

Study of :

Occupational Projections

- *Career/ Technical Education (CTE)

- *Science Technology Engineering Math (STEM)

Presented by Tom Gallagher & Tony Glover
Joint Interim Education Committee Meeting
Platte Valley Community Center
210 W. Elm Street
Saratoga, Wyoming
June 4 and 5, 2015

Research & Planning

<http://doe.state.wy.us/LMI/oes.htm>

OUR ORGANIZATION:

R&P is a separate, exclusively statistical entity.

WHAT WE DO:

R&P collects, analyzes, and publishes timely and accurate labor market information (LMI) meeting established statistical standards.

OUR CUSTOMERS:

LMI makes the labor market more efficient by providing the public and the public's representatives with the basis for informed decision making.

Links to Industry and Occupational Projections

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Section 309 of the Workforce Investment Act
Targeted Employment

Projections

2015

Wyoming Industry and Occupational Projections (Short-Term, 2014-2016)

- [Short-Term Industry Projections, 2014-2016](#)
- [Short-Term Occupational Projections, 2014-2016](#)

(Tables prepared by David Bullard. Tables include Excel file links; see upper right corner of tables.)

2014

Wyoming Industry and Occupational Projections (Long-Term, 2012-2022, and Short-Term, 2013-2015)

- [Long-Term Industry Projections, 2012-2022](#)
- [Short-Term Industry Projections, 2013-2015](#)
- [Long-Term Occupational Projections, 2012-2022](#)
- [Short-Term Occupational Projections, 2013-2015](#)

(Tables prepared by David Bullard. Tables include Excel file links; see upper right corner of tables.)

NATIONAL AND STATE PROJECTIONS

[Projections Central](#) State Occupational Projections (All States & National)

NEW!

Labor Market Information
— on —
Wyoming at Work



- Dynamic data
- Industries
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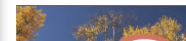
Wyoming Department of Workforce Services

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Wyoming DWS



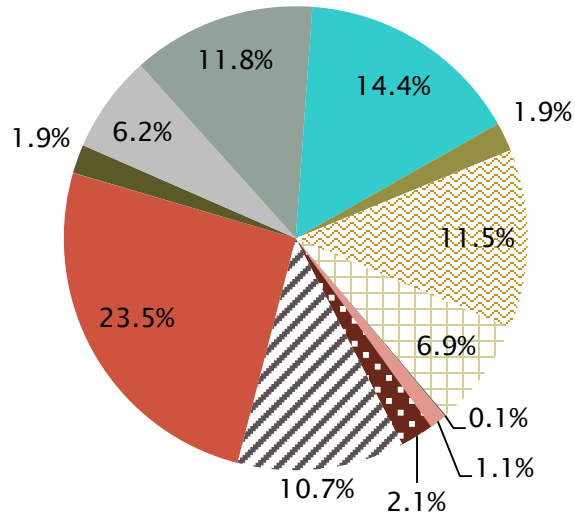
Components of Occupational Employment Projections

- ▶ State–U.S. Department of Labor, Bureau of Labor Statistics Programs:
 - Time series of employment by industry
 - Occupations and wages from an employer survey
 - (Occupational Employment Statistics program– OES)
- ▶ Yields information on occupational demand e.g.:

Occupational Staffing Patterns in the Oil & Gas Industry: Wyoming and Denver

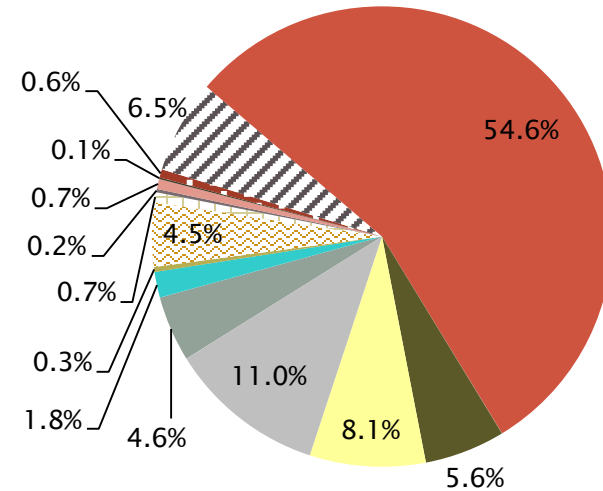
Standard Occupational Classification Occupations as a Percent of Oil & Gas Extraction (NAICS 211) & Support Activities for Mining (NAICS 213) Employment

Denver



Occupation	WY	DEN
11- Management	4.6%	11.8%
15- Computer and Mathematical	0.3%	1.9%
17- Architecture and Engineering	0.7%	6.9%
19- Life, Physical, and Social Science	0.7%	1.1%
23- Legal	0.6%	2.1%
29- Healthcare and Technical	0.1%	0%
37- Building & Grounds Cleaning and Maintenance	6.5%	10.7%
41- Sales and Related	4.5%	11.5%
43- Office and Administrative Support	11.0%	6.2%
47- Construction and Extraction	54.6%	23.5%
49- Installation, Maintenance, and Repair	8.1%	0%
51- Production	0%	0%

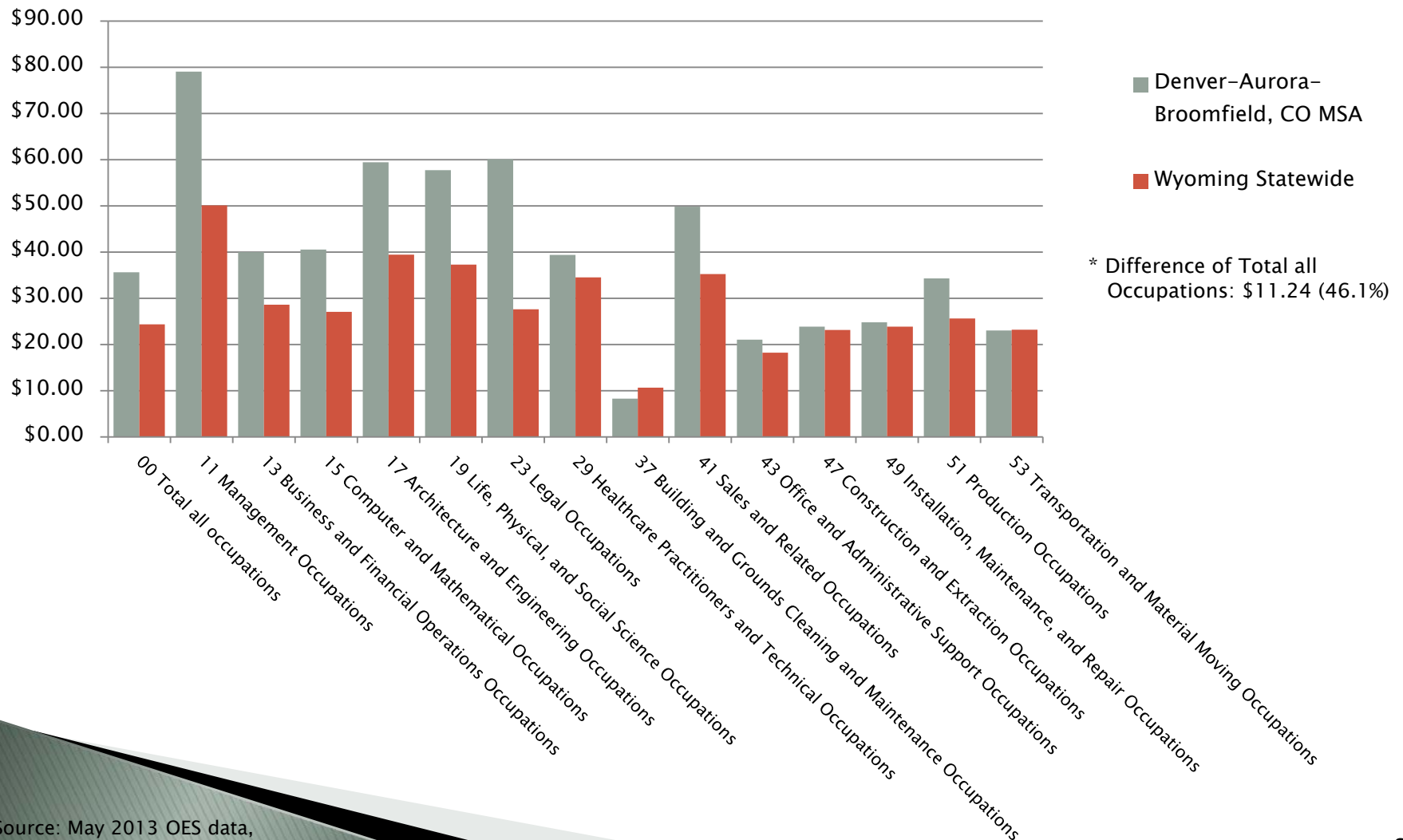
Wyoming



Occupation	WY	DEN
13- Business and Financial	1.8%	14.4%
17- Architecture and Engineering	4.5%	11.5%
23- Legal	0.2%	0.1%
37- Building & Grounds Cleaning and Maintenance	0.1%	0%
43- Office and Administrative Support	6.5%	10.7%
49- Installation, Maintenance, and Repair	5.6%	1.9%
53- Transportation and Material Moving	11.0%	6.2%

Average Hourly Wage, Oil and Gas Industry by Occupation for Wyoming and Denver

NAICS 211 & 213



Occupational Demand and Supply Analysis

▶ Demand: Economic Statistics

- Statistical Projection of Employment by Industry
 - e.g. Oil and Gas Extraction (NAICS 211) and Support Activities for Mining (NAICS 213)
- Attaching Occupational Staffing Patterns from employer surveys

▶ Supply: Multiple Educational Inputs and Outputs

- Science Technology Engineering and Math (Degrees)
- Career/Technical Education (Course Work)
- Classification of Instructional Programs (Fields of Study)

Defining the Adequacy of Supply Relative to Compensation

Mapping Educational Inputs and Outputs to Occupational Demand

Many Sources of Supply

Education Supply	Demand
Career / Technical Education Clusters	Standard Occupational Classification
Agriculture, Food and Natural Resource	
Health Science	
Information Technology	Computer User Support Specialists (15-1151)
Manufacturing Career	
Science, Technology, Engineering and Mathematics	

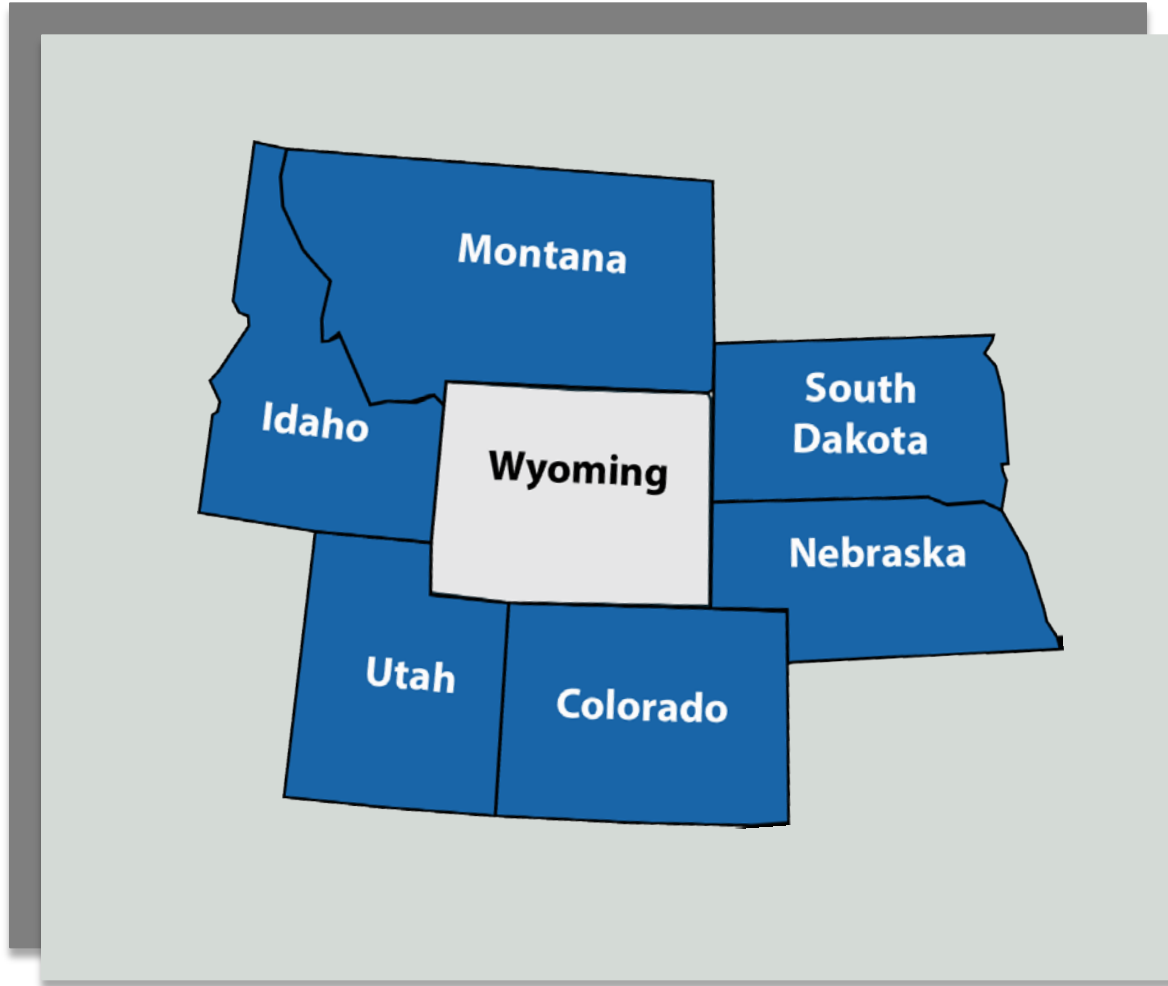
One Source of Supply

For many occupations

Standard Occupational Classification Code
Operating Engineers and Other Construction Equipment Operators (47-2073)
Construction Laborers (47-2061)
Carpenters (47-2031)
Maintenance and Repair Workers, General (49-9071)
First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)
Electricians (47-2111)
Rotary Drill Operators, Oil and Gas (47-5012)
Plumbers, Pipefitters, and Steamfitters (47-2152)
Painters, Construction and Maintenance (47-2141)
Cement Masons and Concrete Finishers (47-2051)
Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021)
Derrick Operators, Oil and Gas (47-5011)
Electrical Power-Line Installers and Repairers (49-9051)
Construction Managers (11-9021)
Cost Estimators (13-1051)
Roofers (47-2181)
Helpers--Carpenters (47-3012)
Excavating and Loading Machine and Dragline Operators (53-7032)
**** 40 Additional Occupations****

CTE Cluster – Architecture and Construction

Compensation Competition from Border States



High Growth Occupations Presented to the Wyoming Workforce Development Council 01/14/2015.

Wyoming's Occupational Projections for Jobs with an Average Annual Wage > \$29,120 (\$14.00/Hour) and a Average Annual Employment Growth >= 20 Jobs from 2012 to 2022.

High Growth Occupations in Wyoming

Career / Technical Education (CTE) Cluster

SOC Code	SOC Description	Typical Education \ Training	Average Annual		% Satisfied with New Hire	Average Annual Wage	Career / Technical Education (CTE) Cluster																	
			Openings Growth 2012-2022	Percent Change			Average Annual New Hires	Agriculture, Food and Natural Resource	Architecture and Construction	Arts, Audio/Video Technology and Communications	Business, Management and Administration	Education and Training	Finance	Government and Public Administration	Health Science	Hospitality and Tourism	Human Service	Information Technology	Law, Public Safety, Corrections and Security	Manufacturing Career	Marketing Sales and Service	Science, Technology, Engineering and Mathematics	Transportation, Distribution, and Logistics	
29-1141	Registered Nurses	Associates degree	88	1.8	1,023	51.2	\$61,480										X							
53-3032	Heavy and Tractor-Trailer Truck Drivers	Short-term OJT training	82	1.1	4,481	40.8	\$46,350																X	
11-1021	General and Operations Managers	Bachelors degree	80	1.5	1,161	42.7	\$95,560					X					X							
47-2031	Carpenters	Apprenticeship	80	2.0	1,191	52.5	\$40,900	X																
49-9041	Industrial Machinery Mechanics	Long-term OJT training	71	2.9	446	39.6	\$56,600															X		
43-3031	Bookkeeping, Accounting, and Auditing Clerks	Moderate-term OJT training	68	1.4	726	62.2	\$36,430					X												
47-2061	Construction Laborers	Short-term OJT training	66	1.6	4,278	36.6	\$32,460	X																
43-6014	Secretaries and Administrative Assistants,	Short-term OJT training	62	1.2	370	54.5	\$33,440					X												
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	None	58	1.5	445	39.0	\$65,890	X																
49-9071	Maintenance and Repair Workers, General	Long-term OJT training	47	1.1	1,182	32.5	\$41,660	X																
43-9061	Office Clerks, General	Short-term OJT training	46	.8	2,673	48.2	\$30,400					X												
47-2111	Electricians	Apprenticeship	42	1.5	1,334	43.8	\$53,710	X																
25-2021	Elementary School Teachers, Except Special Education	Bachelors degree	38	1.4	197	53.3	\$57,470						X											
47-2073	Operating Engineers and Other Construction Equipment Operators	Moderate-term OJT training	38	.6	1,823	42.4	\$49,210	X																X
41-4012	Sales Representatives, Wholesale and Manufacturing	Moderate-term OJT training	37	1.7	465	46.8	\$58,620							X									X	
43-6013	Medical Secretaries	Moderate-term OJT training	36	3.0	376	48.0	\$31,320										X							
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	Short-term OJT training	36	1.5	2,084	30.4	\$31,510																	X
43-4051	Customer Service Representatives	Short-term OJT training	34	1.7	673	49.2	\$29,420					X												
47-5013	Service Unit Operators, Oil, Gas, and Mining	Moderate-term OJT training	34	1.0	372	18.9	\$50,000	X																
25-3099	Teachers and Instructors, All Other	Bachelors degree	29	.8	129	60.5	\$52,700																	
51-4121	Welders, Cutters, Solderers, and Brazers	Moderate-term OJT training	29	1.1	1,452	35.6	\$49,070																X	
13-2011	Accountants and Auditors (STEM)	Bachelors degree	27	1.4	175	64.9	\$61,920					X					X							
43-1011	First-Line Supervisors of Office and Administrative Support Workers	None	24	1.2	150	18.8	\$46,540	X									X							
41-1011	First-Line Supervisors of Retail Sales Workers	None	20	.6	302	35.7	\$39,550	X															X	
47-2141	Painters, Construction and Maintenance	Moderate-term OJT training	21	1.3	296	48.7	\$36,650		X															
47-5071	Roustabouts, Oil and Gas	Moderate-term OJT training	21	1.0	1,881	41.4	\$40,380															X		
53-3033	Light Truck or Delivery Services Drivers	Short-term OJT training	21	1.4	1,232	42.5	\$36,090																	X
47-2051	Cement Masons and Concrete Finishers	Moderate-term OJT training	20	2.7	866	26.3	\$37,580	X																
47-2152	Plumbers, Pipefitters, and Steamfitters	Apprenticeship	20	1.8	596	37.6	\$42,340	X																

Data Prepared for and Presented to the Joint Interim Education Committee 06/04/2015.

Career/Technical Education (CTE) and Science, Technology, Engineering, and Mathematics (STEM) Career Clusters by Occupational Projections 2012 to 2022, Mean Annual Wages in 2013, and Wyoming's New-Hires 2013/14.

Career Cluster	Area	Number of Occupational Titles in Cluster	Average Annual Openings Growth (3)	Growth Rate Relative to Base Year Employment	Average Annual Wage in 2013 (4)	Average Annual New-Hires (5)	Percent of Employers Satisfied with the New-Hire's Skill
ALL OCCUPATIONS							
Total	Wyoming	517	3,666	1.2	\$43,770		
	Border States	800	115,391	1.8	\$43,563		
	United States	818	1,562,790	1.1	\$46,440		
CTE (1)							
Total All Clusters	Wyoming	508	3,268	1.2	\$44,109	95,113	39.3
	Border States	705	104,340	1.8	\$44,188		
	United States	720	1,386,650	1.0	\$47,828		
Agriculture, Food and Natural Resource Cluster	Wyoming	59	368	1.1	\$39,107	12,164	38.7
	Border States	74	10,065	1.5	\$35,128	0	
	United States	74	104,350	0.7	\$38,134	0	
Architecture and Construction Cluster	Wyoming	66	561	1.4	\$48,754	15,223	40.7
	Border States	92	12,637	2.5	\$48,258		
	United States	94	174,500	1.7	\$53,898		
Arts, Audio/Video Technology and Communications Cluster	Wyoming	29	56	1.0	\$59,881	832	47.8
	Border States	53	1,696	1.0	\$58,224	0	0
	United States	55	17,870	0.4	\$68,409	0	0
****Continued on Handout****							
STEM (2)							
Total All Clusters	Wyoming	91	292	1.2	\$61,396	3,769	42.1
	Border States	118	13,559	2.0	\$69,896		
	United States	122	144,150	0.9	\$75,494		
Chemistry	Wyoming	12	16	1.0	\$73,573	84	47.7
	Border States	12	474	1.7	\$87,247		
	United States	12	3,960	0.5	\$96,135		
Computer Science	Wyoming	18	74	1.4	\$67,856	542	48.8
	Border States	22	6,783	2.3	\$79,531		
	United States	22	80,540	1.3	\$84,949		
****Continued on Handout****							



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Thank you