Marcellus Shale

FAST FACTS

February 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.

Section	Page
Background Information	2-3
MS Employment Summary	4
Jobs Data	5
Industry Data	6-7
Industry Wages	8
Job Posting Activity	9
High-Priority Occupations	10-11

Section	Page
New Hires	12-13
Quarterly Workforce Indicators	14
Information on ShaleNET Training Program	15
Unemployment Rate Map	16
Definitions	17-19
Marcellus Shale Formation Map	20

*Note: Data sets from the Quarterly Census of Employment and Wages (QCEW) and the New Hires Program in this edition are for 2013Q2 and 2013Q4, 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, 2013Q2 QCEW data are compared to 2009Q2, and 2013Q4 New Hire data are compared to 4th quarter data for 2010, 2011, and 2012.

For additional information, please contact:

Center for Workforce Information & Analysis (CWIA)

Call: 1-877-493-3282; Fax: 1-717-772-2168

E-mail: workforceinfo@pa.gov

www.paworkstats.pa.gov

CWIA-MS

pennsylvania DEPARTMENT OF LABOR & INDUSTRY 100th Anniversary 1913-2013

Release Date: 02-06-2014

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 (331110[1]); 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.

[1]NAICS 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.

Pennsylvania Economic Background

- **Pennsylvania's seasonally adjusted unemployment rate for January 2014 was 6.4%.**
  - This was lower than the U.S. rate of 6.6%.
  - O-T-M change was -0.4 percentage points.
  - O-T-Y change was -1.4 percentage points.

- **Pennsylvania's seasonally adjusted total nonfarm jobs for January 2014 was 5,758,600.**
  - O-T-M change was +500 (+0.0%).
  - O-T-Y change was +28,400 (+0.5%).
  - PA was still down 54,300 jobs since the start of the recession (December 2007).

- **Pennsylvania's new hire activity increased.**
  - There were 497,679 new hires across all industries in the 4th quarter of 2013.
  - This was an increase of 8,515 (1.7%) from the 4th quarter of 2012.

- **Employer demand decreased slightly in Pennsylvania.**
  - 208,100 job ads were posted online in January 2014.
  - This was an increase of 8,800 (4.4%) over January 2013.

- **In Pennsylvania there were 2.1 unemployed persons for every online job posting in January 2014.**
  - The Pennsylvania rate was even with the U.S. rate, which also stood at 2.1.
  - 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 (2009Q2 to 2013Q2):
- Core industries were up 19,017 (+174.3%).
- Ancillary industries were up 15,776 (+8.0%).
- All industries increased 127,423 (+2.3%).
- 2013Q2 Marcellus Shale related industries total employment is 241,926.

Establishments (2009Q2 to 2013Q2):
- 1,089 establishments were added (449 core, 640 ancillary).
- This represented 67.6% growth in the core industries and 5.2% growth in the ancillary industries; over the same time period, PA experienced 1.6% growth for all industries.
- Marcellus Shale related industries totaled 14,021 establishments in 2013Q2.

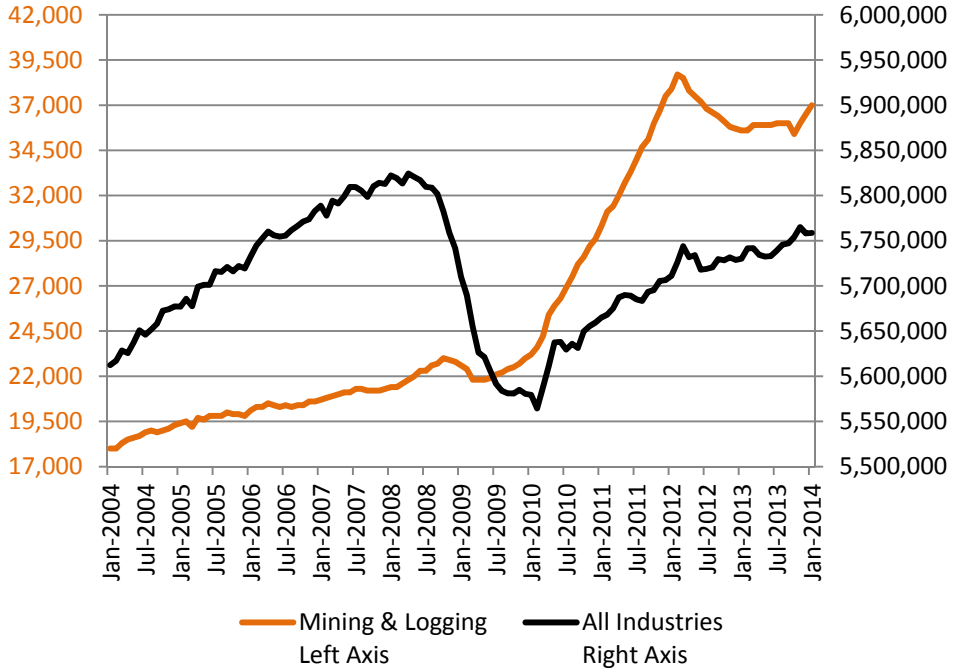
Wages (2012Q3 through 2013Q2):
- The average wage across all industries was about $48,800.
- The average wage in the core industries was about $84,400 which was approximately $35,600 greater than the average for all industries.
- The average wage in the ancillary industries was about $65,200, which was approximately $16,300 greater than the average for all industries.

New Hires (2010Q4 to 2013Q4):
- Statewide new hires in the core industries were 29.0% lower in 2013Q4 than in 2010Q4.
- Statewide new hires in the ancillary industries were 3.0% higher in 2013Q4 than in 2010Q4.
- New hire counts decreased in core industries (-17.7%), but increased in Ancillary industries (1.1%) from 2012Q4 to 2013Q4.
- Statewide new hires across all industries were 9.9% higher in 2013Q4 than in 2010Q4; statewide new hires across all industries increased by 1.7% from 2012Q4 to 2013Q4.

Online Job Postings (January 2014):
- There were about 4,300 online job postings statewide in core and ancillary industries. This is an O-T-Y increase of about 560 15.1%).

Mining Jobs vs. Total Jobs in Pennsylvania

Mining & Logging[1] Compared to Total Employment



Current Employment Statistics *(All data are seasonally adjusted)*

- Total Pennsylvania jobs were 5,758,600 (January 2014).
  O-T-M change was +500 (+0.0%).
  O-T-Y change was +28,400 (+0.5%).
  Change from 10 years ago was +146,200 (+2.6%).

- Mining & Logging employment in Pennsylvania was 37,000.
  O-T-M change was +500 (+1.4%).
  O-T-Y change was +1,400 (+3.9%).
  Change from 10 years ago was +19,000 (+105.6%).

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

[1] Mining & Logging data are seasonally adjusted. Mining data, which are included in Mining & Logging, are not seasonally adjusted.

Pennsylvania Marcellus Shale Related Industries Data

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

Core Industries		2009Q2		2013Q2[1]		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
211111	Crude Petroleum & Natural Gas Extraction	204	2,589	246	5,558	42	2,969
211112	Natural Gas Liquid Extraction	15	146	22	625	7	479
213111	Drilling Oil & Gas Wells	94	1,691	114	3,331	20	1,640
213112	Support Activities for Oil & Gas Operations	156	2,742	432	11,511	276	8,769
237120	Oil & Gas Pipeline & Related Structures	67	2,385	163	7,454	96	5,069
486210	Pipeline Transportation of Natural Gas	128	1,356	136	1,447	8	91
Totals		**664**	**10,909**	**1,113**	**29,926**	**449**	**19,017**
Ancillary Industries		**2009Q2**		**2013Q2[1]**		**Vol. Change**	
NAICS	**Title**	**Est.**	**Emp.**	**Est.**	**Emp.**	**Est.**	**Emp.**
221112	Fossil Fuel Electric Power Generation	65	4,371	70	3,653	5	-718
221210	Natural Gas Distribution	154	4,806	174	5,368	20	562
221310	Water Supply & Irrigation Systems	372	6,851	378	6,989	6	138
221320	Sewage Treatment Facilities	475	4,408	483	4,317	8	-91
237110	Water, Sewer, & Related Structure Const.	378	6,586	358	6,076	-20	-510
237310	Highway, Street, & Bridge Construction	535	21,423	518	21,187	-17	-236
238912	Nonresidential Site Preparation Contractors	632	9,330	662	9,768	30	438
325110	Petrochemical Manufacturing	3	479	5	585	2	106
325120	Industrial Gas Manufacturing	30	1,590	34	1,507	4	-83
331110*	Iron & Steel Mills & Ferroalloy Mfg.	63	12,449	59	13,555	-4	1,106
331210	Iron, Pipe, & Tube Mfg. from Prchsd. Steel	41	3,522	38	3,463	-3	-59
333131	Mining Machinery & Equipment Mfg.	23	3,305	21	3,301	-2	-4
333132	Oil & Gas Field Machinery & Equip. Mfg.	8	312	15	567	7	255
423810	Const. & Mining Mach. Equip. Wholesalers	218	3,812	207	3,786	-11	-26
423830	Industrial Machinery & Equip. Wholesalers	991	11,423	939	12,188	-52	765
423840	Industrial Supplies Merchant Wholesalers	317	3,152	342	3,621	25	469
484110	General Freight Trucking, Local	1,190	8,280	1,383	11,977	193	3,697
484220	Specialized Freight Trucking, Local	1,033	9,672	1,246	13,490	213	3,818
484230	Specialized Freight Trucking, Long-Distance	269	3,468	286	3,396	17	-72
531190	Lessors of Other Real Estate Property	238	815	250	924	12	109
532412	Const., Mining, & Forestry Equip. Rental	118	2,201	164	3,335	46	1,134
541330	Engineering Services	2,464	41,935	2,534	44,067	70	2,132
541360	Geophysical Surveying & Mapping Services	52	224	55	326	3	102
541380	Testing Laboratories	388	7,294	404	9,067	16	1,773
541620	Environmental Consulting Services	475	3,025	488	3,468	13	443
562910	Remediation Services	233	2,593	251	3,033	18	440
811310	Comm. & Industrial Mach. & Equip. Repair	1,034	7,996	1,068	8,032	34	36
924110	Admin. of Air & Water Res. & Waste Mgmt.	102	4,936	107	4,757	5	-179
924120	Admin. of Conservation Programs	318	4,478	322	4,796	4	318
926130	Reg. & Admin. of Comm., Elec., Gas, & Util.	49	1,488	47	1,401	-2	-87
Totals		**12,268**	**196,224**	**12,908**	**212,000**	**640**	**15,776**

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

- From 2009Q2 to 2013Q2, employment in Core industries increased by 174.3%.
- Over the same period, employment in the Ancillary industries was up 8.0%.
- Employment across all industries increased 2.3% (127,423) over the same time period.

[1]2013Q2 QCEW data are initial. These data may be revised upon release of QCEW 2013Q3 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.

Workforce Investment Area Marcellus Shale Related Industries Data[1]

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	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	106	3,048	2,942	2775.5%
Ancillary	1,836	3,972	2,136	116.3%

Southwest Corner	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	713	4,320	3,607	505.9%
Ancillary	10,251	11,894	1,643	16.0%

Central	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	140	2,485	2,345	1675.0%
Ancillary	9,465	10,851	1,386	14.6%

North Central	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	1,902	2,337	435	22.9%
Ancillary	3,888	4,732	844	21.7%

Tri-County	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	2,515	3,210	695	27.6%
Ancillary	9,152	9,292	140	1.5%

Westmoreland & Fayette	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	528	2,019	1,491	282.4%
Ancillary	10,676	11,118	442	4.1%

6 WIA Total	2009Q2	2013Q2[1]	Vol. Change	Pct. Change
Core	**5,904**	**17,419**	**11,515**	**195.0%**
Ancillary	**45,268**	**51,859**	**6,591**	**14.6%**

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 3,607 employees; Northern Tier WIA was second with a volume increase of 2,942 employees. Northern Tier WIA experienced the largest percentage increase in Core industry employment, equal to 2775.5%; second was Central WIA with an increase of 1675.0%.
- Northern Tier WIA experienced the largest volume increase in Marcellus Shale Ancillary Industries employment, adding 2,136; Northern Tier WIA also had the largest percentage increase with 116.3%.
- Across all six WIAs, employment in the Core industries increased by 195.0%; Ancillary industries employment increased by 14.6%.

[1]2013Q2 QCEW data are initial. These data may be revised upon release of QCEW 2013Q3 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 Industries[1]

NAICS	Core Industries Title	Average
211111	Crude Petroleum & Natural Gas Extraction	$112,888
211112	Natural Gas Liquid Extraction	$103,573
213111	Drilling Oil & Gas Wells	$84,999
213112	Support Activities for Oil & Gas Operations	$71,305
237120	Oil & Gas Pipeline & Related Structures Construction	$82,179
486210	Pipeline Transportation of Natural Gas	$85,552
	Average	**$84,388**
	Ancillary Industries Title	**Average**
221112	Fossil Fuel Electric Power Generation	$116,109
221210	Natural Gas Distribution	$81,669
221310	Water Supply & Irrigation Systems	$56,882
221320	Sewage Treatment Facilities	$45,869
237110	Water & Sewer Line & Related Structures Construction	$65,726
237310	Highway, Street, & Bridge Construction	$55,520
238912	Nonresidential Site Preparation Contractors	$53,145
325110	Petrochemical Manufacturing	$80,862
325120	Industrial Gas Manufacturing	$126,603
331110*	Iron & Steel Mills & Ferroalloy Manufacturing*	$75,194
331210	Iron & Steel Pipe & Tube Manufacturing from Purchased Steel	$61,463
333131	Mining Machinery & Equipment Manufacturing	$63,172
333132	Oil & Gas Field Machinery & Equipment Manufacturing	$61,905
423810	Construction & Mining Machinery Equipment Wholesalers	$64,207
423830	Industrial Machinery & Equipment Merchant Wholesalers	$68,527
423840	Industrial Supplies Merchant Wholesalers	$62,898
484110	General Freight Trucking, Local	$42,994
484220	Specialized Freight Trucking, Local	$45,730
484230	Specialized Freight Trucking, Long-Distance	$51,897
531190	Lessors of Other Real Estate Property	$38,443
532412	Construction, Mining, & Forestry Machinery & Equip. Rental	$79,154
541330	Engineering Services	$79,480
541360	Geophysical Surveying & Mapping Services	$61,278
541380	Testing Laboratories	$64,761
541620	Environmental Consulting Services	$68,837
562910	Remediation Services	$57,818
811310	Commercial & Industrial Mach. & Equip. Repair & Maintenance	$54,807
924110	Admin. of Air & Water Res. & Solid Waste Mgmt. Programs	$60,781
924120	Admin. of Conservation Programs	$48,098
926130	Reg. & Admin. Of Communications, Electric, Gas, & Other Utils.	$80,697
	Average	**$65,153**

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

- The average wage across all industries for 2012Q3 through 2013Q2 was $48,824.
- The average wage in the core industries was $35,564 greater than the average for all industries; the average wage in the ancillary industries was $16,329 higher.

1 Average Wages for these industries were calculated by combining the most recent four quarters of available wage data; in this case 2012Q3 through 2013Q2.
[2]2013Q2 QCEW data are initial. These data may be revised upon release of QCEW 2013Q3 data.

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 Activity[1]

Pennsylvania Statewide Online Job Postings

Area	January-2014	January-2013	Pct. Change
Total All Industries[2]	**208,096**	**199,256**	**4.4%**
Core Industries	217	209	3.8%
Ancillary Industries	4,064	3,509	15.8%
Total MS related	**4,281**	**3,718**	**15.1%**

Select WIA Online Job Postings (core & ancillary combined)

WIA	January-2014	January-2013	Pct. Change
Northern Tier	59	31	90.3%
Southwest Corner	236	193	22.3%
Central	194	194	0.0%
North Central	56	42	33.3%
Tri-County	196	197	-0.5%
Westmoreland & Fayette	130	106	22.6%
Total	**871**	**763**	**14.2%**

- **Pennsylvania Online Job Postings**
  - In January 2014, total job postings across all industries for Pennsylvania increased by 4.4% over January 2013.
  - Online postings for statewide Marcellus Shale related (core + ancillary) industries increased by 15.1% 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 one saw an annual decrease and one had no change in HWOL postings.
  - The Northern Tier WIA experienced the largest O-T-Y percentage increase in Marcellus Shale related job posting activity, rising by 90.3% followed by North Central WIA, which rose 33.3%
  - The six WIAs with substantial Marcellus Shale drilling activity saw online job postings increase by a combined 14.2% 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 January 2014 published in the February 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.

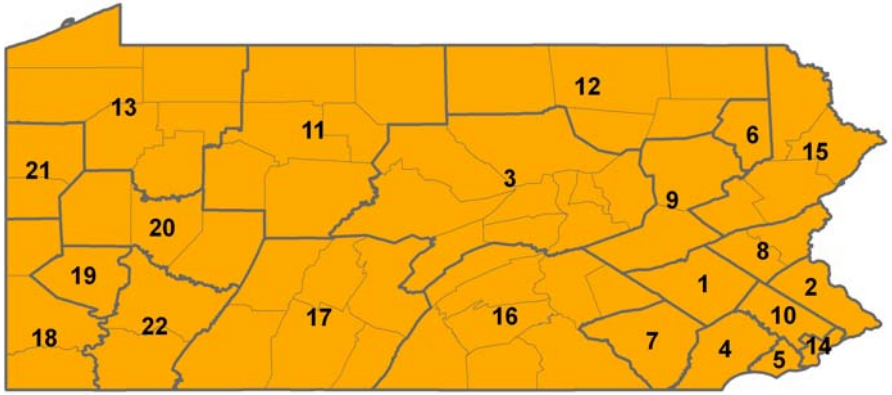
2013 Regional High-Priority Occupations Related to Marcellus Shale

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

Pennsylvania Marcellus Shale Related Industries New Hires

Core Industries	Volume of New Hires by Quarter				Change 2010Q4 - 2013Q4	
Title	2010Q4	2011Q4	2012Q4	2013Q4	Vol.	Pct.
Crude Petroleum & Natural Gas Extraction	224	266	193	163	-61	-27.2%
Natural Gas Liquid Extraction	32	73	31	36	4	12.5%
Drilling Oil & Gas Wells	381	541	223	133	-248	-65.1%
Support Activities for Oil & Gas Operations	974	1,213	634	729	-245	-25.2%
Oil & Gas Pipeline & Related Structures	126	192	416	167	41	32.5%
Pipeline Transportation of Natural Gas	2	3	3	6	4	200.0%
Total	**1,739**	**2,288**	**1,500**	**1,234**	**-505**	**-29.0%**
Ancillary Industries	**Volume of New Hires by Quarter**				**Change 2010Q4 - 2013Q4**	
Title	**2010Q4**	**2011Q4**	**2012Q4**	**2013Q4**	**Vol.**	**Pct.**
Fossil Fuel Electric Power Generation	6	9	37	5	-1	-16.7%
Natural Gas Distribution	109	133	139	142	33	30.3%
Water Supply & Irrigation Systems	46	42	34	61	15	32.6%
Sewage Treatment Facilities	30	35	39	45	15	50.0%
Water, Sewer Line & Related Structures	277	365	190	233	-44	-15.9%
Highway, Street, & Bridge Construction	1,066	1,100	952	739	-327	-30.7%
Nonresidential Site Preparation Contractors	454	545	448	476	22	4.8%
Petrochemical Manufacturing	16	8	9	13	-3	-18.8%
Industrial Gas Manufacturing	18	22	21	27	9	50.0%
Iron & Steel Mills & Ferroalloy Mfg.*	355	439	306	202	-153	-43.1%
Iron, Steel Pipe, Tube Mfg. from Prchsd. Steel	193	199	194	128	-65	-33.7%
Mining Machinery & Equipment Mfg.	163	231	150	143	-20	-12.3%
Oil & Gas Field Machinery & Equipment	9	12	19	13	4	44.4%
Const. & Mining Mach. Equip. Wholesalers	105	123	89	113	8	7.6%
Industrial Mach. & Equip. Wholesalers	471	613	506	358	-113	-24.0%
Industrial Supplies Merchant Wholesalers	231	161	161	194	-37	-16.0%
General Freight Trucking, Local	453	612	609	744	291	64.2%
Specialized Freight Trucking, Local	662	887	660	737	75	11.3%
Specialized Freight Trucking, Long-Distance	135	188	193	133	-2	-1.5%
Lessors of Other Real Estate Property	25	12	15	56	31	124.0%
Const., Mining, & Forestry Mach. & Equip.	236	254	243	194	-42	-17.8%
Engineering Services	2,698	3,536	2,918	2,773	75	2.8%
Geophysical Surveying & Mapping Services	2	34	13	16	14	700.0%
Testing Laboratories	481	454	595	347	-134	-27.9%
Environmental Consulting Services	201	205	217	135	-66	-32.8%
Remediation Services	325	429	263	228	-97	-29.8%
Commercial & Industrial Mach. & Equip.	381	352	304	1,152	771	202.4%
Admin. Of Air & Water Res. & Waste	2	5	1	9	7	350.0%
Admin. of Conservation Programs	10	8	8	20	10	100.0%
Reg.&Admin. of Comm., Elec., Gas & Util.	0	0	0	0	0	0
Totals	**9,160**	**11,013**	**9,333**	**9,436**	**276**	**3.0%**

- In 2013Q4 there were 1,234 New Hires in the Marcellus Shale related core industries. This was 29.0% lowerer than 2010Q4, and 17.7% lower than 2012Q4.
- In 2013Q4 there were 9,436 New Hires in the Marcellus Shale related ancillary industries. This was 3.0% higher than 2010Q4 and 1.1% higher than 2012Q4.
- Across all industries in Pennsylvania, total New Hires in 2013Q4 were 9.9% higher than in 2010Q4 and 1.7% higher than 2012Q4.

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.

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 fourth quarter of each year from 2010 to 2013. Volume change and percent change are both based on 2010Q4 to 2013Q4 calculations.

Northern Tier	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	121	189	159	105	-16	-13.2%
Ancillary	109	255	198	257	148	135.8%

Southwest Corner	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	222	313	446	233	11	5.0%
Ancillary	180	398	343	261	81	45.0%

Central	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	175	172	55	33	-142	-81.1%
Ancillary	234	305	169	216	-18	-7.7%

North Central	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	498	321	103	40	-458	-92.0%
Ancillary	111	154	102	92	-19	-17.1%

Tri-County	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	111	239	110	150	39	35.1%
Ancillary	304	249	205	224	-80	-26.3%

Westmoreland/Fayette	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	32	28	19	51	19	59.4%
Ancillary	289	489	487	298	9	3.1%

6 WIA Total	2010Q4	2011Q4	2012Q4	2013Q4	Vol. Change	Pct. Change
Core	**1,159**	**1,262**	**892**	**612**	**-547**	**-47.2%**
Ancillary	**1,227**	**1,850**	**1,504**	**1,348**	**121**	**9.9%**

- Tri-County WIA had the largest volume (39) and second largetst percentage (35.1) increases in core industry New Hires; Westmoreland/Fayette WIA had the largest percent (59.4%) and second largest volume (19) growth.
- For ancillary industries, Northern Tier had the largest increases in both volume (148) and percentage (135.8%) of New Hires; Southwest Corner WIA was second in growth for both volume (81) and percentage (45.0%).
- Across these six WIAs, Marcellus Shale related core industry New Hires decreased by 47.2% from 2010Q4 to 2013Q4; there were nearly 10% more New Hires in the ancillary industries in 2013Q4 than in 2010Q4.

Quarterly Workforce Indicators

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

Percentage of Industry[1] Employment by Age Group (2013Q1)

Northern Tier	14-24	25-34	35-44	45-54	55+
All industry groups	13.3%	19.6%	20.4%	24.7%	22.0%
2111 Oil and Gas Extraction	***	32.1%	26.0%	23.4%	11.2%
2131 Support Activities for Mining	14.8%	33.4%	23.3%	19.7%	8.8%
2371 Utility System Construction	13.8%	29.1%	19.4%	23.0%	14.5%
4862 Pipeline Transportation of Natural Gas	***	17.2%	21.2%	35.4%	***

Southwest Corner	14-24	25-34	35-44	45-54	55+
All industry groups	11.9%	20.3%	19.7%	23.6%	24.5%
2111 Oil and Gas Extraction	***	30.9%	21.5%	24.4%	13.8%
2131 Support Activities for Mining	16.4%	36.8%	23.9%	15.1%	7.9%
2371 Utility System Construction	12.1%	24.9%	21.4%	24.0%	17.7%
4862 Pipeline Transportation of Natural Gas	2.8%	20.7%	22.9%	28.5%	25.1%

Central	14-24	25-34	35-44	45-54	55+
All industry groups	12.4%	19.3%	20.2%	24.3%	23.8%
2111 Oil and Gas Extraction	8.4%	29.0%	32.1%	16.0%	13.7%
2131 Support Activities for Mining	15.4%	36.1%	24.4%	16.8%	7.3%
2371 Utility System Construction	8.8%	22.5%	22.7%	24.0%	22.1%
4862 Pipeline Transportation of Natural Gas	***	18.9%	22.2%	34.4%	22.2%

North Central	14-24	25-34	35-44	45-54	55+
All industry groups	12.1%	18.5%	20.5%	25.2%	23.7%
2111 Oil and Gas Extraction	7.0%	24.6%	23.8%	24.9%	19.8%
2131 Support Activities for Mining	12.8%	32.7%	22.5%	19.2%	12.8%
2371 Utility System Construction	16.2%	28.9%	18.0%	24.4%	12.7%
4862 Pipeline Transportation of Natural Gas	***	15.5%	21.4%	31.8%	27.7%

Tri-County	14-24	25-34	35-44	45-54	55+
All industry groups	12.6%	20.0%	19.8%	24.0%	23.6%
2111 Oil and Gas Extraction	4.8%	24.2%	21.2%	27.9%	22.0%
2131 Support Activities for Mining	11.3%	31.7%	22.9%	20.7%	13.4%
2371 Utility System Construction	***	15.5%	21.1%	30.0%	29.3%
4862 Pipeline Transportation of Natural Gas	0.0%	62.9%	8.6%	20.0%	8.6%

Westmoreland & Fayette	14-24	25-34	35-44	45-54	55+
All industry groups	12.4%	19.0%	19.7%	24.3%	24.7%
2111 Oil and Gas Extraction	6.2%	32.9%	21.2%	24.3%	15.5%
2131 Support Activities for Mining	***	30.1%	25.5%	18.8%	9.4%
2371 Utility System Construction	13.8%	21.4%	24.5%	25.7%	14.6%
4862 Pipeline Transportation of Natural Gas	***	22.0%	19.8%	27.8%	20.5%

**** 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.

ShaleNET Training and Job Placement Data[1]:

(As provided by the Allegheny Conference on Community Development)

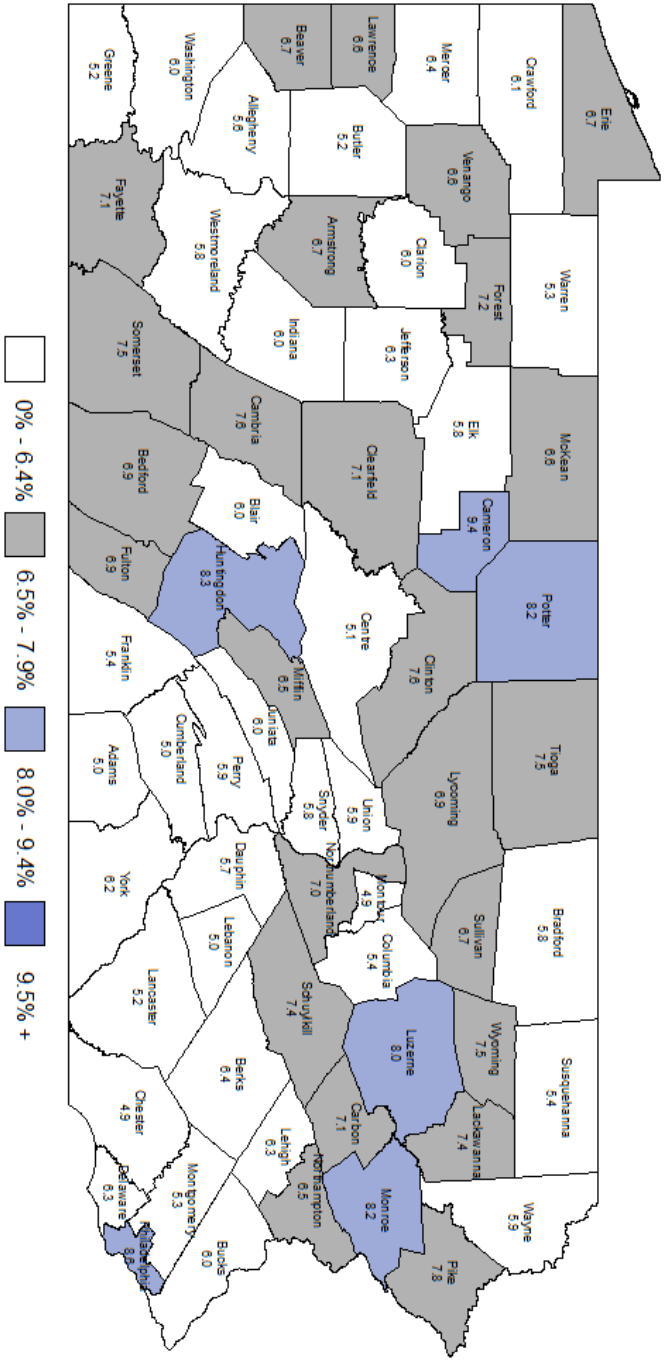
ShaleNET is a three-year, $4.9 million grant from the United States Department of Labor, Employment and Training Administration. The mission of the grant is to design a comprehensive recruitment, training, placement, and retention program for high priority occupations in the natural gas drilling and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

July 1st 2010 – June 30th 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

[1]Definitions 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.

Pennsylvania Unemployment Rates by County December 2013



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.

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.

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*

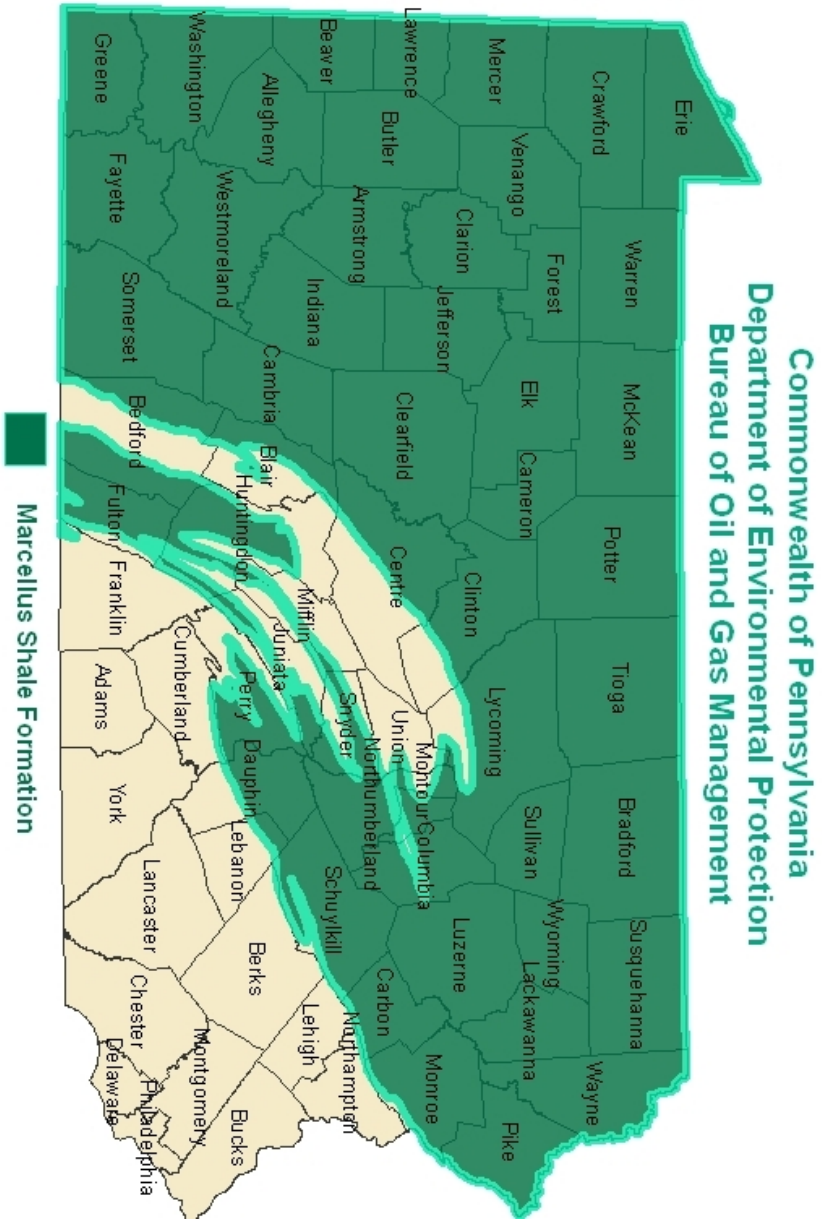
The Conference Board Help Wanted OnLine data set provides real-time insight into the employment marketplace through the world's largest database of online job ads. Jobs ads can be classified by industry, occupation, employer, and geographic area. Data are analyzed for employment trends and to forecast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

Marcellus Shale Formation