

# MARCELLUS SHALE FAST FACTS AUGUST 2012 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 2011Q4 and 2012Q2, 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, 2011Q4 QCEW data are compared to 2008Q4, and 2012Q2 New Hire data are compared to 2<sup>nd</sup> quarter data for 2009, 2010, and 2011.

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CWIA-MS

## 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<sup>4</sup>); 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.*

<sup>4</sup>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 July 2012 was 7.9%.**
  - This was 0.4 percentage points below the U.S. rate of 8.3%.
  - O-T-M change was +0.3 percentage points.
  - O-T-Y change was -0.2 percentage points.
- **Pennsylvania's seasonally adjusted total nonfarm jobs for July 2012 was 5,709,200.**
  - O-T-M change was -3,100.
  - O-T-Y change was +20,000.
  - PA was still down 103,400 jobs since the start of the recession (December 2007).
- **Pennsylvania's new hire activity increased slightly.**
  - There were 580,400 new hires across all industries in the 2<sup>nd</sup> quarter of 2012.
  - This was a decrease of 900 (-0.2%) from the 2<sup>nd</sup> quarter of 2011
- **Employer demand increased in Pennsylvania.**
  - 202,500 job ads were posted online in July 2012.
  - This was a decrease of 6,900 from July 2011.
- **In Pennsylvania there were 2.6 unemployed persons for every online job posting July 2012.**
  - The Pennsylvania rate was lower than the U.S. rate, which stood at 2.7.
  - 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 (2008Q4 to 2011Q4):

- Core industries were up 18,000 (+159%).
- Ancillary industries were up 5,600 (+2.8%).
- All industries declined 69,000 (-1.2%).
- 2011Q4 Marcellus Shale related industries total employment was 238,400.

#### Establishments (2008Q4 to 2011Q4):

- 1,083 establishments were added (399 core, 684 ancillary).
- This represented 66.5% growth in the core industries and 5.6% growth in the ancillary industries; over the same time period, PA experienced 3.5% growth for all industries.
- Marcellus Shale related industries totaled 13,985 establishments in 2011 Q4

#### Wages (2011Q1 through 2011Q4):

- The average wage across all industries was \$47,034.
- The average wage in the core industries was \$81,116, which was approximately \$34,100 greater than the average for all industries.
- The average wage in the ancillary industries was \$63,904, which was approximately \$16,900 greater than the average for all industries.

#### New Hires (2009Q2 to 2012Q2):

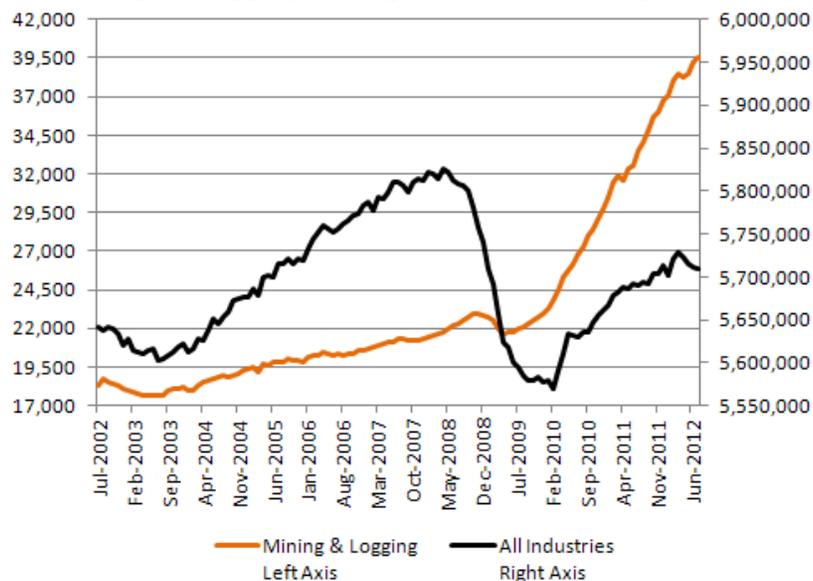
- Statewide new hires in the core industries were 134.4% higher in 2012Q2 than in 2009Q2.
- Statewide new hires in the ancillary industries were 28.5% higher in 2012Q2 than in 2009Q2.
- Statewide new hires across all industries were 16.2% higher in 2012Q2 than in 2009Q2.

#### Online Job Postings (July 2012):

- There were 3,268 online job postings statewide in core and ancillary industries.

# MINING JOBS VS. TOTAL JOBS IN PENNSYLVANIA

Mining & Logging<sup>1</sup> Compared to Total Employment



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

- Total Pennsylvania Employment was 5,709,200 (July 2012).
  - O-T-M change was -3,100 (-0.1%).
  - O-T-Y change was +20,000 (+0.4%).
  - Change from 10 years ago was +67,600 (+1.2%).
- Mining & Logging Employment in Pennsylvania was 39,600.
  - O-T-M change was +400 (+1.0%).
  - O-T-Y change was +6,100 (+18.2%).
  - Change from 10 years ago was +21,300 (+116.4%).

## Points to Note

- 28.6% of the increase in mining & logging employment over the last decade occurred in the past 12 months; 60.1% occurred in the past two years.
- While total Pennsylvania employment has yet to reach pre-recession totals, employment in mining & logging industries reached its highest level in July 2012 (current data series began in 1990).

<sup>1</sup> 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		2008Q4		2011Q4 <sup>1</sup>		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
211111	Crude Petroleum & Natural Gas Extraction	189	2,679	228	4,256	39	1,577
211112	Natural Gas Liquid Extraction	14	132	23	599	9	467
213111	Drilling Oil & Gas Wells	76	1,684	127	5,212	51	3,528
213112	Support Activities for Oil & Gas Operations	127	2,813	360	9,798	233	6,985
237120	Oil & Gas Pipeline & Related Structures	68	2,643	131	8,032	63	5,388
486210	Pipeline Transportation of Natural Gas	126	1,361	130	1,422	4	61
<b>Totals</b>		<b>600</b>	<b>11,313</b>	<b>999</b>	<b>29,320</b>	<b>399</b>	<b>18,007</b>
Ancillary Industries		2008Q4		2011Q4 <sup>1</sup>		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
221112	Fossil Fuel Electric Power Generation	64	4,374	67	4,066	3	-308
221210	Natural Gas Distribution	153	4,880	169	4,980	16	100
221310	Water Supply & Irrigation Systems	368	6,756	382	6,853	14	96
221320	Sewage Treatment Facilities	475	4,301	486	4,359	11	58
237110	Water, Sewer, & Related Structure Const.	380	6,854	375	6,617	-5	-237
237310	Highway, Street, & Bridge Construction	533	21,094	551	21,555	18	461
238912	Nonresidential Site Preparation Contractors	619	10,413	646	9,887	27	-526
325110	Petrochemical Manufacturing	4	931	5	591	1	-339
325120	Industrial Gas Manufacturing	32	1,715	35	1,492	3	-223
331110*	Iron & Steel Mills & Ferroalloy Mfg.	73	13,637	64	13,582	-9	-55
331210	Iron, Pipe, & Tube Mfg. from Prchsd. Steel	42	4,321	36	3,538	-6	-783
333131	Mining Machinery & Equipment Mfg.	24	3,506	23	3,458	-1	-48
333132	Oil & Gas Field Machinery & Equip. Mfg.	8	391	9	388	1	-3
423810	Const. & Mining Mach. Equip. Wholesalers	223	3,925	210	3,729	-13	-197
423830	Industrial Machinery & Equip. Wholesalers	1,021	12,354	960	12,343	-61	-11
423840	Industrial Supplies Merchant Wholesalers	314	3,277	344	3,741	30	465
484110	General Freight Trucking, Local	1,201	8,512	1,387	10,394	186	1,882
484220	Specialized Freight Trucking, Local	1,036	10,182	1,237	13,348	201	3,166
484230	Specialized Freight Trucking, Long-Distance	279	3,586	274	3,248	-5	-339
531190	Lessors of Other Real Estate Property	244	801	242	838	-2	37
532412	Const., Mining, & Forestry Equip. Rental	106	2,188	167	3,074	61	885
541330	Engineering Services	2,464	43,135	2,584	43,652	120	517
541360	Geophysical Surveying & Mapping Services	57	268	56	276	-1	8
541380	Testing Laboratories	398	7,402	408	7,830	10	428
541620	Environmental Consulting Services	477	3,054	496	3,440	19	386
562910	Remediation Services	224	2,592	255	3,056	31	464
811310	Comm. & Industrial Mach. & Equip. Repair	1,013	8,062	1,051	8,353	38	291
924110	Admin. of Air & Water Res. & Waste Mgmt.	107	4,916	106	4,721	-1	-195
924120	Admin. of Conservation Programs	315	4,583	313	4,253	-2	-330
926130	Reg. & Admin. of Comm., Elec., Gas, & Util.	48	1,474	48	1,435	0	-39
<b>Totals</b>		<b>12,302</b>	<b>203,483</b>	<b>12,986</b>	<b>209,094</b>	<b>684</b>	<b>5,611</b>

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

- From 2008Q4 to 2011Q4, employment in Core industries increased by 159.2%.
- Over the same period, employment in the Ancillary industries was up 2.8%.
- Employment across all industries decreased 1.2% (appx. 69,000) over the same time period.

<sup>1</sup>2011Q4 QCEW data are initial. These data may be revised upon release of QCEW 2012Q1 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<sup>1</sup>

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	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	103	3,097	2,994	2906.8%
Ancillary	1,776	3,941	2,165	121.9%

Southwest Corner	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	703	3,439	2,736	389.2%
Ancillary	10,929	11,619	690	6.3%

Central	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	116	2,304	2,188	1886.2%
Ancillary	9,460	11,446	1,986	21.0%

North Central	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	2,287	3,009	722	31.6%
Ancillary	4,141	4,852	711	17.2%

Tri-County	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	2,547	3,226	679	26.7%
Ancillary	9,427	9,410	-17	-0.2%

Westmoreland & Fayette	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	493	1,302	809	164.1%
Ancillary	10,601	11,326	725	6.8%

6 WIA Total	2008Q4	2011Q4 <sup>1</sup>	Vol. Change	Pct. Change
Core	6,249	16,377	10,128	162.1%
Ancillary	46,334	52,594	6,260	13.5%

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

- The Northern Tier WIA experienced the most rapid growth in Marcellus Shale Core and Ancillary industries of all WIAs in terms of both volume and percentage; Northern Tier saw an increase of 2,994 employees in Core and 2,165 in Ancillary industries from 2008Q4 to 2011Q4, for increases of approximately 2900% and 122%, respectively.
- The Central WIA was second in terms of volume and percentage employment growth in both Core and Ancillary industries with employment percentage increases of approximately 1880% and 21%, respectively.
- Across all six WIAs employment in the Core industries increased by 162.1%; Ancillary employment increased by 13.5%.

<sup>1</sup>2011Q4 QCEW data are initial. These data may be revised upon release of QCEW 2012Q1 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<sup>1</sup>

Core Industries Title	Average Wage <sup>2</sup>
Crude Petroleum & Natural Gas Extraction	\$99,373
Natural Gas Liquid Extraction	\$103,965
Drilling Oil & Gas Wells	\$81,935
Support Activities for Oil & Gas Operations	\$67,430
Oil & Gas Pipeline & Related Structures Construction	\$84,872
Pipeline Transportation of Natural Gas	\$83,880
<b>Average</b>	<b>\$81,116</b>
Ancillary Industries Title	Average Wage <sup>2</sup>
Fossil Fuel Electric Power Generation	\$110,769
Natural Gas Distribution	\$79,097
Water Supply & Irrigation Systems	\$54,661
Sewage Treatment Facilities	\$44,086
Water & Sewer Line & Related Structures Construction	\$64,119
Highway, Street, & Bridge Construction	\$54,778
Nonresidential Site Preparation Contractors	\$52,445
Petrochemical Manufacturing	\$73,632
Industrial Gas Manufacturing	\$90,394
Iron & Steel Mills & Ferroalloy Manufacturing*	\$74,554
Iron & Steel Pipe & Tube Manufacturing from Purchased Steel	\$62,830
Mining Machinery & Equipment Manufacturing	\$72,350
Oil & Gas Field Machinery & Equipment Manufacturing	\$68,837
Construction & Mining Machinery Equipment Wholesalers	\$62,893
Industrial Machinery & Equipment Merchant Wholesalers	\$66,979
Industrial Supplies Merchant Wholesalers	\$63,303
General Freight Trucking, Local	\$41,302
Specialized Freight Trucking, Local	\$46,296
Specialized Freight Trucking, Long-Distance	\$50,243
Lessors of Other Real Estate Property	\$35,311
Construction, Mining, & Forestry Machinery & Equip. Rental	\$77,139
Engineering Services	\$77,164
Geophysical Surveying & Mapping Services	\$53,210
Testing Laboratories	\$65,273
Environmental Consulting Services	\$66,751
Remediation Services	\$55,773
Commercial & Industrial Mach. & Equip. Repair & Maintenance	\$52,289
Admin. of Air & Water Res. & Solid Waste Mgmt. Programs	\$61,619
Admin. of Conservation Programs	\$49,448
Reg. & Admin. Of Communications, Electric, Gas, & Other Utils.	\$81,547
<b>Average</b>	<b>\$63,904</b>

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

- The average wage across all industries for 2011Q1 through 2011Q4 was \$47,034.
- The average wage in the core industries was approximately \$34,100 greater than the average for all industries; the average wage in the ancillary industries was approximately \$16,900 higher.

<sup>1</sup> Average Wages for these industries were calculated by combining the most recent four quarters of available wage data; in this case 2011Q1 through 2011Q4.

<sup>2</sup>2011 Q4 QCEW data are initial. These data may be revised upon release of QCEW 2012Q1 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<sup>1</sup>

Pennsylvania Statewide Online Job Postings

	July-2011	July-2012	Pct. Change
Core Industries	330	240	-27.3%
Ancillary Industries	3,234	3,028	-6.4%
Total All Industries <sup>2</sup>	209,354	202,535	-3.3%

Select WIA Online Job Postings (core & ancillary combined)

WIA	July-2011	July-2012	Pct. Change
Northern Tier	138	75	-45.7%
Southwest Corner	190	198	4.2%
Central	212	145	-31.6%
North Central	111	61	-45.0%
Tri-County	98	77	-21.4%
Westmoreland & Fayette	117	100	-14.5%
<b>Total</b>	<b>866</b>	<b>656</b>	<b>-24.2%</b>

- **Pennsylvania Online Job Postings**
  - Total job postings across all industries for Pennsylvania were 3.3% lower in July 2012 than in July 2011.
  - The decrease seen in Marcellus Shale related industries was 8.3%.
- **WIA Online Job Postings**
  - The only WIA with substantial Marcellus Shale drilling activity to experience an increase in job posting activity was Southwest Corner, increasing by 4.2% over the year.
  - The Northern Tier WIA experienced the largest over the year decrease in Marcellus Shale related job posting activity, declining by 45.7%
  - The six WIAs with a substantial amount of Marcellus Shale drilling activity saw online job postings for these industries decrease by a combined 24.2% in July 2012 compared to July 2011.

<sup>1</sup> 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.

<sup>2</sup> Total Job postings in this table may not be equal to total postings for July 2012 published in the August 2012 edition of the Pennsylvania Fast Facts, due to continuous updates to the data.

# 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
13-1051	Cost Estimators	\$60,120	Bachelor's degree
17-2112	Industrial Engineers	\$77,310	Bachelor's degree
41-4011	Sales Representatives, Scientific & Technical	\$87,120	Related work exper
43-3021	Billing & Posting Clerks & Machine Operators	\$32,200	Short-term OJT
43-3031	Bookkeeping, Accounting & Auditing Clerks	\$35,540	Moderate-term OJT
43-4051	Customer Service Representatives	\$36,620	Moderate-term OJT
43-5061	Production, Planning & Expediting Clerks	\$38,800	Moderate-term OJT
43-6014	Secretaries	\$30,650	Moderate-term OJT
43-9061	Office Clerks	\$28,760	Short-term OJT
47-1011	Supervisors - Construction Trades & Extraction Workers	\$64,630	Related work exper
47-2061	Construction Laborers	\$33,290	Moderate-term OJT
47-2073	Operating Engineers	\$43,740	Moderate-term OJT
47-2152	Plumbers, Pipefitters & Steamfitters	\$52,450	Long-term OJT
49-1011	Supervisors - Mechanics, Installers & Repairers	\$63,800	Related work exper
49-9041	Industrial Machinery Mechanics	\$44,940	Long-term OJT
49-9042	Maintenance & Repair Workers	\$36,390	Moderate-term OJT
49-9051	Electrical Power-Line Installers & Repairers	\$58,220	Long-term OJT
49-9052	Telecommunications Line Installers & Repairers	\$54,240	Long-term OJT
51-1011	Supervisors - Production & Operating Workers	\$55,800	Related work exper
51-4121	Welders, Cutters, Solderers & Brazers	\$36,250	Postsec award
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	\$36,540	Moderate-term OJT
53-1031	Supervisors - Transportation & Vehicle Operators	\$58,600	Related work exper
53-3032	Truck Drivers, Heavy & Tractor-Trailer	\$41,360	Short-term OJT
53-7062	Laborers & Freight, Stock & Material Movers	\$27,650	Short-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.**

# 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).<sup>1</sup> 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
17-2151	Mining & Geological Engineers	\$64,010	Bachelor's degree
17-3023	Electrical & Electronic Engineering Technicians	\$54,040	Associate degree
17-3025	Environmental Engineering Technicians	\$46,790	Associate degree
19-2042	Geoscientists	\$67,860	Master's degree
19-4041	Geological & Petroleum Technicians	\$49,700	Associate degree
45-4022	Logging Equipment Operators	\$24,480	Moderate-term OJT
<b>47-5011</b>	<b>Derrick Operators, Oil &amp; Gas</b>	<b>\$41,920</b>	<b>Moderate-term OJT</b>
<b>47-5012</b>	<b>Rotary Drill Operators, Oil &amp; Gas</b>	<b>\$41,550</b>	<b>Moderate-term OJT</b>
<b>47-5013</b>	<b>Service Unit Operators, Oil, Gas &amp; Mining</b>	<b>\$38,530</b>	<b>Moderate-term OJT</b>
<b>47-5071</b>	<b>Roustabouts, Oil &amp; Gas</b>	<b>\$30,490</b>	<b>Moderate-term OJT</b>
49-3042	Mobile Heavy Equipment Mechanics	\$44,850	Long-term OJT
51-4122	Welding, Soldering & Brazing Machine Setters	\$37,250	Postsec award
53-7071	Gas Compressor & Gas Pumping Station Operators	\$51,620	Moderate-term OJT
53-7072	Pump Operators	\$42,200	Moderate-term OJT
53-7073	Wellhead Pumpers	\$37,010	Moderate-term OJT

Source: The Center for Workforce Information & Analysis

Each of the occupations in this table has been identified as an HPO in one or more of the following WIAs: Central, North Central, Northern Tier, Northwest, Southwest Corner, Three Rivers, Tri-County, West Central, and Westmoreland-Fayette.

Bolded occupations are HPOs in each WIA listed above. For a complete list of HPOs by Local Workforce Investment Area, please refer to:

<http://www.paworkstats.state.pa.us/gsipub/index.asp?docid=504>

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

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

# PENNSYLVANIA MARCELLUS SHALE RELATED INDUSTRIES NEW HIRES

Core Industries	Volume of New Hires by Quarter				Change 2009Q2 - 2012Q2	
	2009Q2	2010Q2	2011Q2	2012Q2	Vol.	Pct.
<b>Title</b>						
Crude Petroleum & Natural Gas Extraction	151	409	350	358	207	137.1%
Natural Gas Liquid Extraction	9	58	73	38	29	322.2%
Drilling Oil & Gas Wells	211	356	434	289	78	37.0%
Support Activities for Oil & Gas Operations	162	701	1013	672	510	314.8%
Oil & Gas Pipeline & Related Structures	93	199	253	177	84	90.3%
Pipeline Transportation of Natural Gas	36	16	19	18	-18	-50.0%
<b>Total</b>	<b>662</b>	<b>1,739</b>	<b>2,142</b>	<b>1,552</b>	<b>890</b>	<b>134.4%</b>
<b>Ancillary Industries</b>	<b>Volume of New Hires by Quarter</b>				<b>Change 2009Q2 - 2012Q2</b>	
<b>Title</b>	<b>2009Q2</b>	<b>2010Q2</b>	<b>2011Q2</b>	<b>2012Q2</b>	<b>Vol.</b>	<b>Pct.</b>
Fossil Fuel Electric Power Generation	19	32	25	15	-4	-21.1%
Natural Gas Distribution	131	173	223	229	98	74.8%
Water Supply & Irrigation Systems	130	70	124	122	-8	-6.2%
Sewage Treatment Facilities	130	113	107	91	-39	-30.0%
Water, Sewer Line & Related Structures	389	479	472	468	79	20.3%
Highway, Street, & Bridge Construction	3250	3344	3225	2805	-445	-13.7%
Nonresidential Site Preparation	590	808	731	654	64	10.8%
Petrochemical Manufacturing	7	9	17	12	5	71.4%
Industrial Gas Manufacturing	6	11	45	36	30	500.0%
Iron & Steel Mills & Ferroalloy Mfg.*	345	413	692	469	124	35.9%
Iron, Steel Pipe, Tube Mfg. from Prchsd. Steel	11	31	246	196	185	1681.8%
Mining Machinery & Equipment Mfg.	99	166	336	299	200	202.0%
Oil & Gas Field Machinery & Equipment	87	201	5	12	-75	-86.2%
Const. & Mining Mach. Equip. Wholesalers	1	6	199	162	161	16100.0%
Industrial Mach. & Equip. Wholesalers	173	218	624	647	474	274.0%
Industrial Supplies Merchant Wholesalers	273	444	297	260	-13	-4.8%
General Freight Trucking, Local	81	254	535	877	796	982.7%
Specialized Freight Trucking, Local	542	525	952	853	311	57.4%
Specialized Freight Trucking, Long-	398	593	196	167	-231	-58.0%
Lessors of Other Real Estate Property	112	230	43	14	-98	-87.5%
Const., Mining, & Forestry Mach. & Equip.	41	57	190	227	186	453.7%
Engineering Services	186	192	5135	4076	3,890	2091.4%
Geophysical Surveying & Mapping Services	3144	3645	11	28	-3,116	-99.1%
Testing Laboratories	14	12	768	737	723	5164.3%
Environmental Consulting Services	310	763	274	281	-29	-9.4%
Remediation Services	161	197	438	364	203	126.1%
Commercial & Industrial Mach. & Equip.	355	464	409	299	-56	-15.8%
Admin. Of Air & Water Res. & Waste	227	322	9	11	-216	-95.2%
Admin. of Conservation Programs	5	11	7	6	1	20.0%
Reg. & Admin. of Comm., Elec., Gas &	6	14	25	15	9	150.0%
<b>Totals</b>	<b>11,223</b>	<b>13,797</b>	<b>16,335</b>	<b>14,417</b>	<b>3,194</b>	<b>28.5%</b>

- In 2012Q2 there were 1,552 New Hires in the Marcellus Shale related core industries. This was 134.4% higher than 2009Q2.
- In 2012Q2 there were 14,417 New Hires in the Marcellus Shale related ancillary industries. This was 28.5% higher than 2009Q2.
- Across all industries in Pennsylvania, total New Hires in 2012Q2 were 16.2% higher than in 2009Q2.

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 second quarter of each year from 2009 to 2012. Volume change and percent change are both based on 2009Q2 to 2012Q2 calculations.

Northern Tier	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	0	56	170	160	160	∞%
Ancillary	36	124	184	137	101	280.6%

Southwest Corner	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	40	220	218	246	206	515.0%
Ancillary	308	339	381	332	24	7.8%

Central	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	1	16	191	128	127	8%
Ancillary	291	270	396	335	44	15.1%

North Central	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	169	254	463	259	90	53.3%
Ancillary	53	119	168	121	68	128.3%

Tri-County	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	74	209	179	113	39	52.7%
Ancillary	380	552	591	396	16	4.2%

Westmoreland & Fayette	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	11	62	32	27	16	145.5%
Ancillary	422	626	704	716	294	69.7%

6 WIA Total	2009Q2	2010Q2	2011Q2	2012Q2	Vol. Change	Pct. Change
Core	295	817	1,253	933	638	216.3%
Ancillary	1,490	2,030	2,424	2,037	547	36.7%

- Across these six WIAs, there were more than three times as many new hires in the Marcellus Shale related core industries in 2012Q2 than in 2009Q2; there were 36.7% more new hires in the ancillary industries in 2012Q2 than in 2009Q2.
- All six WIAs had more new hires in both the core and ancillary industries in 2012Q2 than in 2009Q2.
- Northern Tier WIA, Central WIA and Westmoreland & Fayette WIA had a combined 12 new hires in the core industries in 2009Q2, but combined for 303 core new hires in 2012Q2.

# QUARTERLY WORKFORCE INDICATORS

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

## Percentage of Industry<sup>1</sup> Employment by Age Group (2011Q4)

Northern Tier	14-24	25-34	35-44	45-54	55+
All industry groups	***	31.4%	20.6%	26.5%	11.8%
2111 Oil and Gas Extraction	21.4%	34.3%	20.5%	17.0%	6.9%
2131 Support Activities for Mining	14.8%	23.9%	19.8%	25.5%	16.2%
2371 Utility System Construction	***	18.6%	22.7%	39.2%	18.6%
4862 Pipeline Transportation of Natural Gas	13.9%	19.3%	20.8%	24.9%	21.1%

Southwest Corner	14-24	25-34	35-44	45-54	55+
All industry groups	12.7%	31.7%	22.3%	21.1%	12.2%
2111 Oil and Gas Extraction	19.0%	38.7%	21.6%	13.5%	7.1%
2131 Support Activities for Mining	11.2%	22.1%	23.4%	26.1%	17.2%
2371 Utility System Construction	***	17.9%	22.1%	33.2%	***
4862 Pipeline Transportation of Natural Gas	12.2%	19.6%	19.8%	24.6%	23.8%

Central	14-24	25-34	35-44	45-54	55+
All industry groups	15.8%	37.4%	23.4%	15.8%	***
2111 Oil and Gas Extraction	17.9%	30.9%	26.3%	16.8%	8.0%
2131 Support Activities for Mining	13.3%	21.5%	22.9%	24.5%	17.8%
2371 Utility System Construction	***	16.2%	22.9%	39.0%	19.0%
4862 Pipeline Transportation of Natural Gas	13.8%	19.0%	20.3%	24.4%	22.5%

North Central	14-24	25-34	35-44	45-54	55+
All industry groups	***	22.7%	21.4%	29.2%	21.0%
2111 Oil and Gas Extraction	14.4%	31.5%	22.2%	20.6%	11.4%
2131 Support Activities for Mining	24.5%	21.9%	21.4%	22.4%	10.1%
2371 Utility System Construction	***	14.2%	20.5%	35.2%	26.9%
4862 Pipeline Transportation of Natural Gas	12.3%	18.3%	21.0%	25.8%	22.6%

Tri-County	14-24	25-34	35-44	45-54	55+
All industry groups	7.1%	26.0%	18.4%	29.7%	18.8%
2111 Oil and Gas Extraction	13.4%	30.0%	23.3%	21.0%	12.4%
2131 Support Activities for Mining	5.2%	19.8%	25.0%	29.6%	20.5%
2371 Utility System Construction	***	44.8%	17.2%	27.6%	10.3%
4862 Pipeline Transportation of Natural Gas	13.2%	19.6%	20.2%	24.6%	22.4%

Westmoreland & Fayette	14-24	25-34	35-44	45-54	55+
All industry groups	7.2%	32.8%	20.4%	26.1%	13.8%
2111 Oil and Gas Extraction	13.7%	35.0%	25.4%	19.0%	7.0%
2131 Support Activities for Mining	11.6%	23.7%	24.6%	25.1%	15.0%
2371 Utility System Construction	***	18.4%	17.9%	36.3%	24.9%
4862 Pipeline Transportation of Natural Gas	12.9%	18.3%	20.0%	25.1%	23.7%

\*\*\* 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.

<sup>1</sup> 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.



# **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 changes 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 12<sup>th</sup> 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) identifies 11 categories that have been used in career planning. These categories describe the most significant postsecondary education or training pathway to employment for workers in that occupation.

### **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.
- **Long-term training** – knowledge and skills are developed through years of on-the-job training or formal classroom instruction.
- **Related work exper** – training is gained through hands-on work in a similar occupation
- **Postsecondary award** – training is gained through a vocational training program.
- **Associate degree** – degree completed after two years of full-time schooling beyond high school
- **Bachelor's degree** – degree completed after four years of full-time schooling beyond high school
- **Degree plus exper** – a four-year bachelor's degree plus experience gained through hands-on experience
- **Masters, Doctoral, or Professional degree** – training 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 1<sup>st</sup> 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

