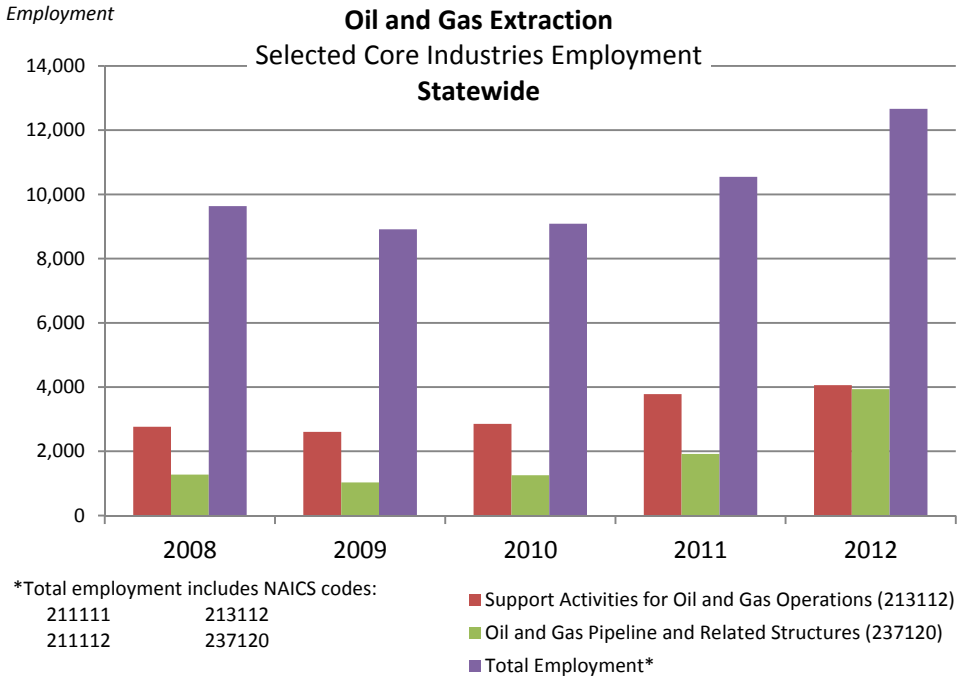
Update on Employment and Wages and the Influence of the Marcellus Shale in West Virginia

An examination of employment and wages and the Marcellus Shale in a November 2012 WorkForce West Virginia report indicated the significant influence this industry is beginning to exert on the state's economy, as well as a movement towards a greater share of power generation by the gas industry sector. Recently released dated from the Quarterly Census of Employment and Wages for 2012 provides an interesting additional twelve-month perspective to the earlier report. For example, statewide employment for those industry sectors within the gas industry grew by 20 percent from 10,549 in 2011 to a level of 12,666 in 2012. Most notably, the support activities of excavation, well surveying, and running and cutting casings expanded employment by 7.4 percent and 280 employees while the industry sector engaged in construction of oil and gas pipelines and storage tanks grew by 105 percent and 2,016 jobs.

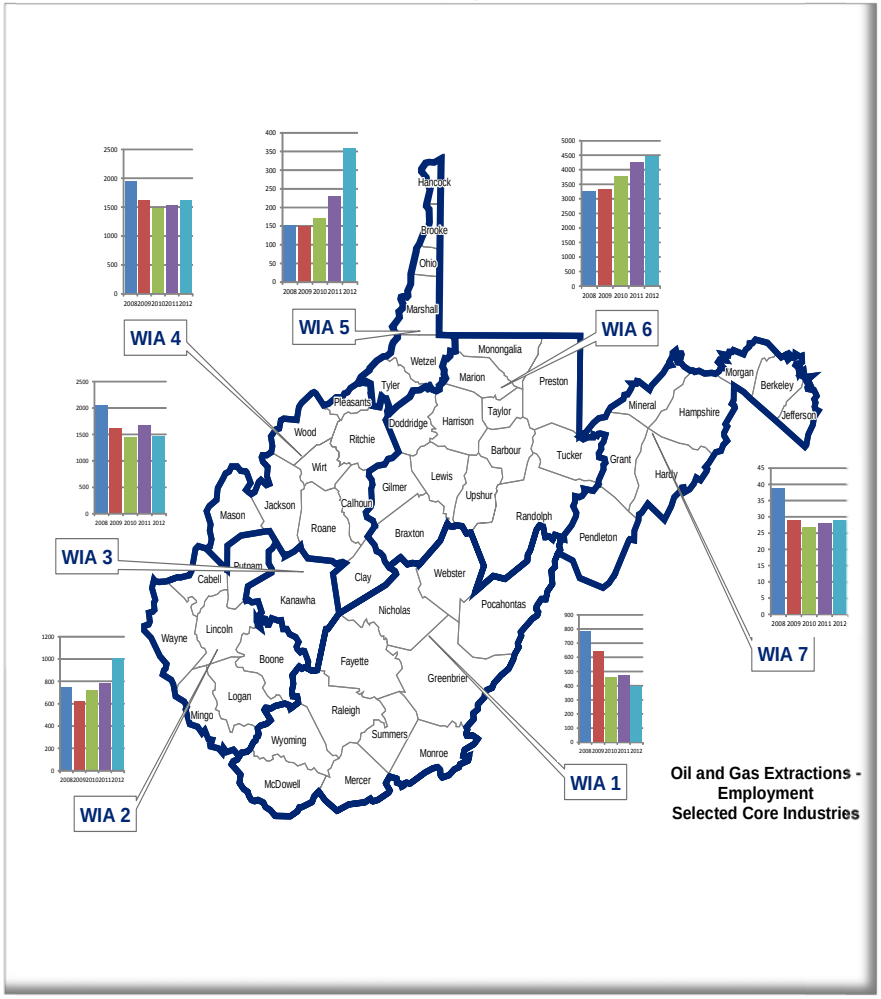
Figure 1

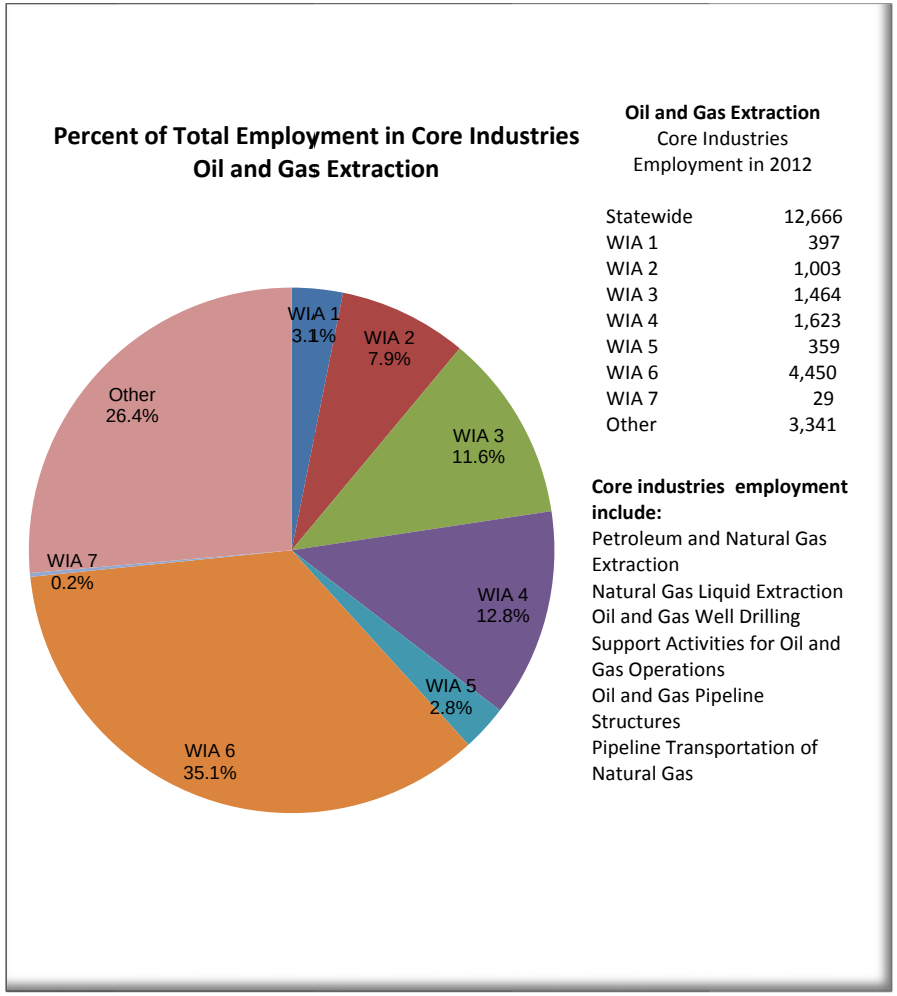


Not unexpected, the individual workforce investment areas (WIA) mimicked this movement in their labor force. Employment in WIA 2 increased by 222 or 28 percent, while WIA 5 expanded by 128 or 55 percent. By contrast, WIA 6 grew by only 4.4 percent and 187 additional jobs. The net effect through all seven WIAs was positive growth. However, that data alone does not explain all the movement in these industry sectors. There is employment outside these areas that cannot be connected to a specific WIA. Because the affected individuals work in different parts of the state throughout the year and are not identifiable to a particular WIA, for purposes of this update they will be identified as WIA 0 (zero). Employment in this group stood at 1,569 in 2011 and by 2012 had added 1,772,

an expansion exceeding 113 percent. And as the pie chart in Figure 3 depicts, WIA 6 employment is the largest of the seven with more than 35 percent of the total.

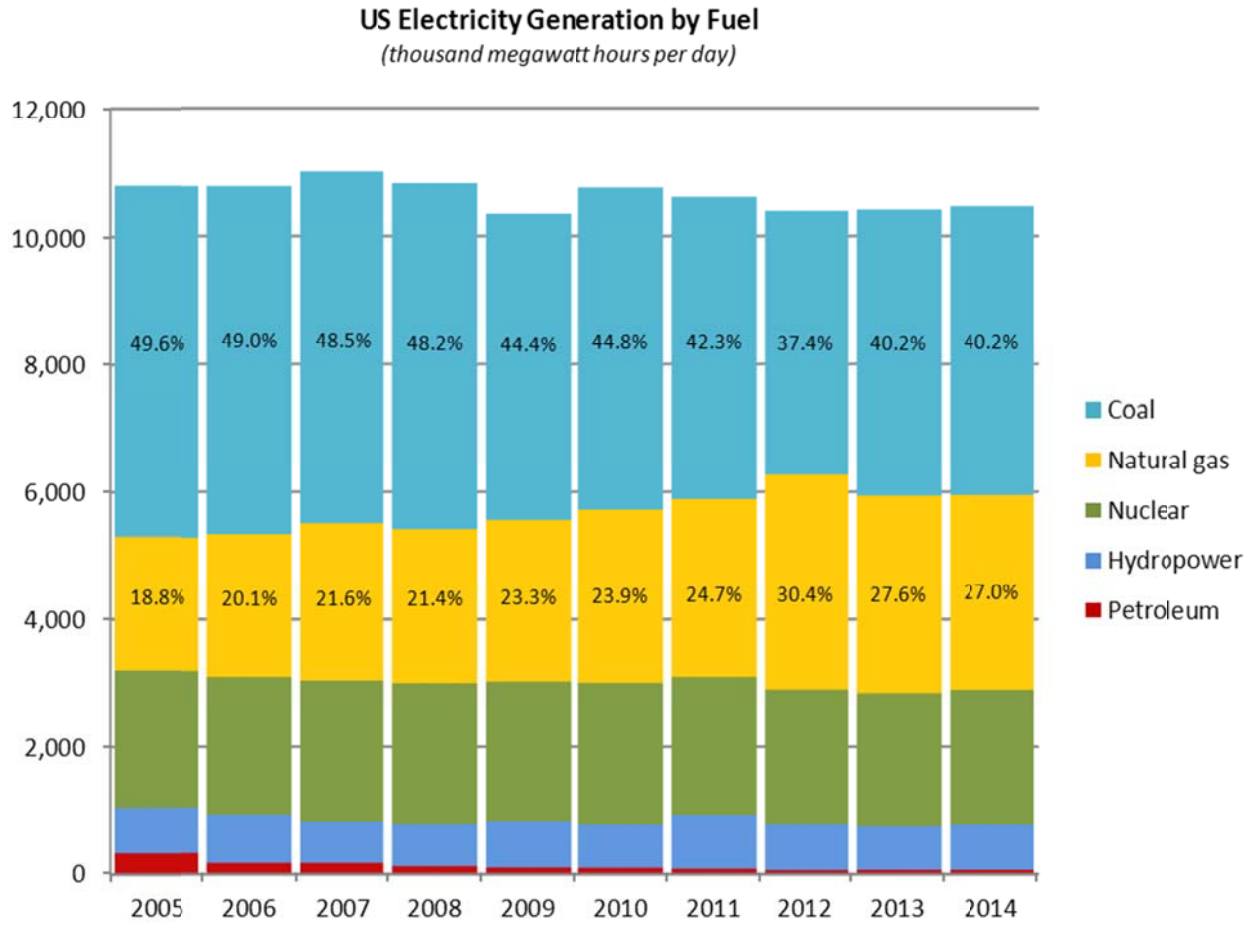
Figure 2 Oil and Gas Extraction Employment 2008 - 2012





The growing influence of the Marcellus Shale and the natural gas industry in general is expected to continue. Data from U.S. Energy Information Administration (EIA) reveal electricity generation by natural gas exceeded 30 percent in 2012, and is forecast to level off to 27 percent through 2014 (See Figure 4). Coal has been the foremost supplier in the energy sector for many years, but if this relationship changes as it has in the recent past, the share of electricity generated by natural gas will continue to expand.

Figure 4



Labels show percentage share of total generation provided by coal and natural gas.
Source: Short-Term Energy Outlook, June 2013, EIA

Note:

[1] **Core Industries NAICS codes used for employment and wage analysis:**

211111	Crude Petroleum and Natural Gas Extraction
211112	Natural Gas Liquid Extraction
213111	Drilling Oil and Gas Wells
213112	Support Activities for Oil and Gas Operations
237120	Oil and Gas Pipeline and Related Structures Construction
486210	Pipeline Transportation of Natural Gas

Table 1

Select Oil and Gas Data for Workforce Investment Areas from Quarterly Census of Employment and Wages

Core Industries		2008				2009				2010				2011				2012			
NAICS	Title	Est.	Emp.	Total Wages	Avg. Wage	Est.	Emp.	Total Wages	Avg. Wage	Est.	Emp.	Total Wages	Avg. Wage	Est.	Emp.	Total Wages	Avg. Wage	Est.	Emp.	Total Wages	Avg. Wage
STATEWIDE																					
213112	Support Activities for Oil & Gas Operations	205	2,782	$129,683,237	$46,615	214	2,608	$126,898,032	$48,657	252	2,855	$156,131,917	$54,687	292	3793	$227,462,040	$59,969	265	4074	$259,133,017	$63,607
237120	Oil & Gas Pipeline & Related Structures	67	1,276	$76,979,554	$60,329	69	1,026	$55,731,065	$54,319	75	1,253	$81,445,426	$65,000	88	1920	$137,708,242	$71,723	100	3941	$320,204,425	$81,250
Totals		**682**	**9,664**	**$598,180,284**	**$61,898**	**678**	**8,933**	**$564,466,349**	**$63,189**	**737**	**9,110**	**$587,576,156**	**$64,498**	**825**	**10,580**	**$741,466,533**	**$70,082**	**771**	**12,703**	**$960,086,592**	**$75,580**
Workforce Investment Area 1																					
Totals		**33**	**787**	**$55,514,358**	**$70,539**	**33**	**648**	**$42,777,745**	**$66,015**	**32**	**460**	**$32,320,284**	**$70,261**	**40**	**474**	**$32,685,002**	**$68,956**	**36**	**400**	**$28,267,414**	**$70,669**
Workforce Investment Area 2																					
213111	Drilling Oil & Gas Wells	5	14	$406,205	$29,015	4	51	$4,216,498	$82,676	4	170	$14,337,507	$84,338	4	178	$19,159,660	$107,639	2	114	$14,261,279	$125,099
Totals		**55**	**747**	**$44,706,361**	**$59,848**	**59**	**623**	**$35,949,476**	**$57,704**	**59**	**721**	**$47,019,232**	**$65,214**	**57**	**782**	**$56,165,768**	**$71,823**	**53**	**1,006**	**$80,510,863**	**$80,031**
Workforce Investment Area 3																					
237120	Oil & Gas Pipeline & Related Structures	7	180	$14,564,556	$80,914	9	100	$6,157,596	$61,576	12	251	$22,473,029	$89,534	12	483	$39,655,186	$82,102	13	356	$29,681,724	$83,376
Totals		**89**	**2,064**	**$165,196,111**	**$80,037**	**89**	**1,616**	**$141,166,308**	**$87,355**	**98**	**1,448**	**$123,829,115**	**$85,517**	**94**	**1,667**	**$148,852,897**	**$89,294**	**88**	**1,470**	**$139,545,419**	**$94,929**
Workforce Investment Area 4																					
237120	Oil & Gas Pipeline & Related Structures	15	384	$19,965,312	$51,993	13	243	$12,430,150	$51,153	15	193	$11,716,474	$60,707	16	393	$23,780,774	$60,511	15	411	$27,386,624	$66,634
Totals		**186**	**1,959**	**$81,411,562**	**$41,558**	**180**	**1,634**	**$67,589,948**	**$41,365**	**186**	**1,488**	**$65,894,349**	**$44,284**	**187**	**1,550**	**$73,857,121**	**$47,650**	**179**	**1,626**	**$84,246,492**	**$51,812**
Workforce Investment Area 5																					
213112	Support Activities for Oil & Gas Operations	1	2	$43,723	$21,862	2	2	$95,205	$47,603	5	27	$1,200,773	$44,473	7	68	$4,103,791	$60,350	10	108	$6,781,317	$62,790
Totals		**22**	**154**	**$8,732,990**	**$56,708**	**19**	**148**	**$9,033,726**	**$61,039**	**25**	**173**	**$11,606,242**	**$67,088**	**33**	**232**	**$15,841,970**	**$68,284**	**34**	**362**	**$25,522,285**	**$70,504**
Workforce Investment Area 6																					
213112	Support Activities for Oil & Gas Operations	77	979	$44,023,583	$44,968	78	1,060	$49,536,199	$46,732	95	1,490	$83,525,835	$56,058	108	2085	$133,208,320	$63,889	102	2356	$158,987,066	$67,482
Totals		**216**	**3,259**	**$202,290,844**	**$62,071**	**209**	**3,335**	**$211,032,145**	**$63,278**	**227**	**3,779**	**$246,996,790**	**$65,360**	**248**	**4,275**	**$303,730,245**	**$71,048**	**242**	**4,461**	**$319,737,347**	**$71,674**
Workforce Investment Area 7																					
Totals		**6**	**40**	**$2,425,443**	**$60,636**	**6**	**29**	**$2,083,727**	**$71,853**	**6**	**27**	**$1,981,611**	**$73,393**	**6**	**27**	**$1,934,842**	**$71,661**	**5**	**29**	**$2,169,420**	**$74,808**

Source: US Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages

Table 2

Key Occupations in Marcellus Shale related core industries

SOC	SOC / Job Title	Ann Wage*	Education	Work Experience	Job Training
17-2171	Petroleum Engineers	$110,355	Bachelor's Degree		
19-2042	Geoscientists, except Hydrologists & Geographers	$60,177	Bachelor's Degree		
47-2061	Construction Laborers	$34,724	Less than High School		Short-term on-the-job training
47-2073	Operating Engineers & Other Construction Equipment	$44,856	High school diploma or equivalent		Moderate-term on-the-job training
47-2152	Plumbers, Pipefitters, & Steamfitters	$46,386	High school diploma or equivalent		Apprenticeship
47-5011	Derrick Operators, Oil & Gas	$44,844	Less than high school		Short-term on-the-job training
47-5012	Rotary Drill Operators, Oil & Gas	$53,523	Less than high school		Moderate-term on-the-job training
47-5013	Service Unit Operators, Oil, Gas, & Mining	$48,050	Less than high school		Moderate-term on-the-job training
47-5071	Roustabouts, Oil & Gas	$27,464	Less than high school		Moderate-term on-the-job training
49-9041	Industrial Machinery Mechanics	$42,267	High school diploma or equivalent		Long-term on-the-job training
51-4121	Welders, Cutters, Solderers, & Brazers	$39,350	High school diploma or equivalent	< 1 year	Moderate-term on-the-job training
51-8092	Gas Plant Operators	$63,747	High school diploma or equivalent		Long-term on-the-job training
53-3032	Truck Drivers, Heavy & Tractor-Trailer	$34,681	High school diploma or equivalent	1 - 5 years	Short-term on-the-job training
53-7071	Gas Compressor & Gas Pumping Station Operators	$53,765	Less than high school		Moderate-term on-the-job training
53-7073	Wellhead Pumpers	$36,674	Less than high school	< 1 year	Moderate-term on-the-job training

* 2013 Second Quarter

The majority of key occupations in Marcellus Shale related core industries require at least a high school diploma or equivalent and moderate –term on-the-job training.

Source: WorkForce West Virginia, Research, Information and Analysis, Occupational Employment Statistics, Occupational Employment and Wages 2013 Q3

Table 3

Employment Change

NAICS	Industry	Year	All Races			Individual Races					Ethnicity
			Total	Male	Female	White	Black	American Indian	Asian	Native Hawaiian or other	Hispanic
2111	Oil and Gas Extraction	2008 Q2	2,418	1,909	509	2,385	15	3	4	n/a	20
		2012 Q2	2,111	1,748	363	2,086	8	5	4	n/a	18
2131	Support Activities for Mining [1]	2008 Q2	5,781	5,375	406	5,673	55	17	10	3	42
		2012 Q2	7,181	6,625	556	6,938	143	26	35	3	151
2371	Utility System Construction [2]	2008 Q2	3,599	3,396	203	3,541	20	11	9	n/a	40
		2012 Q2	5,520	5,200	320	5,347	71	41	23	3	164
4862	Pipeline Transportation of Natural Gas	2008 Q2	1,498	1,206	292	1,448	31	n/a	4	n/a	9
		2012 Q2	1,108	912	196	1,080	18	n/a	4	n/a	7

Source: US Census Bureau, Local Employment Dynamics (LED) Partnership

Note: LED data are only available down to the four-digit NAICS level of detail

1) Includes support activities for all forms of mining, including oil, gas, coal, metal, and mineral.

2) Includes Water and Sewer Line Construction (23711), Oil and Gas Pipeline Construction (23712) and Power and Communication Line Construction (23713)