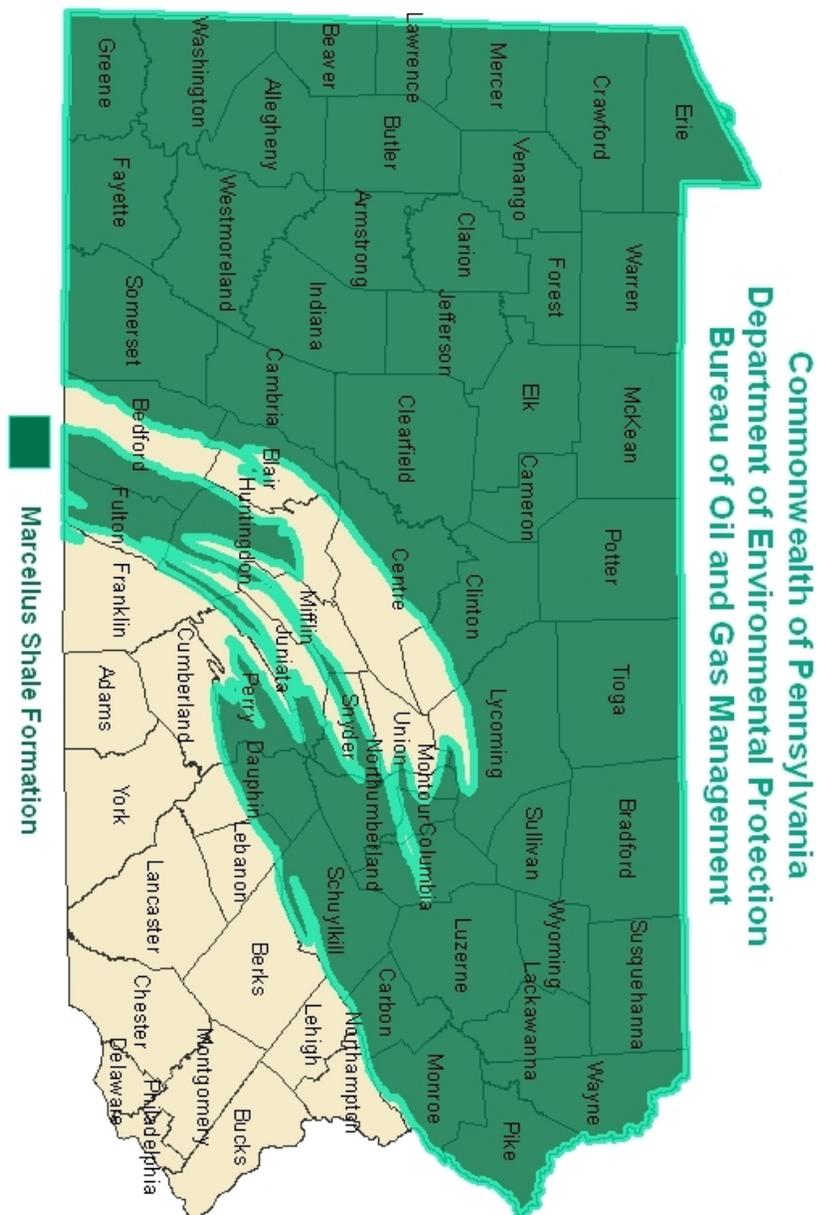


MARCELLUS SHALE FORMATION

MARCELLUS SHALE FAST FACTS

JULY 2014 EDITION*

Each of the following sections is a quick snapshot of labor market information for Pennsylvania's Marcellus Shale (MS) related industries and related economic activity.



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*Note: Data sets from the Quarterly Census of Employment and Wages (QCEW) and the New Hires Program in this edition are for 2013Q4 and 2014Q1, respectively. For both data sets, this is the most current data available. Because neither data set is seasonally adjusted, the same quarter must be used when analyzing growth over time, in order to ensure seasonal factors are not influencing employment change. Therefore, 2013Q4 QCEW data are compared to 2009Q4, and 2014Q1 New Hire data are compared to 1st quarter data for 2011, 2012, and 2013.

For additional information, please contact:
Center for Workforce Information & Analysis (CWIA)
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CWIA-MS

Release Date: 07-29-2014

BACKGROUND INFORMATION

The purpose of this Fast Facts publication is to provide the most current available data on Marcellus Shale related economic activity. While several data sources are utilized in this document, the primary source is the Quarterly Census of Employment and Wages (QCEW).

The QCEW program derives its data from quarterly tax reports submitted to the Pennsylvania Unemployment Compensation system by employers subject to the state's unemployment insurance laws. This includes 95 percent or more of all wage and salary civilian employment in Pennsylvania.

In 2009, CWIA used the North American Industry Classification System (NAICS) to define the Marcellus Shale related industries. Much of the information included in this document reflects data on a group of six industries identified as "core," and a group of 30 industries identified as "ancillary" for Marcellus Shale related activity (see notes section below).

As Marcellus Shale related activity develops further in Pennsylvania, additional industries may be added to the ancillary group, based on factors such as significant employment gains in an industry in a Marcellus Shale geographic region or identification of a group of companies in the same industry involved in Marcellus Shale related activity. Of the current 30 ancillary industries, nine have been added since the April 2011 edition of this publication (* denotes one of the new nine).

Also included in this publication are several additional data sources that capture employer demand and hiring activity. For an explanation of all data sources, please refer to the "Definitions" section on page 17.

The data in this edition include government (federal, state, and local) employment in all Marcellus Shale related industries because significant non-private employment is present in a number of these industries, most notably: Highway, Street, & Bridge Construction; Engineering Services; Water Supply & Irrigation Systems; and Sewage Treatment Facilities.

Notes:

Marcellus Shale Core Industries (NAICS): Crude Petroleum & Natural Gas Extraction (211111); Natural Gas Liquid Extraction (211112); Drilling Oil & Gas Wells (213111); Support Activities for Oil & Gas Operations (213112); Oil & Gas Pipeline & Related Structures Construction (237120); and Pipeline Transportation of Natural Gas (486210).

Marcellus Shale Ancillary Industries (NAICS): Fossil Fuel Electric Power Generation (221112); Natural Gas Distribution (221210); Water Supply & Irrigation Systems (221310); Sewage Treatment Facilities (221320); Water & Sewer Line & Related Structures Construction (237110); Highway, Street, and Bridge Construction (237310)*; Nonresidential Site Preparation Contractors (238912); Petrochemical Manufacturing (325110)*; Industrial Gas Manufacturing (325120); Iron & Steel Mills & Ferroalloy Manufacturing (331110¹); Iron & Steel Pipe & Tube Manufacturing from Purchased Steel (331210); Mining Machinery & Equipment Manufacturing (333131); Oil & Gas Field Machinery & Equipment Manufacturing (333132); Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers (423810)*; Industrial Machinery and Equipment Merchant Wholesalers (423830)*; Industrial Supplies Merchant Wholesalers (423840)*; General Freight Trucking, Local (484110)*; Specialized Freight Trucking, Local (484220); Specialized Freight Trucking, Long-Distance (484230); Lessors of Other Real Property (531190); Construction, Mining & Forestry Machinery & Equipment Rental & Leasing (532412); Engineering Services (541330); Geophysical Surveying & Mapping Services (541360); Testing Laboratories (541380); Environmental Consulting Services (541620); Remediation Services (562910); Commercial & Industrial Machinery & Equipment Repair & Maintenance (811310); Administration of Air and Water Resource and Solid Waste Management Programs (924110)*; Administration of Conservation Programs (924120)*; Regulation and Administration of Communications, Electric, Gas, and Other Utilities (926130)*.

While the vast majority of Marcellus Shale related employment can be found in these industries, not all establishments in these industries are involved in Marcellus Shale. Asterisks indicate industries that have been added to the group of ancillary industries since the April 2011 edition of this publication.

¹NAICS 331110 replaced NAICS 331111 due to a change made by the Bureau of Labor Statistics – for an explanation of the implications of this change, please refer to page 19 in the "Definitions" section.

DEFINITIONS:

NEW HIRES - Source: *The Pennsylvania Department of Labor & Industry*

New Hire Reporting is a process by which employers report information on all employees hired on or after January 1, 1998 to locate non-custodial parents, establish child support orders, or enforce existing orders. Company and individual data are confidential and cannot be reported on. However, the data can be aggregated to show where and in what industries hiring is taking place as an indication of which sectors of the economy are experiencing growth or decline. Approximately sixty percent of all new hires are captured. New hire counts by industry are an indication of trend only.

HELP WANTED ONLINE ADS - Source: *The Conference Board Help Wanted OnLine™ data set*

The Conference Board Help Wanted OnLine data set provides real-time insight into the employment marketplace through the world's largest database of online job ads. Jobs ads can be classified by industry, occupation, employer, and geographic area. Data are analyzed for employment trends and to forecast economic conditions. The underlying data for The Conference Board HWOL are provided by Wanted Technologies Corporation.

MAP OF MARCELLUS SHALE FORMATION - Source: *Department of Environmental Protection*

WORKFORCE INVESTMENT AREA (WIA)

A WIA is labor market area that is usually a group of contiguous counties, where employment, training and educational services are provided. Established through the Workforce Investment Act to provide services for dislocated workers and other eligible individuals, Pennsylvania's 22 WIAs are based on common geographic and economic factors.

NAICS CHANGES

The North American Industry Classification System (NAICS), established in 1997, is reviewed for potential revisions every five years. The latest revision (2012) was implemented by BLS in the QCEW program with the release of 1st quarter 2011 data. As part of this revision, the NAICS code of only one Marcellus Shale related industry was impacted: NAICS 331111 (Iron & Steel Mills). The NAICS 2012 structure eliminated NAICS 331111, combining it with NAICS 331112 (Electrometallurgical ferroalloy product manufacturing) to form NAICS 331110 (Iron & Steel Mills and Ferroalloy Manufacturing). To account for this change, the Marcellus Shale ancillary industry list was modified to change NAICS 331111 to NAICS 331110, and all ancillary industry data will now include NAICS 331110. **To retain comparability, for time periods prior to 2011, data for NAICS 331111 & 331112 will be combined and shown under NAICS 331110.**

DEFINITIONS:

QUARTERLY WORKFORCE INDICATORS - Source: U.S. Census Bureau, Local Employment Dynamics

The Quarterly Workforce Indicators (QWI) are a set of economic indicators that can be queried by different levels of geography as well as by industry, gender, and age of workers. The QWI are built upon wage records in the Unemployment Insurance (UI) system and information from state Quarterly Census of Employment and Wages (QCEW) data.

QUARTERLY CENSUS OF EMPLOYMENT AND WAGES - Source: The Pennsylvania Department of Labor & Industry, Quarterly Census of Employment and Wages

Employment: Employment data include all employment covered under the Pennsylvania Unemployment Compensation program for each of the three months in the quarter. The employment count represents the number of full-time and part-time employees who worked during or received pay for the payroll period including the 12th of the month. The employment totals for each month are averaged for the quarter employment count. Included are persons on paid vacations or on paid sick leave. Workers temporarily earning no wages due to labor-management disputes, layoffs or other reasons are not reported as employed. Persons on the payroll of more than one employer during the same reference week are reported more than once.

Establishment: The location of a certain economic activity, such as a factory, store, office, or mine, that produces goods or services. It is typically at a single physical location and engaged in one, or predominantly one, type of economic activity. An employer may have one or more establishments.

Wages: Total wages include total compensation paid during a calendar quarter (including bonuses). Average wages are calculated by dividing total wages for a quarter by average employment in that quarter.

STAFFING PATTERNS - Source: Pennsylvania Department of Labor & Industry

Staffing Pattern: A listing of the occupations most commonly found within a particular industry. This information comes from the biennial *Long-Term Occupational Employment Projections* data.

Average Annual Wage: The mean annual wage earned by workers in the occupation, assuming 40 hours per week, 52 weeks a year. Wage data is derived from the annual *Occupational Employment Statistics (OES)* survey.

Educational Attainment: The Bureau of Labor Statistics (BLS) provides information about entry-level education, related work experience, and typical on-the-job training requirements for each of several hundreds of occupations.

Educational Attainment Level Abbreviations:

- **Short-term or Moderate-term OJT** – basic tasks and skills are learned through a period of on-the-job training lasting up to one year. A high school diploma may be required.
- **Long-term training** – a high school diploma and at least one year of on-the-job training or an apprenticeship.
- **HS diploma plus experience** – a high school diploma and training gained through hands-on work in a similar occupation.
- **Postsecondary training** – training is gained through a postsecondary training program. Some period of related work experience may be required.
- **Associate degree** – degree completed after two years of full-time schooling beyond high school. Some period of related work experience may be required.
- **Bachelor's degree** – degree completed after four years of full-time schooling beyond high school. Some period of related work experience may be required.
- **Master's Degree** – degree completed after two years of full-time schooling beyond a bachelor's degree. Some period of related work experience may be required.
- **Doctoral, or Professional degree** – degree programs requiring 3-6 years of education at the college or university level beyond a four-year bachelor's degree.

PENNSYLVANIA ECONOMIC BACKGROUND

- **Pennsylvania's seasonally adjusted unemployment rate for June 2014 was 5.6%.**
 - This was lower than the U.S. rate of 6.1%.
 - O-T-M change was 0.0 percentage points.
 - O-T-Y change was -1.9 percentage points.
- **Pennsylvania's seasonally adjusted total nonfarm jobs for June 2014 was 5,789,700.**
 - O-T-M change was +1,800 (+0.0%).
 - O-T-Y change was +56,700 (+1.0%).
 - PA was still down 23,200 jobs since the start of the recession (December 2007).
- **Pennsylvania's new hire activity increased.**
 - There were about 544,500 new hires across all industries in the 1st quarter of 2014.
 - This was an increase of about 104,100 (23.6%) from the 1st quarter of 2013.
- **Employer demand increased in Pennsylvania.**
 - About 223,500 job ads were posted online in June 2014.
 - This was an increase of about 16,400 (+7.9%) over June 2013.
- **In Pennsylvania there were 1.7 unemployed persons for every online job posting in June 2014.**
 - The Pennsylvania rate was lower than the U.S. rate, which stood at 1.9.
 - The Pennsylvania rate was down from a peak of 4.8 unemployed per online job posting in late 2009.

O-T-M: Over-the-Month
O-T-Y: Over-the-Year

MARCELLUS SHALE RELATED

INDUSTRIES EMPLOYMENT:

SUMMARY STATISTICS

Employment (2009Q4 to 2013Q4):

- Core industries were up 15,825 (+129.8%).
- Ancillary industries were up 15,856 (+8.2%).
- All industries increased 167,062 (+3.0%).
- 2013Q4 Marcellus Shale related industries total employment is 237,741.

Establishments (2009Q4 to 2013Q4):

- 1,076 establishments were added (407 core, 669 ancillary).
- This represented 56.8% growth in the core industries and 5.5% growth in the ancillary industries; over the same time period, PA experienced 2.3% growth (+7,831) for all industries.
- Marcellus Shale related industries totaled 14,021 establishments in 2013Q4.

Wages (2013Q1 through 2013Q4):

- The average wage across all industries was about \$49,100.
- The average wage in the core industries was about \$90,000 which was approximately \$40,900 greater than the average for all industries.
- The average wage in the ancillary industries was about \$64,910, which was approximately \$15,800 greater than the average for all industries.

New Hires (2011Q1 to 2014Q1):

- Statewide new hires in the core industries were 16.9% higher in 2014Q1 than in 2011Q1.
- Statewide new hires in the ancillary industries were 7.5% higher in 2014Q1 than in 2011Q1.
- New hire counts increased in both core industries (34.3%), and in Ancillary industries (25.7%) from 2013Q1 to 2014Q1.
- Statewide new hires across all industries were 15.3% higher in 2014Q1 than in 2011Q1; statewide new hires across all industries increased by 23.6% from 2013Q1 to 2014Q1.

Online Job Postings (June 2014):

- There were about 4,900 online job postings statewide in core and ancillary industries. This is an O-T-Y increase of about 400 (19.0%).

DEFINITIONS:

LABOR FORCE STATISTICS* - Source: Pennsylvania Local Area Unemployment Statistics (LAUS)

The labor force and unemployment data are based on the same concepts and definitions as those used for the official national estimates obtained from the Current Population Survey (CPS). The Local Area Unemployment Statistics (LAUS) program measures employment and unemployment on a place-of-residence basis and produces estimates using equations based on regression techniques. This method utilizes data from several sources, including the CPS, the Current Employment Statistics (CES) program, and state unemployment insurance (UI) programs. The LAUS program does not produce estimates for any demographic groups.

Unemployment Rate: The number of unemployed as a percent of the labor force.

Unemployment: All persons aged 16 years and older who had no employment during the reference week (contains the 12th day of the month), were available for work (except for temporary illness), and had made specific efforts to find employment sometime during the four-week period ending with the reference week. Persons who were waiting to be recalled to jobs from which they had been laid off need not to have been looking for work to be classified as unemployed.

Employment: All persons who, during the week which includes the 12th day of the month, (a) did any work as paid employees, worked in their own businesses or professions or on their own farm, or worked 15 hours or more as unpaid workers in enterprises operated by members of their families, or (b) were not working but who had jobs from which they were temporarily absent. Each employed person is counted only once, even if the person holds more than one job. Included are the self-employed, unpaid family workers, agricultural workers, and private household workers, who are excluded by the CES survey.

Labor Force: All persons either working or looking for work or classified as employed or unemployed.

JOBS* - Source: Pennsylvania Department of Labor & Industry, Current Employment Statistics (CES)

Each month the CES program surveys about 140,000 national businesses and government agencies in order to provide detailed industry data on employment, hours, and earnings of workers on non-farm payrolls. This is a collaborative effort between BLS and the states. CES produces a count of jobs, not of people.

Nonfarm Jobs: The total number of persons on establishment payrolls employed full or part time who received pay for any part of the pay period that includes the 12th day of the month. Temporary and intermittent employees are included, as are any employees who are on paid sick leave, on paid holiday, or who work during only part of the specified pay period. A striking employee who only works a small portion of the survey period, and is paid, would be included as employed under the CES definitions. Persons on the payroll of more than one establishment are counted in each establishment. Data exclude proprietors, self-employed, unpaid family or volunteer workers, farm workers, and domestic workers. Persons on layoff, strike, or leave without pay for the entire pay period, or who have not yet reported for work are not counted as employed. Government employment covers only civilian employees.

***THESE DATA ARE SEASONALLY ADJUSTED:** Seasonal adjustment removes the change in employment that is due to normal seasonal hiring or layoffs (holidays, weather, etc.), thus leaving an over-the-month change that reflects only employment change due to trend and irregular movements.

PENNSYLVANIA MARCELLUS SHALE

RELATED INDUSTRIES DATA

Establishments & Employment in CWIA's Identified Core & Ancillary Marcellus Shale Related Industries

Core Industries		2009Q4		2013Q4 ¹		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
211111	Crude Petroleum & Natural Gas Extraction	206	2,719	251	5,272	45	2,553
211112	Natural Gas Liquid Extraction	14	180	22	642	8	462
213111	Drilling Oil & Gas Wells	96	2,309	114	3,289	18	980
213112	Support Activities for Oil & Gas Operations	192	3,102	440	12,132	248	9,030
237120	Oil & Gas Pipeline & Related Structures	78	2,523	159	5,228	81	2,705
486210	Pipeline Transportation of Natural Gas	130	1,356	137	1,451	7	95
Totals		716	12,189	1,123	28,014	407	15,825
Ancillary Industries		2009Q4		2013Q4 ¹		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
221112	Fossil Fuel Electric Power Generation	65	4,269	67	3,485	2	-784
221210	Natural Gas Distribution	158	4,731	176	5,362	18	631
221310	Water Supply & Irrigation Systems	375	6,806	375	7,038	0	232
221320	Sewage Treatment Facilities	479	4,333	482	4,413	3	80
237110	Water, Sewer, & Related Structure Const.	374	6,427	355	6,076	-19	-351
237310	Highway, Street, & Bridge Construction	533	21,091	520	20,326	-13	-765
238912	Nonresidential Site Preparation Contractors	635	8,931	652	9,726	17	795
325110	Petrochemical Manufacturing	3	628	5	561	2	-67
325120	Industrial Gas Manufacturing	34	1,463	34	1,509	0	46
331110*	Iron & Steel Mills & Ferroalloy Mfg.	64	12,463	62	13,412	-2	949
331210	Iron, Pipe, & Tube Mfg. from Prchsd. Steel	41	3,615	38	3,516	-3	-99
333131	Mining Machinery & Equipment Mfg.	22	3,105	22	3,200	0	95
333132	Oil & Gas Field Machinery & Equip. Mfg.	8	296	16	564	8	268
423810	Const. & Mining Mach. Equip. Wholesalers	214	3,603	201	3,804	-13	201
423830	Industrial Machinery & Equip. Wholesalers	987	11,104	934	12,190	-53	1,086
423840	Industrial Supplies Merchant Wholesalers	319	3,089	344	3,655	25	566
484110	General Freight Trucking, Local	1,173	8,505	1,404	11,848	231	3,343
484220	Specialized Freight Trucking, Local	1,023	9,988	1,202	13,214	179	3,226
484230	Specialized Freight Trucking, Long-Distance	267	3,521	289	3,520	22	-1
531190	Lessors of Other Real Estate Property	240	786	250	991	10	205
532412	Const., Mining, & Forestry Equip. Rental	119	2,247	164	3,212	45	965
541330	Engineering Services	2,459	41,577	2,546	43,815	87	2,238
541360	Geophysical Surveying & Mapping Services	53	227	55	330	2	103
541380	Testing Laboratories	386	7,219	413	8,867	27	1,648
541620	Environmental Consulting Services	467	3,036	492	3,396	25	360
562910	Remediation Services	237	2,596	255	2,965	18	369
811310	Comm. & Industrial Mach. & Equip. Repair	1,024	7,669	1,069	7,916	45	247
924110	Admin. of Air & Water Res. & Waste Mgmt.	104	4,621	108	4,668	4	47
924120	Admin. of Conservation Programs	318	4,424	320	4,748	2	324
926130	Reg. & Admin. of Comm., Elec., Gas, & Util.	48	1,501	48	1,400	0	-101
Totals		12,229	193,871	12,898	209,727	669	15,856

Source: Industry Data is from Pennsylvania's Quarterly Census of Employment and Wages

- From 2009Q4 to 2013Q4, employment in Core industries increased by 129.8%.
- Over the same period, employment in the Ancillary industries was up 8.2%.
- Employment across all industries increased 3.0% (167,062) over the same time period.

¹2013Q4 QCEW data are initial. These data may be revised upon release of QCEW 2014Q1 data.

Notes: These data are not seasonally adjusted. While most change was due to actual growth or decline, some movement may be due to seasonal patterns or administrative changes to data.

*NAICS definition implemented with 2011Q1 data. Please see NAICS Changes in "Definitions" section on

Page 19.

Page 6

SHALENET TRAINING AND JOB

PLACEMENT DATA¹:

(AS PROVIDED BY THE ALLEGHENY CONFERENCE ON COMMUNITY DEVELOPMENT)

ShaleNET is a three-year, \$4.9 million grant from the United States Department of Labor, Employment and Training Administration. The mission of the grant is to design a comprehensive recruitment, training, placement, and retention program for high priority occupations in the natural gas drilling and production industry throughout the Marcellus Shale footprint. For more information, visit www.shalenet.org.

July 1 st 2010 – June 30 th 2013	
Participants being served by ShaleNET	14,800
Beginning education and training activities	9,611
Completing training activities and education	5,468
Completed training with degree/certification	1,177
Employed	3,421

Top job placement for ShaleNET graduates, October 2010-January 2012:	
1	Roustabout
2	Floor hand
3	Truck driver
4	Mechanic
5	Casing specialist

¹Definitions for these indicators are as follows: *Participants served by ShaleNET* equals the total number of people who have registered with ShaleNET.org through the Talent Match System. *Beginning education and training activities* measures those participants who have begun ShaleNET training. *Completed training with degree/certificate* measures participants who have finished ShaleNET training. *Employed* represents training participants who have gained employment during or after ShaleNET training, through on-the-job training grants, as well as, those participants who have found jobs with the help of ShaleNET and Pennsylvania CareerLink.

QUARTERLY WORKFORCE INDICATORS

Based on the U.S. Census Bureau, Local Employment Dynamics (LED)

Percentage of Industry¹ Employment by Age Group (2013Q3)

Northern Tier	14-24	25-34	35-44	45-54	55+
All industry groups	***	30.4%	24.8%	23.9%	11.7%
2111 Oil and Gas Extraction	14.3%	33.7%	21.7%	19.2%	11.0%
2131 Support Activities for Mining	10.6%	29.0%	18.9%	25.2%	16.4%
2371 Utility System Construction	***	18.4%	19.4%	35.7%	***
4862 Pipeline Transportation of Natural Gas	15.6%	19.7%	19.0%	23.4%	22.3%

Southwest Corner	14-24	25-34	35-44	45-54	55+
All industry groups	9.7%	29.5%	21.7%	22.8%	16.4%
2111 Oil and Gas Extraction	14.9%	37.7%	23.1%	15.2%	9.1%
2131 Support Activities for Mining	14.0%	24.5%	21.2%	22.4%	17.8%
2371 Utility System Construction	***	19.6%	24.5%	30.9%	***
4862 Pipeline Transportation of Natural Gas	14.7%	19.8%	19.1%	22.5%	23.9%

Central	14-24	25-34	35-44	45-54	55+
All industry groups	10.8%	34.9%	25.3%	16.3%	13.3%
2111 Oil and Gas Extraction	15.1%	34.8%	23.5%	18.2%	8.3%
2131 Support Activities for Mining	11.5%	22.1%	22.7%	22.9%	20.8%
2371 Utility System Construction	***	22.3%	19.4%	33.0%	21.4%
4862 Pipeline Transportation of Natural Gas	14.7%	19.1%	19.5%	23.3%	23.3%

North Central	14-24	25-34	35-44	45-54	55+
All industry groups	***	24.4%	23.2%	22.6%	20.5%
2111 Oil and Gas Extraction	13.4%	31.8%	22.8%	19.3%	12.7%
2131 Support Activities for Mining	14.7%	28.7%	19.9%	22.4%	14.3%
2371 Utility System Construction	6.8%	17.1%	21.2%	31.5%	23.9%
4862 Pipeline Transportation of Natural Gas	14.2%	18.3%	19.6%	24.3%	23.7%

Tri-County	14-24	25-34	35-44	45-54	55+
All industry groups	7.3%	22.0%	22.2%	26.6%	21.8%
2111 Oil and Gas Extraction	12.7%	32.3%	22.3%	19.5%	13.2%
2131 Support Activities for Mining	5.4%	17.7%	19.6%	27.9%	29.4%
2371 Utility System Construction	***	22.2%	27.8%	27.8%	16.7%
4862 Pipeline Transportation of Natural Gas	14.9%	19.4%	19.1%	23.3%	23.3%

Westmoreland & Fayette	14-24	25-34	35-44	45-54	55+
All industry groups	***	29.5%	21.6%	27.4%	13.4%
2111 Oil and Gas Extraction	13.9%	42.1%	24.6%	13.7%	5.9%
2131 Support Activities for Mining	11.1%	22.7%	24.3%	24.9%	17.0%
2371 Utility System Construction	10.7%	20.6%	21.1%	29.0%	18.9%
4862 Pipeline Transportation of Natural Gas	15.3%	18.7%	18.8%	23.1%	24.1%

*** Indicates that data cannot be disclosed due to confidentiality restrictions or data quality standards

- Workers in the Marcellus Shale related industry groups tended, on average, to be younger than the total across all industries.
- The percentage of workers in core related industry groups aged 55 and over was smaller than found across all industries.

¹ Local Employment Dynamics data are only available at the 4-digit NAICS level. While these industry groups contain some employment from non-Marcellus Shale related core industries, they help to provide an understanding of the industries' employment composition by age.

WORKFORCE INVESTMENT AREA

MARCELLUS SHALE RELATED

INDUSTRIES DATA¹

The tables below depict employment growth in the core and ancillary industries for Workforce Investment Areas (WIA) with substantial Marcellus Shale drilling activity.

Northern Tier	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	217	3,149	2,932	1351.2%
Ancillary	1,965	3,808	1,843	93.8%

Southwest Corner	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	990	4,539	3,549	358.5%
Ancillary	10,072	11,671	1,599	15.9%

Central	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	184	2,708	2,524	1371.7%
Ancillary	9,265	10,577	1,312	14.2%

North Central	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	2,031	2,317	286	14.1%
Ancillary	3,890	4,530	640	16.5%

Tri-County	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	2,503	3,181	678	27.1%
Ancillary	9,202	9,127	-75	-0.8%

Westmoreland & Fayette	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	537	1,525	988	184.0%
Ancillary	10,357	10,703	346	3.3%

6 WIA Total	2009Q4	2013Q4 ¹	Vol. Change	Pct. Change
Core	6,462	17,419	10,957	169.6%
Ancillary	44,751	50,416	5,665	12.7%

Source: Industry Data is from Pennsylvania's Quarterly Census of Employment and Wages

- Southwest Corner WIA experienced the largest volume increase in Marcellus Shale Core Industries employment, with an increase of 3,549 employees; Northern Tier WIA was second with a volume increase of 2,932 employees. Central WIA experienced the largest percentage increase in Core industry employment, equal to 1371.7%; second was Northern Tier WIA with an increase of 1351.2%.
- Northern Tier WIA experienced the largest volume increase in Marcellus Shale Ancillary Industries employment, adding 1,843; Northern Tier WIA also had the largest percentage increase with 93.8%.
- Across all six WIAs, employment in the Core industries increased by 169.6%; Ancillary industries employment increased by 12.7%.

¹2013Q4 QCEW data are initial. These data may be revised upon release of QCEW 2014Q1 data. Notes: These data are not seasonally adjusted. While most change was due to actual growth or decline, some movement may be due to seasonal patterns or administrative changes to data.

WAGES FOR MARCELLUS SHALE CORE AND ANCILLARY INDUSTRIES¹

NAICS	Core Industries Title	Average
211111	Crude Petroleum & Natural Gas Extraction	\$110,305
211112	Natural Gas Liquid Extraction	\$101,088
213111	Drilling Oil & Gas Wells	\$85,624
213112	Support Activities for Oil & Gas Operations	\$74,543
237120	Oil & Gas Pipeline & Related Structures Construction	\$83,412
486210	Pipeline Transportation of Natural Gas	\$85,047
	Average	\$90,003
NAICS	Ancillary Industries Title	Average
221112	Fossil Fuel Electric Power Generation	\$116,660
221210	Natural Gas Distribution	\$83,887
221310	Water Supply & Irrigation Systems	\$57,792
221320	Sewage Treatment Facilities	\$46,536
237110	Water & Sewer Line & Related Structures Construction	\$65,916
237310	Highway, Street, & Bridge Construction	\$56,163
238912	Nonresidential Site Preparation Contractors	\$53,206
325110	Petrochemical Manufacturing	\$79,508
325120	Industrial Gas Manufacturing	\$87,682
331110*	Iron & Steel Mills & Ferroalloy Manufacturing*	\$77,070
331210	Iron & Steel Pipe & Tube Manufacturing from Purchased Steel	\$61,304
333131	Mining Machinery & Equipment Manufacturing	\$62,843
333132	Oil & Gas Field Machinery & Equipment Manufacturing	\$59,760
423810	Construction & Mining Machinery Equipment Wholesalers	\$64,054
423830	Industrial Machinery & Equipment Merchant Wholesalers	\$69,247
423840	Industrial Supplies Merchant Wholesalers	\$63,713
484110	General Freight Trucking, Local	\$44,178
484220	Specialized Freight Trucking, Local	\$46,425
484230	Specialized Freight Trucking, Long-Distance	\$51,551
531190	Lessors of Other Real Estate Property	\$42,345
532412	Construction, Mining, & Forestry Machinery & Equip. Rental	\$79,909
541330	Engineering Services	\$80,167
541360	Geophysical Surveying & Mapping Services	\$62,877
541380	Testing Laboratories	\$64,174
541620	Environmental Consulting Services	\$67,831
562910	Remediation Services	\$59,194
811310	Commercial & Industrial Mach. & Equip. Repair & Maintenance	\$54,772
924110	Admin. of Air & Water Res. & Solid Waste Mgmt. Programs	\$60,632
924120	Admin. of Conservation Programs	\$47,044
926130	Reg. & Admin. Of Communications, Electric, Gas, & Other Utils.	\$80,854
	Average	\$64,910

Source: Industry Data is from Pennsylvania's Quarterly Census of Employment and Wages

- The average wage across all industries for 2013Q1 through 2013Q4 was \$49,070.
- The average wage in the core industries was \$40,933 greater than the average for all industries; the average wage in the ancillary industries was \$15,840 higher.

¹ Average Wages for these industries were calculated by combining the most recent four quarters of available wage data; in this case 2013Q1 through 2013Q4.

²2013Q4 QCEW data are initial. These data may be revised upon release of QCEW 2014Q1 data.

*NAICS definition implemented with 2011Q1 data. Please see NAICS Changes in "Definitions" section on page 19.

WORKFORCE INVESTMENT AREA MARCELLUS SHALE RELATED INDUSTRIES NEW HIRES

The tables below depict the number of new hires in the core and ancillary industries for WIAs with substantial Marcellus Shale drilling activity during the first quarter of each year from 2011 to 2014. Volume change and percent change are both based on 2011Q1 to 2014Q1 calculations.

Northern Tier	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	126	245	220	155	29	23.0%
Ancillary	138	262	199	337	199	144.2%

Southwest Corner	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	385	387	436	648	263	68.3%
Ancillary	282	414	305	317	35	12.4%

Central	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	229	146	43	134	-95	-41.5%
Ancillary	305	370	251	243	-62	-20.3%

North Central	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	397	326	86	75	-322	-81.1%
Ancillary	113	196	70	85	-28	-24.8%

Tri-County	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	145	196	149	191	46	31.7%
Ancillary	499	415	317	313	-186	-37.3%

Westmoreland/Fayette	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	33	55	27	57	24	72.7%
Ancillary	487	614	377	640	153	31.4%

6 WIA Total	2011Q1	2012Q1	2013Q1	2014Q1	Vol. Change	Pct. Change
Core	1,315	1,355	961	1,260	-55	-4.2%
Ancillary	1,824	2,271	1,519	1,935	111	6.1%

- Southwest Corner WIA had the largest volume increase in core industry New Hires (263), followed by Tri County (46); Westmoreland/Fayette WIA had the largest percent increase in core New Hires (72.7%), followed by Southwest Corner WIA (68.3%).
- For ancillary industries, Northern Tier had the largest increases in both volume (199) and percentage (144.2%) of New Hires; Westmoreland/Fayette WIA was second in growth for both volume (153) and percentage (31.4%).
- Across these six WIAs, Marcellus Shale related core industry New Hires decreased by 4.2% from 2011Q1 to 2014Q1; there were 6.1% more New Hires in the ancillary industries in 2014Q1 than in 2011Q1.

PENNSYLVANIA MARCELLUS SHALE RELATED INDUSTRIES NEW HIRES

Core Industries Title	Volume of New Hires by Quarter				Change 2011Q1 - 2014Q1	
	2011Q1	2012Q1	2013Q1	2014Q1	Vol.	Pct.
Crude Petroleum & Natural Gas Extraction	276	267	292	191	-85	-30.8%
Natural Gas Liquid Extraction	49	39	17	57	8	16.3%
Drilling Oil & Gas Wells	366	470	255	237	-129	-35.2%
Support Activities for Oil & Gas Operations	1,125	1,207	748	1,143	18	1.6%
Oil & Gas Pipeline & Related Structures	200	595	439	721	521	260.5%
Pipeline Transportation of Natural Gas	2	3	6	10	8	400.0%
Total	2,018	2,581	1,757	2,359	341	16.9%
Ancillary Industries Title	Volume of New Hires by Quarter				Change 2011Q1 - 2014Q1	
	2011Q1	2012Q1	2013Q1	2014Q1	Vol.	Pct.
Fossil Fuel Electric Power Generation	26	33	49	14	-12	-46.2%
Natural Gas Distribution	127	172	143	331	204	160.6%
Water Supply & Irrigation Systems	57	138	45	78	21	36.8%
Sewage Treatment Facilities	58	65	46	66	8	13.8%
Water, Sewer Line & Related Structures	306	316	393	490	184	60.1%
Highway, Street, & Bridge Construction	2,742	2,123	1,416	1,816	-926	-33.8%
Nonresidential Site Preparation Contractors	470	613	725	536	66	14.0%
Petrochemical Manufacturing	16	4	13	11	-5	-31.3%
Industrial Gas Manufacturing	32	41	20	26	-6	-18.8%
Iron & Steel Mills & Ferroalloy Mfg.*	506	312	249	378	-128	-25.3%
Iron, Steel Pipe, Tube Mfg. from Prchsd. Steel	214	191	163	178	-36	-16.8%
Mining Machinery & Equipment Mfg.	211	250	168	215	4	1.9%
Oil & Gas Field Machinery & Equipment	4	8	25	76	72	1800.0%
Const. & Mining Mach. Equip. Wholesalers	150	159	164	141	-9	-6.0%
Industrial Mach. & Equip. Wholesalers	536	812	611	554	18	3.4%
Industrial Supplies Merchant Wholesalers	276	215	165	256	-20	-7.2%
General Freight Trucking, Local	548	739	804	1,020	472	86.1%
Specialized Freight Trucking, Local	710	1,075	700	926	216	30.4%
Specialized Freight Trucking, Long-Distance	221	200	193	249	28	12.7%
Lessors of Other Real Estate Property	20	28	33	70	50	250.0%
Const., Mining, & Forestry Mach. & Equip.	245	306	350	272	27	11.0%
Engineering Services	3,719	3,618	3,138	4,646	927	24.9%
Geophysical Surveying & Mapping Services	9	32	25	28	19	211.1%
Testing Laboratories	537	581	437	485	-52	-9.7%
Environmental Consulting Services	240	249	174	249	9	3.8%
Remediation Services	336	305	338	273	-63	-18.8%
Commercial & Industrial Mach. & Equip.	435	423	311	309	-126	-29.0%
Admin. Of Air & Water Res. & Waste	8	4	3	9	1	12.5%
Admin. of Conservation Programs	7	15	19	25	18	257.1%
Totals	12,766	13,027	10,920	13,727	961	7.5%

- In 2014Q1 there were 2,359 New Hires in the Marcellus Shale related core industries, Statewide. This was 16.9% higher than 2011Q1, and 34.3% higher than 2013Q1.
- In 2014Q1 there were 13,727 New Hires in the Marcellus Shale related ancillary industries, Statewide. This was 7.5% higher than 2011Q1 and 25.7% higher than 2013Q1.
- Across all industries in Pennsylvania, total New Hires in 2014Q1 were 15.3% higher than in 2011Q1 and 23.6% higher than 2013Q1.

Note: In every economy there is job creation and job destruction every month and the result is employment change. New hires are linked to job creation; however, an increase in new hires does not directly equate to an increase in the total employment count. The new hires count is simply an indication of hiring activity in an industry. Separations, in the form of layoffs or quits, are linked to job destruction and account for the other half of the employment change equation. The balance of hires and separations result in the employment change.

*NAICS definition implemented with 2011Q1 data. Please see NAICS Changes in "Definitions" section on page 19.

PENNSYLVANIA & WORKFORCE INVESTMENT AREA MARCELLUS SHALE RELATED INDUSTRIES ONLINE JOB POSTING ACTIVITY¹

Pennsylvania Statewide Online Job Postings

Area	June-2014	June-2013	Pct. Change
Total All Industries²	223,522	207,135	7.9%
Core Industries	274	328	-16.5%
Ancillary Industries	4,637	3,800	22.0%
Total MS related	4,911	4,128	19.0%

Select WIA Online Job Postings (core & ancillary combined)

WIA	June-2014	June-2013	Pct. Change
Northern Tier	60	49	22.4%
Southwest Corner	301	196	53.6%
Central	207	204	1.5%
North Central	48	82	-41.5%
Tri-County	275	279	-1.4%
Westmoreland & Fayette	138	110	25.5%
Total	1,029	920	11.8%

- **Pennsylvania Online Job Postings**
 - In June 2014, total job postings across all industries for Pennsylvania increased by 7.9% over June 2013.
 - Online postings for statewide Marcellus Shale related (core + ancillary) industries increased by 19.0% over the same period.
- **WIA Online Job Postings**
 - Four of the six WIAs with substantial Marcellus Shale drilling activity experienced an increase in online job posting activity O-T-Y, while two saw an annual decrease in HWOL postings.
 - The Southwest Corner WIA experienced the largest O-T-Y percentage increase in Marcellus Shale related job posting activity, rising by 53.6% followed by Westmoreland/Fayette WIA, which rose 25.5%.
 - The six WIAs with substantial Marcellus Shale drilling activity saw online job postings increase by a combined 11.8% O-T-Y.

¹ Job Postings are counted using Wanted Analytics' Help Wanted Online job posting Spidering tool. Job posting increases should be viewed as an indication of **trend only**. For a complete explanation of this data set, please refer to the Definitions section of this document.

² Total Job postings in this table may not be equal to total postings for June 2014 published in the July 2014 edition of the Pennsylvania Fast Facts, due to continuous updates to the data.

2013 STATEWIDE HIGH-PRIORITY OCCUPATIONS RELATED TO MARCELLUS SHALE

The occupations listed in the table below are found within the staffing patterns of Marcellus Shale related core and ancillary industries and have been identified as High-Priority for Pennsylvania. High-Priority Occupations (HPOs) are identified as in demand by employers, have higher skills needs, and are most likely to provide family sustaining wages.

A Standard Occupational Code (SOC) is provided for each occupation. For a complete list of terms, please refer to the Staffing Pattern definition on page 18.

SOC Code	SOC Title	Average Annual Wage	Education Level
13-2011	Accountants & Auditors	\$70,420	Bachelor's degree
43-3031	Bookkeeping & Accounting Clerks	\$36,310	Moderate-term OJT
49-3031	Bus, Truck & Diesel Mechanics	\$41,830	Long-term training
17-2051	Civil Engineers	\$78,190	Bachelor's degree
47-4011	Construction & Building Inspectors	\$47,430	HS diploma plus expr
47-2061	Construction Laborers	\$35,470	Short-term OJT
43-4051	Customer Service Representatives	\$33,830	Short-term OJT
49-9051	Electrical Power-Line Installers & Repairers	\$61,680	Long-term training
53-3032	Heavy & Tractor-Trailer Truck Drivers	\$41,920	HS diploma plus expr
49-9041	Industrial Machinery Mechanics	\$45,250	Long-term training
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	\$39,200	Moderate-term OJT
53-3033	Light Truck or Delivery Services Drivers	\$32,720	Short-term OJT
49-9071	Maintenance & Repair Workers, General	\$37,080	Moderate-term OJT
17-2141	Mechanical Engineers	\$78,480	Bachelor's degree
47-2073	Operating Engineers	\$46,110	Moderate-term OJT
47-2152	Plumbers, Pipefitters & Steamfitters	\$51,450	Long-term training
47-5012	Rotary Drill Operators, Oil & Gas	\$44,090	Moderate-term OJT
41-4012	Sales Representatives	\$63,770	Moderate-term OJT
43-6014	Secretaries	\$32,090	Short-term OJT
47-5013	Service Unit Operators, Oil, Gas & Mining	\$49,090	Moderate-term OJT
47-1011	Supervisors - Construction/Extraction Workers	\$67,600	HS diploma plus expr
53-1031	Supervisors - Transportation & Vehicle Oprs	\$58,450	HS diploma plus expr
51-4121	Welders, Cutters, Solderers & Brazers	\$37,670	Moderate-term OJT
53-7073	Wellhead Pumpers	\$39,390	Moderate-term OJT

Source: *The Center for Workforce Information & Analysis*

Workforce development funding in the commonwealth may be available for training programs required to enter these occupations.

2013 REGIONAL HIGH-PRIORITY OCCUPATIONS RELATED TO MARCELLUS SHALE

The occupations listed in the table below are found within the staffing patterns of Marcellus Shale related core industries and have been identified as High-Priority for certain Workforce Investment Areas (WIAs).¹ High Priority Occupations (HPOs) are identified as in demand by employers, have higher skills needs, and are most likely to provide family sustaining wages.

A Standard Occupational Code (SOC) is provided for each occupation. For a complete list of terms, please refer to the Staffing Pattern definition on page 18.

SOC Code	SOC Title	Education Level	HPO in WIA Numbers
17-3011	Architectural & Civil Drafters	Associate degree	13,19,22
47-5011	Derrick Operators, Oil & Gas	Short-term OJT	3
17-2071	Electrical Engineers	Bachelor's degree	4
53-7032	Excavating & Loading Machine Oprs	HS diploma plus expr	8
53-7071	Gas Compressor/Pumping Station Oprs	Moderate-term OJT	3
11-1021	General & Operations Managers	Associate plus expr	1,3
43-9061	Office Clerks, General	Short-term OJT	1,3
53-7072	Pump Operators	Moderate-term OJT	3
47-5071	Roustabouts, Oil & Gas	Moderate-term OJT	3,11,12,13,19,21,22

Source: *The Center for Workforce Information & Analysis*



Workforce development funding in the commonwealth may be available for training programs required to enter these occupations.

¹ These occupations were added to Local Workforce Investment Areas HPO lists through the HPO petition process.

WIA #	WIA Name	WIA #	WIA Name
1	Berks County WIA	12	Northern Tier WIA
2	Bucks County WIA	13	Northwest WIA
3	Central WIA	14	Philadelphia County WIA
4	Chester County WIA	15	Pocono Counties WIA
5	Delaware County WIA	16	South Central WIA
6	Lackawanna County WIA	17	Southern Alleghenies WIA
7	Lancaster County WIA	18	Southwest Corner WIA
8	Lehigh Valley WIA	19	Three Rivers WIA
9	Luzerne-Schuylkill Counties WIA	20	Tri-County WIA
10	Montgomery County WIA	21	West Central WIA
11	North Central WIA	22	Westmoreland-Fayette Counties WIA