

OPPORTUNITY LOST? THE ECONOMIC VALUE OF ENERGY RESOURCES ON FEDERAL LANDS IN MONTANA

KEY POINTS

Background

- About 30 percent of Montana's lands are owned and managed by the federal government. Most of these lands were purposefully set aside for multiple use, including aesthetic, recreation, and natural resource development.
- Federal policy increasingly bars, inhibits, or raises the costs of doing business on lands otherwise available and suitable for responsible natural resource development.
- Many Western states are pushing back against federal restrictions, insisting that they be allowed to reap the benefits of the resources within their borders.

What's at stake?

- Federal lands cannot be taxed, and any potential economic benefit and jobs are lost to the state's present and future citizens when federal policy precludes responsible and balanced use, including natural resource development.
- Federal payments in lieu of taxes, royalties, and other offsets for losses to the state's tax base are purely discretionary and are being decreased as Washington deals with its own budgetary challenges.
- Montana's schools, roads, public safety, and other state and local responsibilities are feeling the squeeze as federal subsidies come under pressure and Montanans are not allowed to benefit from resources within their borders but unavailable due to federal policies.

What's next?

- Utah has passed, and Montana is considering, legislation demanding the federal government honor its promise upon statehood to return certain federal lands to the state tax base, and allow Montana to manage these lands for their best use.
- These demands specifically exclude lands designated for preservation – like national parks and wilderness – and land specifically set aside for other uses – like military reservations and tribal lands.

America's energy renaissance is happening in spite of, not because of, policies in Washington, D.C. Montana has vast, untapped energy resources on federal lands, but out-of-touch rules and regulations have made too many of these resources unavailable or too expensive to responsibly develop.

EXECUTIVE SUMMARY

As in all Western states, federal lands management in Montana involves controversies between pro-development and preservationist forces. To a greater extent than private or even state-owned lands, development of oil, natural gas, and coal resources on federal lands often involves years of regulatory approval and litigation. Montana, like many other states, is also concerned about the payoffs from development in terms of state revenues, employment, and tax revenues. In particular, large renewable energy projects may be put on the fast track for approval while many oil and gas projects languish in a regulatory and legal bog. To assess the opportunity costs of such a regulatory posture, this Policy Note presents the payoffs from developing renewable and non-renewable energy projects in Montana. These returns in terms of jobs, tax revenues, and gross state product provide a basis for assessing the opportunity costs of regulatory delays or outright rejection of proposed energy projects on federal lands, as well as the tradeoffs between nonrenewable and renewable energy development in the state.

The geologies of oil and gas reservoirs on federal and private lands in the Rocky Mountains, including in Montana, share many similar features. Indeed most

of the production growth of crude oil has occurred in well-established oil fields. These production gains are realized from the application of new technology, such as three-dimensional seismic, directional drilling, and hydraulic fracturing. The Bureau of Land Management and other federal agencies are developing new rules for the use of these technologies on federal lands that may impact the ultimate production, and therefore potential economic benefit, of these lands. In addition to the existing layers of regulatory hurdles and related litigation, delays in the implementation of these rules may have contributed to the relatively slower growth of oil and gas production on federal lands already.

To estimate the costs of these delays, this Policy Note presents several scenarios for fossil fuel and renewable energy development in Montana, developed by Dr. Timothy Considine at the University of Wyoming. The scenarios for oil and gas drilling are formulated on the basis of historical data for drilling activity on federal lands and the number of wells associated with projects proposed and awaiting federal approval. The economic impacts from the construction and operation of new energy production capacity under each of these scenarios are then estimated (see the multistate study at www.EndFedAddiction.org for full methodology). These impacts include the direct stimulus provided to Montana's economy from these investments, additional gains from business-to-business or supply chain spending, and the induced impacts as households spend income earned from this additional commerce.

Two of the main findings presented in the pages below are that (1) energy resource development on federal lands holds the potential for significant economic gains for Montana's communities and revenue gains for state coffers, and (2) that the economic benefits associated with oil, coal and

gas development are significantly larger than those arising from proposed renewable energy projects.

ENERGY RESOURCE DEVELOPMENT IN MONTANA

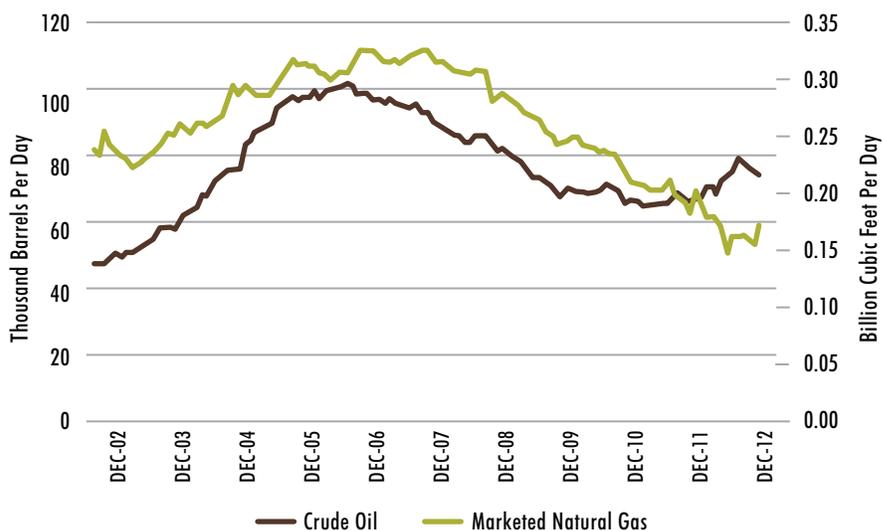
Montana is a significant oil producer, and production of crude oil has steadily increased. The state contains the western edge of the Bakken shale that recently has been estimated to contain 6.7 billion barrels of oil. While crude oil output has been increasing in Montana since 2011, recent drilling activity is starting to decline. Natural gas production is relatively small and declining (Figure 1).

Montana contains more than one-quarter of the recoverable coal in the United States but produces less than 4 percent of U.S. output. The prolific Powder River Basin that supports more than 400 million tons of coal production per year in Wyoming also extends into Montana; coal production in Montana is a tenth that of Wyoming. Higher taxes and deeper coal seams contribute to this disparity. Electric power generation from wind turbines, meanwhile, increased 34 percent in 2011.

An overview of the contribution of the minerals sector to the Montana state economy appears in Table 1. Mining contributes 4.4 percent of value added generated in Montana during 2011 with 1.4 percent coming from oil and gas. Other minerals, such as coal, copper, palladium, molybdenum, platinum and gold, contribute the remaining 3 percent contribution. The average wage in the minerals sector is \$62,667 while the statewide average is \$34,873. Total employment in the mining sector is 10,374 with roughly half, 5,421, in the oil and gas sector.

IMPACTS FROM DEVELOPING OIL AND GAS ON FEDERAL LANDS IN MONTANA

Figure 1: Montana oil and natural gas production, 2002-2012



Source: U.S. Energy Information Administration and Montana Board of Oil & Gas Conservation

Drilling activity in Montana has declined sharply in recent years. From 2002 to 2008, the average number of well spuds on federal lands was 115. Between 2009 and 2012, the number of well spuds on federal lands declined to 42, a 64 percent decline.

While data on Montana well spuds on private lands is unavailable, well completions on private lands declined from an average of 487 during 2002 to 2008 to a per annum average of 187 from 2009 to 2012 for a 62 percent decline. Hence, the data on drilling activity do not

Table 1: Economic contribution of mineral sector in Montana during 2011

(MILLIONS OF 2013 DOLLARS)

	JOBS	GROSS OUTPUT	WAGES	PROPRIETOR INCOME	OTHER PROPERTY INCOME	INDIRECT BUSINESS TAX	TOTAL VALUE ADDED
Oil & Gas							
Drilling	574	378.9	48.3	0.3	87.1	6.7	142.4
Support	1,810	386.7	151.6	1.6	27.1	7.7	188.0
Extraction	3,037	961.7	56.5	11.7	155.8	46.1	270.0
Subtotal	5,421	1,727.4	256.3	13.6	270.0	60.5	600.5
Coal	1,346	448.0	102.2	2.4	82.6	31.5	218.7
Other Minerals	3,607	1,558.0	291.6	9.9	700.9	56.1	1,058.5
Coal & Other	4,953	2,006.1	393.8	12.3	783.5	87.6	1,277.2
Total Minerals	10,374	3,733	650	26	1,054	148	1,877.7
Total Montana	639,733	84,565.7	22,309.3	3,712.3	13,384.3	2,854.5	42,260.4
Oil & Gas Share	0.8%	2.0%	1.1%	0.4%	2.0%	2.1%	1.4%
Minerals Share	1.6%	4.4%	2.9%	0.7%	7.9%	5.2%	4.4%

Source: IMPLAN Inc.

reveal any substantial difference between drilling activity on federal and private lands. As a comparison with other states reveals, however, there are likely other factors – particularly tax policy – that are conspiring to depress drilling activity on all lands in Montana.

During fiscal year 2012, only 29 wells were drilled on federal lands in Montana. So even the low scenario based upon the 25th percentile of observations of 54 (Table 2) for annual average well spuds is well above that level. The medium scenario envisions a more than three-fold increase in drilling from currently depressed levels. The high scenario has 117 well spuds per annum.

The economic and fiscal impacts associated each of these three scenarios are presented in Table 2. The medium scenario generates \$370 million in value added, over \$84 million in government revenue, and more than 3,300 jobs. The low case yields roughly half these impacts. Given that

the high scenario or the 75th percentile is relatively close to the median of the observations, the economic impacts are similar to the medium scenario.

IMPACTS FROM DEVELOPING RENEWABLE ENERGY ON FEDERAL LANDS IN MONTANA

There are a number of wind energy projects in the pipeline in Montana, some of which are likely to be constructed on federal lands.

The medium renewable energy scenario assumes a higher average annual growth rate of wind at 5 percent, with wind capacity reaching 1,095 MW by 2022. The high renewable energy scenario is designed to reflect the possibility that all proposed wind projects in Montana go ahead. Thus an additional 500 MW of wind capacity comes online from 2015 onward. Total installed wind capacity in Montana reaches 5,150 MW by 2022 in this scenario.

The three development scenarios together provide projections for the total build-out of wind in Montana (i.e., on both state and federal lands). Thirty percent of land in Montana is federal land. Therefore, this study assumes that 30 percent of the build-out in each of the three development scenarios will take place on federal lands.

The average annual total economic impacts (i.e., impacts from construction and operation) associated with each of these scenarios over the forecast horizon of 2013-2022 are presented in Table 3. Under the medium scenario, value added and taxes are \$6 million and \$1.2 million higher respectively and the employment level is 103 higher. This means that delays in the approval of wind projects on federal lands forgo these gains. Hence,

Table 2: Impacts of oil and gas projects on Montana federal lands

	WELLS DRILLED PER ANNUM		
	LOW	MEDIUM	HIGH
Well Spuds	54	103	117
	MILLIONS OF 2013 DOLLARS		
Gross Output	490.7	931.5	1,065.5
Value Added	194.5	369.2	422.4
Wages	84.4	160.2	183.3
Taxes			
State & Local	20.4	38.7	44.2
Federal	20.3	38.6	44.2
Ad Valorem	1.1	2.0	2.3
Severance	1.0	1.9	2.1
Federal Royalties	1.8	3.4	3.8
Taxes & Royalties	44.5	84.5	96.7
	ANNUAL JOB EQUIVALENTS		
Employment	1,752.8	3,327.1	3,805.9

	CONSTRUCTION PER ANNUM (MW NAMEPLATE)		
	LOW	MEDIUM	HIGH
Wind	1,098	1,314	1,720
ECONOMIC IMPACTS MILLIONS OF 2013 DOLLARS			
Gross Output	1.6	11.8	105.2
Value Added	0.8	6.0	53.9
Wages	0.6	4.2	32.7
Taxes			
State & Local	0.0	0.4	4.3
Federal	0.1	0.7	7.2
Severance	0.0	0.0	0.4
Total taxes	0.2	1.2	11.9
ANNUAL JOB EQUIVALENTS			
Employment	14.5	102.8	796.9

Table 3: Impacts of proposed wind projects on Montana federal lands

the annual average cost of delays is \$6 million in terms of lost economic output, or value added. Under the low wind scenario, the costs of delays could be \$1 million while under the higher wind scenario the costs of delays could be \$54 million.

CONCLUSION

Oil and gas development over the next 10 years could generate nearly \$370 million in value added per annum under the medium drilling scenario that envisions slightly over 100 wells drilled per year. This scenario also would support more than 3,000 job equivalents and generate more than \$84 million in tax and royalty payments per year. This scenario assumes that a substantial proportion of the projects proposed on federal lands would be approved in a timely fashion so that drilling activity returns to levels above currently depressed levels. If drilling on federal lands remains at currently depressed levels, which are due in part to restrictive regulatory policies, then the gains under the medium

scenario would not be realized. Hence, these foregone opportunities would represent the opportunity cost of restrictive regulatory policy.

If federal policy is accommodative and resource prices are favorable, federal lands in the Montana could contribute more than \$400 million in value added and nearly 4,000 jobs per annum. However one views the posture of federal policy, this scenario clearly demonstrates there is considerable upside potential from developing oil and natural gas on federal lands. These gains should be kept in mind in formulating regulatory policies affecting access and management of federal lands.

There is also a significant tradeoff between developing nonrenewable versus renewable energy projects on federal lands. Under the medium development scenario an average of 13 megawatts of renewable energy generation capacity is built each year. Under this scenario, the construction and operation of these facilities would on average generate \$6 million in value added, support 103 jobs per annum, and provide just over \$1 million in government revenues. Under the high development scenario, 135 megawatts capacity results in about \$54 million in value added, just under \$12 million in taxes, and about 800 jobs. The net economic value of these projects would be lower because the relatively high cost of electricity produced from these projects would raise electricity rates and lower economic activity. Regardless, even the gross economic gains from building and operating renewable energy projects are significantly lower than the gains achieved from developing oil and gas on federal lands.

It's also important to remember that this study only included lands that are eligible for resource development. Nobody is talking about poking holes in Glacier Nation-

al Park or coal mining in Montana's scenic wilderness areas. The point is that we need to balance the well-being of our citizens with the desire to preserve our special lands. Our schools, our needy, and our public safety all require resources as well. Montana has enough to meet all of these needs if we use them responsibly.

This Policy Note is based upon "The Economic Value of Energy Resources on Federal Lands in the Rocky Mountain Region" by Timothy Considine, Professor of Energy Economics and Director of the Center for Energy Economics and Public Policy (CEEPP) with School of Energy Resources and the Department of Economics and Finance at the University of Wyoming. The full study is available at the Sutherland Institute Center for Self-Government in the West, www.EndFedAddiction.org.

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