

The Economic and Fiscal Impacts of Montana's Oil and Gas Industry

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In 2011 the economic performance of Montana's oil and gas industry was mixed. Production quantities continued to decline, while prices both recovered relative to two years ago but have not regained previous peaks. Exploration and development of additional oil resources appear to be up while natural gas development was dormant. Despite this guarded picture, the industry still represented a considerable share of total economic output, wages, and state and local tax revenues.

Production and Prices

Measured in physical volumes, in 2011 Montana wells produced 24.1 million barrels of oil, 60 million mmcf of natural gas, and nearly 20 million mmcf of associated gas¹.

Table 1. MT Production Volumes

	OIL	NAT. GAS	ASSOC. GAS
2007	34,906,917	95,495,879	24,937,074
2008	31,596,064	91,517,576	27,960,330
2009	27,835,275	78,625,826	26,702,944
2010	25,330,556	70,188,904	23,434,386
2011	24,097,928	59,718,262	19,783,686

These volumes have been trending downward for the past several years. Between 2007 and 2011 oil production declined 30%, as did natural gas production (down 27%) and associated gas (down 20%). In comparison, in the same time period oil production in North Dakota has tripled, from 45 to 153 million barrels per year.

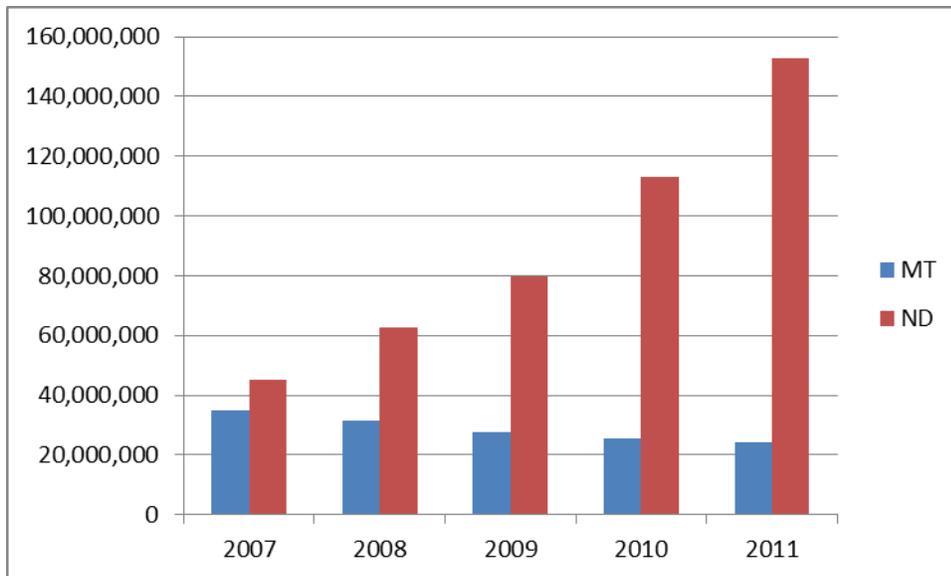


Figure 1. Oil Production in MT and ND 2007-2011 (barrels per year)

Table 2 MT Well Completions

YEAR	OIL	GAS	CBM
2007	190	399	62
2008	134	307	42
2009	51	160	11
2010	87	154	2
2011	95	31	1

In 2011 there were 9-10 drilling rigs operating in Montana and this number has been steadily increasing from the low of three rigs reported in 2009ⁱⁱ. In Wyoming, 2011 rig counts grew to 50 (from a 2009 low of 37. In contrast, in 2009 there were approximately 70 drilling rigs operating in North Dakota, but by 2011, this value grew to over 170. New oil well completions almost doubled between 2009 and 2011. However the 2011 total remained one-half the level reported in 2007. For natural gas, the 31 completions reported in 2011 represented less than one-tenth the activity seen five years prior.

Average wellhead price for MT produced crude oil was \$88.61 in 2011, up 67% from 2009 (\$52.96) and close to its 2008 peak of \$89.96. Natural gas prices average \$3.95 in 2011, an improvement from 2009 (\$3.16) but 40% below the \$7.50 average of 2008.

Combining production levels and prices, the 2011 gross value of MT oil produced was \$2.1 billion, down from 2008's total of \$3 billion but a 25% increase from 2010. For natural gas, the 2011 gross production value of \$236 million is only one-third of Montana's 2008 total of \$686 million.

MT's oil and gas industry is responsible for far more value than one would expect from its employment count. The average Montana job produced approximately \$117 thousand dollars in goods and services and the average MT job paid \$32,300 in wages and benefitsⁱⁱⁱ. In comparison, the firms making up the oil and gas industry represented:

- 1.2% of MT's workers (7,500 out of 630,000).
- 2.1% of MT's total employee compensation (\$424 million out of \$20 billion, at \$56,581 per worker or 75% above the state average).
- 12% of MT's total output (\$9 billion out of \$75 billion).
- 59% of MT's total manufacturing output (\$9 billion out of \$13 billion).
- 7% of MT's total proprietor income (\$247 million out of \$3.3 billion).
- 8% of MT's total other property type income (\$967 million out of \$12.8 billion).

Table 3. Average Annual Wages for Select Oil and Gas Jobs, May 2011^{iv}

Occupation Classification	Avg. MT Wages
Derrick Operators, Oil and Gas	\$44,680
Rotary Drill Operators Oil and Gas	\$67,830
Service Unit Operators Oil Gas and Mining	\$52,390
Petroleum Pump System Operators Refinery Operators and Gaugers	\$54,130
Pump Operators Except Wellhead Pumpers	\$50,350
Wellhead Pumpers	\$47,830
Geological and Petroleum Technicians	\$48,470
Mining and Geological Engineers, Including Mining Safety Engineers	\$70,550
Petroleum Engineers	\$143,240

One reason for this impact far larger than its total employment would suggest is the fact that many of the jobs specific to the MT oil and gas industry paid salaries significantly above state averages (see Table 3).

In addition to the direct economic impact of the oil and gas industry, these firms and their workers support more of MT's economy by their purchases of local goods and services. The total economic impact of an industry can be categorized as Direct, Indirect, or Induced impact. Direct is the production by the industry in question, such as drilling oil and gas wells. Indirect impacts concern the additional production and sales by other companies who provide needed inputs to the drilling companies. For the employees and owners of the firms benefiting from the direct and indirect impacts, these additional sales represent additional wages and incomes, and some of these monies are spent in the local economy producing Induced Impacts.

Table 4. Direct and Total Economic Impact of MT's Oil and Gas Industry Subsectors

Description	Direct Impact		Total of Direct, Indirect, and Induced Impacts	
	Employment	Output	Employment	Output
Extraction of oil and natural gas	3,871	\$601,719,616	6,452	\$877,762,028
Drilling oil and gas wells	456	\$164,437,584	865	\$205,546,980
Support activities for oil and gas operations	1,622	\$325,950,432	3,618	\$524,780,196
Petroleum refineries	1,050	\$7,747,312,640	8,398	\$8,522,043,904
Transport by pipeline	500	\$205,138,160	1,586	\$322,066,911
Total	7,499	\$9,044,558,432	20,920	\$10,452,200,019

Using this concept of economic impact, the sectors which represent MT's oil and gas industry supports over 20,000 MT workers and nearly \$10.5 billion in economic output (see table 4).

Fiscal Impacts of Montana's Oil and Gas Industries

Most of the Montana tax revenues collected from the oil and gas industry comes in the form of production and property taxes. Producers pay a share of the value of the oil or gas extracted and companies pay taxes upon the value of their business equipment and facilities. In the cases of pipeline transportation companies and railroads, these property taxes are collected by the state. For other cases, such as petroleum refineries, these property taxes are collected and remain in the county in which the facility located. The state also collects income taxes on the corporate profits made by oil and gas firms and personal income taxes from individual taxpayers who share in the royalty income from MT producing wells or who are employed by the industry

The crude oil and natural gas extracted from Montana wells generated nearly \$230 million in production taxes and distributed \$105 million of these funds to the counties where the production took place^v. Most of these taxes went to fund county governments (47%) or county schools (42%).

Production on federal lands located in MT also produced significant tax revenues. Oil and gas tax royalties from production on federal lands sent \$34 million to MT state government and \$11.3 million to MT counties^{vi}. In addition, approximately \$30 million in lease and production royalties were generated in 2011 from oil and gas activities on MT School Trust lands^{vii}. This includes a large increase in the bonus bids collected for new oil and gas lease sales^{ix}.

Property taxes are based upon the assessed value of a business's land, buildings, and equipment. In terms of assessed values, refineries represented 4 of the 15 largest industrial companies in MT, totaling

\$1.4 billion or 43% of a total of \$3.2 billion assessed value^x. This is twice as large as the \$670 million (21%) of assessed value of coal mining companies in this list^{xi}.

In 2011, the four refineries in Montana paid nearly \$21 million in county property taxes, and this total has increased by 90% over the previous five years^{xii}. These taxes are collected and remain for use by the host county.

Table 5. 2011 MT Pipeline Property Taxes

County	Estimated 2011 Pipeline Property Taxes
Roosevelt	\$ 6,299,132
Carter	\$ 6,203,864
Fallon	\$ 5,094,555
Valley	\$ 4,778,430
Glacier	\$ 3,179,734
Carbon	\$ 2,764,769
Richland	\$ 2,592,403
Yellowstone	\$ 2,510,638
Hill	\$ 2,369,930
Dawson	\$ 2,216,280
Rest of State	\$ 19,492,909
TOTAL	\$ 57,502,643

Companies owning oil and gas pipelines crossing 44 MT counties had a combined assessed value of over \$1.7 billion. These companies paid an estimated \$57.5 million in centrally-assessed property taxes with pipelines located in 10 counties representing 2/3rds of this total^{xiii}. These property taxes are collected and retained by the state. The majority of these pipelines are located in eastern Montana, but pipelines crossing western counties such as Glacier, Cascade, and Missoula contribute millions of dollars to this total. In the past five years these tax totals have nearly doubled.

The oil and gas industry also generates state income tax revenues. Over 15,000 corporations involved with oil and gas production in MT paid an estimated \$20 million dollars in state corporate income taxes^{xiv}. Individual MT taxpayers also paid other state and local taxes based upon their incomes in the oil and gas industry. This includes personal property taxes on the homes they own and the licensing fees paid for their vehicles. These indirect taxes totaled an estimated \$36 million in 2011^{xv}.

Taken together, the firms, investors, and employees in MT's oil and gas industry paid an estimated \$440 million dollars in Montana state and local taxes in 2011.

The Impacts of Industry Expansion

Growth in MT’s oil and gas industry can produce significant benefits to the state’s economy.

Table 6. Economic Impacts of a 5% Industry Expansion in MT

Industry Expanding	Change in ...	Industry Impact	Economy-Wide Impact
Oil & Gas Extraction	Employment	194	323
	Output	\$ 30,085,981	\$ 43,888,101
Drilling for Oil & Gas	Employment	23	43
	Output	\$ 8,221,879	\$ 10,260,877
Refining Petroleum Products	Employment	52	420
	Output	\$ 387,365,632	\$ 430,008,086
Support Activities for Oil and Gas	Employment	71.5	159
	Output	\$16,305,868	\$26,183,820
Pipeline Transportation	Employment	25	80
	Output	\$10,260,000	\$16,096,508

Table 6 shows the economic impact of a hypothetical 5% expansion of different segments of Montana’s oil and gas industry. Overall, a 5% expansion of the entire industry would represent 366 more direct jobs and 1,025 total new jobs in the state, while overall output would increase by over \$525 million per year. Assuming a corresponding increase in oil and gas property valuations and output, this 5% increase would also represent over \$20 million per year in additional state and local tax revenues.

ⁱ Data extracted from MT Board of Oil and Gas on-line data system

ⁱⁱ Baker-Hughes Online Rig Count database

ⁱⁱⁱ Minnesota IMPLAN Group 2011 estimate based upon 2010 detailed data.

^{iv} Bureau of Labor Statistics Occupational Employment Statistics data.

^v Data From MT DOR quarterly reports sent to MT county treasurers.

^{vi} Data from MT Association of Counties.

^{vii} Legislative Fiscal Report 2013 Biennium Volume 2, pp 178.

^{viii} DNRC Annual Report FY2010.

^{ix} Bonus bids are up-front payments to win the right to lease state trust land. They are in addition to an annual lease payment and the royalties collected on oil or gas produced from wells on this property.

^x Data from MT DOR replay to SJR17 Interim Committee Study Information request by Senator Peterson on 2/16/2012

^{xi} Data from MT DOR file dated 2/15/2012 from MT.GOV.

^{xii} Data from Yellowstone and Cascade County MT websites.

^{xiii} MT DOR Tax Policy and Research data, via request from author

^{xiv} MT DOR Tax Policy and Research data, via request from author

^{xv} IMPLAN model-based estimates of per-household indirect state/local taxes range from \$1,652 - \$2,028, depending upon the industry, and were applied to the industry employment impact.