

TRENDS

TRAINING FOR WHAT? PART 1

Manufacturing Industry in Wyoming Small but Growing

by: Patrick Manning, Principal Economist

The next several issues of Wyoming Labor Force Trends will contain articles analyzing Wyoming's manufacturing industry. The articles in this issue examine the manufacturing industry as a whole, and compare new hires in this industry to occupational projections and current staffing patterns (see page 8). The July issue will include articles on training needs in the manufacturing industry and skills considerations for new hires.

The last several years have been tumultuous in Wyoming and the nation. The Great Recession in the United States lasted from December 2007 to June 2009 (NBER, 2010), and although the economy has grown, the growth has proven relatively slow and has not led to substantial gains in employment. Employment in the overall private sector and in the manufacturing sector continued to fall until September 2010 both nationally and in Wyoming (see Figure 1, page 3). This article compares and contrasts Wyoming's industry composition to that of the United States as a whole, with a focus on the manufacturing industry.

Many discussions regarding the U.S. economy revolve around the perceived loss of the U.S. manufacturing base and employment. While this is true over the 10 years from 2001 to 2010, employment in the manufacturing industry has been increasing in early 2011 (BLS, 2011; see Figure 1). In 2009, the U.S. led the world with \$1.7 trillion in value-added manufacturing, followed by China (\$1.3 trillion). Additionally, the U.S. manufacturing industry was larger than Japan and Germany's combined (Keefe, 2011).

(Text continued on page 3)

HIGHLIGHTS

- **New technologies are emerging that allow more of Wyoming's natural resources to be brought to the surface and used cleaner than in the past. These new technologies will play a major role in shaping Wyoming's labor market in the coming years . . . page 21**
- **Unemployment rates declined or remained unchanged from year-ago levels in all 23 Wyoming counties. . . page 37**

(Text continued from page 1)

The composition of employment and economic output in Wyoming's major industries deviates substantially from the national profile in some cases and closely matches it in others. Figures 2a and 2b (see page 4) compare the U.S. and Wyoming by the proportion of employment by major industry in 2010. In both cases, trade, transportation, & utilities is the largest employment sector, at 23.0% for the U.S. and 24.0% for Wyoming. Retail trade is included in this sector and comprises a significant portion of employment in the economy.

The largest difference between the U.S. and Wyoming economies is in the natural resources & mining sector, which provides 13.4% of the employment in Wyoming, but only 1.7% nationwide. The proportion of jobs found in the professional & business

services sector in Wyoming is roughly half the national share (8.4% to 15.8%). Manufacturing provides 10.8% of the employment nationally, but only 4.2% in Wyoming.

In terms of economic output, the financial activities sector is the largest contributor to Gross Domestic Product (GDP) nationally at 24.4%, followed by trade, transportation, & utilities at 18.5% (see Figure 3a, page 6). Manufacturing contributes 13.5% of economic output nationally.

In Wyoming, the natural resources & mining sector contributes the most to the state GDP by far at 37.5%, compared to just 3.4% nationally (see Figure 3b, page 6). The trade, transportation, & utilities sector accounts for roughly the same amount of

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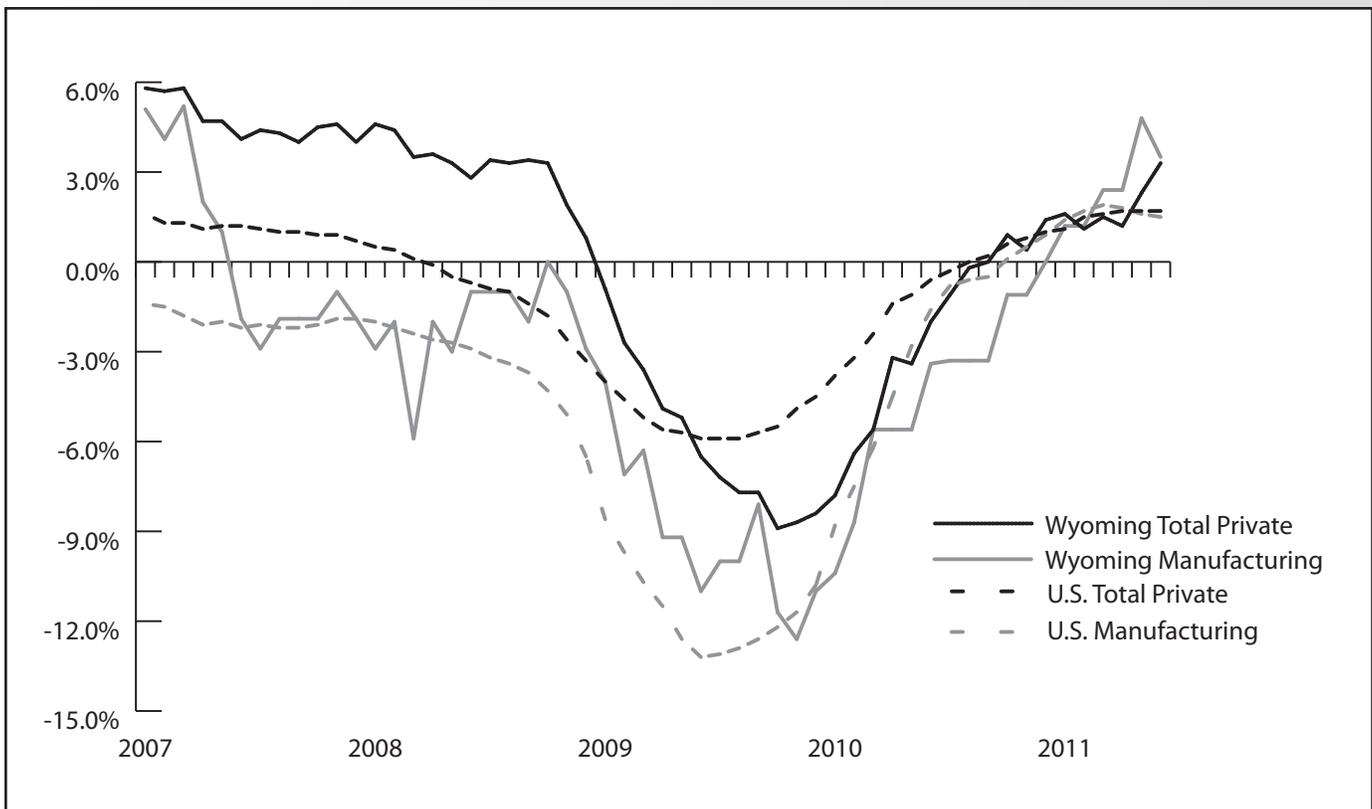


Figure 1: Over-the-Year Change in Employment (January 2007-June 2011)

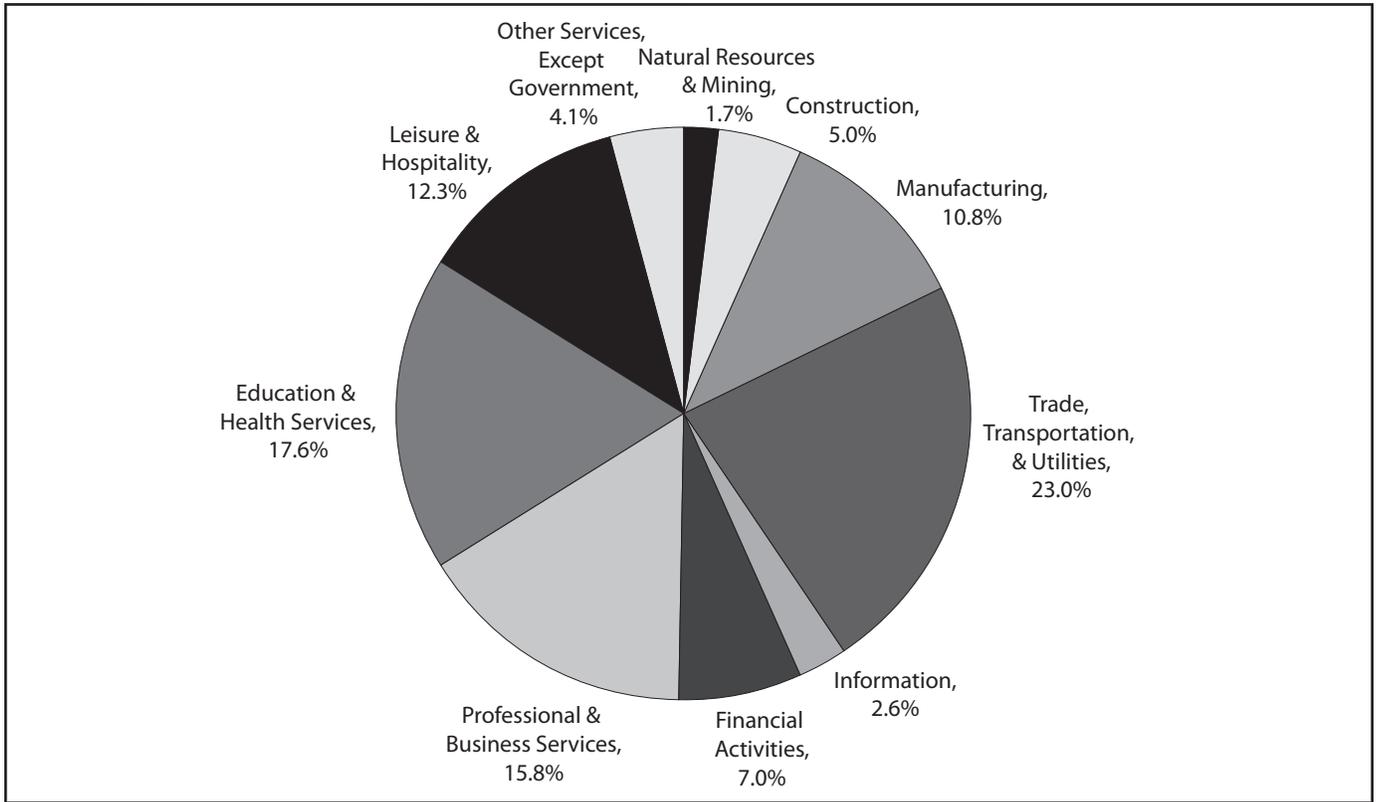


Figure 2a: U.S. Private Sector Employment by Major Industry, 2010

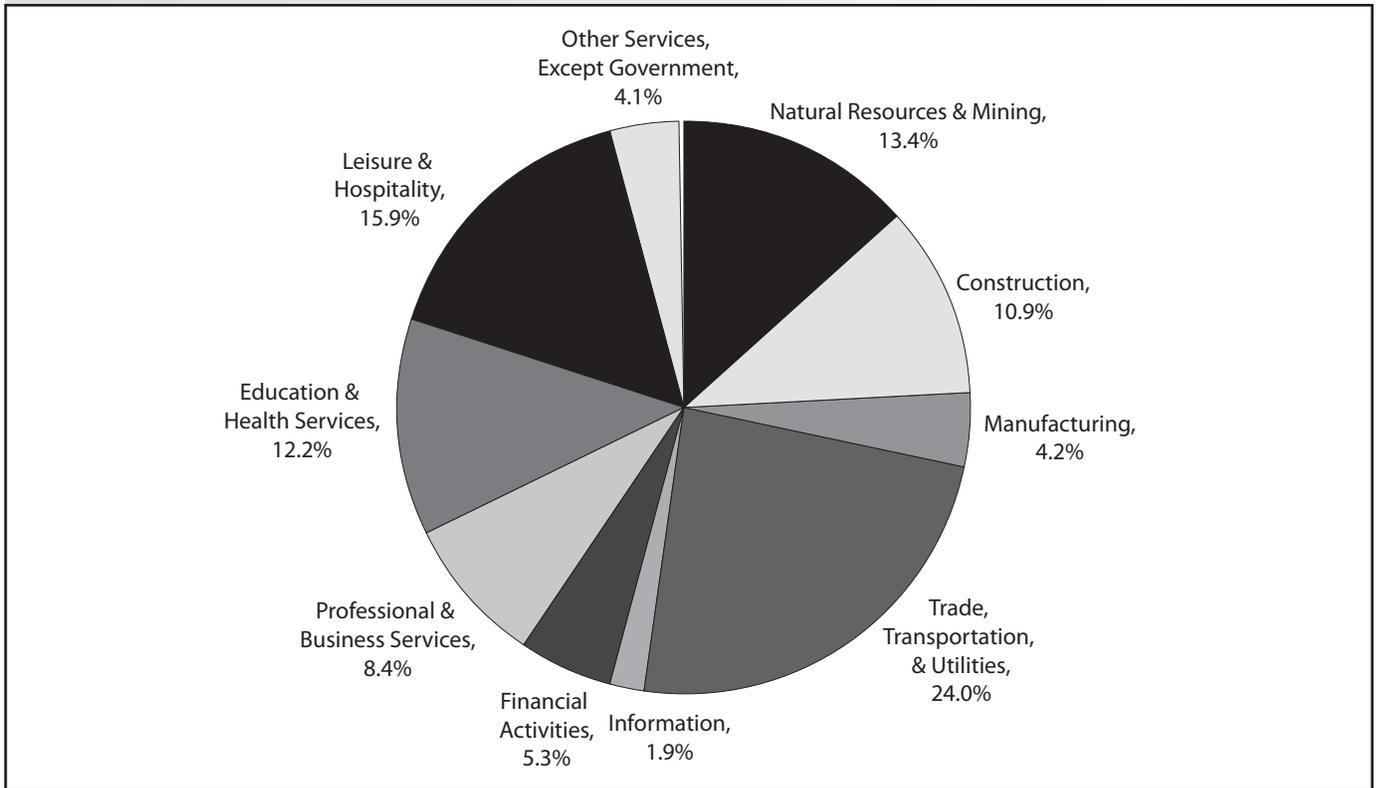


Figure 2b: Wyoming Private Sector Employment by Major Industry, 2010

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economic activity in Wyoming (19.0%) and nationally (18.5%). Manufacturing accounts for 8.6% of Wyoming's economic output.

In 2009 and 2010, manufacturing accounted for a higher percentage of Wyoming employment than at any other point over the last decade; this increase may indicate that manufacturing is becoming a more important component of the state's economy.

There were 609 establishments and 8,479 employees within the manufacturing industry in Wyoming for first quarter 2010, and 75.7% of the firms were composed of fewer than 10 employees (see Figure 4a, page 7). While these smaller establishments comprise the bulk of manufacturing firms, they only provide 16.5% of the manufacturing employment (see Figure 4b, page 7). Firms with 50 or more employees

provide the majority of the manufacturing employment (57.5%), despite only accounting for 6.6% of the total manufacturing firms.

References

- Keefe, J. (2011, June 21). Manufacturing surprise: the U.S. still leads in making things. CBSmoneywatch.com. Retrieved June 29, 2011, from <http://moneywatch.bnet.com/economic-news/blog/macro-view/manufacturing-surprise-the-us-still-leads-in-making-things/2134/>
- National Bureau of Economic Research. (2010). Retrieved July 7, 2011, from <http://www.nber.org/cycles/sept2010.html>
- U.S. Bureau of Labor Statistics. (2011). Current Employment Statistics. Retrieved July 13, 2011, from <http://www.bls.gov/ces/>

What is Manufacturing?

Some firms that are found in the manufacturing industry may be surprising.

For example, many firms involved in agricultural processing are included in the manufacturing industry, as opposed to the agriculture industry, such as breweries and cane sugar refining.

The Bureau of Labor Statistics defines the manufacturing industry in this way:

The manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.

Establishments in the manufacturing sector are often described as plants, factories, or mills and characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector. Manufacturing establishments may process materials or may contract with other establishments to process their materials for them. Both types of establishments are included in manufacturing.

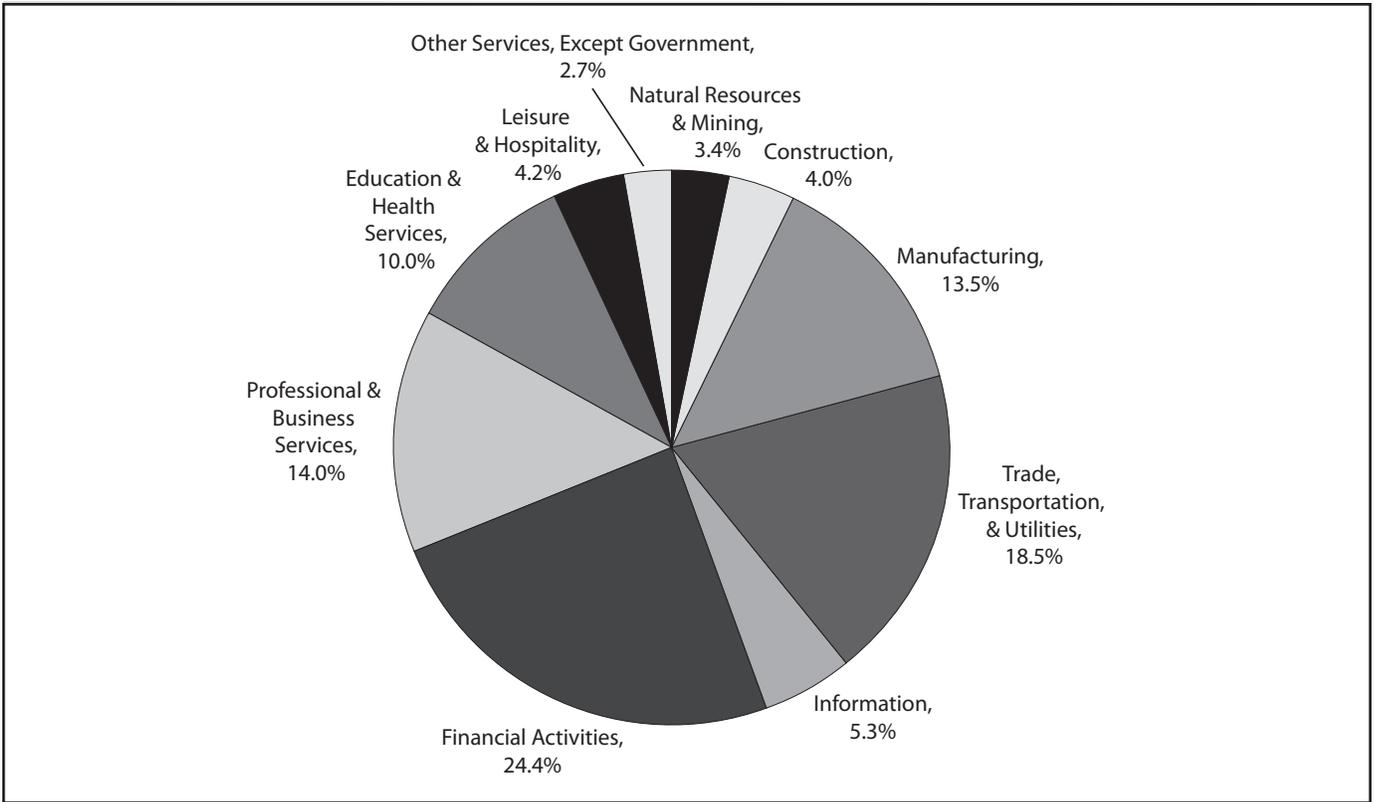


Figure 3a: U.S. Gross Domestic Product by Major Industry, 2010

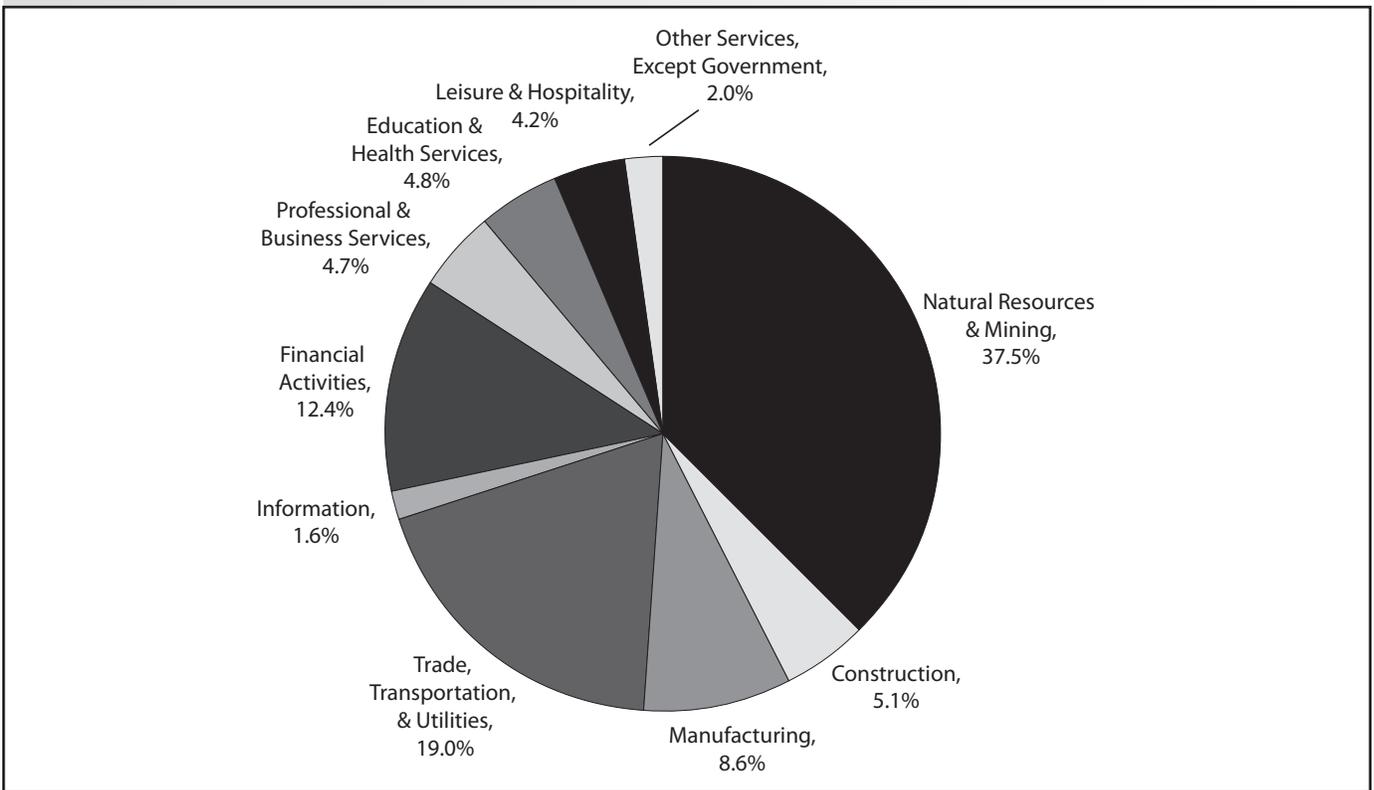


Figure 3b: Wyoming Gross Domestic Product by Major Industry, 2010

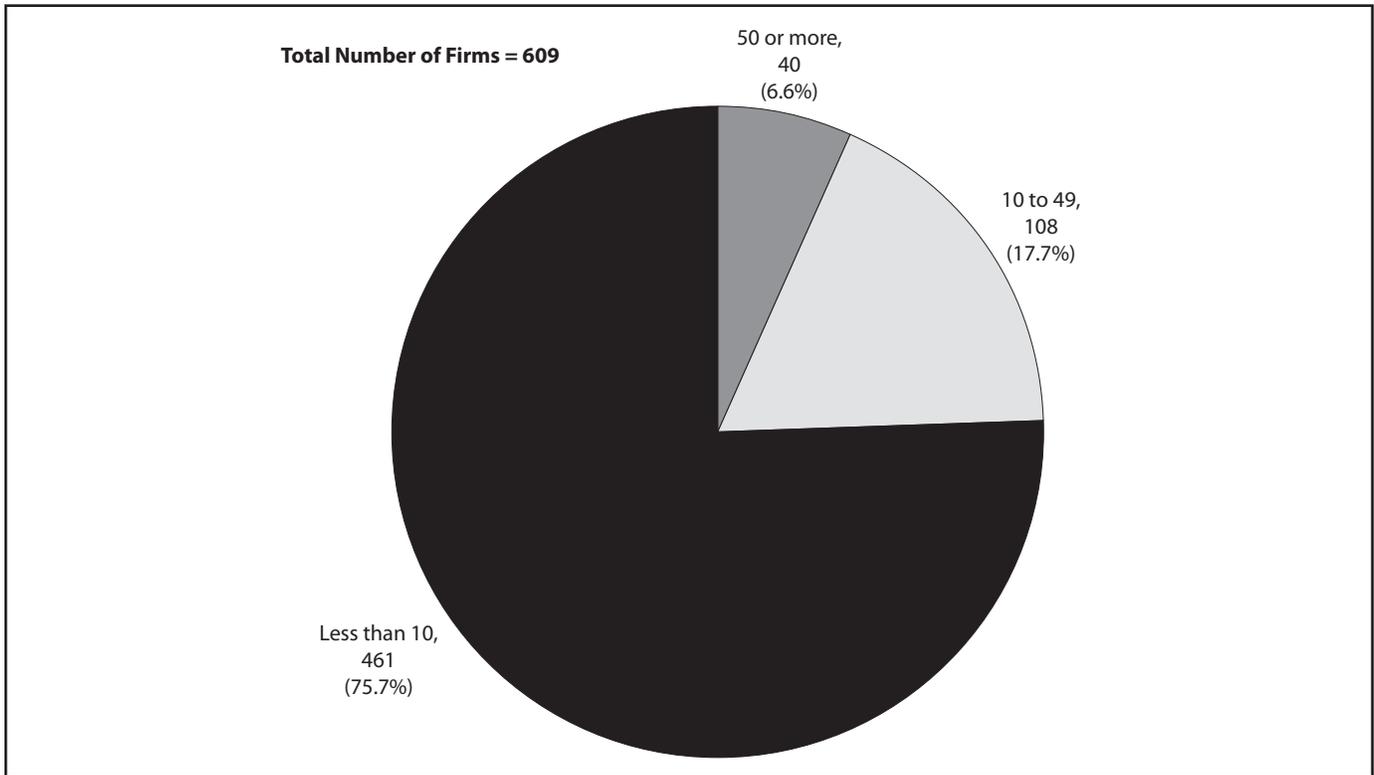


Figure 4a: Number and Percentage of Manufacturing Firms by Size Class (Determined by Number of Employees), 2010Q1

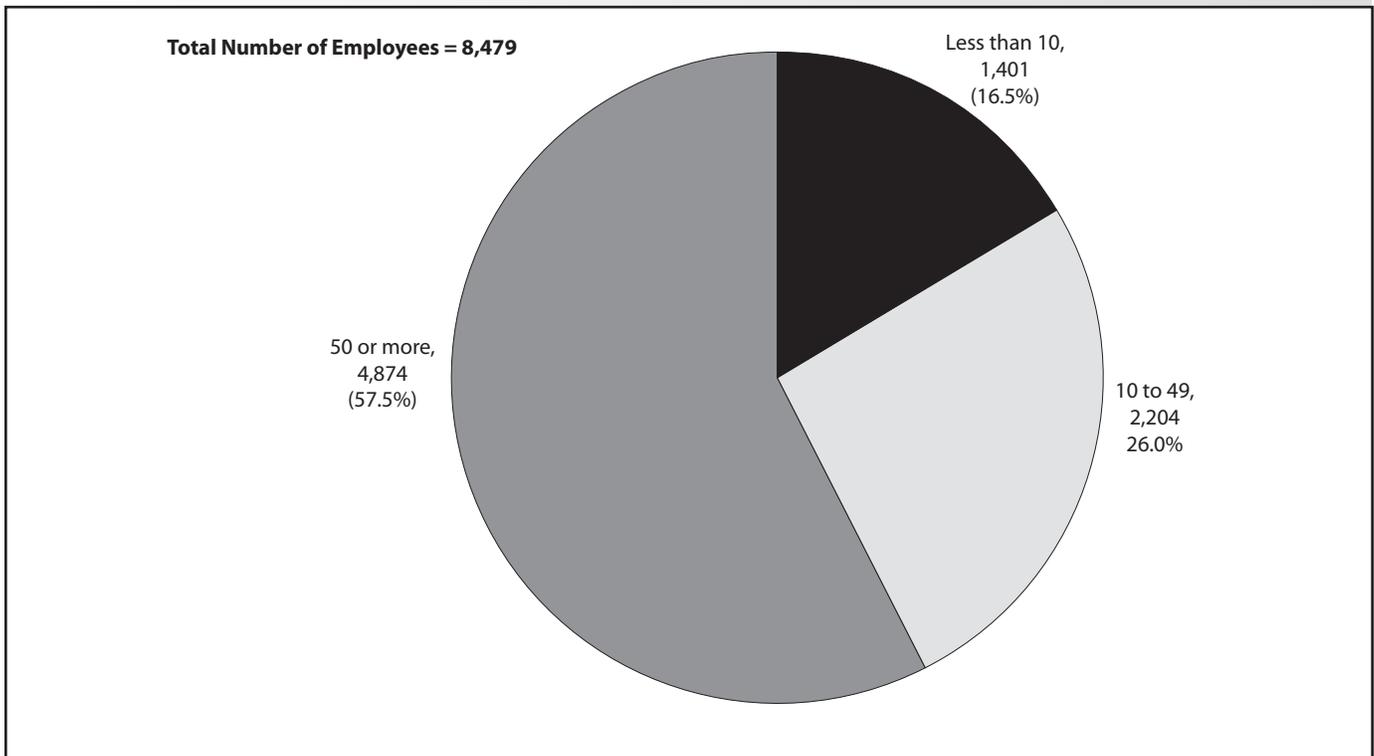


Figure 4b: Number and Percentage of Employees in the Manufacturing Sector by Size Class (Determined by Number of Employees), 2010Q1

TRAINING FOR WHAT? PART 2

New Hires and Occupational Projections in Wyoming's Manufacturing Industry

by: Michael Moore, Associate Editor

Some of the most expensive and important decisions made by individuals and families are those dealing with education, training, and the search for gainful employment. Often, those decisions are influenced by occupational projections, which help shape policy, economic development, and individual career paths. However, occupational projections may not provide important answers about key points of occupational entry or changing skills requirements, nor reveal much about the operation of internal labor markets. This article examines employment in Wyoming's manufacturing industry, using different data sets to determine which occupations people are being hired for, the rate at which they are being retained, and how that compares to the latest occupational projections.

Projections are calculated annually, while information on new hires is collected on a quarterly basis. Using these two products in tandem can be very valuable. While projections show which jobs are expected to grow, they are not intended to model the market; the new hires data are measurements of what is going on in Wyoming's labor force.

New Hires in the Manufacturing Industry

The occupational distribution used in this article is obtained from the state-federal Occupational Employment Statistics survey and presented in the *Wyoming Wage*

Survey (Hauf, 2010). These data are collected twice per year and published annually; the most recent data were published with a reference date of May 2010. Detailed information about occupational distribution in Wyoming can be found online at <http://doe.state.wy.us/LMI/EDSMarch2011/TOC000.htm>.

The information on new hires in this article was obtained through the New Hires Survey conducted by the Research & Planning (R&P) Section of the Wyoming Department of Workforce Services (Knapp, 2011). A new hire is defined as someone who was hired by a firm for which he or she had not worked in at least the last 20 years (the time frame for which R&P has UI wage records). Information was collected on new hires from fourth quarter 2009 to third quarter 2010. Detailed articles and tables compiled using this information are available online at http://doe.state.wy.us/lmi/energy.htm#new_hires_survey.

Do People Get Jobs?

Even though Wyoming's overall employment level has declined or remained flat over the last few years, employers are constantly hiring new workers (Moore, 2011). This can be seen in the state's manufacturing industry, where total employment declined from 2007 to 2010, but hiring continued (see Figure 1, page 9). Compared to the 8,811 workers employed in manufacturing in May 2010, there were an estimated 2,568 hires from fourth quarter 2009 to third quarter 2010. This represents a quarterly average hire rate of 7.3%.

For the purpose of this article, a hire rate was calculated by dividing the number of new hires from fourth quarter 2009 to third quarter 2010 by the number of persons found in the occupational distribution. For example, in the occupational distribution, there were 147 bookkeeping, accounting, & auditing clerks employed in manufacturing (see Table 1, page 10). Of those, 23 were hired from fourth quarter 2009 to third quarter 2010. Dividing the number of new hires (23) by the number in the occupational distribution (147) results in a hire rate of 15.6%.

Historical information for each quarter dating back to 1992 is available online at <http://doe.state.wy.us/LMI/turnover.htm>.

All occupations are placed into 23 major groups through the Standard Occupational Classification (SOC) system (U.S. Bureau of Labor Statistics, 2010a). Table 1 shows the occupational distribution and new hires for Wyoming’s manufacturing industry by major occupational group and by detailed occupation for which information was available. Among all employees and new hires in the manufacturing industry, more were found in production occupations

Hire rates for each industry in Wyoming are published with quarterly turnover statistics in *Wyoming Labor Force Trends*.

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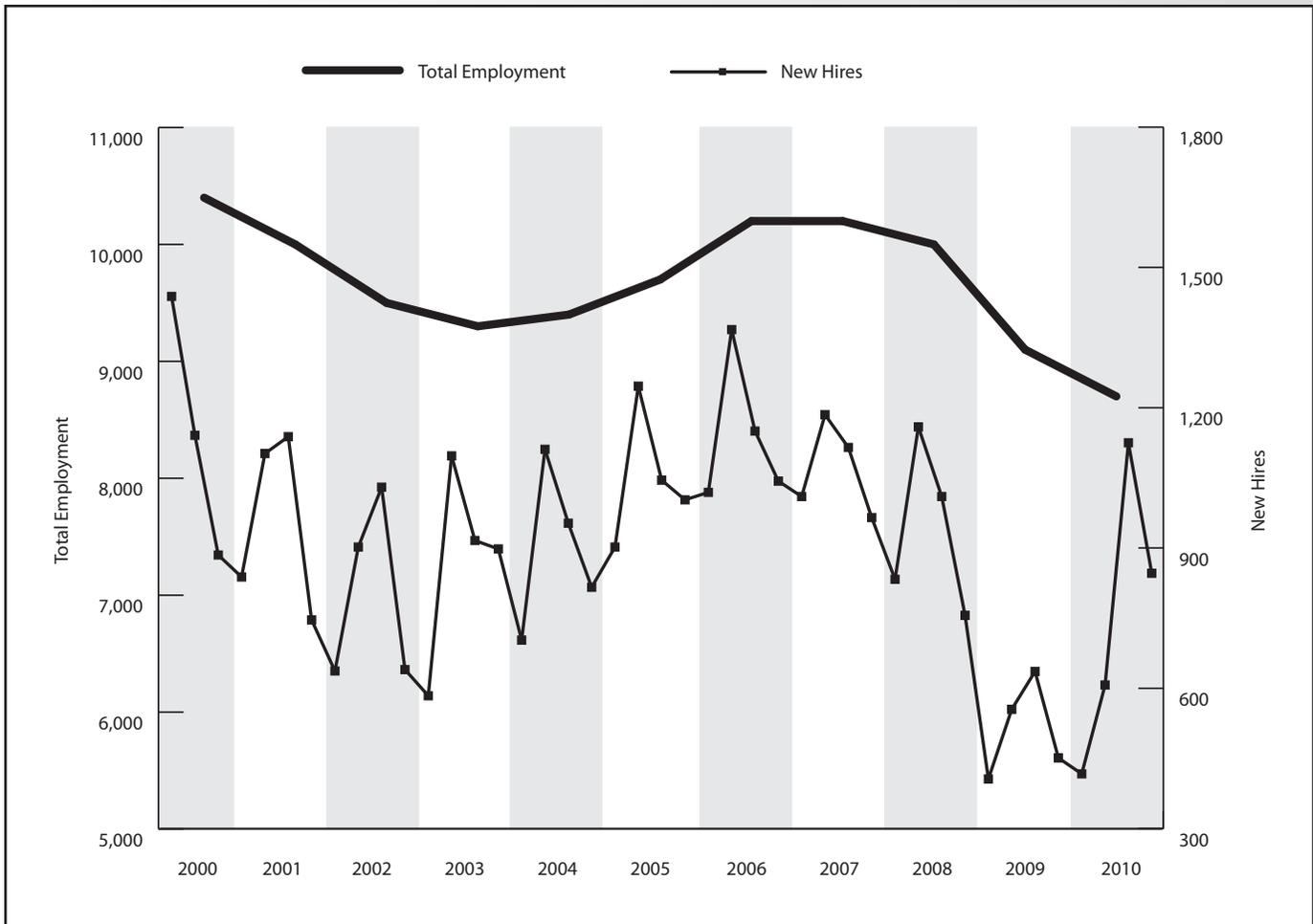


Figure 1: Total Employment and New Hires in Wyoming’s Manufacturing Industry, 2000-2010

Table 1: Occupational Distribution in Wyoming's Manufacturing Industry

Occupation	Occupational Staffing Pattern, May 2010		New Hires, 2009Q4-2010Q3			New Hires Involved in Energy-Efficient Activity	
	n	Column %	n	Hire Rate	Column %	n	Involved 50% of the Time or More
Total, all occupations	8,811	100.0%	2,568	29.1%	100.0%	489	38.0%
11-0000 Management Occupations	400	4.5	16	4.0	0.6	7	100.0
11-1021 General & Operations Managers	208	2.4	0	0.0	0.0	0	0.0
11-2022 Sales Managers	18	0.2	0	0.0	0.0	0	0.0
11-3031 Financial Managers	15	0.2	0	0.0	0.0	0	0.0
11-3051 Industrial Production Managers	67	0.8	10	14.9	0.4	7	100.0
11-3061 Purchasing Managers	11	0.1	0	0.0	0.0	0	0.0
11-9041 Engineering Managers	22	0.2	0	0.0	0.0	0	0.0
11-9141 Property, Real Estate, & Community Association Managers	--	\	7	\	0.3	0	0.0
13-0000 Business & Financial Operations Occupations	161	1.8	41	25.5	1.6	3	0.0
13-1023 Purchasing Agents, Except Wholesale, Retail, & Farm Products	48	0.5	0	0.0	0.0	0	0.0
13-1051 Cost Estimators	13	0.1	7	53.8	0.3	3	0.0
13-1078 Human Resources, Labor Relations, & Training Specialists, All Other	15	0.2	0	0.0	0.0	0	0.0
13-1081 Logisticians	nd	\	18	\	0.7	0	0.0
13-2011 Accountants & Auditors	54	0.6	15	27.8	0.6	0	0.0
13-2082 Tax Preparers	--	\	3	\	0.1	0	0.0
15-0000 Computer & Mathematical Occupations	56	0.6	6	10.7	0.2	0	0.0
15-1121 Computer Systems Analysts	19	0.2	0	0.0	0.0	0	0.0
15-1142 Network & Computer Systems Administrators	12	0.1	0	0.0	0.0	0	0.0
15-1151 Computer User Support Specialists	--	\	6	\	0.2	0	0.0
17-0000 Architecture & Engineering Occupations	308	3.5	52	16.9	2.0	17	29.4
17-1022 Surveyors	--	\	3	\	0.1	0	0.0
17-2041 Chemical Engineers	71	0.8	3	4.2	0.1	3	0.0
17-2081 Environmental Engineers	24	0.3	0	0.0	0.0	0	0.0
17-2111 Health & Safety Engineers, Exc. Mining Safety Eng. & Inspectors	19	0.2	0	0.0	0.0	0	0.0
17-2112 Industrial Engineers	45	0.5	32	71.1	1.2	14	35.7
17-2141 Mechanical Engineers	54	0.6	6	11.1	0.2	0	0.0
17-3013 Mechanical Drafters	36	0.4	4	11.1	0.2	0	0.0
17-3019 Drafters, All Other	nd	\	3	\	0.1	0	0.0
17-3023 Electrical & Electronic Engineering Technicians	--	\	3	\	0.1	0	0.0
17-3026 Industrial Engineering Technicians	19	0.2	0	0.0	0.0	0	0.0
19-0000 Life, Physical, & Social Science Occupations	119	1.4	24	20.2	0.9	4	0.0
19-2031 Chemists	43	0.5	13	30.2	0.5	4	0.0
19-3031 Clinical, Counseling, & School Psychologists	--	\	3	\	0.1	0	0.0
19-4031 Chemical Technicians	43	0.5	7	16.3	0.3	0	0.0
19-4091 Environmental Science & Protection Technicians, Incl. Health	--	\	3	\	0.1	0	0.0
25-0000 Education, Training, & Library Occupations	--	\	3	\	0.1	0	0.0
25-9041 Teacher Assistants	--	\	3	\	0.1	0	0.0

nd = Not discloseable.

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Occupation	Occupational Staffing Pattern, May 2010		New Hires, 2009Q4-2010Q3			New Hires Involved in Energy-Efficient Activity	
	n	Column %	n	Hire Rate	Column %	n	Involved 50% of the Time or More
27-0000 Arts, Design, Entertainment, Sports, & Media Occupations	34	0.4	28	82.4	1.1	4	0.0
27-1024 Graphic Designers	23	0.3	18	78.3	0.7	4	0.0
27-3031 Public Relations Specialists	--	\	3	\	0.1	0	0.0
27-3099 All Other Media & Communication Workers	--	\	7	\	0.3	0	0.0
29-0000 Healthcare Practitioners & Technical Occupations	29	0.3	11	37.9	0.4	6	0.0
29-2061 Licensed Practical & Licensed Vocational Nurses	--	\	3	\	0.1	0	0.0
29-9011 Occupational Health & Safety Specialists	18	0.2	6	33.3	0.2	6	0.0
29-9012 Occupational Health & Safety Technicians	--	\	3	\	0.1	0	0.0
31-0000 Healthcare Support Occupations	--	\	8	\	0.3	0	0.0
31-9099 All Other Healthcare Support Workers	--	\	8	\	0.3	0	0.0
33-0000 Protective Service Occupations	nd	\	22	\	0.9	0	0.0
33-9032 Security Guards	nd	\	22	\	0.9	0	0.0
35-0000 Food Preparation & Serving-Related Occupations	59	0.7	37	62.7	1.4	13	30.8
35-2014 Cooks, Restaurant	--	\	7	\	0.3	7	0.0
35-3011 Bartenders	--	\	4	\	0.2	4	0.0
35-3021 Combined Food Preparation & Serving Workers, Including Fast Food	43	0.5	0	0.0	0.0	0	0.0
35-3022 Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	nd	\	26	\	1.0	4	100.0
35-9021 Dishwashers	nd	\	3	\	0.1	0	0.0
37-0000 Building & Grounds Cleaning & Maintenance Occupations	63	0.7	22	34.9	0.9	17	0.0
37-2011 Janitors & Cleaners, Except Maids & Housekeeping Cleaners	52	0.6	19	36.5	0.7	17	0.0
37-3019 Grounds Maintenance Workers, All Other	nd	\	3	\	0.1	0	0.0
39-0000 Personal Care & Service Occupations	nd	\	8	\	0.3	0	0.0
39-9032 Recreation Workers	--	\	8	\	0.3	0	0.0
41-0000 Sales & Related Occupations	190	2.2	94	49.5	3.7	7	0.0
41-2011 Cashiers	nd	\	10	\	0.4	4	0.0
41-2021 Counter & Rental Clerks	nd	\	14	\	0.5	4	0.0
41-2031 Retail Salespersons	20	0.2	21	105.0	0.8	0	0.0
41-3099 Sales Representatives, Services, All Other	nd	\	14	\	0.5	0	0.0
41-4011 Sales Rep., Wholesale & Manufacturing, Tech. & Scientific Products	15	0.2	6	40.0	0.2	0	0.0
41-4012 Sales Rep., Wholesale & Mfg., Exc. Technical & Scientific Products	114	1.3	32	28.1	1.2	0	0.0
41-9011 Demonstrators & Product Promoters	17	0.2	0	0.0	0.0	0	0.0
43-0000 Office & Administrative Support Occupations	848	9.6	147	17.3	5.7	17	47.1
43-1011 First-Line Supervisors/Mgrs. of Office & Admin. Support Workers	31	0.4	0	0.0	0.0	0	0.0
43-3021 Billing & Posting Clerks & Machine Operators	31	0.4	4	12.9	0.2	0	0.0
43-3031 Bookkeeping, Accounting, & Auditing Clerks	147	1.7	23	15.6	0.9	8	100.0
43-3051 Payroll & Timekeeping Clerks	11	0.1	0	0.0	0.0	0	0.0

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Table 1: Occupational Distribution in Wyoming's Manufacturing Industry

Occupation	Occupational Staffing Pattern, May 2010		New Hires, 2009Q4-2010Q3			New Hires Involved in Energy-Efficient Activity	
	n	Column %	n	Hire Rate	Column %	n	Involved 50% of the Time or More
43-3071 Tellers	--	\	10	\	0.4	0	0.0
43-4051 Customer Service Representatives	23	0.3	7	30.4	0.3	0	0.0
43-4151 Order Clerks	21	0.2	0	0.0	0.0	0	0.0
43-4161 Human Resources Assistants, Except Payroll & Timekeeping	13	0.1	0	0.0	0.0	0	0.0
43-4171 Receptionists & Information Clerks	19	0.2	6	31.6	0.2	0	0.0
43-5061 Production, Planning, & Expediting Clerks	36	0.4	0	0.0	0.0	0	0.0
43-5071 Shipping, Receiving, & Traffic Clerks	67	0.8	31	46.3	1.2	0	0.0
43-5081 Stock Clerks & Order Fillers	nd	\	15	\	0.6	6	0.0
43-5111 Weighers, Measurers, Checkers, & Samplers, Recordkeeping	nd	\	12	\	0.5	0	0.0
43-6011 Executive Secretaries & Administrative Assistants	16	0.2	6	37.5	0.2	0	0.0
43-6014 Secretaries, Except Legal, Medical, & Executive	157	1.8	34	21.7	1.3	3	0.0
43-9061 Office Clerks, General	163	1.8	4	2.5	0.2	0	0.0
43-9071 Office Machine Operators, Except Computer	--	\	3	\	0.1	0	0.0
45-0000 Farming, Fishing, & Forestry Occupations	--	\	26	\	1.0	24	100.0
45-4021 Fallers	--	\	8	\	0.3	8	100.0
45-4022 Logging Equipment Operators	--	\	4	\	0.2	4	100.0
45-4023 Log Graders & Scalers	--	\	3	\	0.1	0	0.0
45-4029 All Other Logging Workers	--	\	12	\	0.5	12	100.0
47-0000 Construction & Extraction Occupations	295	3.3	226	76.6	8.8	26	34.6
47-1011 First-Line Sup./Mgrs. of Construction Trades & Extraction Workers	22	0.2	4	18.2	0.2	0	0.0
47-2031 Carpenters	36	0.4	4	11.1	0.2	0	0.0
47-2051 Cement Masons & Concrete Finishers	nd	\	47	\	1.8	0	0.0
47-2061 Construction Laborers	nd	\	37	\	1.4	5	0.0
47-2073 Operating Engineers & Other Construction Equipment Operators	12	0.1	24	200.0	0.9	12	0.0
47-2111 Electricians	116	1.3	27	23.3	1.1	0	0.0
47-2141 Painters, Construction & Maintenance	nd	\	4	\	0.2	4	100.0
47-2152 Plumbers, Pipefitters, & Steamfitters	nd	\	7	\	0.3	0	0.0
47-2211 Sheet Metal Workers	--	\	4	\	0.2	4	100.0
47-2221 Structural Iron & Steel Workers	--	\	4	\	0.2	0	0.0
47-3011 Helpers--Brick, Block, Stonemasons, & Tile & Marble Setters	--	\	5	\	0.2	0	0.0
47-3012 Helpers--Carpenters	nd	\	3	\	0.1	0	0.0
47-3019 All Other Helpers, Construction Trades	--	\	22	\	0.9	3	100.0
47-5013 Service Unit Operators, Oil, Gas, & Mining	--	\	9	\	0.4	0	0.0
47-5041 Continuous Mining Machine Operators	--	\	18	\	0.7	0	0.0
47-5061 Roof Bolters, Mining	--	\	3	\	0.1	0	0.0
47-5071 Roustabouts, Oil & Gas	--	\	6	\	0.2	0	0.0
47-5099 All Other Extraction Workers	--	\	8	\	0.3	0	0.0

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Occupation	Occupational Staffing Pattern, May 2010		New Hires, 2009Q4-2010Q3			New Hires Involved in Energy-Efficient Activity	
	n	Column %	n	Hire Rate	Column %	n	Involved 50% of the Time or More
49-0000 Installation, Maintenance, & Repair Occupations	821	9.3	186	22.7	7.2	56	64.3
49-1011 First-Line Supervisors/Mgrs. of Mechanics, Installers, & Repairers	86	1.0	24	27.9	0.9	11	100.0
49-2094 Electrical & Electronics Repairers, Commercial & Industrial Equip.	14	0.2	3	21.4	0.1	3	100.0
49-3011 Aircraft Mechanics & Service Technicians	nd	\	8	\	0.3	0	0.0
49-3023 Automotive Service Technicians & Mechanics	nd	\	11	\	0.4	0	0.0
49-3031 Bus & Truck Mechanics & Diesel Engine Specialists	17	0.2	3	17.6	0.1	0	0.0
49-9041 Industrial Machinery Mechanics	265	3.0	57	21.5	2.2	17	29.4
49-9043 Maintenance Workers, Machinery	44	0.5	4	9.1	0.2	0	0.0
49-9044 Millwrights	--	\	3	\	0.1	0	0.0
49-9071 Maintenance & Repair Workers, General	351	4.0	31	8.8	1.2	12	50.0
49-9081 Wind Turbine Service Technicians	--	\	4	\	0.2	4	100.0
49-9098 Helpers--Installation, Maintenance, & Repair Workers	nd	\	22	\	0.9	3	0.0
49-9099 All Other Installation, Maintenance, & Repair Workers	--	\	21	\	0.8	9	100.0
51-0000 Production Occupations	4,484	50.9	1,116	24.9	43.5	196	25.0
51-1011 First-Line Supervisors/Mgrs. of Production & Operating Workers	456	5.2	19	4.2	0.7	5	0.0
51-2011 Aircraft Structure, Surfaces, Rigging, & Systems Assemblers	nd	\	16	\	0.6	0	0.0
51-2022 Electrical & Electronic Equipment Assemblers	16	0.2	0	0.0	0.0	0	0.0
51-2041 Structural Metal Fabricators & Fitters	207	2.3	13	6.3	0.5	0	0.0
51-2092 Team Assemblers	84	1.0	8	9.5	0.3	0	0.0
51-2099 Assemblers & Fabricators, All Other	47	0.5	52	110.6	2.0	9	0.0
51-3011 Bakers	41	0.5	24	58.5	0.9	0	0.0
51-3021 Butchers & Meat Cutters	65	0.7	35	53.8	1.4	4	0.0
51-3022 Meat, Poultry, & Fish Cutters & Trimmers	26	0.3	13	50.0	0.5	0	0.0
51-3023 Slaughterers & Meat Packers	32	0.4	16	50.0	0.6	0	0.0
51-3091 Food & Tobacco Roast., Baking, & Drying Machine Op. & Tenders	nd	\	19	\	0.7	0	0.0
51-3092 Food Batchmakers	14	0.2	3	21.4	0.1	0	0.0
51-4021 Extruding & Drawing Mach. Setters, Op., & Tenders, Metal & Plastic	nd	\	18	\	0.7	3	0.0
51-4031 Cutting, Punch. & Press Mach. Setters, Op., & Tend., Metal & Plastic	69	0.8	8	11.6	0.3	0	0.0
51-4041 Machinists	366	4.2	68	18.6	2.6	30	0.0
51-4071 Foundry Mold & Coremakers	nd	\	4	\	0.2	0	0.0
51-4072 Molding, Coremaking, & Casting Machine Setters, Operators, & Tenders, Metal & Plastic	69	0.8	12	17.4	0.5	0	0.0
51-4081 Multiple Machine, Tool Setters, Operators	--	\	4	\	0.2	4	100.0
51-4121 Welders, Cutters, Solderers, & Brazers	532	6.0	219	41.2	8.5	45	22.2
51-4122 Welding, Soldering, & Brazing Machine Setters, Op., & Tenders	100	1.1	3	3.0	0.1	0	0.0
51-4191 Heat Treating Equipment Setters, Operators	--	\	4	\	0.2	4	100.0
51-4199 All Other Metal Workers & Plastic Workers	--	\	3	\	0.1	3	100.0

nd = Not discloseable.

-- = Estimate unavailable.

\ = Cannot be calculated.

Table continued on page 14

Table continued from page 13

Table 1: Occupational Distribution in Wyoming's Manufacturing Industry

Occupation	Occupational Staffing Pattern, May 2010		New Hires, 2009Q4-2010Q3			New Hires Involved in Energy-Efficient Activity	
	n	Column %	n	Hire Rate	Column %	n	Involved 50% of the Time or More
51-5111 Prepress Technicians & Workers	21	0.2	22	104.8	0.9	0	0.0
51-5112 Printing Press Operators	86	1.0	11	12.8	0.4	5	0.0
51-5113 Print Binding & Finishing Workers	34	0.4	41	120.6	1.6	0	0.0
51-6031 Sewing Machine Operators	33	0.4	26	78.8	1.0	0	0.0
51-6041 Shoe & Leather Workers & Repairers	nd	\	4	\	0.2	0	0.0
51-6052 Tailors, Dressmakers, & Custom Sewers	30	0.3	0	0.0	0.0	0	0.0
51-6099 Textile, Apparel, & Furnishings Workers, All Other	18	0.2	7	38.9	0.3	4	0.0
51-7011 Cabinetmakers & Bench Carpenters	116	1.3	41	35.3	1.6	10	100.0
51-7021 Furniture Finishers	nd	\	3	\	0.1	0	0.0
51-7041 Sawing Machine Setters, Operators, & Tenders, Wood	29	0.3	4	13.8	0.2	0	0.0
51-7042 Woodworking Machine Setters, Op., & Tenders, Exc. Sawing	47	0.5	13	27.7	0.5	4	100.0
51-7099 Woodworkers, All Other	nd	\	3	\	0.1	0	0.0
51-8091 Chemical Plant & System Operators	609	6.9	0	0.0	0.0	0	0.0
51-8093 Petroleum Pump System Op., Refinery Operators, & Gaugers	nd	\	30	\	1.2	16	0.0
51-8099 Plant & System Operators, All Other	--	\	4	\	0.2	0	0.0
51-9011 Chemical Equipment Operators & Tenders	12	0.1	0	0.0	0.0	0	0.0
51-9012 Separating, Filtering, Clarifying, Precipitating, & Still Machine Setters, Operators, & Tenders	nd	\	18	\	0.7	18	66.7
51-9021 Crushing, Grinding, & Polishing Machine Setters, Op., & Tenders	18	0.2	11	61.1	0.4	0	0.0
51-9022 Grinding & Polishing Workers, Hand	13	0.1	28	215.4	1.1	0	0.0
51-9023 Mixing & Blending Machine Setters, Operators, & Tenders	84	1.0	20	23.8	0.8	0	0.0
51-9041 Extruding, Form., Pressing, & Compact. Mach. Set., Op., & Tenders	212	2.4	24	11.3	0.9	0	0.0
51-9051 Furnace, Kiln, Oven, Drier, & Kettle Operators & Tenders	17	0.2	0	0.0	0.0	0	0.0
51-9061 Inspectors, Testers, Sorters, Samplers, & Weighers	67	0.8	20	29.9	0.8	0	0.0
51-9081 Dental Laboratory Technicians	17	0.2	0	0.0	0.0	0	0.0
51-9111 Packaging & Filling Machine Operators & Tenders	125	1.4	51	40.8	2.0	12	0.0
51-9121 Coating, Painting, & Spraying Machine Setters, Op., & Tenders	17	0.2	10	58.8	0.4	6	100.0
51-9192 Cleaning, Washing, & Metal Pickling Equipment Op. & Tenders	19	0.2	4	21.1	0.2	0	0.0
51-9194 Etchers & Engravers	14	0.2	0	0.0	0.0	0	0.0
51-9195 Molders, Shapers, & Casters, Except Metal & Plastic	nd	\	4	\	0.2	4	0.0
51-9198 Helpers--Production Workers	169	1.9	129	76.3	5.0	6	0.0
51-9199 All Other Production Workers	--	\	50	\	1.9	13	0.0
51-9399 Production Workers, All Other	128	1.5	0	0.0	0.0	0	0.0
53-0000 Transportation & Material Moving Occupations	945	10.7	471	49.8	18.3	87	49.4
53-1031 First-Line Supervisors/Managers of Transportation & Material-Moving Machine & Vehicle Operators	50	0.6	0	0.0	0.0	0	0.0
53-3031 Driver/Sales Workers	nd	\	14	\	0.5	8	0.0

nd = Not discloseable.

-- = Estimate unavailable.

\ = Cannot be calculated.

Table continued on page 15

(Text continued from page 9)

(SOC 51-0000) than in any other group of occupations (see Table 1 and Figures 2a and 2b, page 16). This group includes a variety of occupations such as welders, cutters, solderers, & brazers; machinists; cabinetmakers & bench carpenters; butchers & meat cutters; sewing machine operators; and bakers. In the occupational distribution, these types of jobs accounted for 50.9% of all employees; 43.5% of new hires in manufacturing were also found in production occupations.

Table 1 also shows the number of Wyoming new hires involved in energy-efficient activities. One of the purposes of the New Hires Survey was to determine what skills are needed to meet the demands of new and emerging

technologies, specifically those involving energy efficiency. Energy-efficient jobs are those that produce goods or provide services that benefit the environment or conserve natural resources, or jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources (U.S. Bureau of Labor Statistics, 2010b). More information on energy efficiency can be found at <http://doe.state.wy.us/LMI/energy.htm> and <http://researchingthegreeneconomy.org/>.

The New Hires Survey asked Wyoming employers to identify what "percent of the time a specific job involved activities and duties related to increasing energy, utilizing or developing renewable energy resources, or preserving and/or restoring the environment" (Wyoming Department of Employment, 2010).

Table continued from page 14

Table 1: Occupational Distribution in Wyoming's Manufacturing Industry

Occupation	Occupational Staffing Pattern, May 2010		New Hires, 2009Q4-2010Q3			New Hires Involved in Energy-Efficient Activity	
	n	Column %	n	Hire Rate	Column %	n	Involved 50% of the Time or More
53-3032 Truck Drivers, Heavy & Tractor-Trailer	358	4.1	175	48.9	6.8	17	0.0
53-3033 Truck Drivers, Light or Delivery Services	nd	\	18	\	0.7	3	0.0
53-3041 Taxi Drivers & Chauffeurs	--	\	4	\	0.2	0	0.0
53-7032 Excavating & Loading Machine & Dragline Operators	nd	\	6	\	0.2	3	0.0
53-7033 Loading Machine Operators, Underground Mining	--	\	3	\	0.1	0	0.0
53-7051 Industrial Truck & Tractor Operators	122	1.4	67	54.9	2.6	6	100.0
53-7061 Cleaners of Vehicles & Equipment	nd	\	14	\	0.5	0	0.0
53-7062 Laborers & Freight, Stock, & Material Movers, Hand	213	2.4	94	44.1	3.7	30	80.0
53-7063 Machine Feeders & Offbearers	13	0.1	16	123.1	0.6	6	100.0
53-7064 Packers & Packagers, Hand	111	1.3	54	48.6	2.1	15	53.3
53-7072 Pump Operators, Except Wellhead Pumps	--	\	3	\	0.1	3	0.0
53-7121 Tank Car, Truck, & Ship Loaders	nd	\	7	\	0.3	0	0.0
All Other Occupations	--		36		1.4	12	41.7

nd = Not discloseable.

-- = Estimate unavailable.

\ = Cannot be calculated.

In Wyoming's manufacturing industry, 489 (19.0%) of the 2,568 new hires were involved in energy-efficient activities. Of those, 38.0% spent half of their time or more in energy-efficient activities.

Do People Keep Jobs?

The types of jobs found in the occupational distribution and in new hires are considerably different (see Figures 2a and 2b). Management occupations (SOC 11-0000) made up 4.5% of the occupational distribution, but accounted for just 0.6% of new hires in manufacturing. This was also true for office & administrative support (SOC 43-0000; 9.6% of the occupational

distribution and 5.7% of new hires) and installation, maintenance, & repair (SOC 49-0000; 9.3% of the occupational distribution and 7.2% of new hires) occupations. In contrast, transportation & material moving occupations (SOC 53-0000) accounted for 18.3% new hires and only 10.7% of the occupational distribution.

This may be interpreted to mean that occupations with a low hire rate have a higher rate of tenure. Table 2 (see page 17) shows what percentage of new hires in selected occupations in manufacturing were still employed one quarter after hire. For example, the hire rate of industrial production managers (SOC 11-3051) was

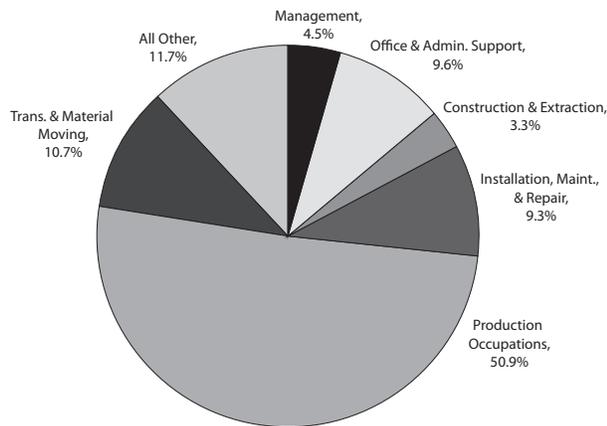
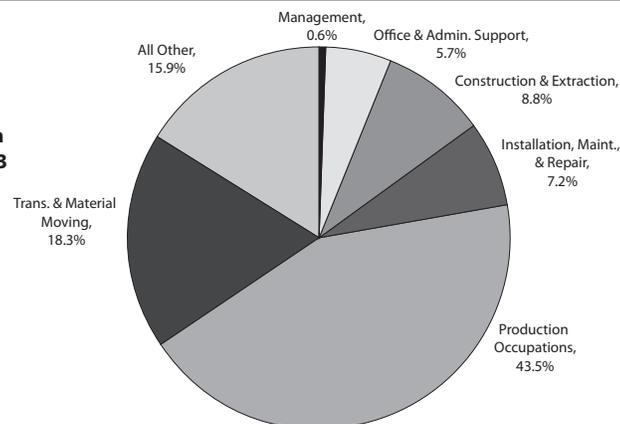


Figure 2a: Occupational Distribution of Employment in Wyoming's Manufacturing Industry, May 2010

Figure 2b: Occupational Distribution of New Hires in Wyoming's Manufacturing Industry, 2009Q4-2010Q3



Figures 2a and 2b: Occupational Distribution in Wyoming's Manufacturing Industry

14.9%, and 100.0% of those hired from fourth quarter 2009 to third quarter 2010 were still employed one quarter later. This was also true for bookkeeping, accounting, & auditing clerks (SOC 43-3031; 15.6% hire rate, 100.0% still employed one quarter after hire), maintenance & repair workers, general (SOC 49-9071; 8.8% hire rate, 90.0% still employed one quarter after hire), and machinists (51-4041; 18.6% hire rate, 82.6% still employed one quarter after hire). In contrast, occupations with a high rate of hire may have a higher rate of turnover.

Industrial truck & tractor operators (SOC 53-7051) had a hire rate of 54.9%, and only 60.9% of those were still employed one quarter after hire. This was also true for butchers & meat cutters (SOC 51-3021; 53.8% hire rate, 45.5% still employed one quarter after hire).

The high rates of turnover for these types of occupations may be influenced by a variety of factors, such as age and experience. This is an area that can be studied further as new hires data are

Table 2: Hire Rates and Turnover for Select Occupations in Manufacturing

SOC Code	Occupation	Occupational Staffing Pattern, May 2010	New Hires, 2009Q4-2010Q3		Turnover
		N	N	Hire Rate	% Still Employed 1 Quarter Later
00-0000	Total all occupations	8,811	2,568	29.1%	77.0%
11-3051	Industrial Production Managers	67	10	14.9	100.0
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	52	19	36.5	83.3
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	114	32	28.1	70.0
43-3031	Bookkeeping, Accounting, & Auditing Clerks	147	23	15.6	100.0
43-5071	Shipping, Receiving, & Traffic Clerks	67	31	46.3	63.6
43-6014	Secretaries, Except Legal, Medical, & Executive	157	34	21.7	66.7
47-2111	Electricians	116	27	23.3	33.3
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, & Repairers	86	24	27.9	100.0
49-9041	Industrial Machinery Mechanics	265	57	21.5	81.0
49-9071	Maintenance & Repair Workers, General	351	31	8.8	90.0
51-3021	Butchers & Meat Cutters	65	35	53.8	45.5
51-4041	Machinists	366	68	18.6	82.6
51-4121	Welders, Cutters, Solderers, & Brazers	532	219	41.2	67.1
51-7011	Cabinetmakers & Bench Carpenters	116	41	35.3	50.0
51-9023	Mixing & Blending Machine Setters, Operators, & Tenders	84	20	23.8	100.0
51-9041	Extruding, Forming, Pressing, & Compacting Machine Setters, Operators, & Tenders	212	24	11.3	66.7
51-9061	Inspectors, Testers, Sorters, Samplers, & Weighers	67	20	29.9	100.0
51-9111	Packaging & Filling Machine Operators & Tenders	125	51	40.8	73.3
51-9198	Helpers--Production Workers	169	129	76.3	68.2
53-3032	Truck Drivers, Heavy & Tractor-Trailer	358	175	48.9	78.9
53-7051	Industrial Truck & Tractor Operators	122	67	54.9	60.9
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	213	94	44.1	86.7
53-7064	Packers & Packers, Hand	111	54	48.6	42.9

collected for additional quarters.

Comparing Occupational Projections and New Hires

Occupational projections are used by

employers, educators, policymakers, jobseekers, and others. Students and jobseekers use these projections to help choose a career path, while educators and employers use them to help educate and train the workforce. Occupational projections assume that demand increases proportionally across the occupational

Table 3: Projected Annual Openings for Selected Occupations in Wyoming's Manufacturing Industry, 2010 to 2012

SOC Code	Occupation	Projections					Annual Openings*	Occupational Distribution, May 2010	New Hires, 2009Q4-2010Q3	Hire Rate	Turnover % Employed 1 Quarter Later
		2010 (Estimated)	2012 (Projected)	n	Change %						
	Total, All Occupations	8,730	8,673	-57	-0.7%	758	8,811	2,568	29.1%	77.0%	
51-4121	Welders, Cutters, Solderers, & Brazers	525	526	1	0.2	48	532	219	41.2	67.1	
51-1011	First-Line Supervisors/Managers of Production & Operating Workers	454	453	-1	0.1	39	456	19	4.2	71.4	
51-8091	Chemical Plant & System Operators	590	595	5	0.9	37	609	0	0.0	N/A	
51-4041	Machinists	383	390	7	1.9	34	366	68	18.6	82.6	
53-3032	Truck Drivers, Heavy & Tractor-Trailer	359	357	-2	0.5	32	358	175	48.9	78.9	
49-9071	Maintenance & Repair Workers, General	302	299	-3	1.0	24	351	31	8.8	90.0	
49-9041	Industrial Machinery Mechanics	253	262	9	3.8	22	265	57	21.5	81.0	
51-9198	Helpers--Production Workers	205	208	3	1.5	21	169	129	76.3	87.5	
11-1021	General & Operations Managers	213	208	-5	2.0	19	208	0	0.0	N/A	
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	184	187	3	2.0	17	213	94	44.1	86.7	
43-6014	Secretaries, Except Legal, Medical, & Executive	166	164	-2	1.4	16	157	34	21.7	66.7	
51-2041	Structural Metal Fabricators & Fitters	187	186	-1	0.6	16	207	13	6.3	100.0	
51-9041	Extruding, Forming, Pressing, & Compacting Machine Setters	201	193	-8	3.6	15	212	24	11.3	66.7	
43-9061	Office Clerks, General	157	154	-3	2.1	14	163	4	2.5	100.0	
51-7011	Cabinetmakers & Bench Carpenters	114	105	-11	8.3	10	116	41	35.3	50.0	

* Annual openings include both net job growth and openings due to replacement need.

distribution. However, there are several factors not taken into consideration with occupational projections.

Projections do not take into consideration job vacancies that are created by the permanent exits of current employees from Wyoming's labor force. A permanent exit is defined as a person who was employed in Wyoming's labor market for the four quarters prior to the reference date, but is not employed in the subsequent three quarters. These exits are attributed to factors such as relocation, withdrawal from the market to care for a family member, retirements, or death. When a permanent exit occurs, this creates a need to replace that worker. Over the next 10 years, the most significant source of employment opportunities in the state will come from the need to replace current workers (Glover, 2011).

The difference in projected net growth and annual openings — which include both net growth and replacement need — for select occupations in manufacturing can be seen in Table 3. The latest short-term occupational projections by industry show that the manufacturing industry is projected to lose a net 57 jobs from 2010 to 2012 (essentially no net change), with 758 annual openings. While there is essentially no net change in manufacturing from 2010 to 2020, the 758 annual openings take into consideration openings due to permanent exits from Wyoming's labor force.

Occupational projections also do not differentiate between internal hires — those hired from within the company — and external hires, so the rate at which workers are hired is an important factor to consider when selecting a career path or training potential workers. Some

occupations that are projected to grow over this two-year period may have a low hire rate, suggesting that those occupations may grow through internal hiring.

Of the 15 occupations with the highest number of projected annual openings, 6 had hire rates below 10.0% from fourth quarter 2009 to third quarter 2010: first-line supervisors/managers of production & operating workers (4.2%); chemical plant & systems operators (0.0%); maintenance & repair workers, general (8.8%); general & operations managers (0.0%); structural metal fabricators & fitters (6.3%); and office clerks, general (2.5%). This may suggest that manufacturing employers fill these types of jobs internally, and will need to provide training internally or arrange for outside training.

Projections also underestimate the impact of turnover. Although some occupations may have a large number of projected annual openings, they may also have high rates of turnover. For example, the occupation of cabinetmakers & bench carpenters is projected to grow by a net 10 jobs with 10 annual openings from 2010 to 2012 (see Table 3). However, of the 41 cabinetmakers & bench carpenters hired from fourth quarter 2009 to third quarter 2010, only 50.0% were still employed one quarter after hire. The occupation of extruding, forming, pressing, & compacting machine setters is projected to grow by 7 jobs with 15 annual openings from 2010 to 2012; however, of the 24 new hires in this occupation, only 66.7% were still employed one quarter after hire. Educators and employers may want to take turnover rates into account when making decisions about training.

A table showing turnover for new hires

across all industries in Wyoming from fourth quarter 2009 to third quarter 2010 can be found online at http://doe.state.wy.us/LMI/energy/New_Hires_Turnover_4Q.htm.

When used together, hire rate and turnover provide information that can be beneficial to those looking for jobs and the employers and educators that offer training. For example, 175 truck drivers, heavy & tractor-trailer, were hired in manufacturing from fourth quarter 2009 to third quarter 2010, with a hire rate of 48.9% (see Table 2). Of those new hires, 78.9% were still employed one quarter later. This occupation had both a high rate of hire and a relatively low amount of turnover. By comparison, packers & packagers, hand, had a similar hire rate (48.6%), but only 42.9% of those new hires were employed one quarter after hire. Educators and employers may want to consider whether it is in their best interests to train potential employees for an occupation with a high rate of turnover. Jobseekers may want to evaluate whether they should enter a job with a high rate of turnover.

Conclusion

While occupational projections are a valuable tool for jobseekers, employers, educators, policymakers, and others, there are several key factors that are not considered by projections alone. The information highlighted in this article can be combined with these projections to help educators and employers make informed decisions about training needs, and can also be very valuable to students and jobseekers as they choose a career path.

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ARRA Dynamics in the Labor Market

by: Patrick Manning, Principal Economist

excerpted by: Phil Ellsworth, Editor

Editor's note: The following article is Part One of a two-part series in Wyoming Labor Force Trends. These excerpts are from Chapters 1 and 2 of ARRA Labor Market Dynamics, which examines some of the effects of the American Recovery and Reinvestment Act of 2009 and specifically, employment related to energy efficiency.

In 2009, Congress passed the American Recovery and Reinvestment Act (ARRA), which funded a wide array of projects nationwide. Generally, the purpose of ARRA was to provide “supplemental appropriations for job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and State and local fiscal stabilization.”

To assess possible changes in the economic/policy landscape that could substantially impact the labor market, the six-state Rocky Mountain and Northern Plains Consortium – composed of labor market information offices in Iowa, Montana, Nebraska, South Dakota, Utah, and Wyoming – sought and was awarded funding through ARRA. This funding was provided to examine the impact of employment in energy efficiency, pollution reduction, and sustainable management practices. In previous studies, these jobs have often been referred to as green jobs. However, an unscientific survey conducted by Research & Planning (R&P) found that most people polled either had no idea what a green job was, or had a vastly different idea than the Bureau of Labor Statistics' definition (see page 22). To reduce ambiguity, R&P opted to use the term EE jobs, which could stand for “energy efficiency” or “environmentally enhancing.” Within EE jobs are two categories: EE process employment and

EE output employment. EE process employment occurs when the firm does not produce an EE product or service, but the employee or employees provide skills that result in a more energy efficient or environmentally beneficial outcome to the production process. For example, results from the baseline survey found that a large construction contractor listed no EE products. However, the company employed an environmental engineer and a safety and occupational health manager. Both provided energy efficiency benefits during the firm's production activities. These two jobs would be considered as EE process jobs. EE output employment, on the other hand, describes employment that involves workers who produce or in some way enhance an EE product or service. Some examples of EE output employment:

- Environmental cleanup and restoration and waste cleanup and mitigation
- Environmental restoration including the cleanup and disposal of pollution, waste, and hazardous materials; Superfund/Brownfield redevelopment; and landfill restoration
- Education, regulation, compliance, public awareness, and training and energy trading
- Activities that educate on energy

efficiency, renewable energy, energy rating systems certifications, and more efficient energy consumption. Enforcement of compliance requirements and regulations, and training on effective use of energy related products and processes

- Sustainable agriculture and natural resource conservation
- Products and services to conserve, maintain, and improve natural resources and the environment, including low carbon and organic agriculture, land management, water management and conservation, wetlands restoration and environmental conservation.

Defining green jobs is not easy. Some researchers stipulate for a job to be green, the employee must have a different set of knowledge, skills, and abilities than a person doing a similar job at a different firm. For example, Company A produces a green product, while Company B does not. Both firms employ an accountant and both accountants have very similar abilities. Does the accountant position at Company A count as a green job or not? According to the BLS definition it would be counted. However, other studies would not count it as a green job unless the accountant at the green firm had a substantially different set of skills. For the purposes of R&P's study, firms were allowed to decide what employment is "green" and what is not, based on the above definition. Regardless, most published studies have employed a definition roughly analogous to that of the consortium and the BLS' final definition. Results may not be directly comparable across previous studies. It is expected that future research will tend to use a more standardized definition now that the BLS definition is available.

A Review of Alternative Energy and Environmental Enhancement Technologies

Wyoming has long been associated with the development of energy through traditional fossil fuel sources such as oil, natural gas, and coal. Throughout the

What is a 'Green Job'?

In the September 21, 2010, Federal Register, the Bureau of Labor Statistics published its final definition:

Green jobs are either:

A. Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources. Green goods and services fall into one or more of five groups:

1. Energy from renewable sources.
2. Energy efficiency.
3. Pollution reduction and removal, greenhouse gas reduction, and recycling and reuse.
4. Natural resources conservation.
5. Environmental compliance, education and training, and public awareness.

OR

B. Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources. These technologies and practices fall into one or more of four groups:

1. Energy from renewable sources.
2. Energy efficiency.
3. Pollution reduction and removal, greenhouse gas reduction, and recycling and reuse.
4. Natural resources conservation.

state's history, this development has brought relatively high-paying jobs and helped to power an energy-hungry nation.

Oil, gas, and coal likely will continue to be major factors in the state's economy for the foreseeable future. In addition to existing development methods, new technologies are emerging that allow more of these resources to be brought to the surface and used in a cleaner manner than in the past.

A national energy strategy will include traditional and new fossil-fuel-based technologies, as well as development of alternative energy sources. As all of these technologies are further refined, new jobs will be created – jobs that are relatively high-paying and cannot easily be outsourced to other countries.

Solar

Cost and intermittency are major factors limiting the use of photovoltaic cells for generating energy. Except in very specific situations, such as in rural areas where grid electricity is unavailable, solar power is not cost-competitive with fossil fuels. Residential use of solar power has been limited by front-end costs. An average set of rooftop panels is estimated to cost between \$20,000 and \$30,000. It would take 10-15 years to produce enough electricity to pay for itself. The other major disadvantage of solar energy is intermittency. Because the sun does not shine at night and is diminished by overcast skies and storms, solar energy cannot be used for base load electricity. However, solar power is an excellent option for peak demand times.

Biomass

Biomass is technically defined as “organic

non-fossil material of biological origin constituting a renewable energy source” (Wyoming State Forestry Division, 2007). Basically, it includes any biological material from recently living organisms that can be used as an energy source. Examples include: agricultural residue, animal waste, municipal solid waste, perennial grasses, and forestry products. The most common way of extracting energy from biomass is through burning it, but biomass may also be used to produce goods such as fibers or chemicals that are then used in energy production or in other activities. For example, methane gas can be captured from livestock waste and then used as a fuel source.

Biomass is unique in that it is the only renewable energy resource that can be converted into liquid transportation fuel (U.S. DOE, 2010a).

According to the Pew Center on Global Climate Change, increased use of renewable fuels such as ethanol provides the best option for reducing greenhouse gas emissions from the transportation sector (Pew Center, 2009). However, to be successful in the marketplace, biomass-derived products must perform as well as or better than the fossil-energy-based products. In addition, the cost must be comparable in order for the products to become truly competitive.

Examples of biomass-related businesses in Wyoming:

- A cellulosic ethanol plant using waste wood as a feedstock is in operation near Upton, WY (Deutscher, 2008). It is expected to produce 1.5 million gallons of ethanol annually.
- In Torrington, Heartland Biocomposites, LLC, is manufacturing fencing materials from local wheat straw

(McElroy, 2007). While the material is not used for energy production, it positively affects the environment by making use of agricultural residues that otherwise would go unused.

- River Basin Energy, Inc., in Laramie produces torrefied biomass from pine chips (Western Research Institute, 2010). Torrefaction, which is a roasting technique, is used to improve the biomass fuel properties such as grindability, energy density, and dryness. The product is hoped to minimize the up-front costs associated with using biomass.

Geothermal

Geothermal energy is extracted from heat stored in the earth. This geothermal energy originates from both radioactive decay of minerals that make up the Earth itself and from solar energy absorbed at the surface. Geothermal power is relatively clean, cost-effective, reliable, and sustainable. However, until recently it was limited to areas near tectonic plate boundaries. Recent technological advances have increased access to viable resources, especially for applications such as home heating. The Earth's geothermal resources are more than capable of supplying energy for the nations of the world but as of yet only a very small fraction may be profitably utilized. Currently, geothermal power is online in more than 20 countries (Goffman, 2009).

There are two basic forms of geothermal energy use – one for electrical generation and one for home heating and cooling. Electrical generation requires a geothermal resource located close to the Earth's surface. These resources are typically found on the edges of tectonic plates like the hot spots that form a ring around Yellowstone

National Park. The most common direct use of geothermal energy is for heating buildings through district heating systems, which pipe hot water near the Earth's surface directly into buildings for heat.

As of 2009, geothermal power accounted for 5 percent of renewable power generation (U.S. DOE, 2010b). ARRA has committed up to \$350 million in funding for geothermal energy research. In addition to power generation, it provides significant investments for the deployment of ground-source heat pumps, up to \$50 million, which can be used to make buildings more energy efficient. The Western Governors' Association expects the creation of 10,000 jobs if planned projects proceed as expected (Federal Interagency Geothermal Activities, 2010).

Wind

Wind turbines, like aircraft propeller blades, turn in the moving air and power an electric generator that supplies an electric current. Modern wind turbines are of the horizontal-axis variety, like the traditional farm windmills used for pumping water. Wind turbines are often grouped together into a single power plant, also known as a wind farm, and generate bulk electric power.

Wind energy is unlimited in supply. Wind turbines do not use combustion to generate electricity, and therefore do not produce air emissions or greenhouse gases. No water is used in the generation of electricity and the only potentially toxic or hazardous materials are the small amounts of lubricating oils and hydraulic and insulating fluids. Therefore, contamination of soils or groundwater is highly unlikely.

The major challenge to using wind as a source of power is that it is intermittent. Wind cannot be stored, and not all winds

can be harnessed to meet the timing of electricity demands. Further, good wind sites are often located far from areas of electric power demand. Wind resource development may compete with other land uses that may be more highly valued.

In addition to environmental benefits, wind projects have many economic benefits to the area in which they are located. Projects generate ad valorem/property taxes for the county and other taxing jurisdictions where they are located. Completion of the project is likely to be tied to investments in transmission line capacity in the surrounding area. Construction and subsequent operation of transmission lines would also result in ad valorem, sales, use

and lodging tax revenues in the region. In addition, lease payments are made to surface land owners that are likely to be fed back into the local community.

Jobs associated with wind energy include wind generator installer, wind technician, project manager, wind power project engineer, wind farm estimator, wind resource analyst, renewable energy communication specialist, site manager, and wind turbine sales manager. Laramie County Community College currently offers a wind turbine technician training program that trains individuals to do general maintenance, operations, and inspections on wind turbines and related facilities. The program results in an associate's of science

The Impact of ARRA Spending on Projections

In order for Wyoming to adapt to a changing economic landscape, policy makers need a clear picture of what's over the horizon. Training and educational programs need to match the expected employment needs, and employment projections can play a crucial role in forecasting those changes. However, employment projections are usually constructed in a linear fashion, using existing and previous labor market data to predict employment levels. Atypical events such as broad federal stimulus programs can create effects that are difficult to forecast through the scope of simple, linear prediction. At the end of first quarter 2011, the sum of outlays and tax cuts as a result of the American Recovery and Reinvestment Act of 2009 was \$666 billion, with an additional \$106 billion obligated but not yet spent (The Economic Impact, 2011). Because large-scale investments can have profound effects on the course of occupational projections, research needs to

be longitudinal and rich in detail (Gallagher, 2011). For this project, Research & Planning met this need by tying administrative records to survey data.

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degree in wind energy.

Today, Wyoming has wind power plants in many locations throughout the state. The most recent data available show wind power in Wyoming generated approximately 2.4 million megawatt-hours in the first 10 months of 2010 (U.S. DOE, 2011). That's roughly enough to supply the electricity use for 216,000 average homes in the United States for a year. (U.S. DOE, n.d.).

Smart Grid

The power grid in the United States is more than a century old. It consists of more than 9,200 electrical generating units with more than 1 million megawatts of generating capacity connected to more than 300,000 miles of transmission lines, according to the U.S. Department of Energy (2008). The system is complex and involves regional power plants connected with high-voltage transmission lines to load centers, where power is directed over lower-voltage distribution lines to houses and businesses.

Despite the investments in cleaner energy alternatives, the fastest and cheapest way to cut emissions is to use less energy. According to some sources, improving the efficiency of the national electricity grid by 5% would reduce overall energy consumption reducing the associated carbon emissions the equivalent of 53 million cars (U.S. DOE, 2008). Because of the vast potential for environmental benefits, President Obama made modernizing the nation's power network a priority when establishing the goals of the economic stimulus. The plan for modernization calls for the installation of thousands of miles of new transmission lines to carry renewable energy from power sources to population centers where the energy is needed. It also calls for about 40 billion smart electric meters, which would

be used to help consumers reduce their energy consumption, to be installed in homes (Davidson, 2009). These savings could lead to increased competitiveness for U.S. businesses in the global marketplace, as well as lower prices for U.S. goods and increased job creation.

Another benefit of a modernized grid is improved resistance to organized attacks and an improved ability to withstand natural disasters. In 2005, approximately 1.7 million people lost power due to Hurricane Katrina, and many were not in the New Orleans area (NOAA, 2005). With a more modern system, damage to the grid from hurricanes, floods, or other catastrophic events could more easily be localized, with power re-routed more effectively.

Smart-grid investments are already under way in Wyoming: two electric utilities in the state were selected to receive federal grants to aid in modernizing their infrastructure. Cheyenne Light, Fuel, and Power received about \$5 million to update its communication system and install 38,000 smart meters in the homes of its residential customers. Sundance-based Powder River Energy received about \$2.5 million to install automatic readers on its power substations and in customers' homes (Pelzer, 2009).

Carbon Capture and Sequestration

In 2008, energy-related emissions dominated total greenhouse gas emissions. Greenhouse gases include carbon dioxide, methane, nitrous oxide, and other global warming potential gases. After petroleum (41.9%), coal produces the most carbon dioxide (36.5%) of any source (U.S. DOE, 2009). As of 2009, the United States produces more energy from coal than from any other single source (U.S. DOE, 2010c),

and Wyoming produces more coal than any other state (EIA, 2010d). Because of this, policies, legislation, or market factors that influence the demand for coal will also affect the Wyoming labor market. There is some disagreement as to whether or not anthropogenic greenhouse gas emissions (emissions caused by mankind's activities) have an effect on climate change. Regardless, several bills have been introduced at the federal level addressing constraints on greenhouse gas emissions although none has become law. California has implemented strategies with a goal toward a reduction in greenhouse gas emissions by nearly 20% by 2020 (CARB, 2008).

The lack of a national energy policy is

causing uncertainty among investors in coal-fired power plants. The uncertainty stems from not knowing what policies, if any, will be enacted, and what the repercussions would be. According to a recent article, "that uncertainty compels investors and utilities to hang on to capital, and it's the reason that some 87 gigawatts of proposed coal-based power generation has been canceled in recent years" (Bleizeffer, 2010).

One technology that would greatly affect Wyoming's economy if implemented would be the capture and subsequent sequestration of carbon dioxide. The basic idea behind carbon capture sequestration is to store carbon in underground geologic formations or in biomass (trees, grasses,

Forthcoming Alternative Energy or Environmental Remediation Projects in Wyoming

Waste-to-Energy

A 35 megawatt waste-to-energy plant is scheduled to go online in 2012. Company representatives said the plant will run off a combination of garbage from area communities, as well as agricultural waste. The plant should employ about 70 people. (Lacock, 2010)

Manufacturing of Wind Power Equipment

In mid-February 2011, Wyoming Gov. Matt Mead announced that Gestamp Worthington Wind Steel, LLC, will build a new wind tower manufacturing plant in Cheyenne. It is expected to manufacture more than 300 commercial wind towers a year and is expected to create 150 jobs. In addition to the direct job creation, this will be a boost for Wyoming and the U.S. economy in that the growing wind power industry will have a major domestic supplier of required equipment (Curran, 2011).

Wastewater Remediation

R360 Environmental Solutions Inc. has purchased the only oilfield wastewater facility in Southeastern Wyoming. The company intends to expand the capacity of the facility tenfold. The expanded facility will include recycling and disposal services for all exploration and production (E&P) waste streams. This is the company's fourth facility in Wyoming, and its 20th E&P waste management facility (Business Report Staff, 2011).

etc.) and soils. In Wyoming, geologic sequestration is the most likely scenario. Wyoming has been pinpointed as having substantial storage space (DOE, 2010e) and much of the legislation needed to address liability and property rights issues has been addressed (Noble, 2010).

The University of Wyoming School of Energy Resources, with funding from the U.S. Department of Energy, is preparing for a large-scale injection of 3 million tons of carbon dioxide in the Rock Springs Uplift. In an article in the *Cowboy State Free Press*, Dr. Mark Northam, director of the School of Energy Resources, said, “Carbon capture and storage is so expensive that the only way it becomes economically viable is if there is an economic incentive to pollute less. If a global price, or tax or a cap or some sort of value is placed on the carbon we emit then it will justify the massive investment” (Noble, 2010).

What such legislation would do to Wyoming’s economy is unclear. It could put the use of coal for power generation at a disadvantage compared to less carbon-emission intensive fuels (e.g. natural gas, nuclear, solar, and wind), thereby reducing the demand for coal. However, carbon capture sequestration conducted at a commercial scale in Wyoming would produce jobs, as would the need for construction of additional pipeline capacity to transport the carbon dioxide. For consumers, this would increase utility rates for electricity.

First Generation Biofuels and Beyond

First generation biofuels are alternative fuels such as corn-based ethanol production and fats and oils-based production of biodiesel. One of the main issues raised with both first-generation ethanol and biodiesel production is that agricultural crops are

being switched from food production to fuel production, which can lead to higher food prices. Second-generation biofuels would use feedstocks that do not compete with food production. Two examples of second-generation biofuels are the attempt to convert cellulosic material (e.g. crop residue, perennial grasses, or wood processing waste) to ethanol or the conversion of algal-derived oils to biodiesel.

Near-Term Feasibility of Alternative Energy Projects

The alternative energy technologies discussed in this paper tend to fall into two categories: those currently being used commercially (e.g. solar, wind, etc.) and those that may be commercially viable in the near future (e.g. biomass, geothermal, etc.). For an in-depth review of current and emerging technologies see “Researching the Green Economy” prepared for the consortium by the Montana Manufacturing Extension Center (MMEC, 2011).

Externalities and the Cost of Energy Generation

Much of the discussion regarding which (and to what extent) alternative energy sources will supplement and/or replace conventional methods of energy production focuses on the issue of cost. The Table (see page 29) indicates the cost of energy generation from various technologies for plants entering service in 2016 (U.S. DOE, 2010f). However, these estimates are derived using estimates of fixed and variable operation and maintenance expenses. Therefore they do not include the full cost of energy generation. The impacts of pollution caused by energy generation are not taken into account (e.g. increased incidence of respiratory illnesses). Thus, an externality exists, a cost not accounted for in the price

of the commodity. Ideally, the full cost of producing a good is accounted for in the market price of that good. When it is not, a market failure exists. A study titled, “Hidden Costs of Energy Production and Use” conducted by the National Academy of Sciences found that external damages averaged \$32 per megawatt-hour (mwh) in 2005 from coal-fired plants and \$1.6 per mwh from natural gas plants (NAS, 2009). The study did not estimate damages from nuclear or renewable energy generation. It should be noted that all of these technologies have some external costs associated with them. For example, wind turbines may have an impact on wildlife habitat and the production of solar panels emits pollution. The idea of externalities is mentioned to remind the reader that the cost of power generation may contain elements that are not included in the market price.

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Table: Estimated Levelized Cost of New Generation Resources, 2016. From the EIA Annual Energy Outlook 2011.

Plant Type	Capacity Factor (%)	Levelized Capital Cost	Fixed O&M ^a	Variable O&M (Including Fuel)	Transmission Investment	Total System Levelized Cost
Conventional Coal	85	65.3	3.9	24.3	1.2	94.8
Advanced Coal	85	74.6	7.9	25.7	1.2	109.4
Advanced Coal with CCS ^b	85	92.7				
Natural Gas-Fired						
Conventional Combined Cycle	87	17.5	1.9	45.6	1.2	66.1
Advanced Combined Cycle	87	17.9	1.9	42.1	1.2	63.1
Advanced CC with CCS	87	34.6	3.9	49.6	1.2	89.3
Conventional Combustion Turbine	30	45.8	3.7	71.5	3.5	124.5
Advanced Combustion Turbine	30	31.6	5.5	62.9	3.5	103.5
Advanced Nuclear	90	90.1	11.1	11.7	1.0	113.9
Wind	34	83.9	9.6	0	3.5	97.0
Wind -- Offshore	34	209.3	28.1	0	5.9	243.2
Solar PV1 ^c	25	194.6	12.1	0	4.0	210.7
Solar Thermal	18	259.4	46.6	0	5.8	311.8
Geothermal	92	79.3	11.9	9.5	1.0	101.7
Biomass	83	55.3	13.7	42.3	1.3	112.5
Hydro	52	74.5	3.8	6.3	1.9	86.4

^a Operation and maintenance.

^b Carbon control and sequestration.

^c Costs are expressed in terms of net AC power available to the grid for the installed capacity.

Source: http://www.eia.doe.gov/oiaf/aeo/electricity_generation.html.

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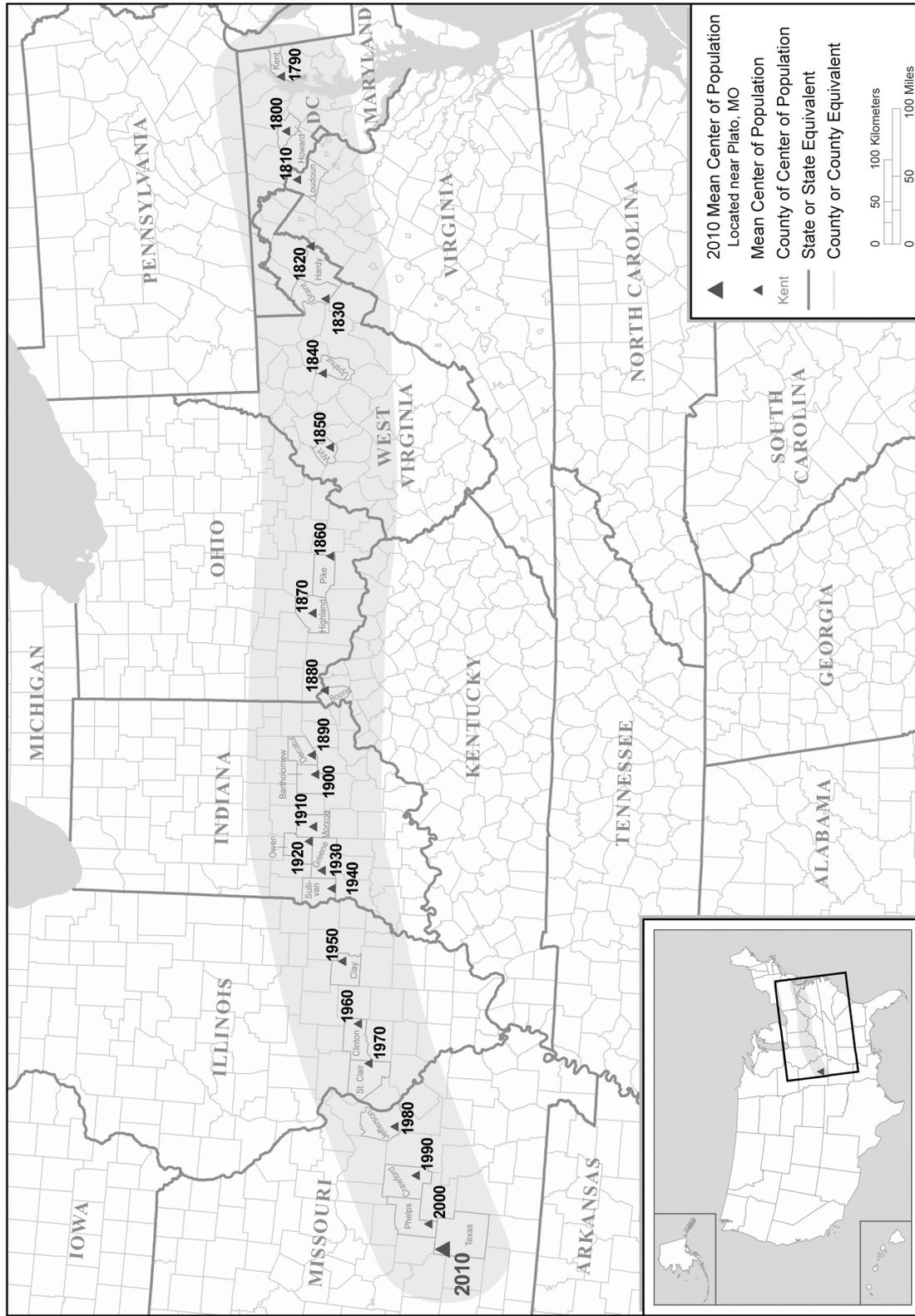
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Mean Center of Population for the United States: 1790 to 2010



U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Source: www.census.gov/geo/www/2010census/centerpop2010/centerpop_mean2010.pdf

Occupation Spotlight

There are an estimated 610 workers classified as preschool teachers, except special education, in Wyoming. According to the Occupational Employment Statistics (OES) survey, these teachers earn a mean wage of \$12.91 per hour. Those in the 90th percentile earn as much as \$19.42 per hour.

Wage data for specific occupations is available online at <http://doe.state.wy.us/LMI/oes.htm>. Click on the “County and Regional Wages (estimates for Wyoming wages for March 2011)” link.



Preschool Teachers, Except Special Education

Wyoming Unemployment Rate Falls to 6.0% in April 2011

by: David Bullard, Senior Economist

The Research & Planning section of the Wyoming Department of Workforce Services has reported that the state’s seasonally adjusted¹ unemployment rate fell from 6.2% in March to 6.0% in April. It remained significantly lower than its April 2010 level of 7.2% and the current U.S. rate of 9.0%. Wyoming’s unemployment rate has been decreasing steadily since December 2009 when it was 7.7% and is now at its lowest level since April 2009. Seasonally adjusted employment rose by 1,008 individuals (or 0.4%) from March to April.

The lowest unemployment rates were found in Sublette (3.6%), Niobrara (4.3%), Albany (4.3%), and Campbell (4.5%) counties. Teton County posted the highest unemployment rate (12.8%) followed by Lincoln (9.5%) and Johnson (7.8%) counties.

From March to April, Teton County’s

unemployment rate rose from 7.1% to 12.8%. It is normal for Teton County’s unemployment rate to increase in April as that month marks the end of the winter tourist season. All other counties saw their unemployment rates decrease. Big Horn County reported the largest decrease, falling from 8.6% in March to 6.9% in April. Notable decreases were also seen in Johnson (down from 9.2% to 7.8%), Washakie (down from 6.9% to 5.6%), and Park (down from 7.5% to 6.2%) counties.

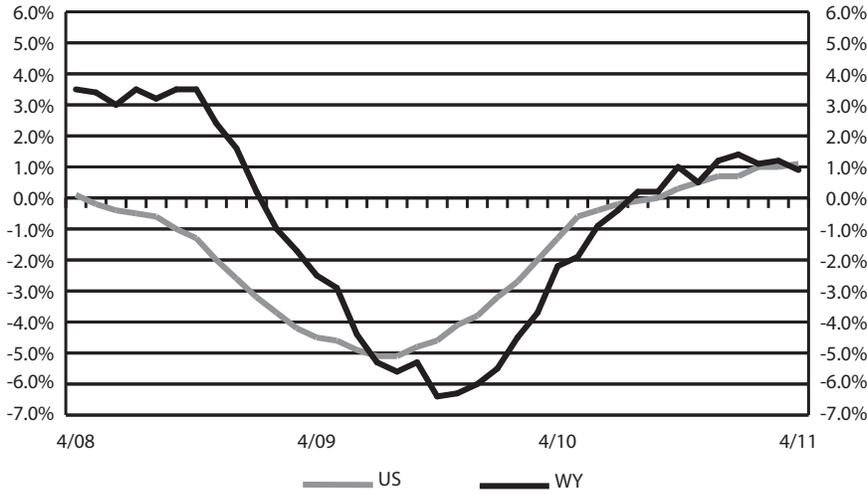
From April 2010 to April 2011 the unemployment rate decreased in 22 counties and was unchanged in Hot Springs County. The largest over-the-year decrease in unemployment occurred in Sweetwater County where the jobless rate fell from 7.0% to 5.0%.

Total nonfarm employment increased to 279,500 in April, a gain of 2,600 jobs (0.9%) from its year-ago level.

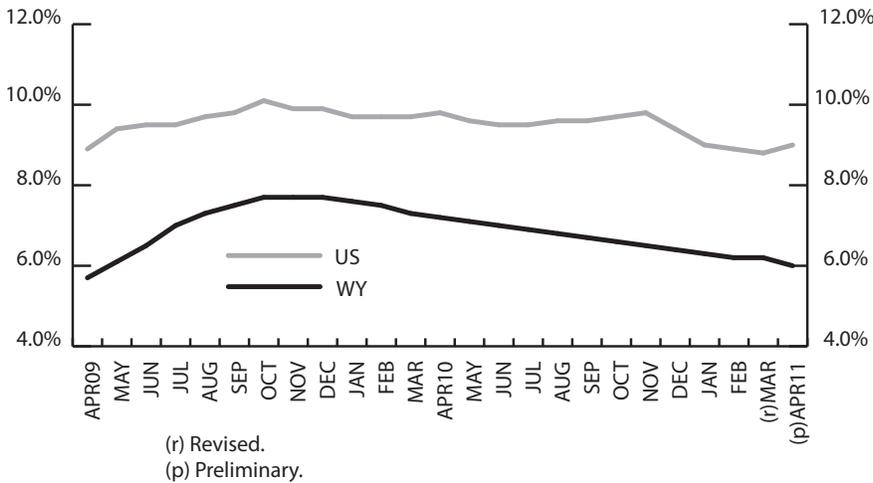


¹ Seasonal adjustment is a statistical procedure to remove the impact of normal regularly recurring events (such as weather, major holidays, and the opening and closing of schools) from economic time series to better understand changes in economic conditions from month to month.

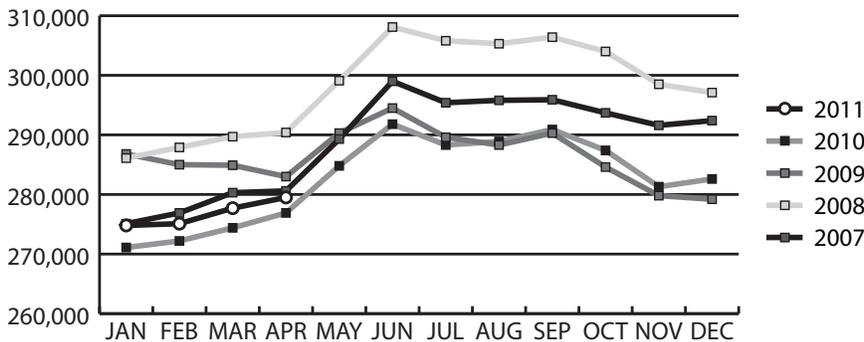
**Nonagricultural Employment Growth
(Percentage Change Over Previous Year)**



Seasonally Adjusted Unemployment Rate (Percentage)



Wyoming Nonagricultural Wage and Salary Employment



**State Unemployment Rates
April 2011
(Seasonally Adjusted)**

State	Unemp. Rate
Puerto Rico	16.4
Nevada	12.5
California	11.9
Rhode Island	10.9
Florida	10.8
Mississippi	10.4
Michigan	10.2
Kentucky	10.0
Georgia	9.9
South Carolina	9.8
North Carolina	9.7
District of Columbia	9.6
Idaho	9.6
Oregon	9.6
Tennessee	9.6
Alabama	9.3
Arizona	9.3
New Jersey	9.3
Connecticut	9.1
Washington	9.1
United States	9.0
Missouri	8.9
Colorado	8.8
West Virginia	8.8
Illinois	8.7
Ohio	8.6
Delaware	8.2
Indiana	8.2
Louisiana	8.1
Texas	8.0
New York	7.9
Massachusetts	7.8
Arkansas	7.7
Maine	7.6
New Mexico	7.6
Pennsylvania	7.5
Utah	7.4
Alaska	7.3
Montana	7.3
Wisconsin	7.3
Maryland	6.8
Kansas	6.7
Minnesota	6.5
Hawaii	6.1
Virginia	6.1
Iowa	6.0
Wyoming	6.0
Oklahoma	5.6
Vermont	5.3
New Hampshire	4.9
South Dakota	4.9
Nebraska	4.2
North Dakota	3.3

Wyoming Nonagricultural Wage and Salary Employment

by: David Bullard, Senior Economist

	% Change Total Employment				
	Employment in Thousands			Mar 11 Apr 10	
	Apr 11	Mar 11	Apr 10	Apr 11	Apr 11
CAMPBELL COUNTY					
TOTAL NONAG. WAGE & SALARY EMPLOYMENT	28.3	28.1	28.2	0.7	0.4
TOTAL PRIVATE	23.4	23.3	23.4	0.4	0.0
GOODS PRODUCING	11.4	11.4	11.4	0.0	0.0
Natural Resources & Mining	7.9	7.9	7.7	0.0	2.6
Construction	3.0	3.0	3.2	0.0	-6.3
Manufacturing	0.5	0.5	0.5	0.0	0.0
SERVICE PROVIDING	16.9	16.7	16.8	1.2	0.6
Trade, Transport., & Utilities	5.2	5.3	5.3	-1.9	-1.9
Information	0.2	0.2	0.2	0.0	0.0
Financial Activities	0.7	0.7	0.7	0.0	0.0
Professional & Bus. Services	1.7	1.6	1.8	6.2	-5.6
Educational & Health Serv.	1.0	1.0	1.0	0.0	0.0
Leisure & Hospitality	2.1	2.0	2.0	5.0	5.0
Other Services	1.1	1.1	1.0	0.0	10.0
GOVERNMENT	4.9	4.8	4.8	2.1	2.1

	% Change Total Employment				
	Employment in Thousands			Mar 11 Apr 10	
	Apr 11	Mar 11	Apr 10	Apr 11	Apr 11
SWEETWATER COUNTY					
TOTAL NONAG. WAGE & SALARY EMPLOYMENT	24.8	24.5	24.3	1.2	2.1
TOTAL PRIVATE	19.9	19.5	19.5	2.1	2.1
GOODS PRODUCING	8.7	8.5	8.5	2.4	2.4
Natural Resources & Mining	5.6	5.6	5.2	0.0	7.7
Construction	1.8	1.6	2.0	12.5	-10.0
Manufacturing	1.3	1.3	1.3	0.0	0.0
SERVICE PROVIDING	16.1	16.0	15.8	0.6	1.9
Trade, Transport., & Utilities	5.0	5.0	4.8	0.0	4.2
Information	0.2	0.2	0.2	0.0	0.0
Financial Activities	0.9	0.9	0.8	0.0	12.5
Professional & Bus. Services	1.1	1.0	1.0	10.0	10.0
Educational & Health Serv.	1.0	1.0	1.0	0.0	0.0
Leisure & Hospitality	2.3	2.2	2.2	4.5	4.5
Other Services	0.7	0.7	1.0	0.0	-30.0
GOVERNMENT	4.9	5.0	4.8	-2.0	2.1

	% Change Total Employment				
	Employment in Thousands			Mar 11 Apr 10	
	Apr 11	Mar 11	Apr 10	Apr 11	Apr 11
TETON COUNTY					
TOTAL NONAG. WAGE & SALARY EMPLOYMENT	14.8	15.8	14.4	-6.3	2.8
TOTAL PRIVATE	12.5	13.4	12.2	-6.7	2.5
GOODS PRODUCING	1.5	1.4	1.6	7.1	-6.3
Nat. Res., Mining & Const.	1.4	1.3	1.5	7.7	-6.7
Manufacturing	0.1	0.1	0.1	0.0	0.0
SERVICE PROVIDING	13.3	14.4	12.8	-7.6	3.9
Trade, Transport., & Utilities	2.0	2.1	2.1	-4.8	-4.8
Information	0.2	0.2	0.2	0.0	0.0
Financial Activities	0.8	0.8	0.7	0.0	14.3
Professional & Bus. Services	1.5	1.3	1.4	15.4	7.1
Educational & Health Serv.	0.9	0.9	0.9	0.0	0.0
Leisure & Hospitality	5.2	6.3	4.9	-17.5	6.1
Other Services	0.4	0.4	0.4	0.0	0.0
GOVERNMENT	2.3	2.4	2.2	-4.2	4.5

State Unemployment Rates April 2011 (Not Seasonally Adjusted)

State	Unemp. Rate
Puerto Rico	16.2
Nevada	11.9
California	11.7
Rhode Island	10.8
Florida	10.4
Michigan	10.1
Mississippi	10.0
Idaho	9.7
Kentucky	9.7
Georgia	9.6
South Carolina	9.6
Tennessee	9.6
North Carolina	9.5
Oregon	9.5
District of Columbia	9.4
New Jersey	9.1
Alabama	9.0
Arizona	8.9
Connecticut	8.9
Washington	8.9
West Virginia	8.8
United States	8.7
Illinois	8.6
Missouri	8.4
Ohio	8.4
Colorado	8.3
Indiana	8.1
Delaware	8.0
Maine	7.9
Alaska	7.7
New York	7.7
Texas	7.7
Arkansas	7.6
Louisiana	7.4
Massachusetts	7.4
Montana	7.4
Wisconsin	7.4
Pennsylvania	7.1
Utah	7.0
New Mexico	6.9
Maryland	6.6
Minnesota	6.6
Kansas	6.3
Wyoming	6.2
Iowa	6.0
Vermont	5.9
Virginia	5.8
Hawaii	5.6
Oklahoma	4.9
South Dakota	4.8
New Hampshire	4.7
Nebraska	4.1
North Dakota	3.2

Economic Indicators

by: Margaret Hiatt, Administrative/Survey Support Specialist

Regular Unemployment Insurance benefits paid in Wyoming fell by 31.3% from April 2010 to April 2011.

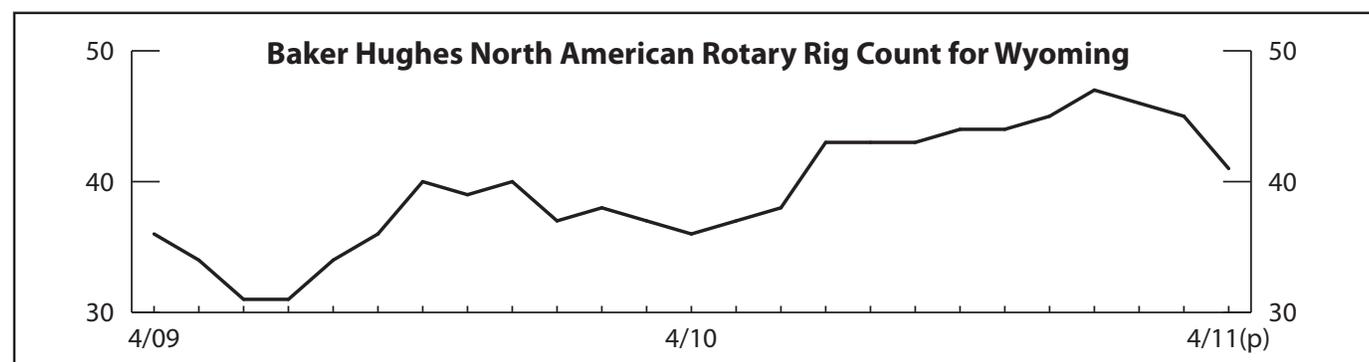
	Apr 2011 (p)	Mar 2011 (r)	Apr 2010 (b)	Percent Change Month	Percent Change Year
Wyoming Total Nonfarm Employment	279,500	277,700	276,900	0.6	0.9
Wyoming State Government	17,400	17,200	16,900	1.2	3.0
Laramie County Nonfarm Employment	43,700	43,200	43,000	1.2	1.6
Natrona County Nonfarm Employment	38,300	38,200	38,400	0.3	-0.3
Selected U.S. Employment Data					
U.S. Multiple Jobholders	6,887,000	6,809,000	7,105,000	1.1	-3.1
As a percent of all workers	4.9%	4.9%	5.1%	N/A	N/A
U.S. Discouraged Workers	989,000	921,000	1,197,000	7.4	-17.4
U.S. Part Time for Economic Reasons	8,425,000	8,737,000	8,921,000	-3.6	-5.6
Wyoming Unemployment Insurance					
Weeks Compensated	27,339	37,443	38,237	-27.0	-28.5
Benefits Paid	\$8,781,163	\$12,063,896	\$12,783,320	-27.2	-31.3
Average Weekly Benefit Payment	\$321.20	\$322.19	\$334.32	-0.3	-3.9
State Insured Covered Jobs ¹	254,075	253,578	253,024	0.2	0.4
Insured Unemployment Rate	2.9%	3.2%	4.0%	N/A	N/A
Consumer Price Index (U) for All U.S. Urban Consumers (1982 to 1984 = 100)					
All Items	224.9	223.5	218.0	0.6	3.2
Food & Beverages	226.2	225.5	219.5	0.3	3.1
Housing	217.9	217.7	215.8	0.1	1.0
Apparel	122.2	121.3	122.1	0.7	0.1
Transportation	216.9	211.0	194.0	2.8	11.8
Medical Care	398.8	397.7	387.7	0.3	2.9
Recreation (Dec. 1997=100)	113.4	113.3	113.8	0.1	-0.4
Education & Communication (Dec. 1997=100)	130.6	130.7	129.3	-0.1	1.0
Other Goods & Services	386.2	385.6	378.9	0.2	1.9
Producer Prices (1982 to 1984 = 100)					
All Commodities	202.8	199.1	184.4	1.9	10.0
Wyo. Bldg. Permits (New Privately Owned Housing Units Authorized)					
Total Units	152	153	142	-0.7	7.0
Valuation	\$38,594,000	\$29,105,000	\$30,710,000	32.6	25.7
Single Family Homes	142	99	137	43.4	3.6
Valuation	\$37,616,000	\$24,965,000	\$30,395,000	50.7	23.8
Casper MSA ² Building Permits	17	27	19	-37.0	-10.5
Valuation	\$2,605,000	\$3,237,000	\$3,306,000	-19.5	-21.2
Cheyenne MSA Building Permits	16	51	32	-68.6	-50.0
Valuation	\$2,876,000	\$5,434,000	\$4,525,000	-47.1	-36.4
Baker Hughes North American Rotary Rig Count for Wyoming	41	45	36	-8.9	13.9

(p) Preliminary. (r) Revised. (b) Benchmarked.

¹Local Area Unemployment Statistics Program estimates.

²Metropolitan Statistical Area.

Note: Production worker hours and earnings data have been dropped from the Economic Indicators page because of problems with accuracy due to a small sample size and high item nonresponse. The Bureau of Labor Statistics will continue to publish these data online at <http://www.bls.gov/eag/eag.wy.htm>



Wyoming County Unemployment Rates

by: Carola Cowan, BLS Programs Supervisor

Teton County posted the highest unemployment rate (12.8%), followed by Lincoln (9.5%) and Johnson (7.8%) counties.

REGION	Labor Force			Employed			Unemployed			Unemployment Rates		
	Apr 2011	Mar 2011	Apr 2010	Apr 2011	Mar 2011	Apr 2010	Apr 2011	Mar 2011	Apr 2010	Apr 2011	Mar 2011	Apr 2010
County	(p)	(r)	(b)	(p)	(r)	(b)	(p)	(r)	(b)	(p)	(r)	(b)
NORTHWEST	44,811	44,773	45,014	41,898	41,326	41,538	2,913	3,447	3,476	6.5	7.7	7.7
Big Horn	4,963	4,898	5,002	4,622	4,479	4,603	341	419	399	6.9	8.6	8.0
Fremont	18,959	19,083	19,095	17,634	17,545	17,516	1,325	1,538	1,579	7.0	8.1	8.3
Hot Springs	2,527	2,499	2,541	2,398	2,359	2,411	129	140	130	5.1	5.6	5.1
Park	14,138	14,075	14,042	13,255	13,018	12,974	883	1,057	1,068	6.2	7.5	7.6
Washakie	4,224	4,218	4,334	3,989	3,925	4,034	235	293	300	5.6	6.9	6.9
NORTHEAST	53,355	53,535	54,680	50,330	50,108	50,814	3,025	3,427	3,866	5.7	6.4	7.1
Campbell	27,273	27,372	27,730	26,049	26,015	25,961	1,224	1,357	1,769	4.5	5.0	6.4
Crook	3,360	3,310	3,503	3,170	3,113	3,287	190	197	216	5.7	6.0	6.2
Johnson	3,762	3,767	3,890	3,468	3,420	3,541	294	347	349	7.8	9.2	9.0
Sheridan	15,752	15,847	16,244	14,615	14,532	14,924	1,137	1,315	1,320	7.2	8.3	8.1
Weston	3,208	3,239	3,313	3,028	3,028	3,101	180	211	212	5.6	6.5	6.4
SOUTHWEST	62,744	63,054	62,590	58,295	59,027	57,183	4,449	4,027	5,407	7.1	6.4	8.6
Lincoln	7,944	7,954	8,040	7,187	7,145	7,160	757	809	880	9.5	10.2	10.9
Sublette	6,968	7,163	7,003	6,715	6,883	6,647	253	280	356	3.6	3.9	5.1
Sweetwater	24,092	24,234	24,092	22,897	22,889	22,402	1,195	1,345	1,690	5.0	5.6	7.0
Teton	12,562	12,469	12,458	10,950	11,585	10,806	1,612	884	1,652	12.8	7.1	13.3
Uinta	11,178	11,234	10,997	10,546	10,525	10,168	632	709	829	5.7	6.3	7.5
SOUTHEAST	74,348	74,774	75,061	70,083	69,902	70,076	4,265	4,872	4,985	5.7	6.5	6.6
Albany	19,596	19,735	19,756	18,761	18,759	18,754	835	976	1,002	4.3	4.9	5.1
Goshen	6,308	6,194	6,396	5,943	5,808	6,001	365	386	395	5.8	6.2	6.2
Laramie	43,163	43,679	43,237	40,372	40,484	39,974	2,791	3,195	3,263	6.5	7.3	7.5
Niobrara	1,214	1,198	1,272	1,162	1,138	1,208	52	60	64	4.3	5.0	5.0
Platte	4,067	3,968	4,400	3,845	3,713	4,139	222	255	261	5.5	6.4	5.9
CENTRAL	55,151	55,554	56,521	51,888	51,834	52,505	3,263	3,720	4,016	5.9	6.7	7.1
Carbon	7,381	7,381	7,893	6,875	6,803	7,284	506	578	609	6.9	7.8	7.7
Converse	7,301	7,339	7,580	6,950	6,947	7,130	351	392	450	4.8	5.3	5.9
Natrona	40,469	40,834	41,048	38,063	38,084	38,091	2,406	2,750	2,957	5.9	6.7	7.2
STATEWIDE	290,411	291,690	293,868	272,493	272,197	272,118	17,918	19,493	21,750	6.2	6.7	7.4
Statewide Seasonally Adjusted										6.0	6.2	7.2
U.S.										8.7	9.2	9.5
U.S. Seasonally Adjusted										9.0	8.8	9.8

Prepared in cooperation with the Bureau of Labor Statistics. Benchmarked 02/2011. Run Date 05/2011.

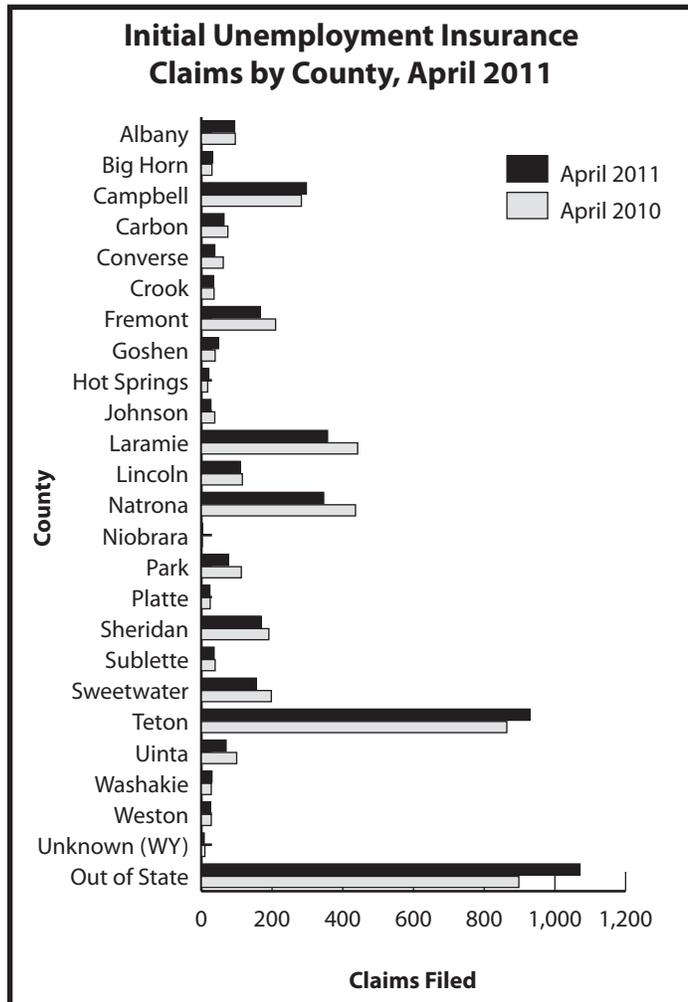
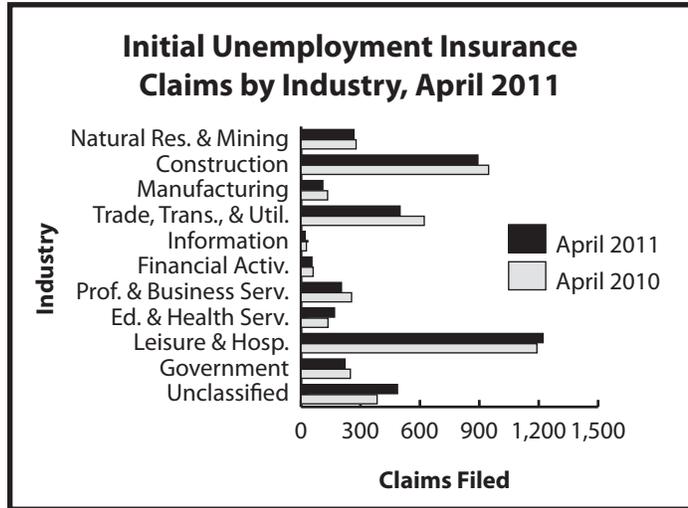
Data are not seasonally adjusted except where otherwise specified.

(p) Preliminary. (r) Revised. (b) Benchmarked.

Wyoming Normalized^a Unemployment Insurance Statistics: Initial Claims

by: Douglas W. Leonard, Senior Economist

Initial claims declined by 3.3% compared to April 2010. Education and health services (24.3%) and leisure & hospitality (+2.6%) both had increased claims compared to one year ago.



Initial Claims	Claims Filed		Percent Change Claims Filed		
	Apr 11	Mar 11	Apr 11	Apr 10	
Wyoming Statewide	4,229	3,252	4,375	30.0	-3.3
TOTAL CLAIMS FILED					
TOTAL GOODS-PRODUCING	1,270	1,214	1,359	4.6	-6.5
Natural Res. & Mining	267	276	278	-3.3	-4.0
Mining	242	248	259	-2.4	-6.6
Oil & Gas Extraction	13	19	12	-31.6	8.3
Construction	893	788	947	13.3	-5.7
Manufacturing	110	150	134	-26.7	-17.9
TOTAL SERVICE-PROVIDING	2,250	1,448	2,383	55.4	-5.6
Trade, Transp., & Utilities	500	398	622	25.6	-19.6
Wholesale Trade	54	46	82	17.4	-34.1
Retail Trade	278	236	350	17.8	-20.6
Transp., Warehousing & Utilities	168	116	190	44.8	-11.6
Information	21	15	27	40.0	-22.2
Financial Activities	55	37	61	48.6	-9.8
Prof. and Business Svcs.	204	182	255	12.1	-20.0
Educational & Health Svcs.	169	163	136	3.7	24.3
Leisure & Hospitality	1,222	579	1,191	111.1	2.6
Other Svcs., exc. Public Admin.	79	74	91	6.8	-13.2
TOTAL GOVERNMENT	222	222	249	0.0	-10.8
Federal Government	87	89	106	-2.2	-17.9
State Government	27	23	25	17.4	8.0
Local Government	108	110	118	-1.8	-8.5
Local Education	24	27	21	-11.1	14.3
UNCLASSIFIED	487	368	384	32.3	26.8

Laramie County					
TOTAL CLAIMS FILED	355	365	441	-2.7	-19.5
TOTAL GOODS-PRODUCING	134	135	163	-0.7	-17.8
Construction	122	113	143	8.0	-14.7
TOTAL SERVICE-PROVIDING	171	172	224	-0.6	-23.7
Trade, Transp., & Utilities	61	54	90	13.0	-32.2
Financial Activities	9	9	14	0.0	-35.7
Prof. & Business Svcs.	27	35	38	-22.9	-28.9
Educational & Health Svcs.	37	27	31	37.0	19.4
Leisure & Hospitality	27	34	29	-20.6	-6.9
TOTAL GOVERNMENT	31	43	41	-27.9	-24.4
UNCLASSIFIED	19	15	13	26.7	46.2

Natrona County					
TOTAL CLAIMS FILED	343	308	437	11.4	-21.5
TOTAL GOODS-PRODUCING	119	124	153	-4.0	-22.2
Construction	82	87	100	-5.7	-18.0
TOTAL SERVICE-PROVIDING	195	167	251	16.8	-22.3
Trade, Transp., & Utilities	57	49	102	16.3	-44.1
Financial Activities	6	6	10	0.0	-40.0
Prof. & Business Svcs.	39	28	41	39.3	-4.9
Educational & Health Svcs.	34	27	25	25.9	36.0
Leisure & Hospitality	37	36	46	2.8	-19.6
TOTAL GOVERNMENT	13	8	21	62.5	-38.1
UNCLASSIFIED	16	9	12	77.8	33.3

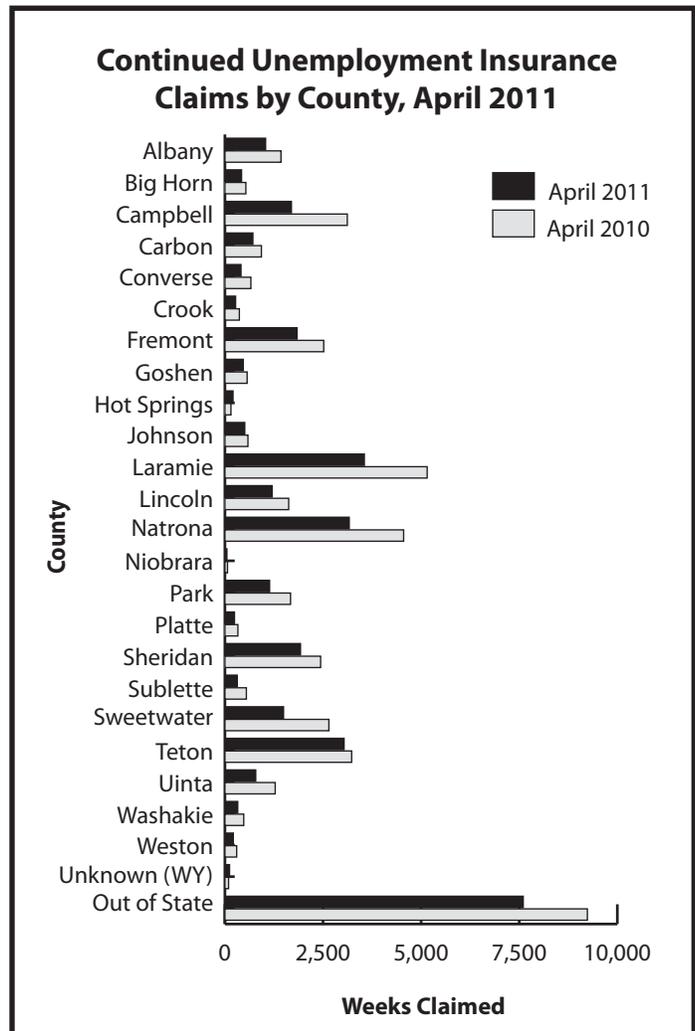
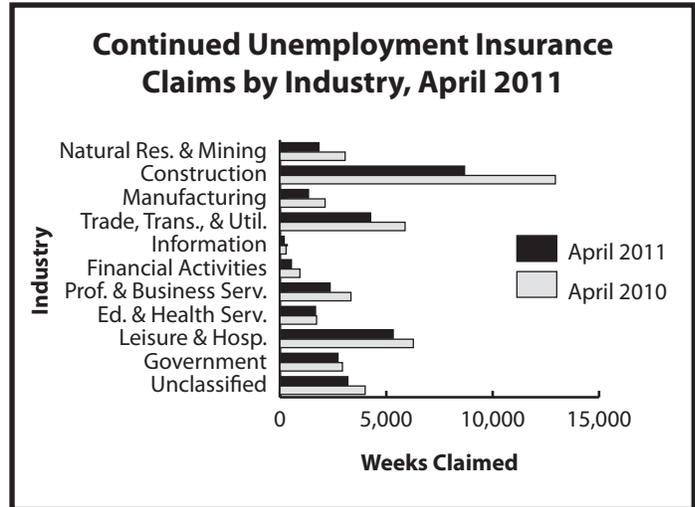
^aAn average month is considered 4.33 weeks. If a month has four weeks, the normalization factor is 1.0825. If the month has five weeks, the normalization factor is 0.866. The number of raw claims is multiplied by the normalization factor to achieve the normalized claims counts.

Wyoming Normalized^a Unemployment Insurance Statistics: Continued Claims

by: Douglas W. Leonard, Senior Economist

Substantial declines in over-the-year continued weeks claimed occurred in mining (-41.3%) and wholesale trade (-42.2%).

Continued Claims	Continued Weeks Claimed			Percent Change Weeks Claimed	
	Apr 11	Mar 11	Apr 10	Mar 11	Apr 10
Wyoming Statewide					
TOTAL WEEKS CLAIMED	32,734	36,765	44,526	-11.0	-26.5
EXTENDED WEEKS CLAIMED	17,773	18,698	26,831	-4.9	-33.8
TOTAL UNIQUE CLAIMANTS^b	10,035	8,937	13,101	12.3	-23.4
<i>Benefit Exhaustions</i>	1,138	1,055	1,530	7.9	-25.6
<i>Benefit Exhaustion Rates</i>	11.3%	11.8%	11.7%	-0.5%	-0.3%
TOTAL GOODS-PRODUCING	11,847	15,156	18,135	-21.8	-34.7
Natural Res. & Mining	1,825	1,890	3,066	-3.4	-40.5
Mining	1,618	1,630	2,756	-0.7	-41.3
Oil & Gas Extraction	118	129	161	-8.5	-26.7
Construction	8,678	11,702	12,947	-25.8	-33.0
Manufacturing	1,344	1,564	2,122	-14.1	-36.7
TOTAL SERVICE-PROVIDING	14,966	14,789	19,448	1.2	-23.0
Trade, Transp., & Utilities	4,261	4,568	5,882	-6.7	-27.6
Wholesale Trade	539	620	933	-13.1	-42.2
Retail Trade	2,722	2,884	3,507	-5.6	-22.4
Transp., Warehousing & Utilities	1,000	1,064	1,442	-6.0	-30.7
Information	202	205	289	-1.5	-30.1
Financial Activities	541	634	939	-14.7	-42.4
Prof. & Business Svcs.	2,360	3,116	3,339	-24.3	-29.3
Educational & Health Svcs.	1,673	1,626	1,722	2.9	-2.8
Leisure and Hospitality	5,327	3,987	6,271	33.6	-15.1
Other Svcs., exc. Public Admin.	602	653	1,006	-7.8	-40.2
TOTAL GOVERNMENT	2,729	3,314	2,937	-17.7	-7.1
Federal Government	1,262	1,618	1,037	-22.0	21.7
State Government	258	281	337	-8.2	-23.4
Local Government	1,209	1,415	1,563	-14.6	-22.6
Local Education	213	249	325	-14.5	-34.5
UNCLASSIFIED	3,192	3,506	4,006	-9.0	-20.3
Laramie County					
TOTAL WEEKS CLAIMED	3,551	4,476	5,153	-20.7	-31.1
TOTAL UNIQUE CLAIMANTS	1,065	1,116	1,511	-4.6	-29.5
Total Goods-Producing	1,228	1,902	2,014	-35.4	-39.0
Construction	1,049	1,645	1,685	-36.2	-37.7
Total Service-Providing	1,824	2,030	2,544	-10.1	-28.3
Trade, Transp., and Utilities	599	665	974	-9.9	-38.5
Financial Activities	101	131	203	-22.9	-50.2
Prof. & Business Svcs.	363	501	484	-27.5	-25.0
Educational and Health Svcs.	415	405	293	2.5	41.6
Leisure & Hospitality	247	226	369	9.3	-33.1
TOTAL GOVERNMENT	402	438	480	-8.2	-16.3
UNCLASSIFIED	97	106	115	-8.5	-15.7
Natrona County					
TOTAL WEEKS CLAIMED	3,169	4,113	4,555	-23.0	-30.4
TOTAL UNIQUE CLAIMANTS	928	1,010	1,334	-8.1	-30.4
Total Goods-Producing	987	1,460	1,871	-32.4	-47.2
Construction	678	1,085	1,216	-37.5	-44.2
Total Service-Providing	1,968	2,376	2,365	-17.2	-16.8
Trade, Transp., and Utilities	726	944	839	-23.1	-13.5
Financial Activities	65	84	145	-22.6	-55.2
Professional & Business Svcs.	350	424	421	-17.5	-16.9
Educational & Health Svcs.	305	322	370	-5.3	-17.6
Leisure & Hospitality	323	381	346	-15.2	-6.6
TOTAL GOVERNMENT	137	193	191	-29.0	-28.3
UNCLASSIFIED	77	84	128	-8.3	-39.8



^aAn average month is considered 4.33 weeks. If a month has four weeks, the normalization factor is 1.0825. If the month has five weeks, the normalization factor is 0.866. The number of raw claims is multiplied by the normalization factor to achieve the normalized claims counts.
^bDoes not include claimants receiving extended benefits.

**Wyoming Department
of Employment
Research & Planning
P.O. Box 2760
Casper, WY 82602**

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