

# I. EXECUTIVE SUMMARY

At the organizational meeting of the Economic Affairs Interim Committee (EAIC), Representative Scott Mendenhall and Senator Ken Hansen were chosen as presiding officers. The committee chose to hold as many meetings outside of Helena as possible for the purpose of outreach to local communities. During this discussion, committee members cited the long distances Montanans travel during the legislative session to participate in the public process and the desire to attempt to repay this dedication and effort at ensuring that local concerns are given a full vetting in Helena. This travel goal was achieved and these meetings were well attended, and it is the opinion of the full membership of the 2007/2008 EAIC that efforts should be continued to bring the legislative process to the people of Montana where feasible and consistent with statutory responsibilities. The full membership of the EAIC would like to thank all of those who participated in and attended these hearings.

Interim committees are unique unto themselves in the legislative environment and differ from state to state in those that have part-time legislatures. Interim committees, typically through those they choose as presiding officers, have discretion for how they choose to best spend their time. Budgetary constraints, plus the nature of being a “citizen legislator” with an outside career, typically means a committee will meet for no more than 10 total days during the entire 18-month Interim. The EAIC was able to utilize conference calls in order to address specific decisionmaking needs, and while nothing can replace face-to-face interactions between committee members and the public, the EAIC recommends the use of this tool in a limited capacity to expand the effectiveness of future interim committees. The statutory requirements placed upon the EAIC are from 5-5-223, MCA, and read as follows:

**5-5-223, MCA. Economic affairs interim committee.** The economic affairs interim committee has administrative rule review, draft legislation review, program evaluation, and monitoring functions for the following executive branch agencies and the entities attached to agencies for administrative purposes:

- (1) department of agriculture;
- (2) department of commerce;
- (3) department of labor and industry;
- (4) department of livestock;
- (5) office of the state auditor and insurance commissioner; and
- (6) office of economic development.

In addition, two members of the EAIC are assigned to the Rail Service Competition Council as provided for in 2-15-2511, MCA. Senator Ken Hansen and Representative Mike Milburn filled this role for the 2007/2008 interim. Two members also serve as liaisons to the Board of Directors of the State Compensation Insurance Fund (also known as the State Fund) as provided for in 2-15-1019, MCA, a statutory provision that is designed to create a dialogue between this unique state agency and the Legislature and keep members abreast of activities in the area of workers’ compensation and the State Fund’s role in this insurance market. Representative Mike Milburn and Representative Bill Thomas filled this role and briefed the full Committee at each meeting during the interim. The State Fund is administratively attached to the Department of Administration, whose monitoring functions fall under the State Administration and Veterans’

Affairs Interim Committee (SAVA), yet a continued agreement between the two committees allowed for this arrangement.

The course of action of any interim committee is determined not only by the makeup of its membership but also by the study bills assigned to the committee. Study bills start as either House or Senate Joint Resolutions and must first be passed by both chambers. The full roster is then sent to the entire Legislature for polling so as to determine a priority list. The management of the Legislative Services Division makes an analysis of study requirements relative to staff time and provides recommendations to the Legislative Council for ultimate approval and assignment to interim committees.

In addition to a monitoring role with regard to certain state agencies, the EAIC was assigned four study bills dealing with health care, value-added agriculture, the economic benefit of university research, and business infrastructure needs. The latter two studies are included in this committee report. Ms. Pat Murdo, Research Analyst for the Legislative Services Division, will submit a separate report containing the remainder of the Committee's business; this Executive Summary stands as official record of all other Committee business. The goal of the Committee for the interim was to increase avenues of dialogue between the Committee members and maximize the amount of information that reaches the Committee. Locations for meetings were chosen so as to serve this goal, thus value-added agriculture took top billing in Miles City, and Missoula and Bozeman ensured a unique opportunity for interactions between legislators and research faculty. In addition to homework assignments from the 2007 session, the Committee researched the following policy areas: workers' compensation insurance, local economic development programs, Montana State University's Extension Service, and residential contractors.

The members of the EAIC ultimately decided they would be forwarding no committee bills to their colleagues and successors in the 61<sup>st</sup> Legislature. The Committee will review state agency bill draft requests at the final meeting. The full membership of the 2007/2008 EAIC agrees that while the issues and ideas discussed and forwarded are greatly important to the policy areas within the Committee's purview, time constraints do not allow for the development of well-vetted bills for the Committee's consideration given the specific topic areas assigned to the Committee and their complicated nature. The full membership of the 2007/2008 EAIC concurs that information presented by experts, stakeholders, and citizens helped to inform their framing of the issues and pursuit of possible subsequent individual legislation.

Staff note: The timeline for publication of this report and requisite editing precludes information presented at the final meeting on September 12<sup>th</sup> and Committee actions taken at that time. That information will be compiled and inserted after the final meeting.

DRAFT

## II. SJR 39: ECONOMIC IMPACT OF UNIVERSITY RESEARCH

The Economic Affairs Interim Committee (EAIC) was assigned HJR 39 to analyze the competitiveness of the Montana University System (MUS) in the area of federal funding of high-tech and scientific research by faculty and the correlating economic benefit due to the commercialization of discoveries found within this intellectual process. The Committee instructed staff to approach this topic by creating a dialogue between the Committee and research faculty and their graduate and undergraduate students to better understand the work being done on the ground in this area. Montana State University President Geoffrey Gamble, University of Montana President George Dennison, and Commissioner of Higher Education Sheila Stearns addressed the Committee and entertained questions, yet the bulk of Committee time was dedicated to hearing directly from research faculty and those students in their employ and tutelage in order to understand both the nature of the research being conducted across the state and the funding sources that sustain it. Both presiding officers of the EAIC understood in developing the agenda that while it was impossible to fully understand the depth and diversity of this cerebral enterprise through a tour of laboratories and presentations by researchers, it was important to visit the campuses in Missoula and Bozeman with a full workday agenda to hear a sample of what is being done from as many voices as possible.

### **Research Positions for Students**

This plan lead to two Committee hearings on each main campus that took the form of a tour of facilities and presentations by both research faculty and the undergraduate and graduate students who do a bulk of the work generating scientific data used for analysis. (It should be noted that not all facilities were available for a tour due to the security needed to store materials used in research in the area of national security.) In many ways, it is the role of students that helps to display the nature of a researcher professor's duties and responsibilities away from the classroom. One professor described his lab as a small business, saying that with 15 undergraduate and graduate students, some of whom moved to Montana with him when he was recruited from another state university; he is responsible for all of the management and personnel requirements of a small business. Many of these student positions are paid with stipends from funds secured by the research faculty, and both campuses are seeing their graduates recruited directly into businesses based on their research experience. These faculty dispute the notion that their research time competes with the university's core mission to educate students, and they cite these employment opportunities as evidence. The knowledge transfer from the classroom is leveraged in the laboratory as students learn how to apply theory in ways that benefit not only the professor's research but their individual skill sets and career prospects. While many people think of scientific discovery as the "light bulb" moment, it is important not to over-glamorize this process. The day-to-day activity in these laboratories can be grueling, repetitive, and frustrating; results do not always come in as expected, but there is no shortcut as scientific discovery requires this technical support work.

## Commercialization of Research

This research creates a wealth of intellectual property resulting in patents and licenses that generate significant revenue. The following chart details 115 patents and details 154 active licenses, two-thirds of which are Montana companies.<sup>1</sup> These industries are technical in nature, as the subsequent pie chart below demonstrates. The employment in these companies significantly outpaces other sectors in the state with regard to wages. The average annual wages for these types of jobs come in at \$48,040, compared to \$32,223 as a statewide average.<sup>2</sup>

MONTANA UNIVERSITY SYSTEM

### Research & Technology Transfer Report, FY07

#### Montana University System

Research & Tech Transfer (Policy 401)	FY 2006	FY 2007
R&D Expenditures	\$170,791,000	\$172,622,000
Number of new invention disclosures filed	42	35
Number of new start-up companies which have licensed or commercialized university-developed intellectual property	5	2
Number of new intellectual property licenses issued	31	36
Total intellectual property licenses in effect at the close of the fiscal year	131	153
Total gross revenues from intellectual property licenses	\$210,931	\$257,621

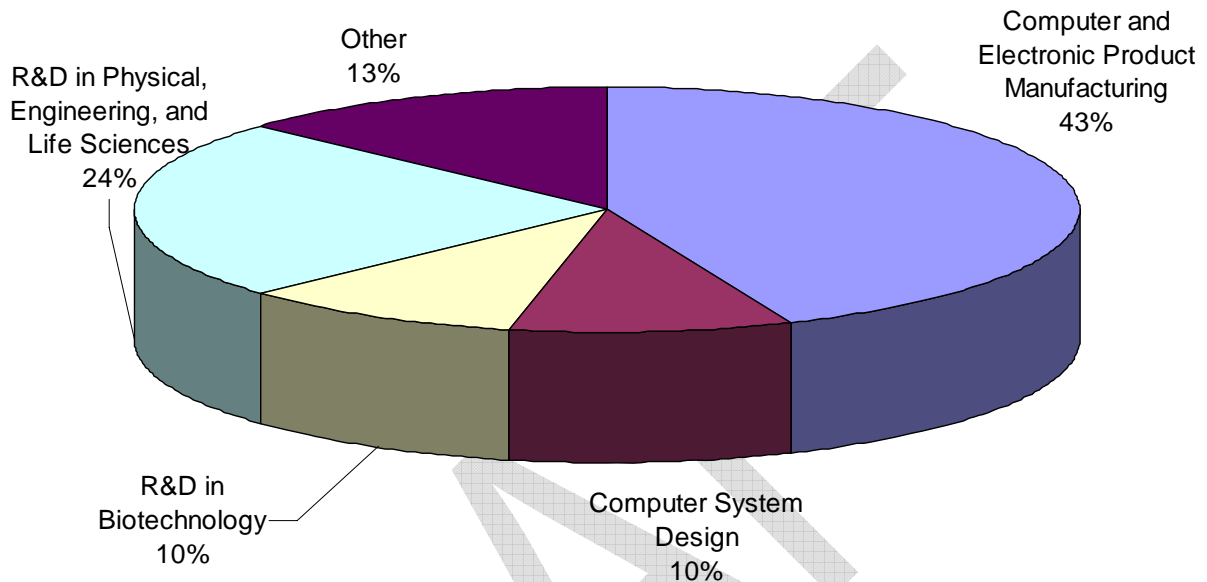
Strategic Plan Measures	FY 2006	FY 2007
Patents Issued	102	115
Active Licenses (Total)	132	154
Active Licenses (MT Companies)	82	96
Percent Licenses w/ MT Companies	62%	62%
License/Patent Revenues	\$40,949	\$60,165
Reimbursed Patent Costs from Licenses	\$160,982	\$138,562

Source: MUS Campus Offices of technology Transfer

<sup>1</sup> MUS Campus Offices of Technology Transfer

<sup>2</sup> MUS Campus Offices of Technology Transfer; MT Department of Labor and Industry

## MUS Research-Related Jobs by Industry



Source: MUS Campus Offices of Technology Transfer; MT Department of Labor and Industry

## Funding Sources

The core component of this study bill deals with the funding sources that support this research. Almost all of the money procured to keep these complex operations up and running comes from outside the state, greatly increasing the economic impact to the state. Money for salaries, equipment, and chemicals is procured through a competitive grant process, typically from federal agencies such as the National Science Foundation, The National Institutes of Health, and the Department of Defense. The Montana University System receives 66% of its research funding from the federal government, with both public and private revenue sources coming in at \$172 million for 2007.<sup>3</sup>

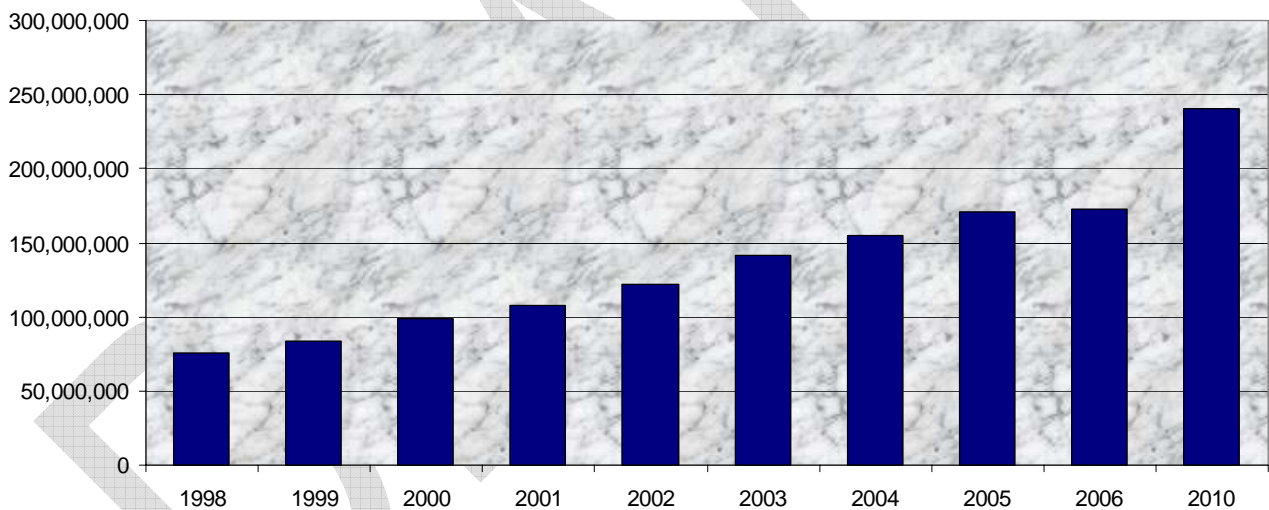
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<sup>3</sup> National Science Foundation

An important component with regard to this funding is the mechanism for how grants are awarded. The process is highly competitive, and a faculty member who fails to show results in peer review publications will quickly see future funds fail to materialize. Even though the funds are primarily federal, grants are not awarded based on the opinion of a federal employee in Washington. In most cases, the federal agency simply coordinates the process by assembling a team of experts in any given field from among the faculty ranks of research universities. This means that the work of faculty in Montana is being scrutinized by faculty from places like the University of Colorado, MIT, Michigan, and the Los Alamos National Laboratory.

The figure of \$172 million in research dollars represents a significant increase from previous years, and the Montana University System predicts the figure will increase to \$240 million by the end of the decade.

## **MUS Research and Development Expenditures**



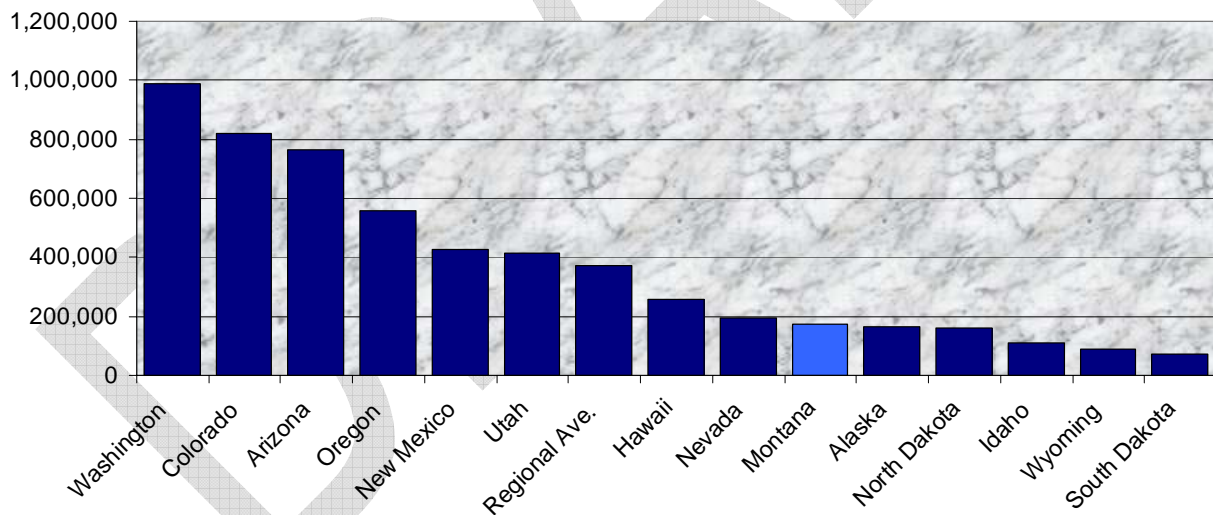
Source: Montana University System

The other question the EAIC was asked to explore was whether or not the amount coming into the University System is competitive with other states. Legislative staff explored the possibility of conducting an in-depth comparison with another state, with the state campuses in Boulder and Fort Collins, Colorado, seeming apt comparisons (complete with a football rivalry). Yet this type of a comparison proves difficult given all of the other factors that aggregate to create an individual university and its connection to the local community and correlating economic impact.

The question becomes: how mathematical do you allow your analysis to become? If the University of Colorado in Boulder receives X amount more funding than the campus in Missoula, does that reflect a lack of performance by the faculty, the University's Administration, and/or the state? How do you account for such factors as proximity to a large city, an increased population and thus tax base, or a state or university's branding in the minds of prospective students due to organic conditions beyond state control? The final and preferred research method, developed through the EAIC's official hearings, was to step back and look at Montana's universities as compared to their counterparts in the Western United States. California is not included due to the greatly increased size of its university system and population. Looking regionally rather than nationally also seems a more apt comparison as it removes institutions that are so much larger than what currently exists in Montana, (i.e. Ohio State, Florida, and the Research Triangle in North Carolina). In these cases, there are once again such factors as greatly larger populations and geographic location influencing how these Universities operate and grow.

So how does Montana stack up when looking at the raw numbers? Montana is below the regional average when looking at the total amount of federal funds received. Washington leads the way with almost \$1 billion in federal funds for total research dollars, while Wyoming and South Dakota come in at less than \$100 million in federal funds.

## Research and Development Expenditures



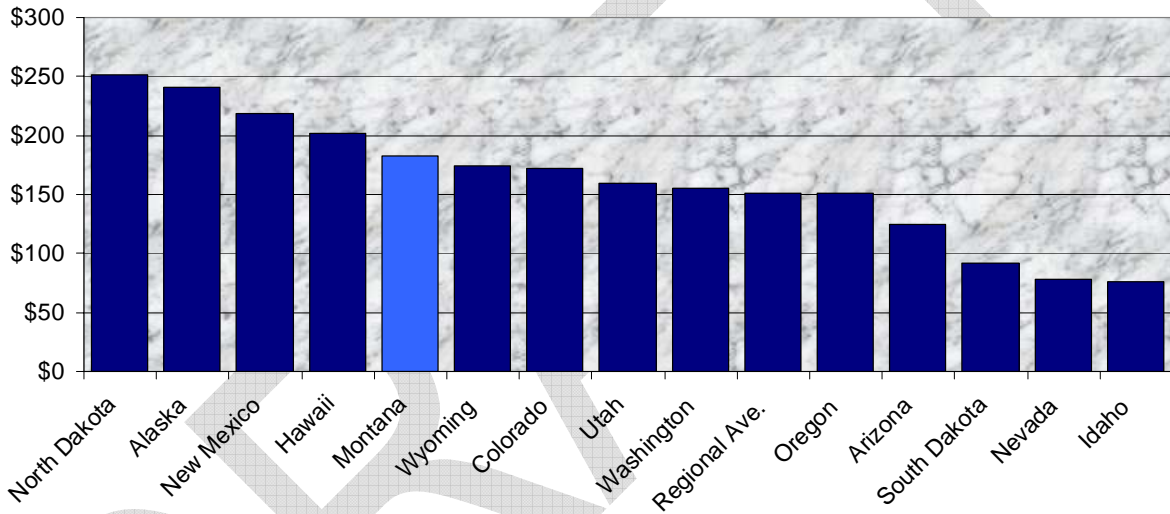
Source: National Science Foundation

These figures include both private and public institutions, and while private institutions are typically more focused on raw undergraduate education than research (there are exceptions; i.e., Notre Dame, Gonzaga, University of Denver), the lack of a large number of private colleges in Montana adds to the state's total research dollars lagging behind in total dollars. Yet once again



the question of an apt comparison comes into play. There are approximately 30 colleges and universities in the State of Washington, including large private institutions such as Gonzaga. In order to establish a better benchmark for analysis and accountability an adjustment was made for population, thus establishing a level playing field. The numbers here show that Montana's Universities are above the regional average and are outpacing the original comparison system in Colorado. For the size of the state of Montana the University System it is very competitive when it comes to competition for research funds, the credit for which must be given directly to the faculty and their student assistants.

## Research and Development Expenditures Per Capita



Source: National Science Foundation

## **Out-Migration of Montana Graduates**

One final component of the study bill dealt with the loss of college-educated Montanans to other states. The Census Bureau tracks college-educated singles in a special data series given that they are a highly mobile segment of society. Figures from the 1990s showed a net out-migration of this group, but recent figures portend a more positive outcome for Montana's economy (and mothers and fathers who want to see their tuition dividend happen a little closer to home). The new numbers show that Montana has a net in-migration of this group of higher-income earners, with 6,747 more people with at least an Associate's Degree or higher moving into the state as opposed to those moving out.<sup>4</sup> Data shows that a person with a Bachelor's Degree will earn as much as 71% more over the course of that person's career than someone with a high school diploma, and those dedicated graduate students plugging away in the laboratories can look forward to a 100% increase.<sup>5</sup> Proud parents aside, the return benefit to state revenue and economic benefit through the multiplier effect is transparent.

## **Summary/Conclusions**

Beyond the issue of federal research grants, the visit by the members of the EAIC to Missoula and Bozeman afforded the opportunity for a unique dialogue between the Legislature and university officials in ways that are not always available through the course of a legislative session. Communication internally within a large organization is a constant challenge, and this is compounded when including stakeholders from outside of the institution. The members of the EAIC recognize the constitutional (state) lines of delineation between the Legislature and the Board of Regents, but also understand the common goal of an educated workforce and the correlating benefit to the state's economy. The Committee also recognizes that this interim afforded only a glimpse of the multifaceted research and development that is being conducted by these faculty and staff, yet felt the hearings were an efficient way to better understand this highly specialized component of Montana's state universities.

Staff Note: As an official record of this study, legislative staff would like to give special recognition to the research conducted by Brad Eldredge. Mr. Eldredge is a Ph.D. economist with the Office of the Commissioner of Higher Education, and both his credentials and wide respect for his work make him a continuing resource for legislative deliberations in many policy areas.

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<sup>4</sup> U.S. Census Bureau, American Community Survey

<sup>5</sup> U.S. Census Bureau (Day and Newburger 2002)

### III. HJR 28: STUDY BUSINESS INFRASTRUCTURE

House Joint Resolution No. 28, assigned to the Economic Affairs Interim Committee, requires an analysis of the state's "business infrastructure" defined in that resolution to include such items as traditional land and air infrastructure systems, communication and technology systems, and support business dealing with workforce readiness, office space, etc. The resolution also required an analysis of legislation from other states that was designed to bolster a state's business infrastructure. While current state law, particularly tax code, is intertwined through this area, subsequent research found no current law or pending legislation that would purport to affect geographic realities impacting transportation or correlating market conditions such as business clusters. Montana has a variety of business development programs administered through the Department of Commerce and takes advantage of federal programs such as the Community Development Block Grant Economic Development (CDBG-ED) Program, also administered by the Montana Department of Commerce. It was determined at the organizational meeting that the topic for HJR 28 would be completed through the use of the white paper that is contained in this final report.

The lack of specific policy options in this area does provide the opportunity for an empirical view of what business looks like in Montana and how the state differs from others in the region and nationally for the purpose of cataloging challenges and opportunities as subsequent Legislatures explore policy options in the area of economic development. The following data is intended to present this picture and, in some cases, is offered without comment for unweighted informational purposes only. In addition to this data, a survey was conducted of a wide variety of businesses in the state through the Montana Chamber of Commerce, the National Federation of Independent Business, and Alltel, and the following local Chambers of Commerce: Havre, Billings, Great Falls, Butte, and Missoula. The information provided from this survey is summarized at the end of this section of the report, and a complete collection of the survey results are included in the appendices.

#### **Montana's Gross Domestic Product**

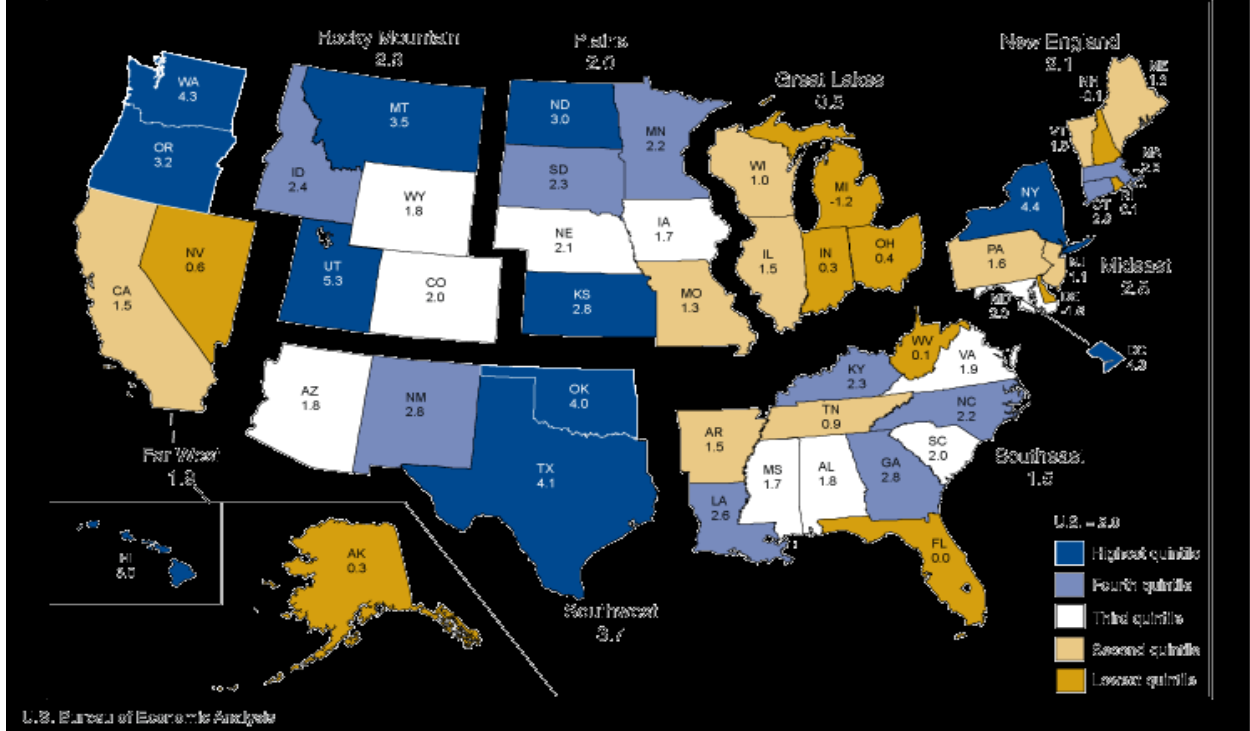
Gross Domestic Product (GDP), used in economic analysis at both the state and national level, is measured through looking at the output of goods and services produced by labor and property located within a jurisdiction. Real GDP is an inflation-adjusted measure of each state's production, wherever sold. It is not a measure of the prices of goods and services sold in each state. GDP is typically considered the most comprehensive measure of economic activity. Economic growth slowed nationally in 2007 (the most recent data available), with real GDP growth declining in 36 states<sup>6</sup>. Declines in construction, finance, and insurance lead too much of this slower growth.

Chart 1 – Percent Changes in Real GDP by State 2006-2007

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<sup>6</sup> U.S. Bureau of Economic Analysis

Chart 1. Percent Change in Real GDP by State, 2006-2007



U.S. Bureau of Economic Analysis

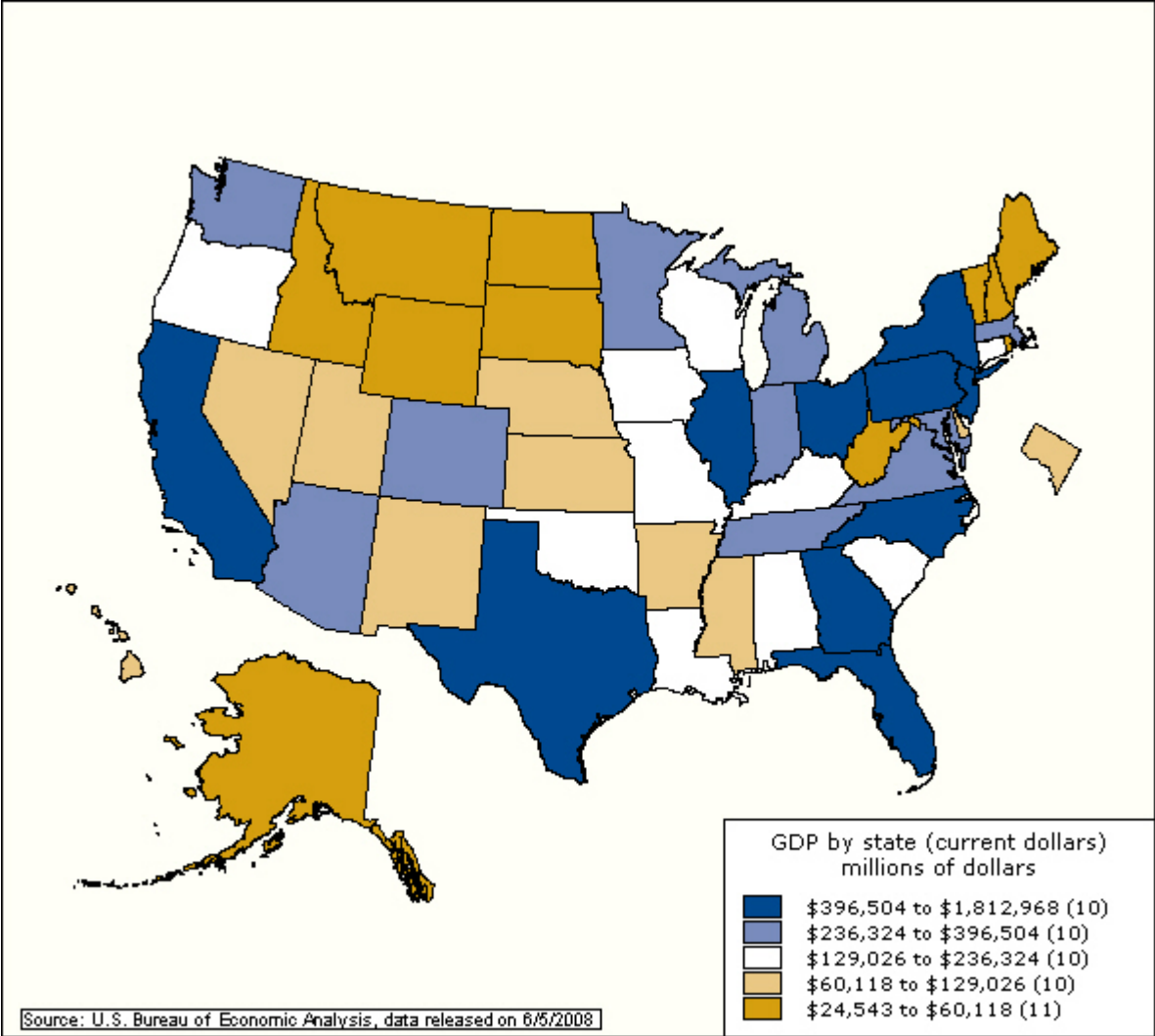
Per Capita Real GDP by State, 2007\*

States with the highest per capita				States with the lowest per capita			
	Per capita real GDP by state (chained (2000) dollars)	Rank in the U.S.	Percent of the U.S.		Per capita real GDP by state (chained (2000) dollars)	Rank in the U.S.	Percent of the U.S.
<b>United States</b>	<b>38,020</b>	<b>.....</b>	<b>100</b>	<b>United States</b>	<b>38,020</b>	<b>.....</b>	<b>100</b>
Delaware	56,496	1	149	Kentucky	30,364	41	80
Connecticut	51,911	2	137	Maine	30,282	42	80
New York	49,038	3	129	Idaho	29,843	43	78
Massachusetts	47,351	4	125	Alabama	29,603	44	78
New Jersey	45,052	5	118	Oklahoma	29,470	45	78
Alaska	44,807	6	118	South Carolina	28,894	46	76
California	42,376	7	111	Montana	28,201	47	74
Virginia	41,617	8	109	Arkansas	27,781	48	73
Minnesota	41,353	9	109	West Virginia	24,929	49	66
Colorado	40,805	10	107	Mississippi	24,477	50	64

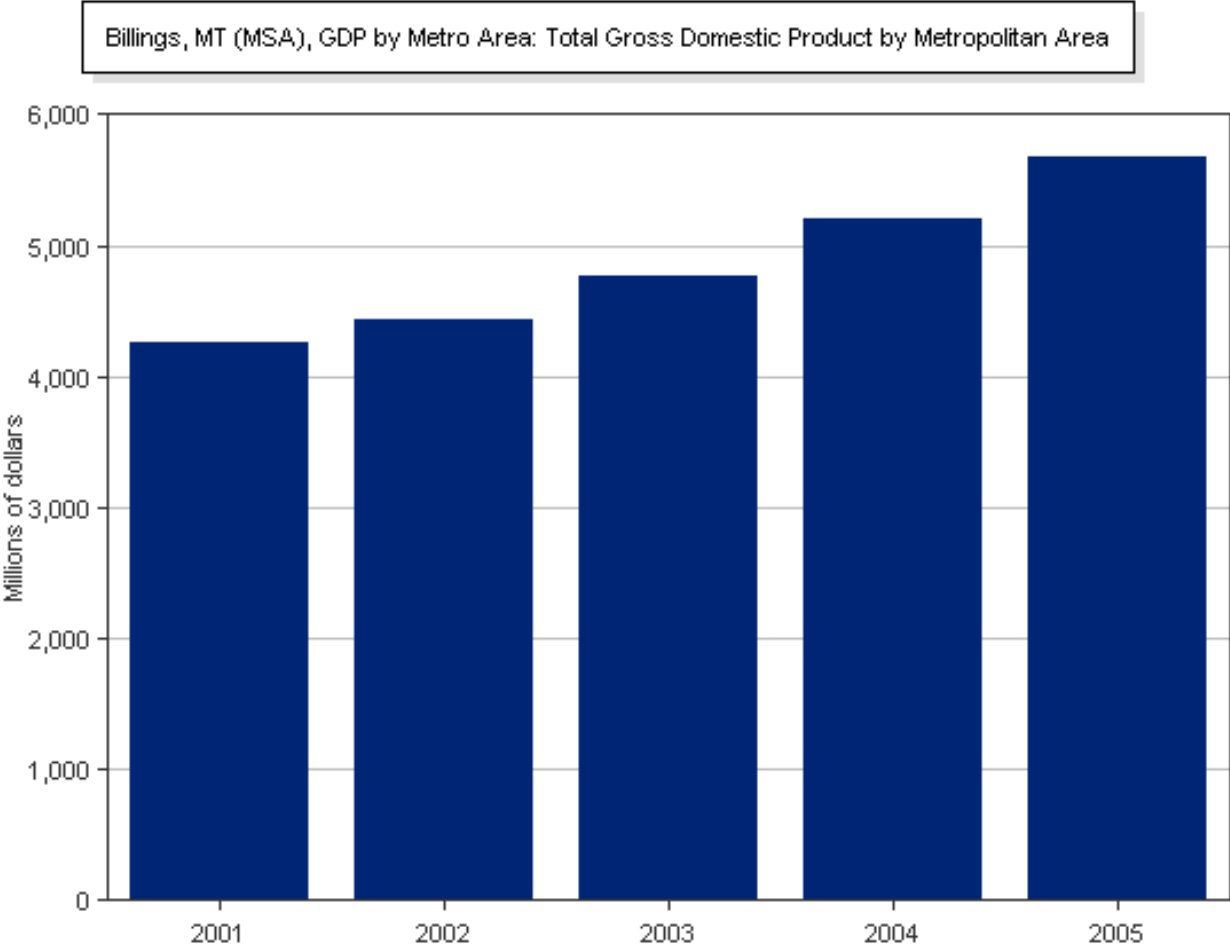
\* Advance Estimates

Source: U.S. Bureau of Economic Analysis

# State GDP in Actual Dollars



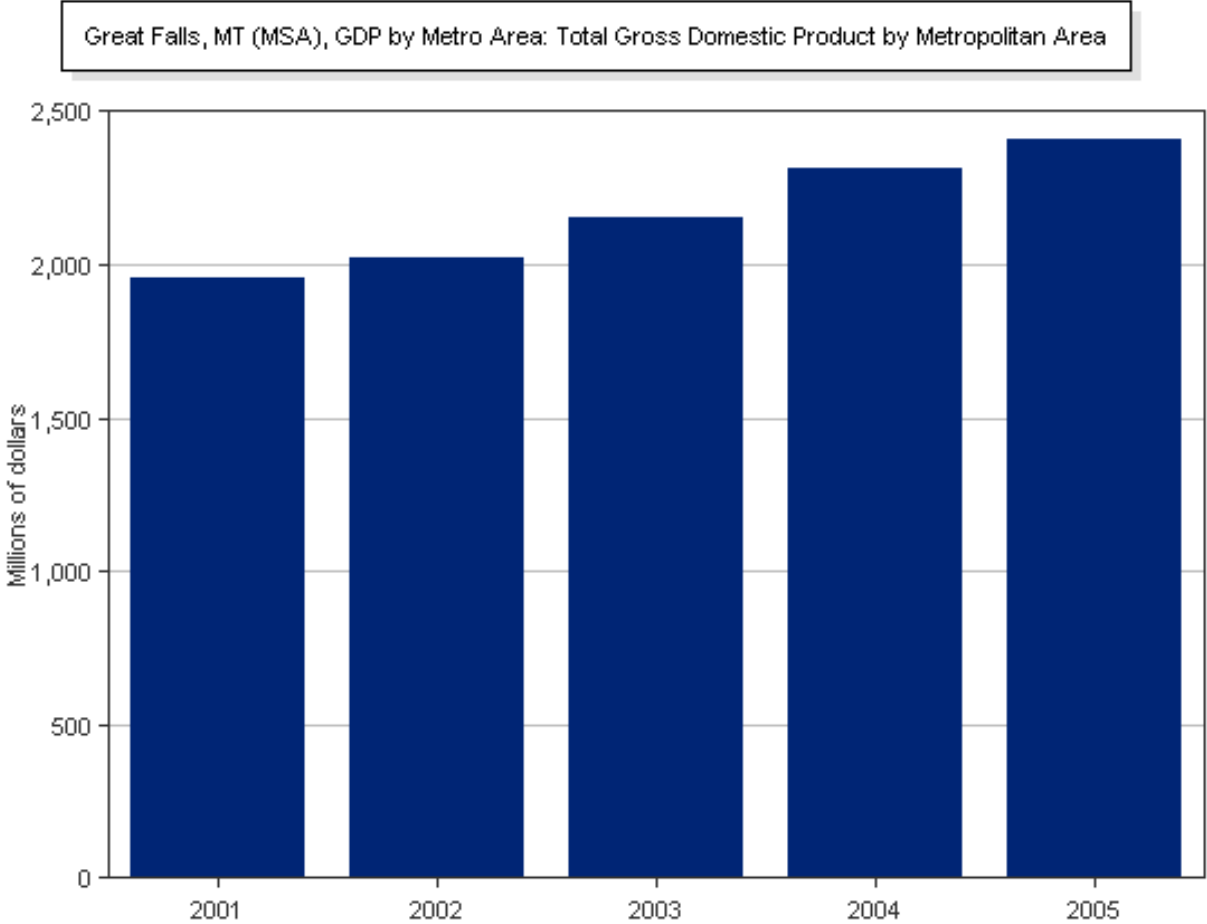
# Billings Total GDP in Millions of Dollars



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<sup>7</sup> Bureau of Economic Analysis

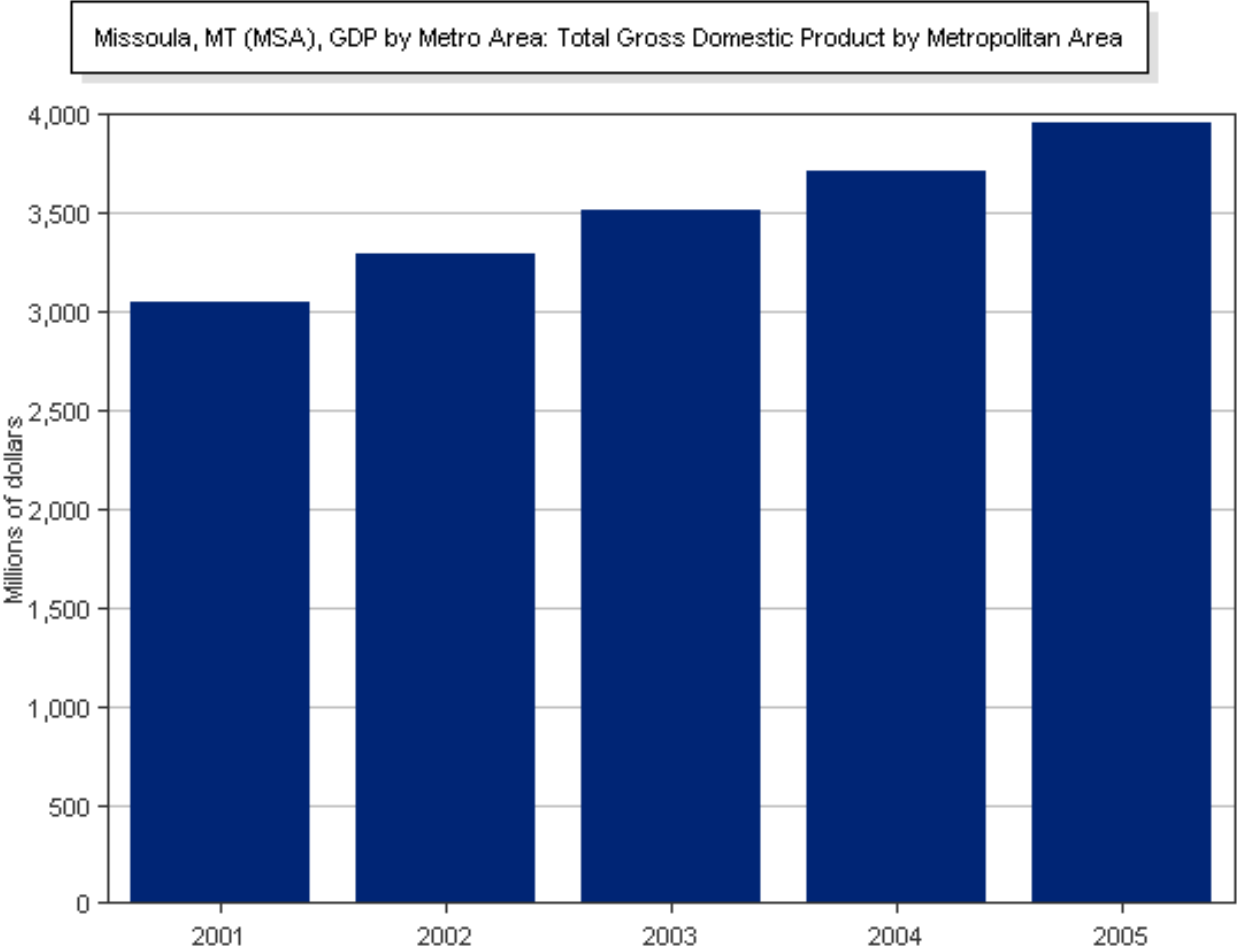
# Great Falls Total GDP in Millions of Dollars



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<sup>8</sup> Bureau of Economic Analysis

# Missoula Total GDP in Million of Dollars



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<sup>9</sup> Bureau of Economic Analysis



## Local Businesses by the Numbers

The federal government defines a “small business” as being 500 employees or less (in some cases this can be more depending on the industry code, but in most cases the number remains 500).<sup>10</sup> There are only 22 organizations (nongovernmental) that top this threshold, half of which remain in the healthcare sector. Only two manufacturing businesses and one mining operation have at least 500 employees. There are seven organizations in Montana that employ more than 1,000 employees, five of which are in the health care sector.

On the opposite side of this scale, just over 60% of the businesses in Montana employ between one and four employees. This number jumps to nearly 80% when looking at business with less than 10 employees, and a full 90% of businesses employ less than 20 employees in total. The diversity of types of businesses in these smaller operations also increases greatly. There are roughly 1,200 manufacturing operations with one to four employees, over 5,000 in retail trade, and even over 1,000 in the category of arts and entertainment. No agricultural operation is included in this data; however, businesses that support ranching and farming are included in a broader category that takes in forestry, fishing, and hunting. There are approximately 400 of these types of operations, with two-thirds of them employing four employees or fewer. Mining operations also increase in number when looking at far fewer total employees.

As is often the case when it comes to statistical data series, the federal government’s labels hardly apply to Montana. However one data series that seems custom-designed in analyzing Montana’s small businesses augments businesses with employees. “Nonemployer Statistics” tracks operations that have no payroll and that are tracked through information on federal tax returns.<sup>11</sup> There are over 80,000 such operations in Montana, an example being a carpenter who employs no assistants and subcontracts on either residential or commercial projects (a dog is optional, the government doesn’t track them). The only warning in the data here is that an individual can show up in several categories. A person who works for a hospital and operates a locksmith operation on the side would be both an employee and a non-employer; while two persons who are partners in a business but employ no one would count as one entity in this category. Yet the high number of these operations gives a more complete picture of the activities of Montanans as they try and achieve their personal economic goals.

The following chart and maps detail both small businesses by employees and these nonemployer entities that are so prolific across the state.

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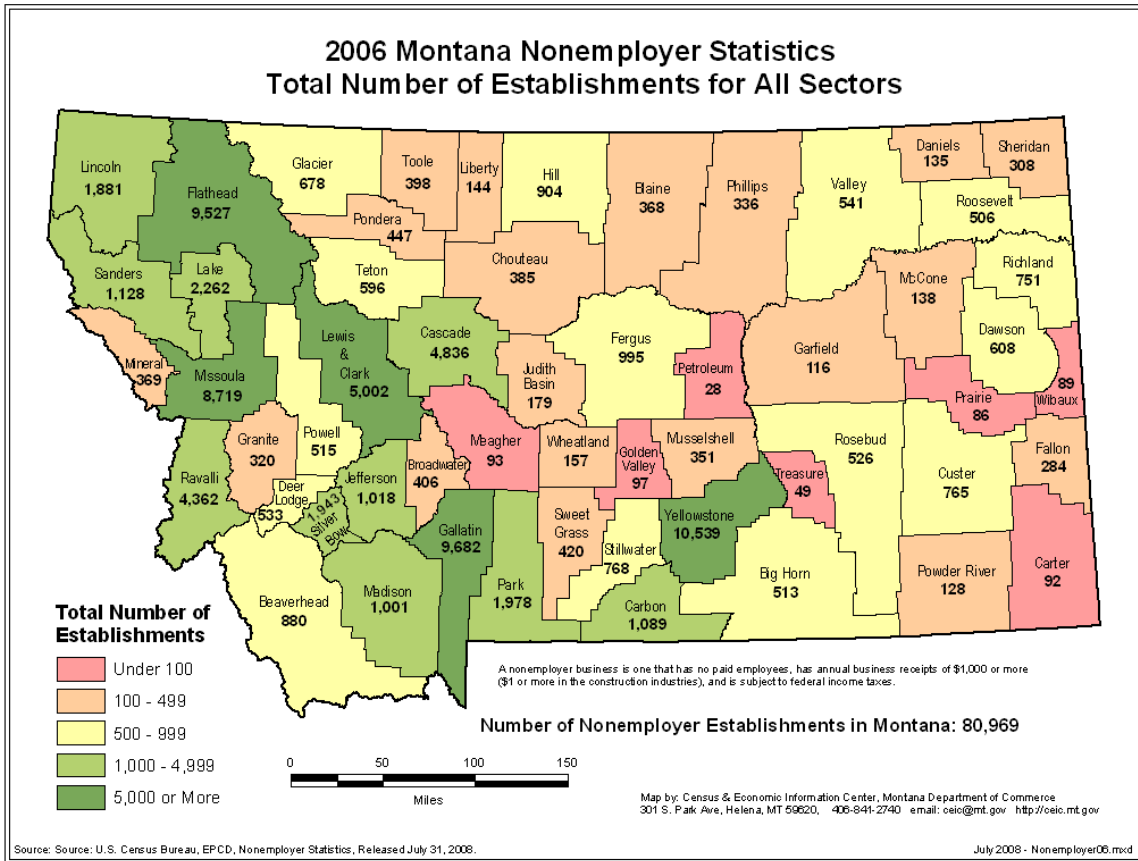
<sup>10</sup> U.S. Small Business Administration

<sup>11</sup> U.S. Census Bureau

## Montana Businesses by Number of Employees (2006) <sup>12</sup>

Industry Code Description	Total	'1-4'	'5-9'	'10-19'	20-49	50-99	100-249	250-499	500-999	1000+
Total	36,649	22,040	6,899	4,245	2,441	658	284	53	22	7
Forestry, fishing, hunting, agriculture support	399	308	64	15	10	0	2	0	0	0
Mining	310	176	43	48	22	10	7	3	1	0
Utilities	217	143	21	18	23	8	2	2	0	0
Construction	5,769	4,268	882	399	165	35	19	1	0	0
Manufacturing	1,274	653	249	168	113	56	24	9	2	0
Wholesale trade	1,480	782	311	226	114	38	8	0	0	1
Retail trade	5,192	2,454	1,308	817	412	133	60	5	3	0
Transportation & warehousing	1,249	819	171	138	83	28	9	1	0	0
Information	622	336	116	80	59	16	13	2	0	0
Finance & insurance	1,982	1,233	373	206	128	22	17	2	1	0
Real estate & rental & leasing	1,841	1,518	200	89	26	6	2	0	0	0
Professional, scientific & technical services	3,412	2,499	522	224	131	20	11	3	1	1
Management of companies & enterprises	116	47	16	22	21	7	2	0	1	0
Admin, support, waste mgt, remediation	1,548	1,048	230	141	79	27	15	7	1	0
Educational services	309	175	42	45	24	14	5	3	1	0
Health care and social assistance	3,262	1,617	733	449	256	121	59	12	10	5
Arts, entertainment & recreation	1,119	622	235	143	90	20	7	2	0	0
Accommodation & food services	3,375	1,231	708	731	591	91	21	1	1	0
Other services	3,074	2,022	667	285	93	6	1	0	0	0
Unclassified establishments	99	89	8	1	1	0	0	0	0	0

<sup>12</sup> U.S. Census Bureau, County Business Patterns



While Montana remains a low-wage state when looking at national figures, wages are increasing steadily, although this growth is disparate in different parts of the state. The following information from the Bureau of Economic Analysis shows state wage growth by county.

## Average Wage per Job (in Dollars) by Montana Counties

	2000	2001	2002	2003	2004	2005	2006
Montana	24,084	24,959	25,923	26,814	27,763	29,120	30,534
Beaverhead	21,277	21,252	22,534	23,477	24,353	25,722	26,850
Big Horn	23,604	25,382	25,828	27,895	28,205	31,082	31,168
Blaine	20,168	21,161	22,195	23,419	25,761	27,103	29,898
Broadwater	22,995	22,236	23,286	23,545	24,177	25,355	26,026
Carbon	17,709	18,117	18,671	19,474	20,330	21,989	23,229
Carter	14,187	14,721	16,677	16,265	18,136	19,284	19,475
Cascade	24,657	25,034	26,337	27,494	28,647	29,662	31,173
Chouteau	16,831	17,609	18,855	18,800	19,826	21,042	22,643
Custer	21,751	22,451	23,059	24,040	25,066	25,515	26,481
Daniels	19,963	20,553	20,724	21,042	22,540	24,925	25,345
Dawson	21,690	23,456	24,412	25,290	26,660	27,586	29,124
Deer Lodge	21,286	21,774	22,093	22,717	23,272	23,801	23,912
Fallon	22,161	23,882	24,946	26,350	28,996	33,591	37,245
Fergus	20,557	20,972	21,969	23,032	23,695	24,736	26,628
Flathead	\$24,227	24,991	25,788	26,749	27,782	28,904	30,490
Gallatin	22,796	23,696	24,719	26,014	26,750	28,359	30,135
Garfield	15,603	15,575	16,746	17,071	17,355	18,933	19,625
Glacier	22,326	23,580	24,787	25,640	26,896	27,852	28,916

	2000	2001	2002	2003	2004	2005	2006
Golden Valley	15,589	16,035	17,964	18,253	18,869	20,546	21,927
Granite	18,945	19,196	20,181	21,061	20,770	22,595	22,451
Hill	23,415	23,734	24,854	25,424	26,359	27,719	28,834
Jefferson	25,211	25,643	27,190	27,418	28,523	29,098	29,703
Judith Basin	17,283	17,724	19,205	18,104	19,278	21,333	21,535
Lake	20,928	22,230	22,820	24,063	24,941	25,606	26,517
Lewis and Clark	26,787	27,884	29,363	30,112	30,966	32,182	33,549
Liberty	21,056	22,209	24,543	24,163	24,827	26,415	27,498
Lincoln	22,349	22,335	23,099	23,913	24,088	25,095	26,835
McCone	19,848	20,534	21,209	21,824	22,927	24,389	25,170
Madison	19,579	20,767	21,861	21,473	22,407	26,417	29,203
Meagher	17,672	17,728	19,103	19,977	21,329	22,620	24,086
Mineral	18,758	18,625	19,075	20,558	20,440	21,076	22,201
Missoula	24,942	25,672	26,783	27,571	28,076	29,165	30,204
Musselshell	17,517	18,216	19,210	20,099	22,087	23,582	25,107
Park	19,575	20,908	21,257	21,950	22,637	24,006	25,443
Petroleum	17,718	17,684	19,091	19,705	19,650	20,807	20,216
Phillips	18,331	18,971	19,778	20,703	21,881	23,688	24,664
Pondera	20,720	21,471	22,806	23,765	25,198	26,420	27,353
Powder River	16,055	16,807	17,404	18,272	19,248	20,958	21,441

	2000	2001	2002	2003	2004	2005	2006
Powell	23,753	24,253	25,242	25,837	26,530	28,184	30,074
Prairie	16,448	18,011	18,276	19,218	19,962	23,435	24,414
Ravalli	22,063	22,574	23,168	23,509	24,318	25,331	26,280
Richland	21,396	22,603	23,514	24,899	26,473	29,050	32,875
Roosevelt	19,831	20,582	21,564	22,549	23,634	24,296	25,558
Rosebud	29,389	30,064	31,669	31,027	31,293	34,353	38,458
Sanders	19,749	20,133	21,243	22,074	22,482	23,432	24,320
Sheridan	18,507	18,516	18,735	19,972	21,734	22,939	23,894
Silver Bow	24,827	25,171	26,312	26,954	28,169	30,044	31,202
Stillwater	35,186	38,883	36,042	34,861	36,325	38,070	39,556
Sweet Grass	17,833	20,289	29,477	29,287	31,870	34,178	36,624
Teton	19,814	20,577	21,424	23,363	24,233	25,448	26,162
Toole	23,254	24,036	25,079	25,663	27,314	29,401	29,941
Treasure	18,887	19,869	20,268	19,019	21,108	23,163	25,219
Valley	21,249	22,504	23,274	23,909	25,419	26,813	27,671
Wheatland	16,914	17,254	18,186	18,345	19,032	20,852	21,717
Wibaux	15,000	16,843	17,559	18,726	19,751	20,377	20,905
Yellowstone	26,635	27,825	28,548	29,487	30,744	32,238	33,723

Source: U.S. Bureau of Economic Analysis

## National Perspective

While comparisons with the larger U.S. economic engine may seem quixotic given that Montana's population is less than one-half of 1% of the national total, it does demonstrate some of the challenges of economic and business development in a rural state that is far removed from those parts of the national geography that assist in the movement of goods and products (the Great Lakes, rivers that can be navigated by barges, ocean ports, etc.). Economic conditions are intertwined with demographics, specifically population figures. In looking at any given geography for economic health, there are sources of finance within and from without the entity. All geographies want/need sources of income coming from outside of the area because these monies have greater weight within the economy than funds transferred from two sources internally; yet these internal transactions gain significance in a more-populated area because through frequency and threshold the general economy is benefited, an economic condition that is not possible in a (greatly) less-populated geographical unit.

	Montana	USA
Private nonfarm establishments, 2005	35,736	7,499,702
Private nonfarm employment, 2005	326,887	116,317,003
Private nonfarm employment, percent change 2000-2005	10.4%	2.0%
Nonemployer establishments, 2005	80,851	20,392,068
Total number of firms, 2002	100,402	22,974,655
Black-owned firms, percent, 2002	0.2%	5.2%
American Indian and Alaska Native owned firms, percent, 2002	2.0%	0.9%
Asian-owned firms, percent, 2002	0.5%	4.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	0.0%	0.1%
Hispanic-owned firms, percent, 2002	1.0%	6.8%
Women-owned firms, percent, 2002	24.4%	28.2%
Manufacturers shipments, 2002 (\$1000)	4,987,577	3,916,136,712
Wholesale trade sales, 2002 (\$1000)	7,223,420	4,634,755,112
Retail sales, 2002 (\$1000)	10,122,625	3,056,421,997
Retail sales per capita, 2002	\$11,116	\$10,615
Accommodation and foodservices sales, 2002 (\$1000)	1,537,986	449,498,718
Building permits, 2006	4,542	1,838,903
Federal spending, 2004 (\$1000)	7,493,567	2,143,781,727

Source: U.S. Census Bureau

## **Transportation and Energy**

Montana's status as a border state greatly increases the traffic of goods and commodities through the state. In 2007, 108,065 individual freight trucks crossed the border from Canada; compared to 16,000 of these vehicles registered in Montana.<sup>13</sup> Montana has 1,191 miles of Interstate Highway and 2,277 miles of Class 1 railroad track.<sup>14</sup> The railroad-to-railroad mile is particularly interesting when compared with the large population center on the northeast coast. New Jersey has 420 miles of Interstate highway, but still has 1,582 of Class 1 railroad track. New York has almost an identical amount of railroad track despite being one-third the size of Montana, a reflection of the need for goods coming into the population center and products coming out of such manufacturing areas. Northern midwestern states with access to the Great Lakes (and thus sea routes) show similar large proportions of railroad mileage.

Montana's road culture is also reflected by how the workforce commutes. Seventy-five percent of workers drive alone, 17% walk or carpool; 6% work at home; and less than 1% take public transportation.<sup>15</sup> Included within the 6% are many agricultural owners/employees who might not have a commute but typically use a large amount of energy in the course of their workday.

Air travel is critical to economic and business development, but it is difficult to segregate business travel from other types of travel. Many of those people traveling to Montana for recreational purposes do so by air, a condition demonstrated by the fact that Glacier Park International Airport outpaces both Great Falls and Helena for passenger enplanements.

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<sup>13</sup> U.S. Department of Transportation, Bureau of Transportation Statistics

<sup>14</sup> U.S. Department of Transportation, Bureau of Transportation Statistics

<sup>15</sup> U.S. Census Bureau



## Airplane Passengers

Airport	Large certificated air carriers	Commuter and small certificated air carriers	Air taxi commuter operators	Foreign air carriers	Total enplanements
Billings Logan Int.	285,533	57,470	3,372	0	346,375
Gallatin Field Airport	214,704	25,351	528	0	240,583
Missoula Int.	202,412	27,095	472	86	230,065
Glacier Park Int.	150,881	6,938	185	0	158,004
Great Falls Int.	136,578	6,449	91	514	143,632
Helena Regional Airport	59,480	16,921	124	150	76,675
Bert Mooney Airport	13,362	34,497	90	0	47,949
Sidney-Richland	0	2,865	8,642	0	11,507
Yellowstone Airport	0	3,875	67	0	3,942

**NOTE:** Rank order by total enplaned passengers on air carriers of all types, including foreign air carriers.

**SOURCE:** U.S. Department of Transportation, Federal Aviation Administration

## Energy

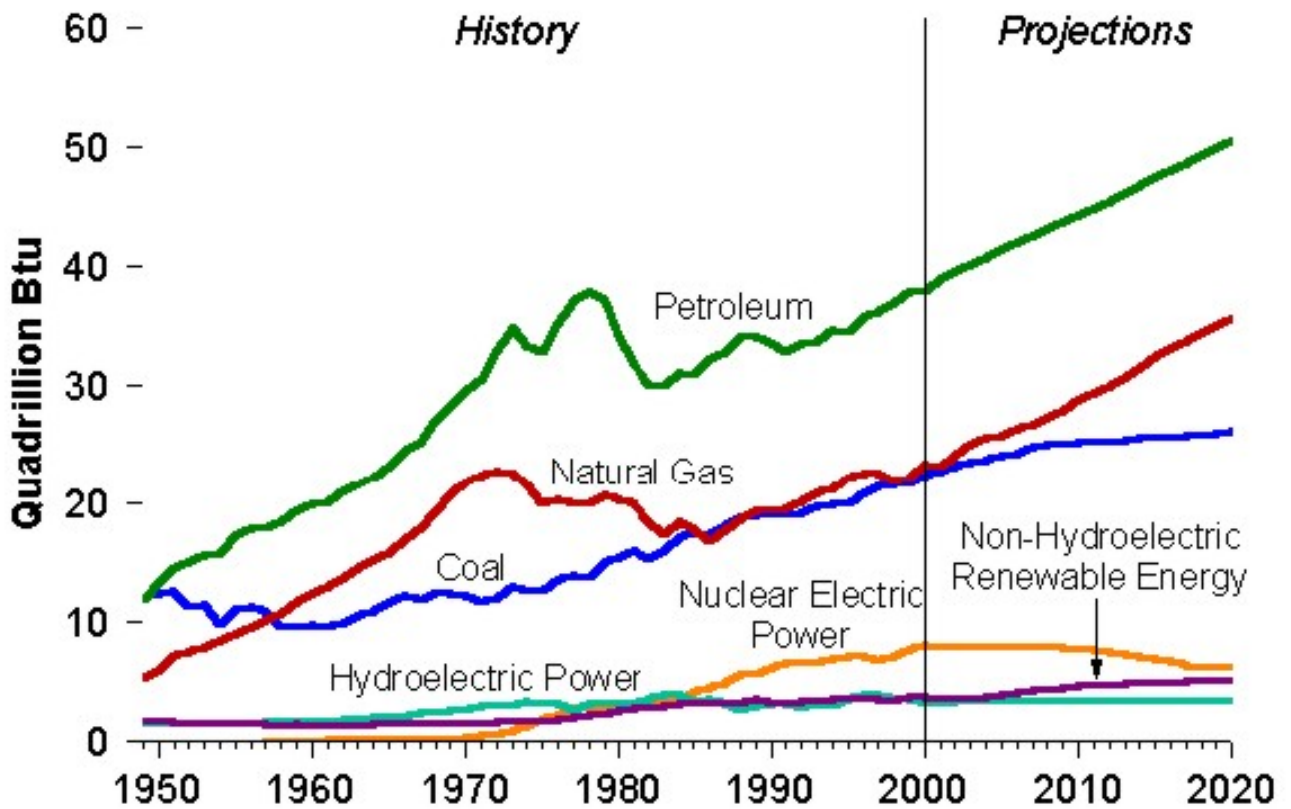
From 1885 through 1951, coal was the leading source of energy produced in the United States. Crude oil and natural gas then vied for that role until 1982. Coal regained the position of the top resource that year and again in 1984 and has retained it since. At 23 quadrillion Btu in 2000, coal accounted for nearly a third of all energy produced in the country.<sup>16</sup>

While Montana's low population leads to a relatively small energy demand on a national scale, both the state's economy and individual businesses (including ranches and farms) are energy-intensive, increasing per capita energy consumption. Montana accounts for about 4% of total U.S. coal production and delivers coal to markets in more than 15 states. The Williston Basin covers eastern Montana, as well as western North Dakota, and contains two of the nation's 100 largest oil fields. Montana is one of the top hydroelectric power producers in the United States. Seven of Montana's 10 largest generating plants run on hydroelectric power. Montana produces minor quantities of natural gas. Although production is low, demand is lower, and Montana ships nearly one-half of its natural gas output to out-of-state markets<sup>17</sup>

<sup>16</sup> U.S. Energy Information Administration

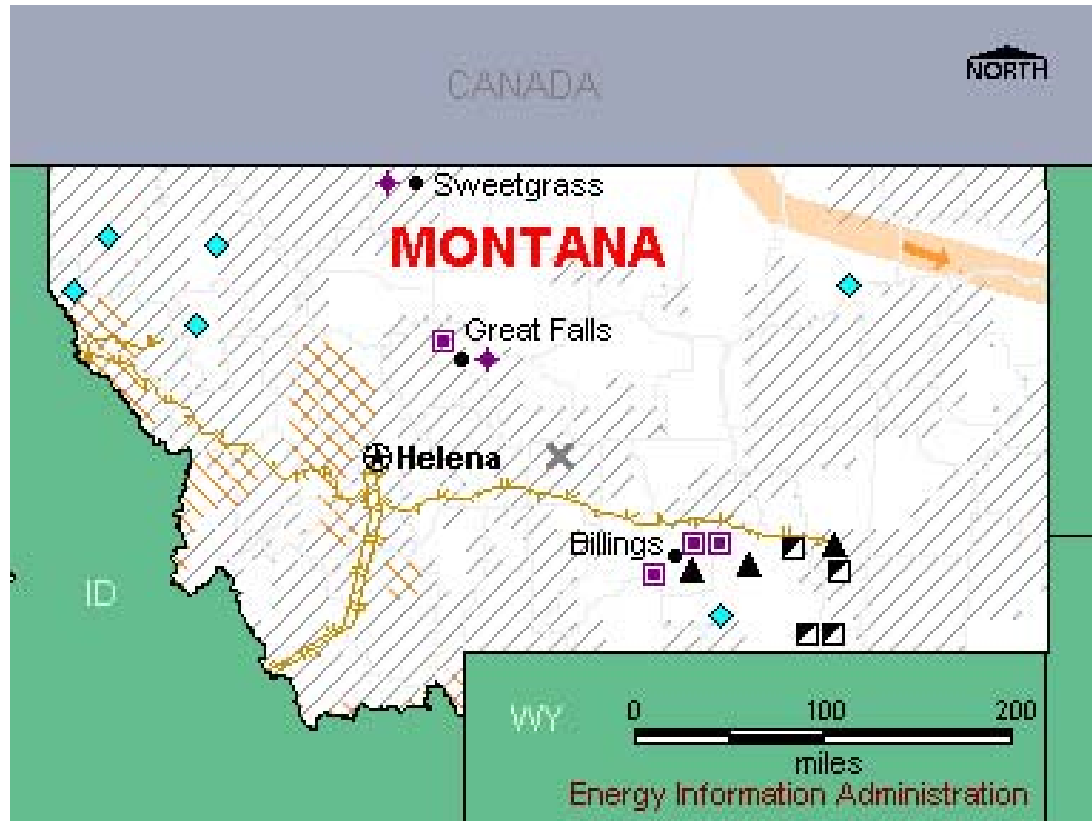
<sup>17</sup> U.S. Energy Information Administration

## U.S. Energy Use by Type



Source: U.S. Energy Information Administration, Annual Energy Review

# Geographical Location of Energy Sources/Value-Added Sites



Major Electric Power Plants (>=100 MW)		Renewable Energy Potential
Nuclear	Solar	Solar - (>= 6.0 kWh/m <sup>2</sup> /day)
Petroleum	Hydroelectric	Wind - (>= 4 Power Class)
Coal	Wind	Geo. - (>= 80 milliwatts/m <sup>2</sup> )
Natural Gas	Wood	
Geothermal		

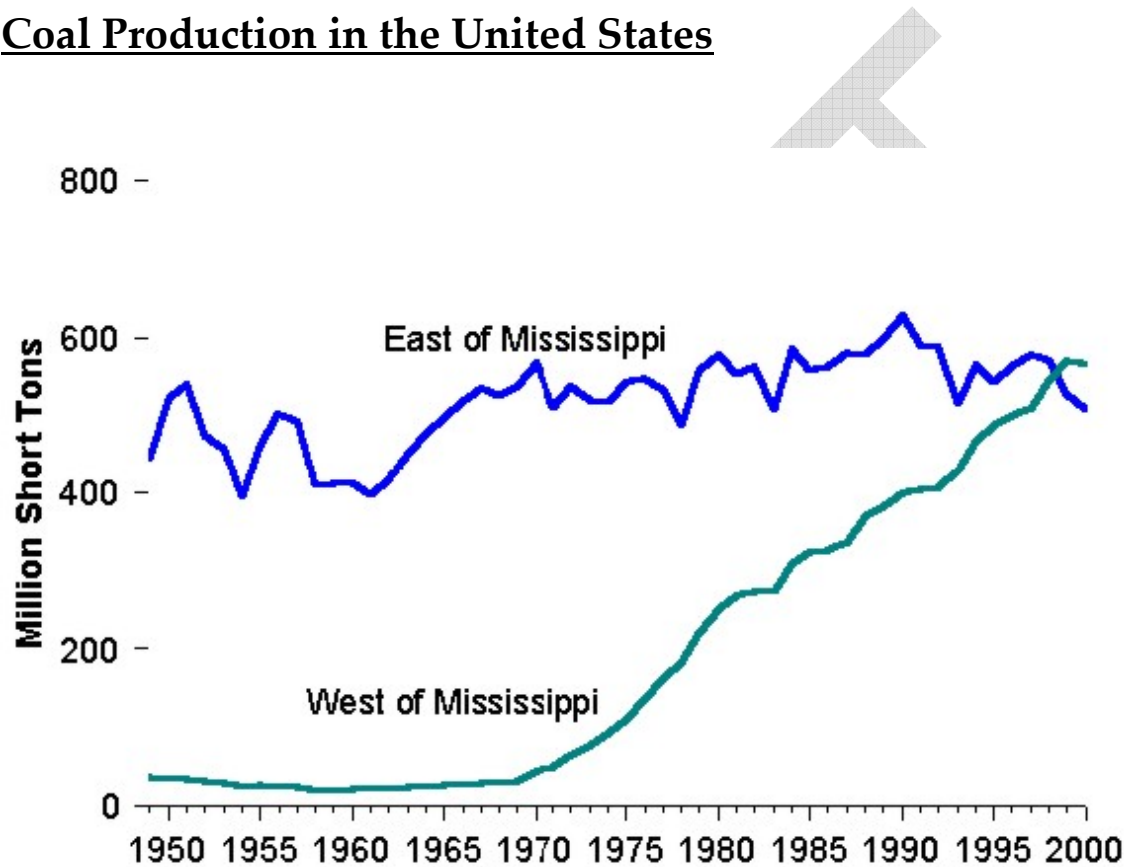
  

Electricity Transmission Line (>= 345 kV)	Oil Seaport	Oil Import Site
Petroleum Refinery	Coal Mine, Surface	Coal Mine, Underground
Natural Gas Flow (1 mile band width = 100 million cubic feet/day)	Hub	
Oil and Gas Active Leases		

Source: U.S. Energy Information Administration

Growth in coal production has taken place largely in the western United States. While Montana certainly contributed to this, the top 10 coal mines in terms of volume are all located in Wyoming. North Dakota takes the number 11 post, and then Montana takes up the next two places with the Spring Creek and Rosebud Mines.<sup>18</sup> While there are exceptions, most of the mines in the eastern United States are underground, compared with the surface mining that tends to dominate western operations.<sup>19</sup>

## Coal Production in the United States



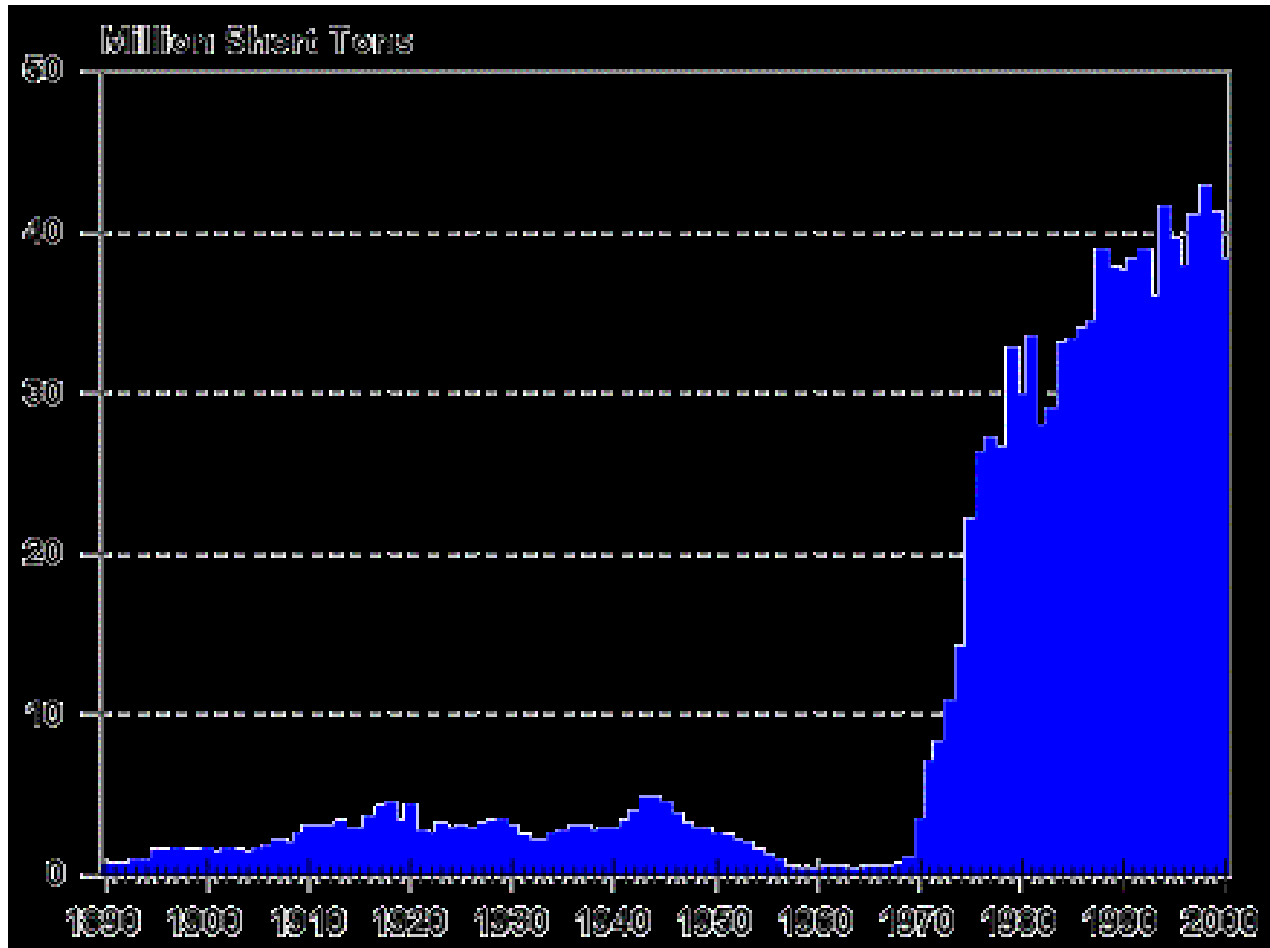
Source: U.S. Energy Administration, Annual Energy Review

<sup>18</sup> U.S. Energy Information Administration

<sup>19</sup> U.S. Energy Information Administration

## Coal Production in Montana

Million Short Tons



Source: U.S. Energy Information Administration

## Summary/Conclusions

The term “economic development” is a common phrase within government and public policy discussions, even as it is defined very differently by disparate groups. While policy discussions remain focused on the proper role for government in economic development; economic issues generally can be quite esoteric to the public. Government is first and foremost an economic actor (especially at the federal level), and so it is impossible to divorce the subject of government and economics. This federal/state relationship is especially true given the large amounts of money spent in Montana by the federal government relative to other more populated states that put forth a greater share of overall finances in federal taxes. In 2006, the most recent year information is available, the federal government expended over \$8 billion in Montana (the number jumps to \$10 billion if you include direct loans and insurance programs).<sup>20</sup>

Government is also the primary provider of infrastructure without which businesses could not transport goods and move people to provide services. The challenge in Montana is and will likely remain (as much of the data shows) the remote nature and distance from large population centers. Transmission of intellectual property through electronic means is being widely employed and holds future promise, but traditional manufacturing that requires transportation through roads, rail, or air service does not put Montana in a competitive position nationally. The numbers showing Montana to be a small business state are born of these geographic constraints, even as the types of businesses and other economic producers are shaped by topography, topsoil, water levels, and resources that lie below the land. What data has never been good at capturing are cultural factors. Montana businesses have traditionally benefited from a work ethic among the populace dating back to times of feast or famine. Workforce issues facing an aging society nationally are exasperated in Montana. A comprehensive survey of businesses in Montana coordinated through the Montana Chamber of Commerce, the local Chambers of Dillon, Havre, Sidney, Butte, and Great Falls showed the two main issues of concern to be workers’ compensation rates and the difficulty in recruiting and maintaining a qualified workforce. While specific sectors expressed concerns more related to a narrow industry, these two macrocategories were mentioned with overwhelming frequency by respondents.

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<sup>20</sup> Consolidated Federal Funds Report