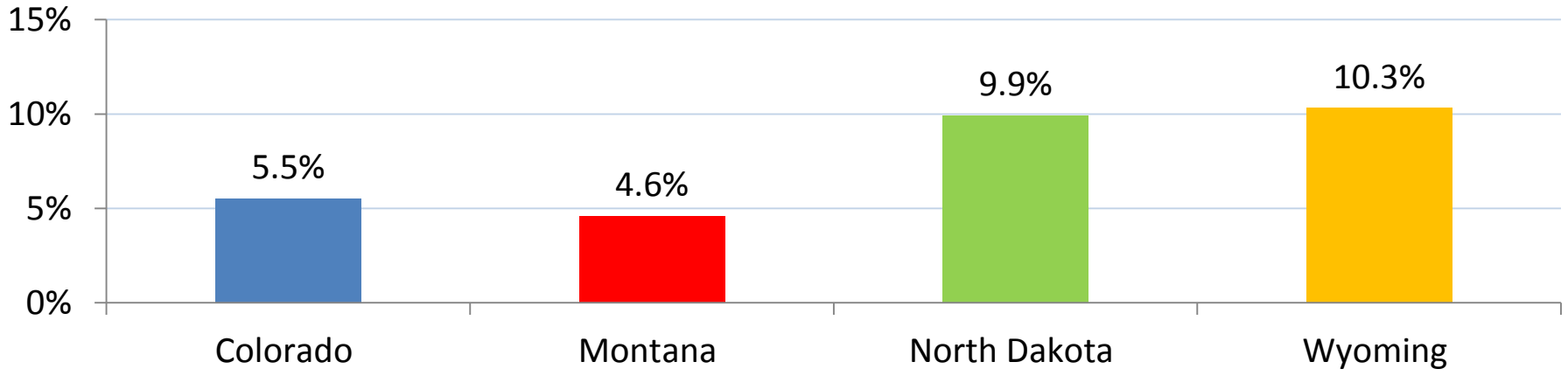
Amount

Tax Revenue Generated from an Average Horizontal Oil Well | 4 States Compared

AVERAGE WELL PERFORMANCE (First 36 Months)	North Dakota	Montana	Colorado	Wyoming
Cumulative Production Value	$15,450,141	$15,450,141	$15,450,141	$15,450,141
Cumulative Tax Revenue	**$1,527,362**	**$716,254**	**$854,180**	**$1,590,350**
Average Effective Tax Rate	9.9%	4.6%	5.5%	10.3%
Average Time Lag	1.5 mo.	2.5 mo.	10.5 mo.	5 mo.



Source: geoLOGIC Data Center (http://www.geologic.com/solutions/data/index.htm) and North Dakota Office of State Tax Commissioner (http://www.nd.gov/tax/oilgas/) . Data analysis by VISAGE (http://www.visageinfo.com/) and Headwaters Economics (www.headwaterseconomics.org)

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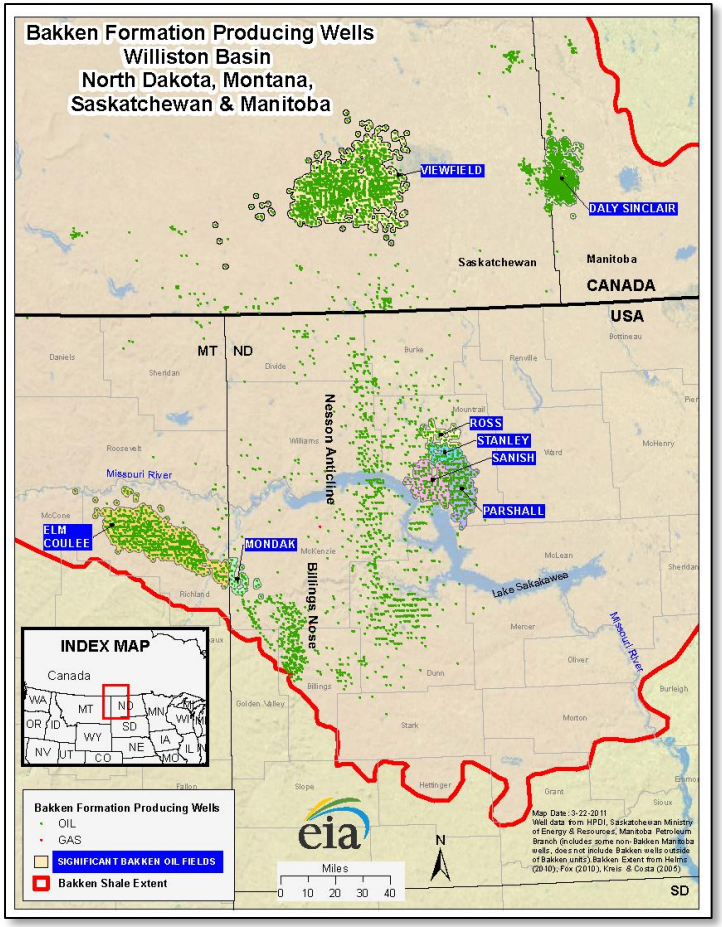
Overview



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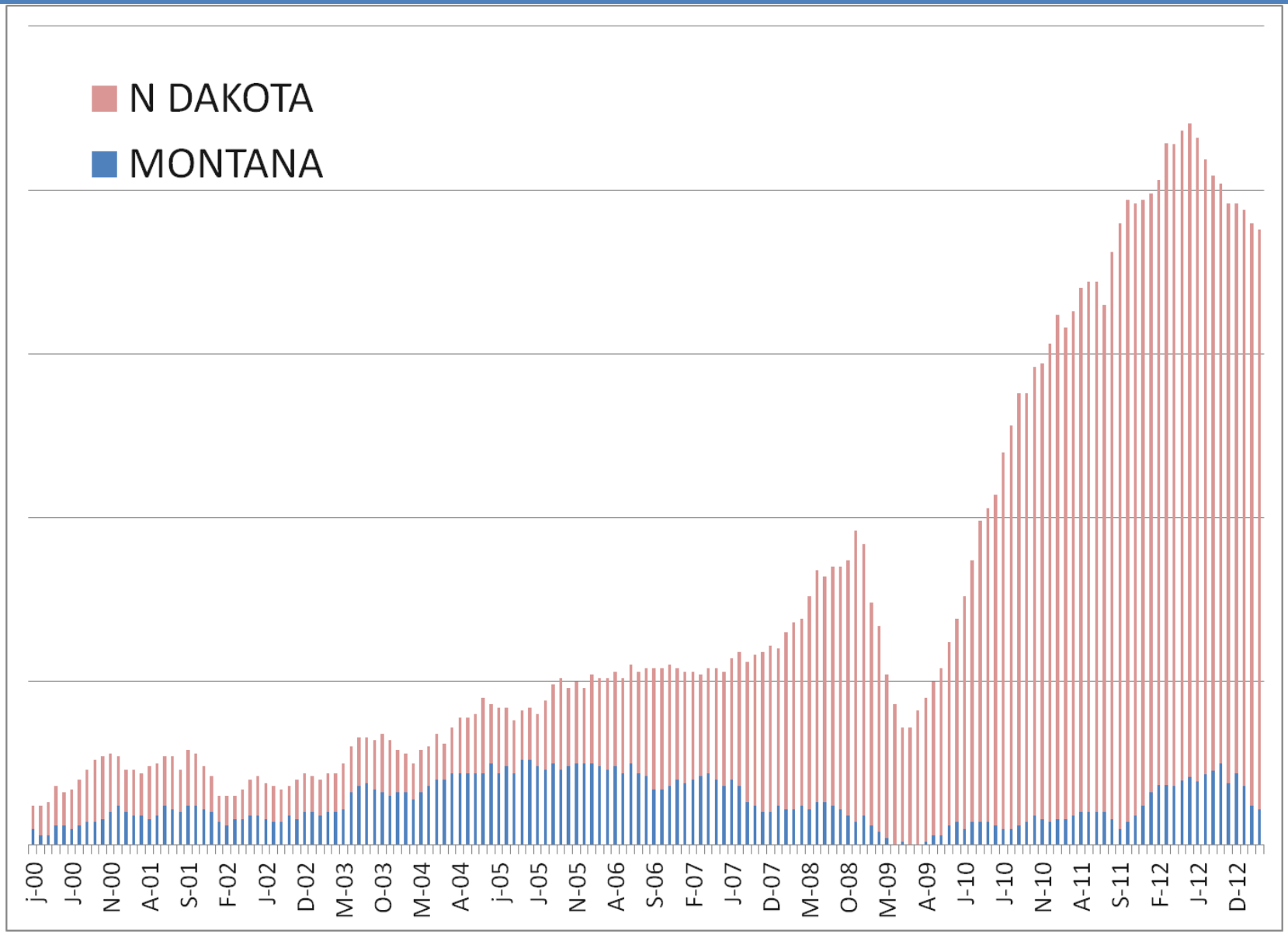
Rig Activity, MT and ND, 2000-Mar. 2013

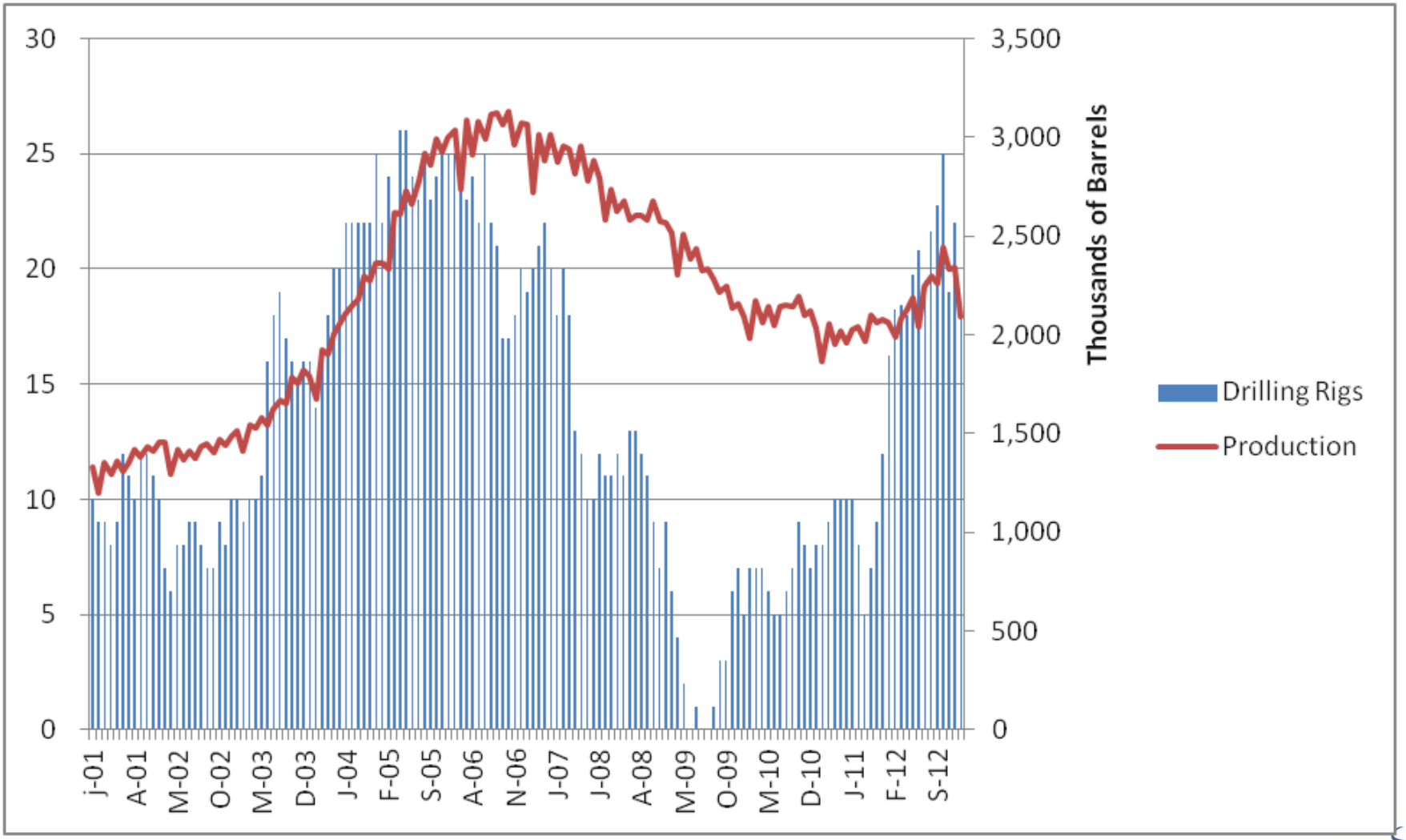


Source: Baker Hughes

HEADWATERS ECONOMICS

Monthly Rig Activity and Average Monthly Production, 2001-2012

MONTANA



Source: Baker Hughes, MT Board of O&G Cons.

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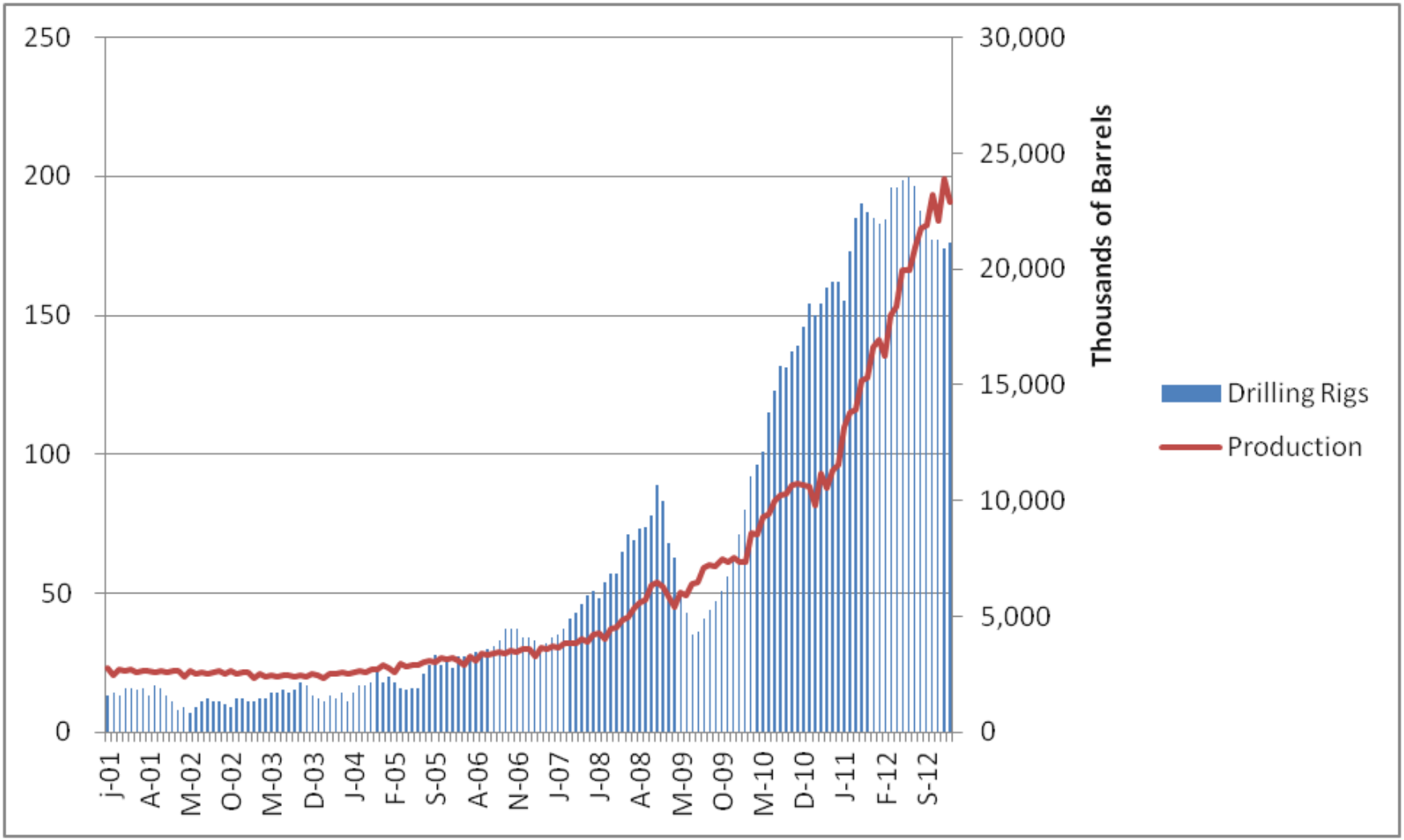

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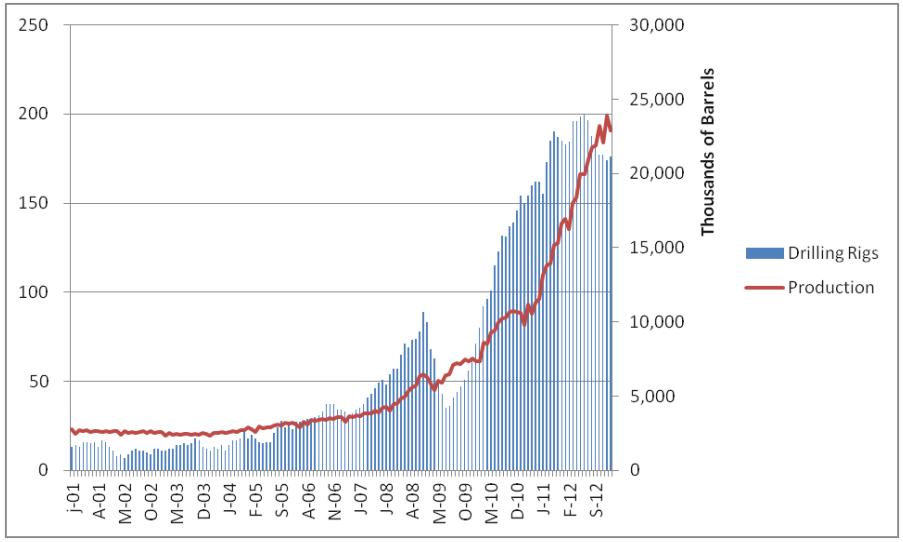

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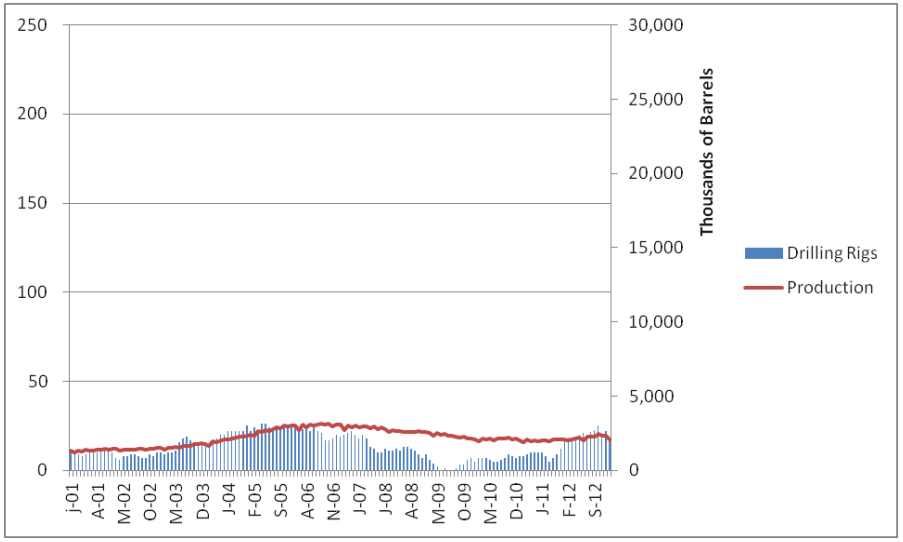
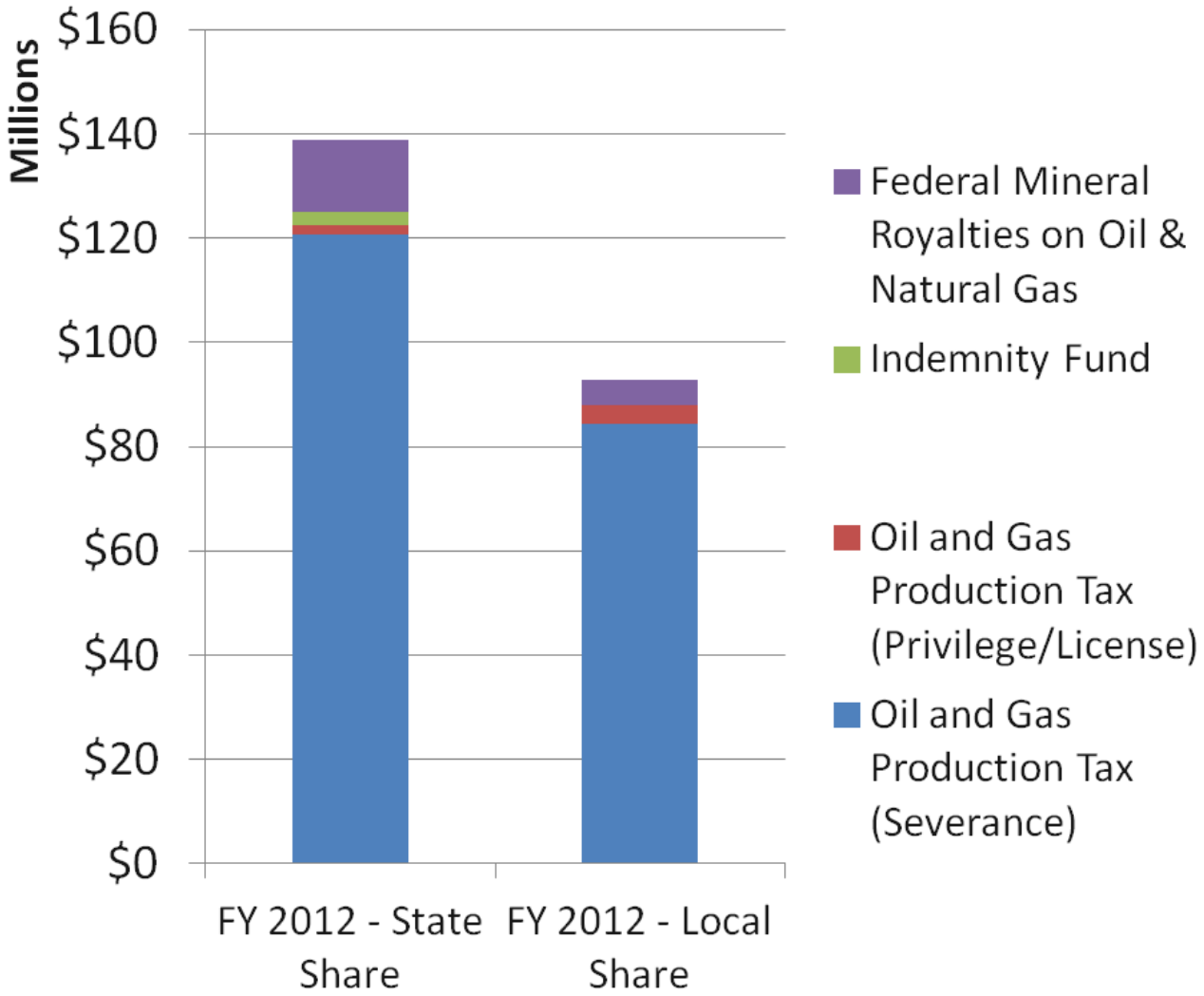


Source: Baker Hughes, MT Board of O&G Cons.

Oil and Gas Revenue in Montana

Source and State-Local Share of Montana Oil and Gas Revenue, FY 2012



Source: MT Department of Revenue Biennial Report, July 1, 2010-June 30, 2012. Federal Royalty Data from U.S. Dept of Interior, BOERM.

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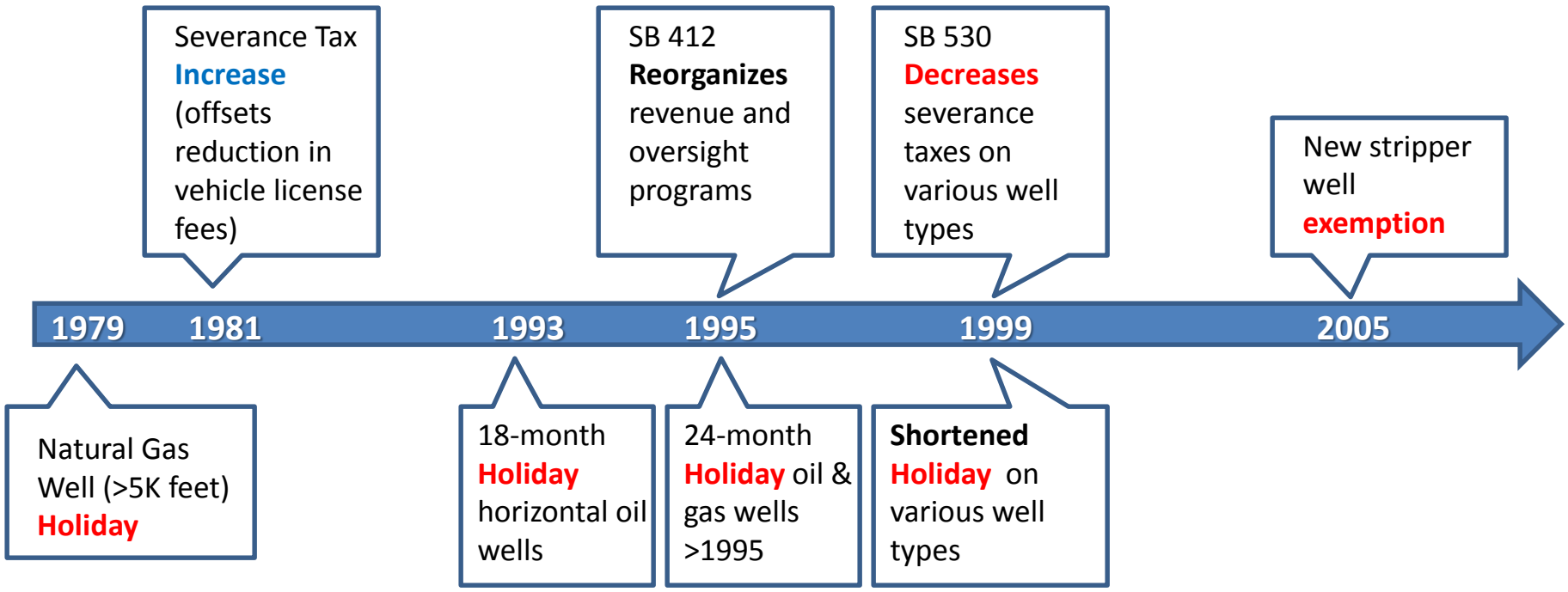
Policy Developments in Montana Energy Taxation



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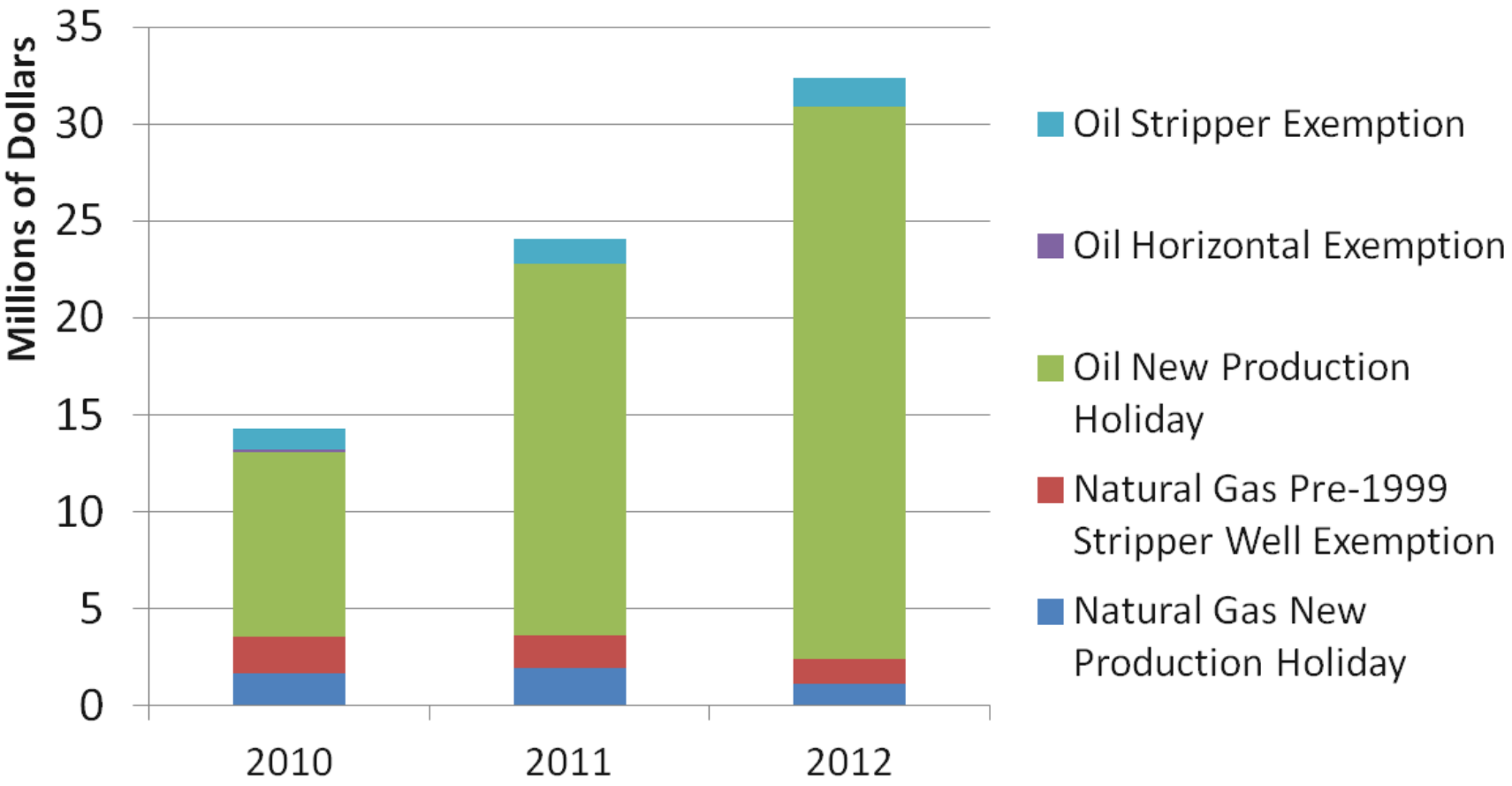
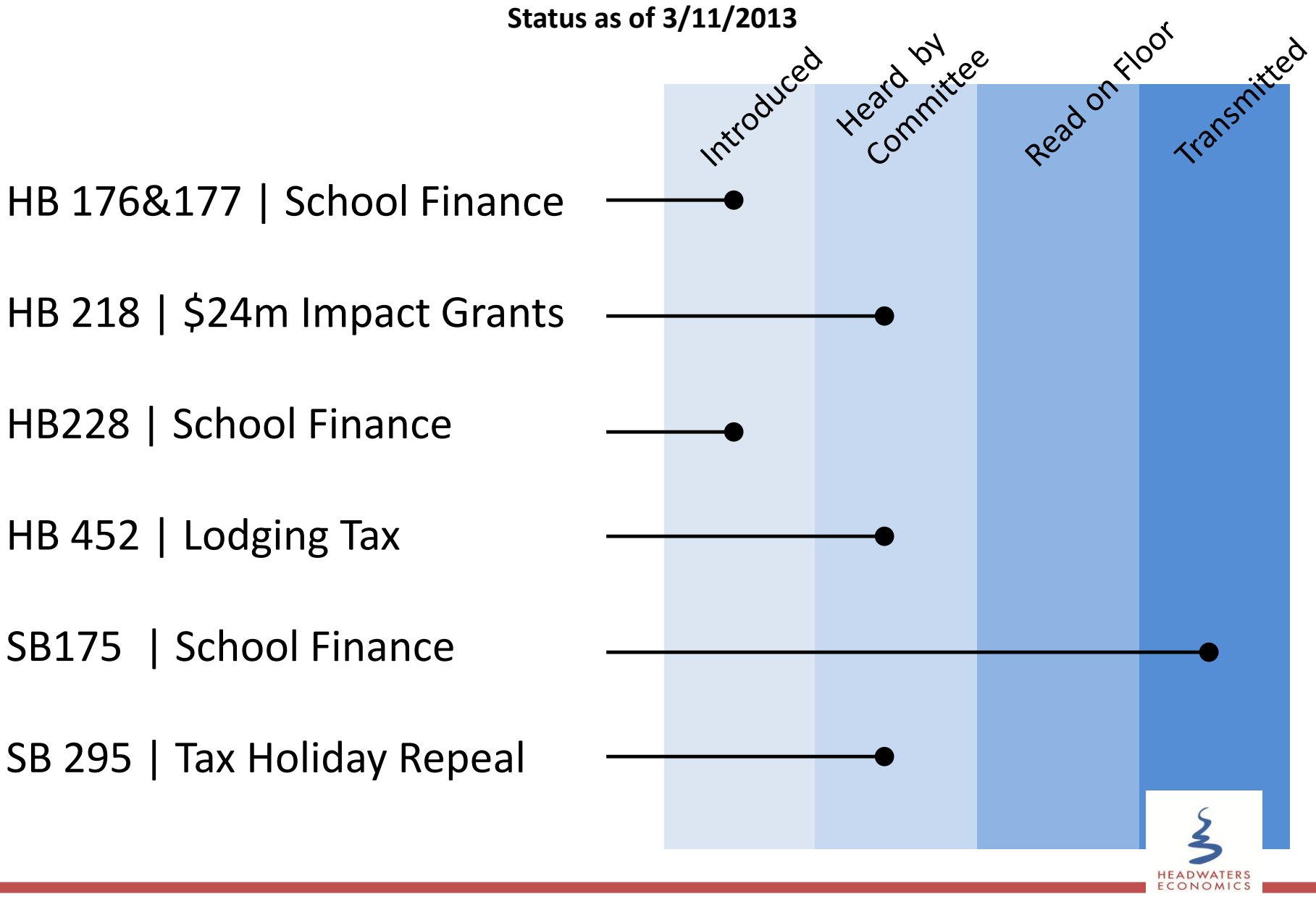
Policy Developments in Montana Energy Taxation

Value of Tax Credits & Exemptions in Montana 2010-2012

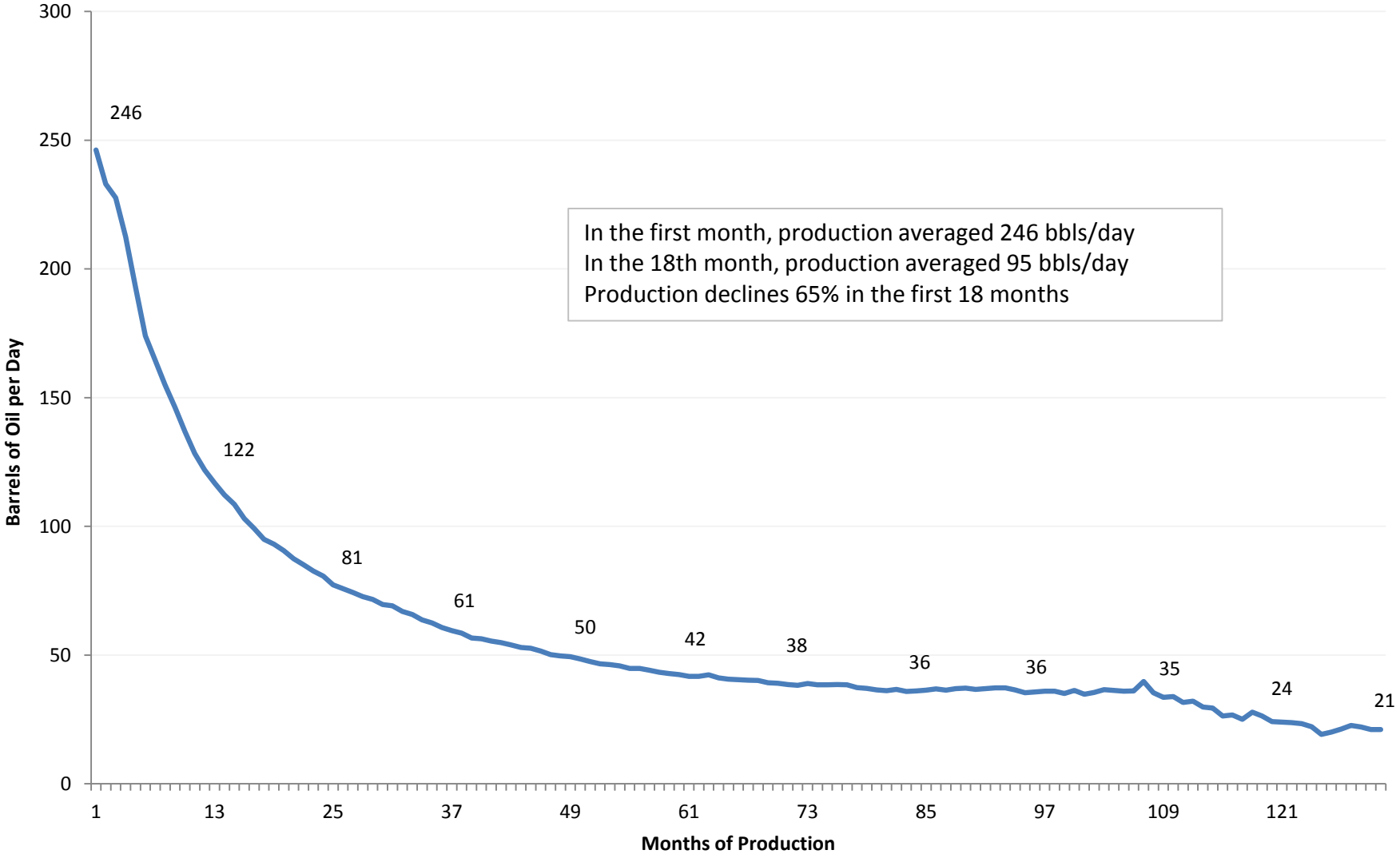


Source: MT Department of Revenue Biennial Report, July 1, 2010-June 30, 2012.

Legislative Proposals in Montana



Slide 1: Oil Production Declines By 65 Percent Over the First 18 Months from an Average Elm Coulee Well Drilled Between 2000 and 2012



Source: Montana Department of Natural Resources and Conservation, Board of Oil and Gas Conservation, Online Data Access, http://www.bogc.dnrc.mt.gov/WebApps/DataMiner/Default.aspx. The figures are constructed using monthly production data from all horizontally completed wells in the Elm Coulee field in MT from 2000 to 2012. Average producing well count in the first month is 789, in the 18th month is 711, and at 10 years is 23.

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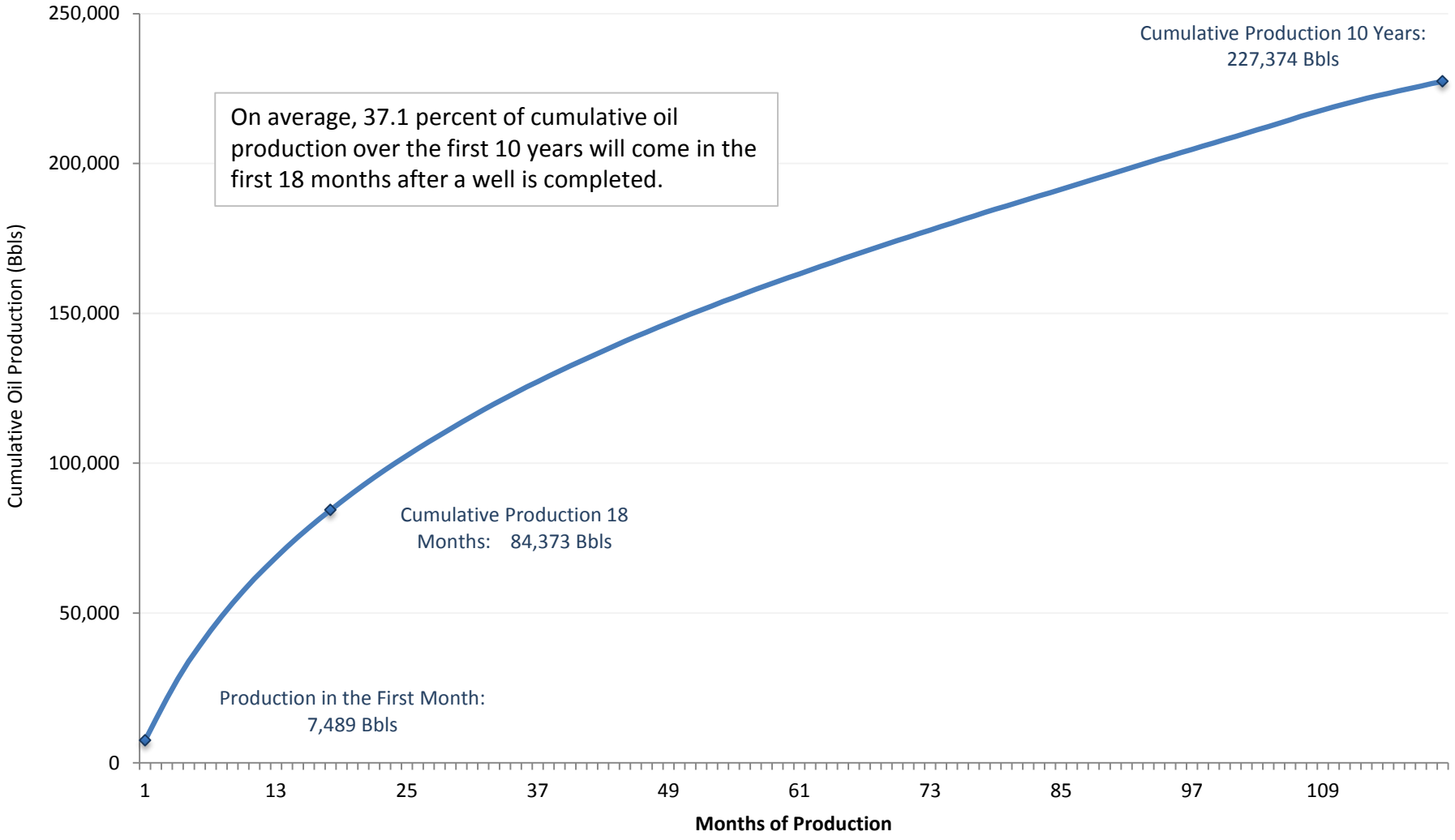
Slide 2: An Average Elm Coulee Well Produces 227,374 Barrels of Oil Over 10 Years, with 37 Percent Coming in the First 18 Months



Source: Montana Department of Natural Resources and Conservation, Board of Oil and Gas Conservation, Online Data Access, http://www.bogc.dnrc.mt.gov/WebApps/DataMiner/Default.aspx. The figures are constructed using monthly production data from all horizontally completed wells in the Elm Coulee field in MT from 2000 to 2012. Average producing well count in the first month is 789, in the 18th month is 711, and at 10 years is only 23.

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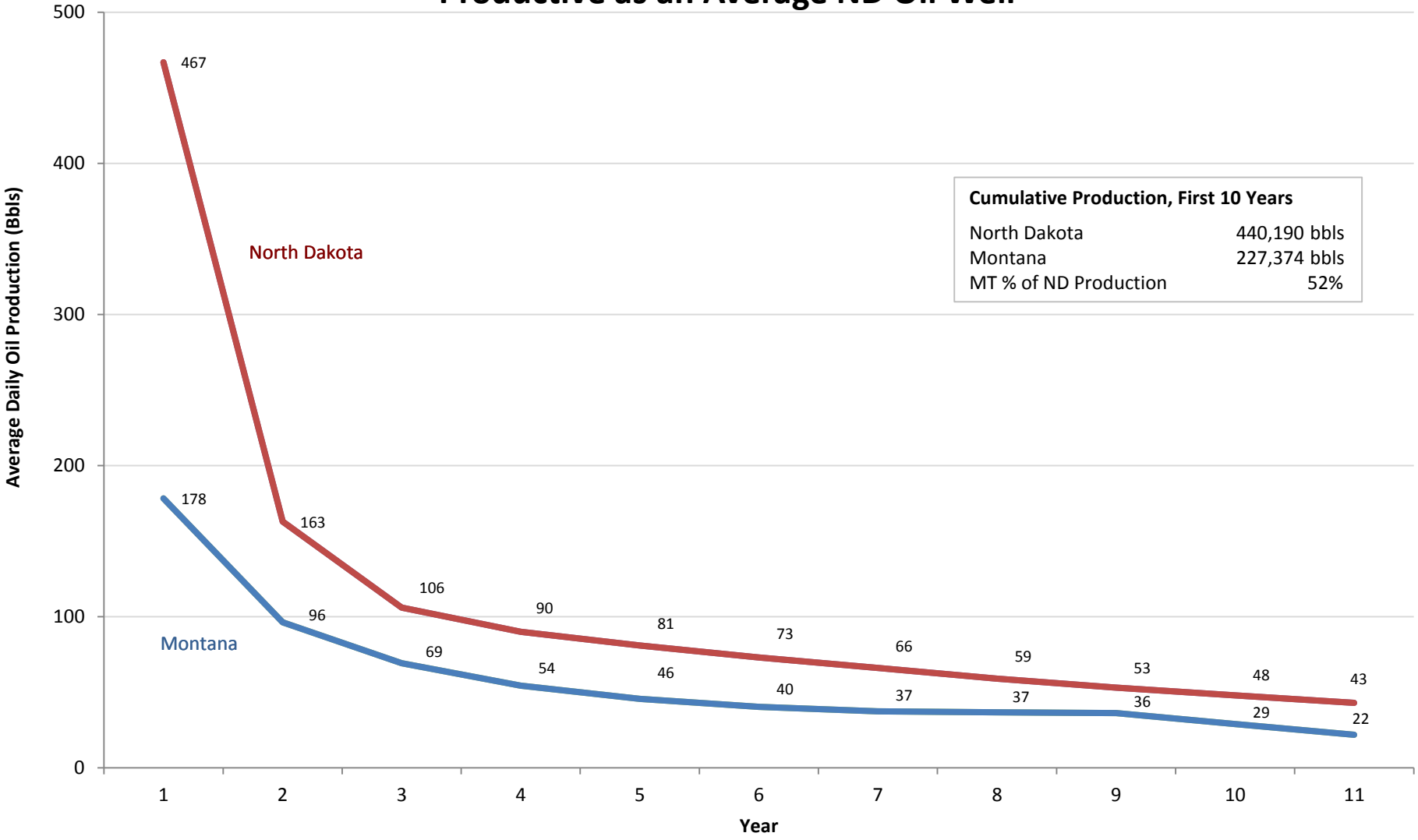
Slide 3: An Average MT Oil Well in the Elm Coulee is About Half As Productive as an Average ND Oil Well



Source: Montana DNRC, Board of Oil and Gas Online Data Miner; North Dakota Industrial Commission, Oil and Gas Division.

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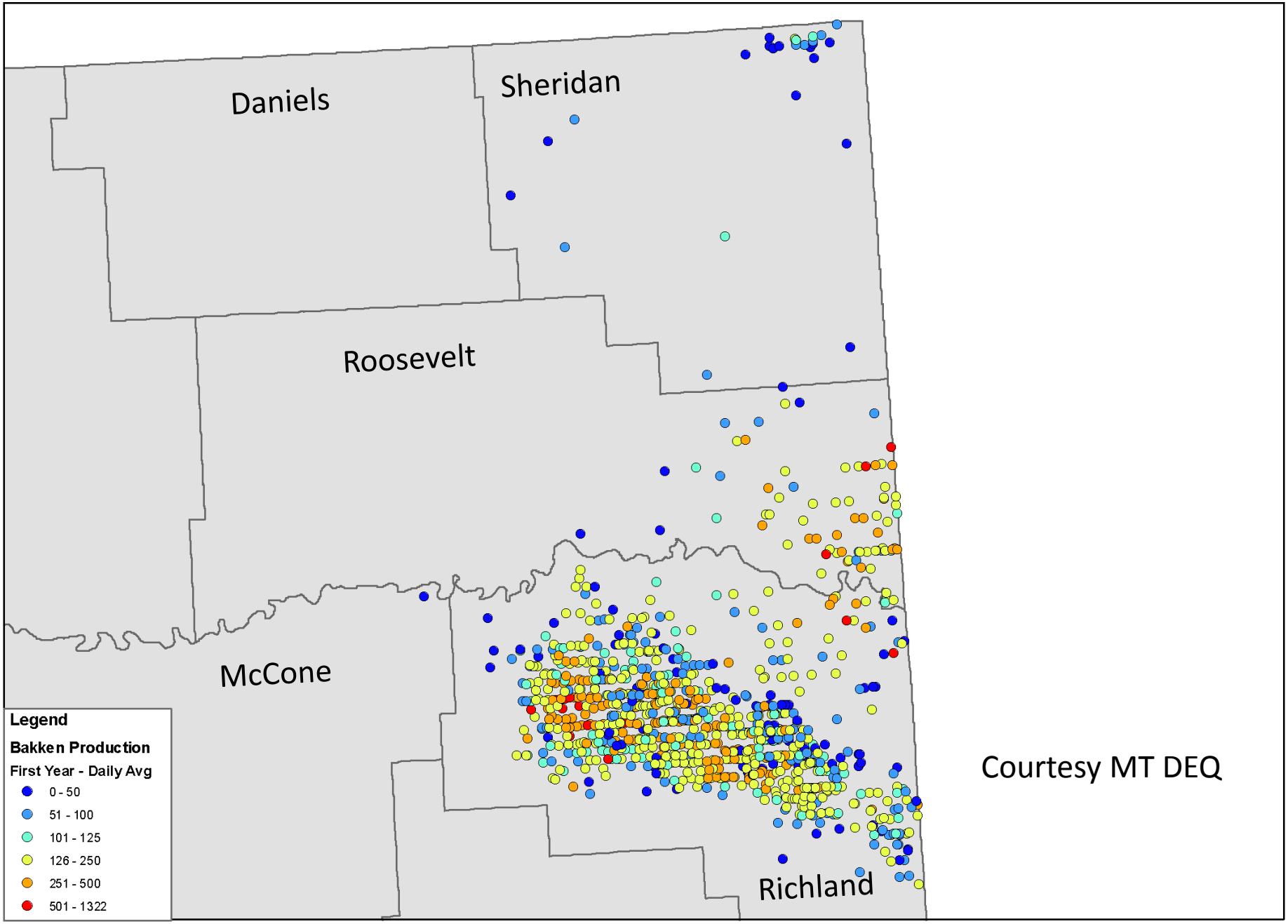
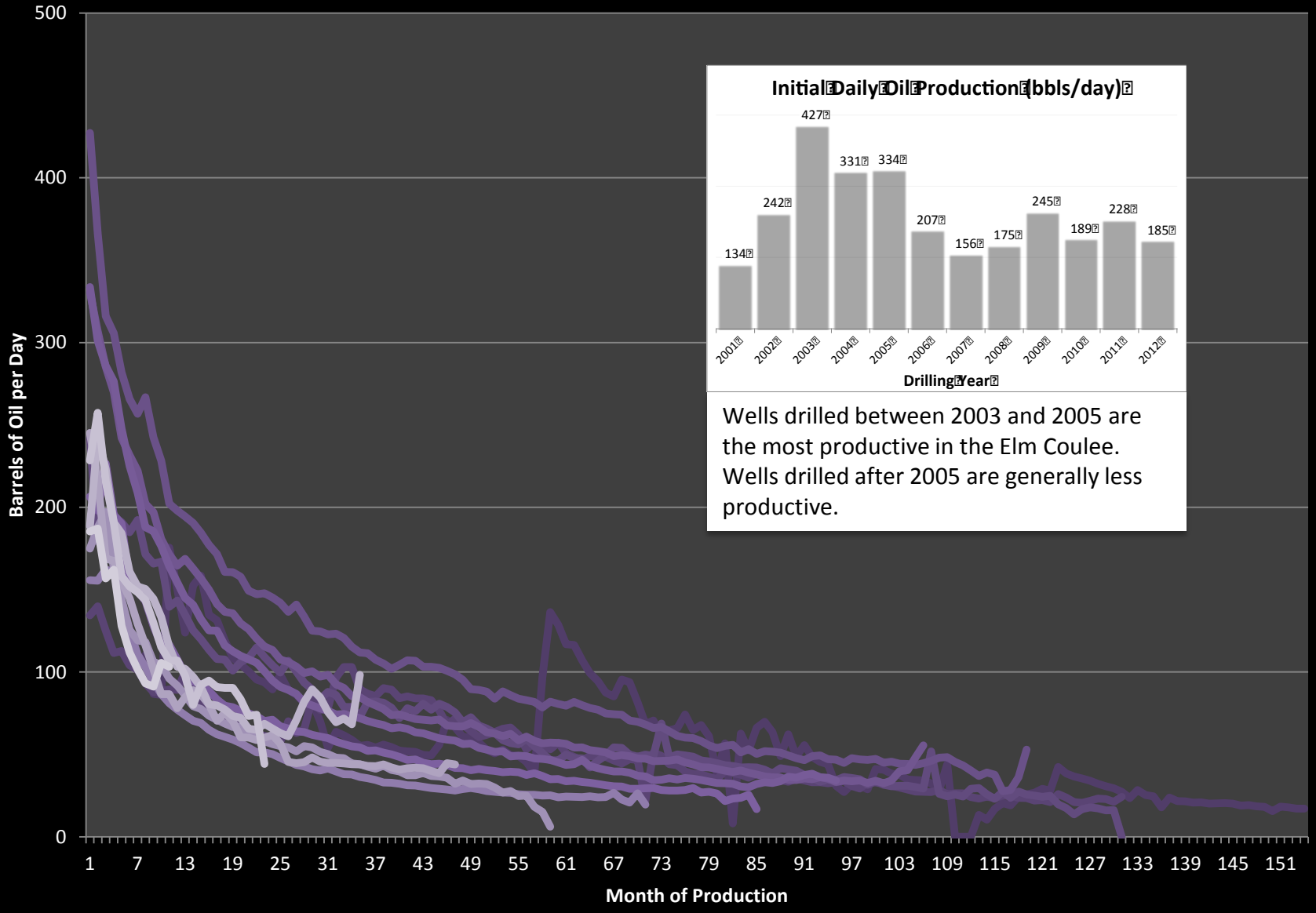
Oil and Gas Data Analysis

Montana and North Dakota



Courtesy MT DEQ

Slide 4: Recent Wells Drilled in the Elm Coulee are not as Productive as Wells Drilled Between 2003 and 2005, During the Height of the Boom



Wells drilled between 2003 and 2005 are the most productive in the Elm Coulee. Wells drilled after 2005 are generally less productive.

Source: Montana DNRC, Board of Oil and Gas Online Data Miner. Number of well starts in 2001: 11. Number of wells started in 2005: 146. Number of wells started in 2012: 57.

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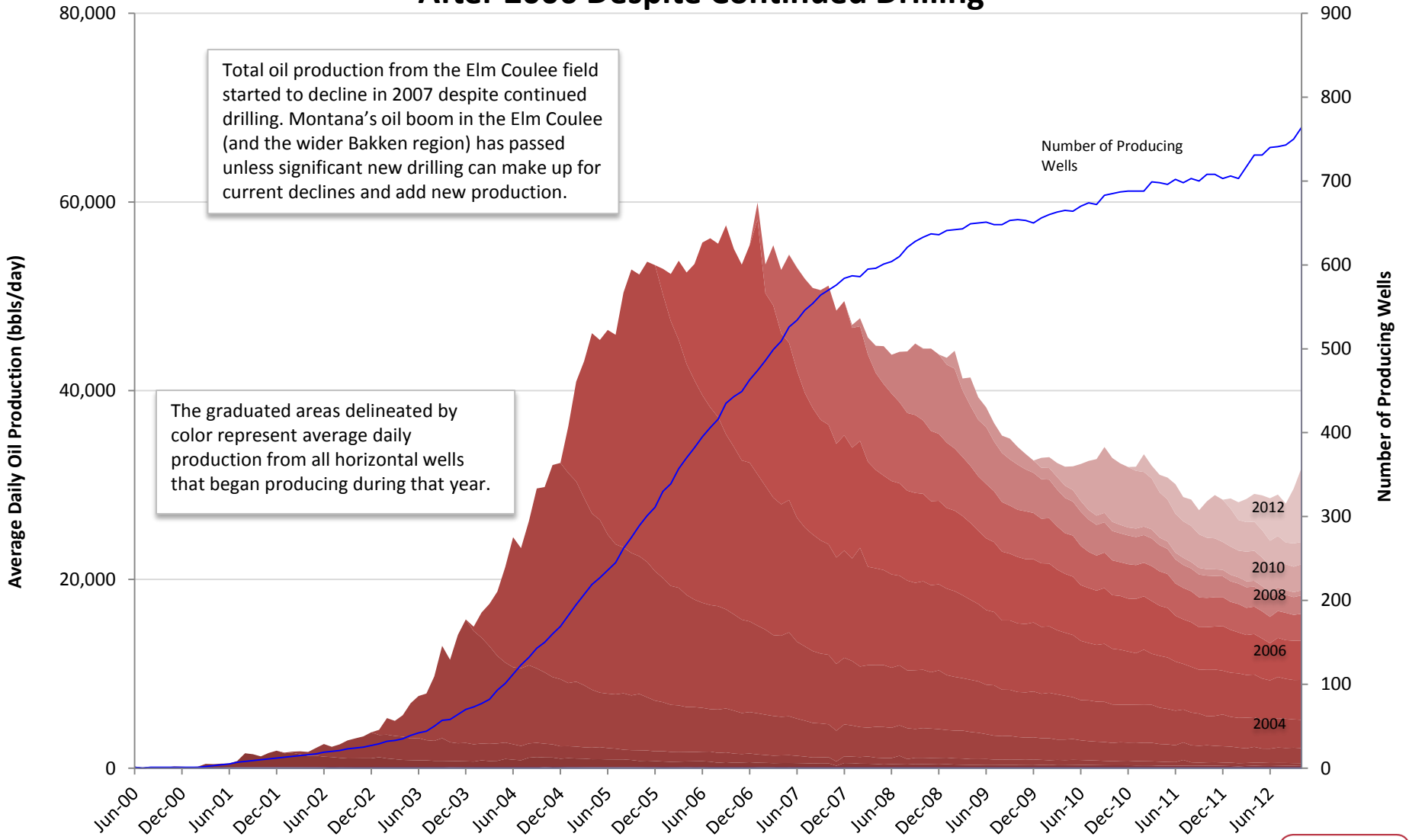
Slide 5: Average Daily Oil Production in the Elm Coulee Field, MT Declined After 2006 Despite Continued Drilling



Source: Montana DNRC, Board of Oil and Gas Online Data Miner.

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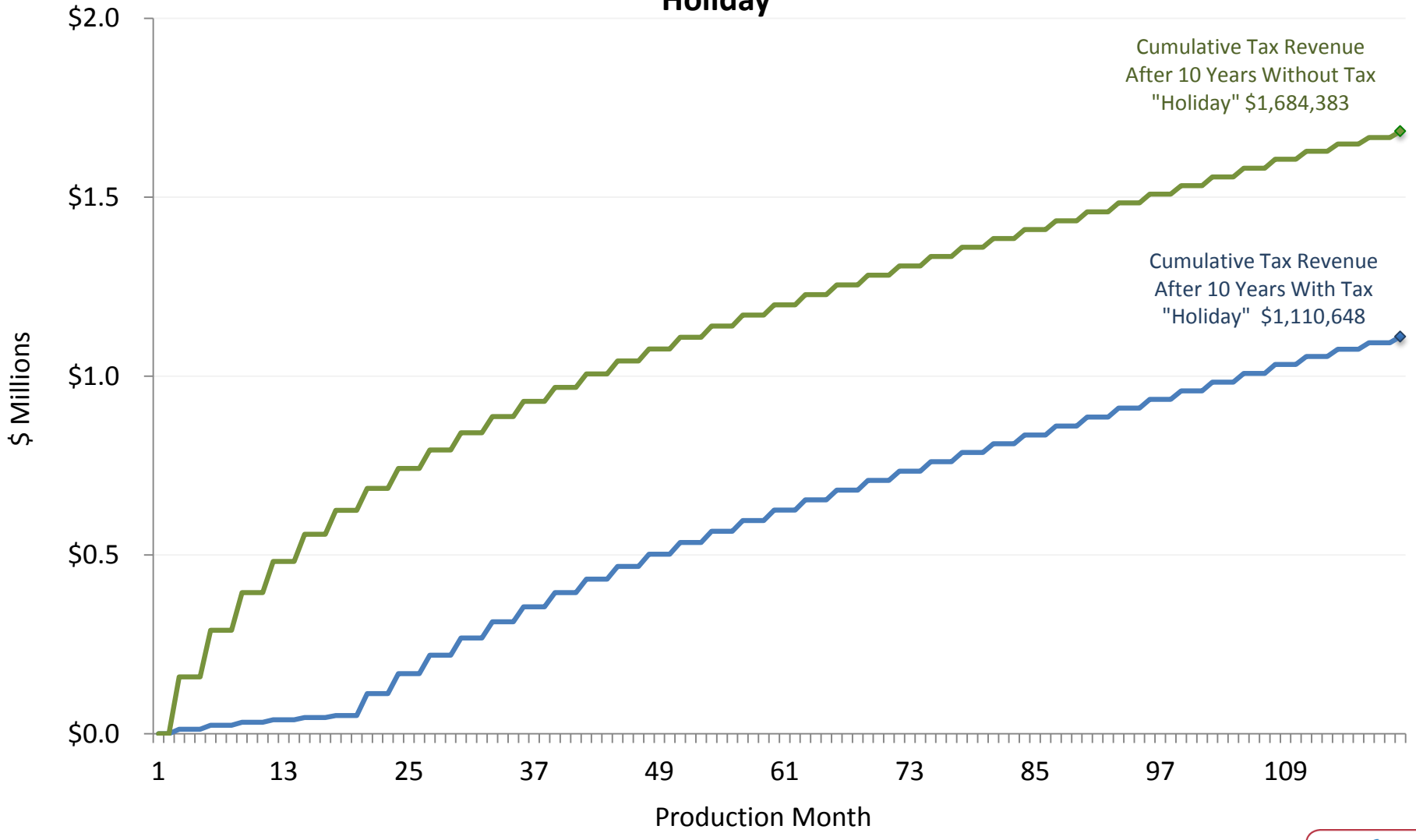
Slide 6: An Average Elm Coulee Oil Well Generates $1.1 Million in Revenue Over 10 Years With the "Holiday," and $1.7 Million in Revenue Without the Tax "Holiday"



Source: Montana DNRC, Board of Oil and Gas Online Data Miner. Montana Department of Revenue. *Oil and Gas Production Tax Comparison: Montana and North Dakota*. July 19, 2012.

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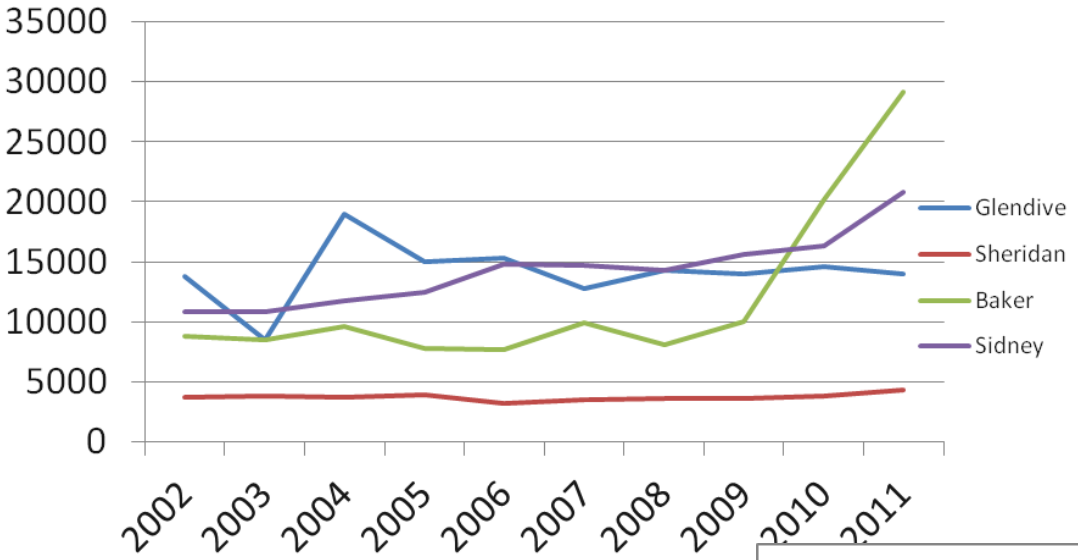
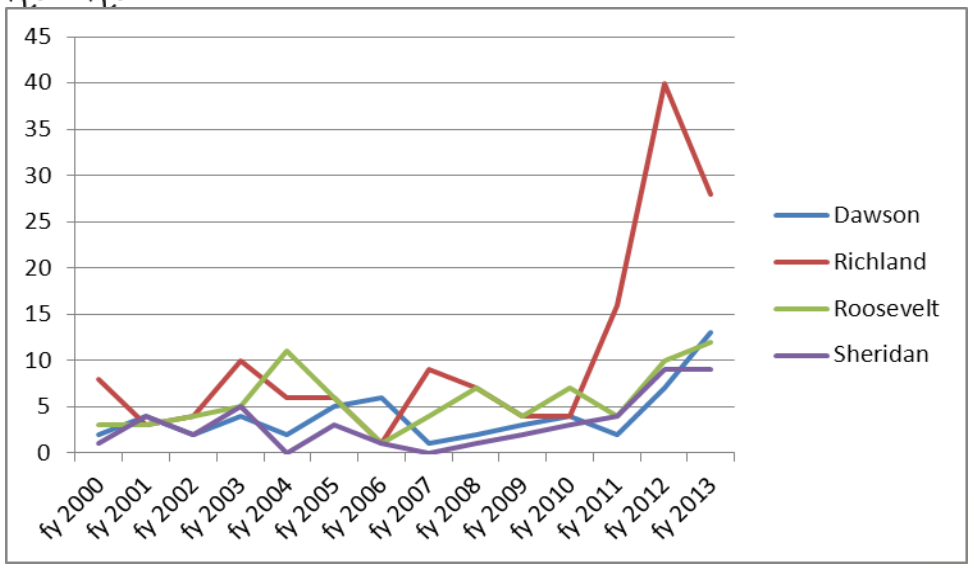
Conundrum

Timing and Location of Impacts ≠ Timing and Distribution of Revenue



← LANDFILL TONNAGES

SUBDIVISION AND PWS PERMITS →



Source: MT Department of Environmental Quality.

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