

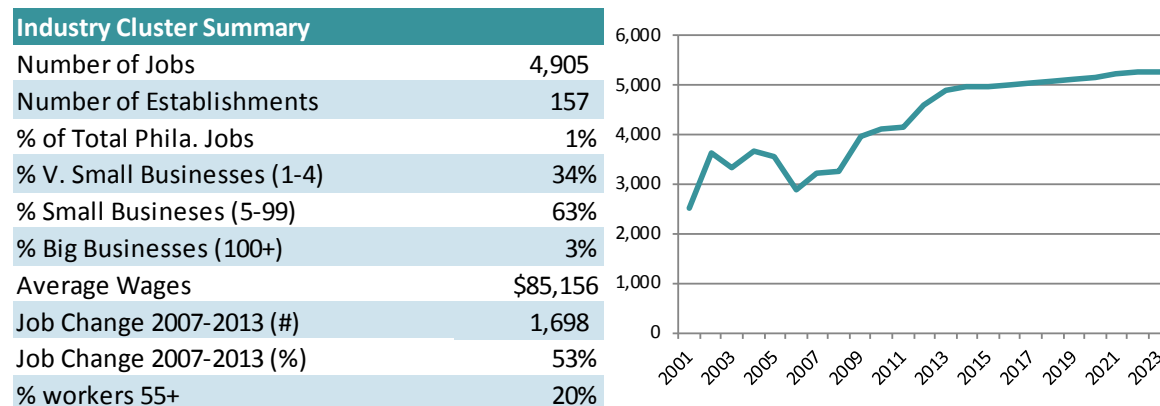
Industry Profiles – Energy

The Energy cluster includes industries associated with the production and distribution of energy, as well as waste disposal industries associated with the remediation and environmental cleanup related to energy production. In this cluster represents a wide variety of industries, from petroleum refineries to battery manufacturing to generator manufacturing¹.

This report presents an overview of employment trends. We examine how Advanced Manufacturing has changed since 2007, the year before the Great Recession had an impact. Then, we examine the composition of the industry cluster by size of businesses and highlight clusters with the largest share of smaller businesses. The section on workers demographics shows the composition of industry clusters by gender, age, and education. Finally, we look at the major occupations that support industry clusters.

- The Energy industry cluster added the most jobs– with employment in the cluster doubling since 2007.

SUMMARY OF ENERGY INDUSTRY CLUSTER IN PHILADELPHIA



Source: Philadelphia Works analysis of the QCEW Employees & Non-QCEW Employees - EMSI 2013.4 Class of Worker data

¹ Descriptions of industry clusters are borrowed directly from the State report. The full report can be found here: <http://www.portal.state.pa.us/portal/server.pt/community/products/19738>

% CHANGE IN EMPLOYMENT IN ENERGY IN PHILADELPHIA VS. PA AND U.S. AND VS. ALL INDUSTRIES



Source: Philadelphia Works analysis of the QCEW Employees & Non-QCEW Employees - EMSI 2013.4 Class of Worker data

Industry Highlights

- Employment in Energy has nearly doubled since 2007. Some increases are due to the development of new energy sectors. Employment at Petroleum Refineries shows big changes due to reclassification of business processes at Philadelphia facilities. Without including petroleum refinery industries, the Energy industry cluster in Philadelphia grew by 23 percent since 2007.

TOP INDUSTRIES IN ENERGY IN PHILADELPHIA

Industry	Jobs 2013	% Change 2007-2013	Change	Expected Change	Competitive Effect	Wages
Electric Power Distribution	1,221	▲ 225%	845	194	651	\$129,067
Petroleum Refineries	1,022	▲ 2521%	983	1	983	\$90,665
Recyclable Material Merchant	530	▼ -19%	(121)	57	(179)	\$52,116
Environment, Conservation and Wildlife Organizations	479	▲ 146%	284	52	232	\$28,839
Solid Waste Collection	474	▲ 152%	286	26	260	\$57,827
Fossil Fuel Electric Power Generation	230	▼ -69%	(513)	(200)	(312)	\$150,907
Steam and Air-Conditioning Supply	207	▲ 989%	188	1	187	\$96,567
Power and Communication Line and Related Structures Construction	178	▲ 85%	82	9	72	\$36,053

Source: Philadelphia Works analysis of the QCEW Employees & Non-QCEW Employees - EMSI 2013.4 Class of Worker data

Employers in Energy

- Over 150 employers represented the Energy industry cluster. A larger share of companies with 20-49 and 50-99 workers were found in the Energy industry cluster compared to all industries in Philadelphia.

EMPLOYERS IN ENERGY BY SIZE (PERCENT OF TOTAL EMPLOYERS)

Size	In Industry	in Phila	Industry Employers by Size
1-4	34%	60%	
5-9	22%	15%	
10-19	15%	11%	
20-49	15%	8%	
50-99	11%	3%	
100-249	1%	2%	
250-499	0.0%	0.5%	
500-999	1.3%	0.2%	
1000 & Over	0.0%	0.1%	
Total	100%	100%	

Source: PA Employer Database 2013

TOP EMPLOYERS IN ENERGY

PECO ENERGY POWER COMPANY	PECO ENERGY POWER COMPANY
PHILADELPHIA ENERGY SOLUTIONS REFIN	S P C CORP
PA SPCA	SUNOCO PARTNERS LLC
ENERGY PLUS HOLDINGS LLC	THE FUND FOR PUBLIC INTEREST INC
BLUE MOUNTAIN RECYCLING LLC	VEOLIA ENERGY NORTH AMERICA LL
CROWN BOILER COMPANY	VEOLIA ES TECHNICAL SOLUTIONS LLC
EXELON GENERATION COMPANY LLC	BFI WASTE SERVICES OF PENNSYLVANIA
FC HAAB COMPANY INC	ANIMAL CARE & CONTROL TEAM
INOLEX CHEMICAL COMPANY	MATERIALS PROCESSING CORPORATION
JOHNSON CONTROLS INC	

Source: PA Employer Database 2013

Worker Demographics

Workforce demographics are examined by gender, age, and education of workers.

Gender of Workers in Energy

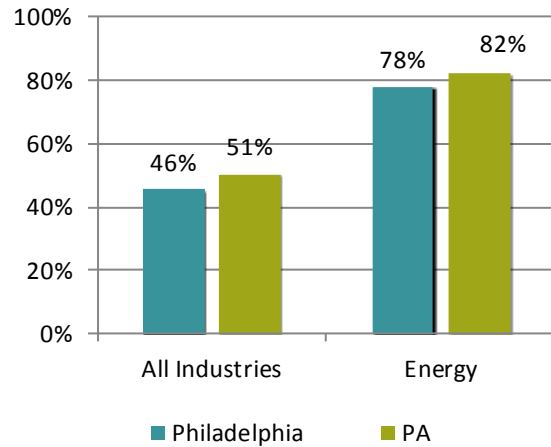
- Nearly 8 out of 10 workers in the Energy industry cluster were men.

GENDER OF WORKERS IN 2013Q1+3 PREVIOUS QUARTERS

% MEN EMPLOYED IN ENERGY IN PHILA.

	% men
Support Act. for Mining	98%
Waste Collection	85%
Petroleum & Coal Prod. Mfg	79%
Energy	78%
Misc Durable Goods Merch. Whls.	70%
Direct Selling Estab.	63%
All Industries	46%

% MEN EMPLOYED BY CLUSTER AND GEOGRAPHY



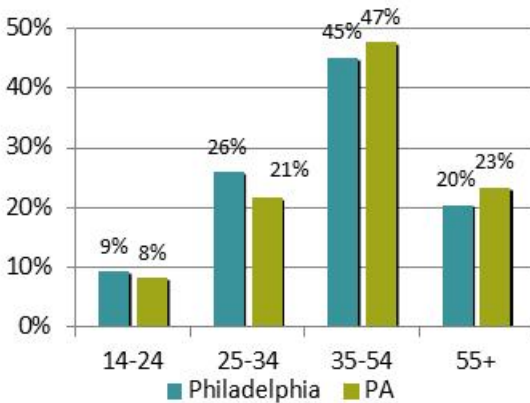
Source: Philadelphia Works Analysis of Quarterly Workforce Indicators data.

Age of Workers in Energy

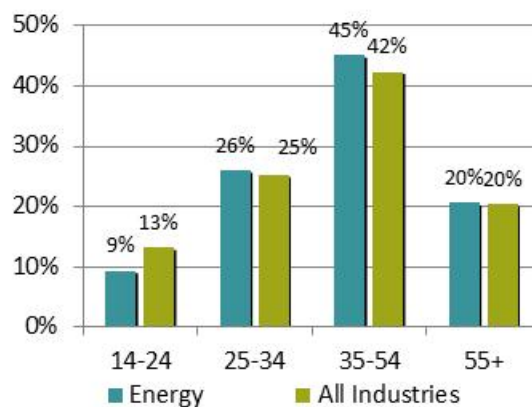
- The majority of workers in Energy are middle aged – ages from 35 to 54. Age of Philadelphia workers in the Energy industry cluster is similar to all other industries in Philadelphia.

AGE OF WORKERS IN 2013Q1+3 PREVIOUS QUARTERS:

EMPLOYED IN ENERGY IN PHILADELPHIA VS. PA



EMPLOYED IN ENERGY VS. ALL INDUSTRIES IN PHILADELPHIA



Source: Philadelphia Works Analysis of Quarterly Workforce Indicators data.

TOP INDUSTRIES IN ENERGY IN PHILADELPHIA BY AGE OF WORKERS IN 2013Q1+3 PREVIOUS QUARTERS

Industry/Age	14-24	25-54	55+	Total	# Employed
Power Generation & Supply	9.6%	72.0%	18.4%	100%	1,454
Petroleum & Coal Prod. Mfg	6.3%	62.3%	31.4%	100%	1,094
Misc Durable Goods Merch. Whls.	11.1%	66.4%	22.5%	100%	975
Support Act. for Mining	13.7%	82.6%	3.6%	100%	820
Waste Collection	6.1%	76.1%	17.8%	100%	489
Direct Selling Estab.	5.1%	65.6%	29.3%	100%	301
Energy	9%	71%	20%	100%	5,238
All Industries	13%	67%	20%	100%	558,394

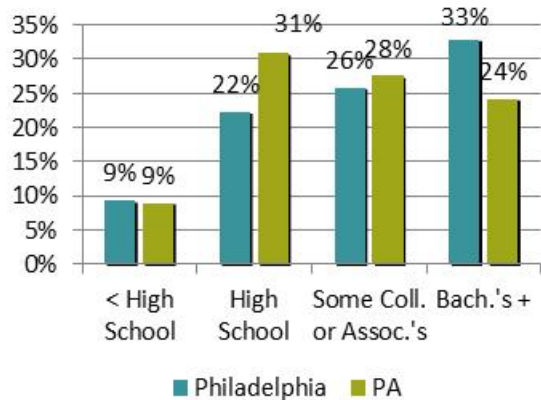
Source: Philadelphia Works Analysis of Quarterly Workforce Indicators data.

Education of Workers in Energy

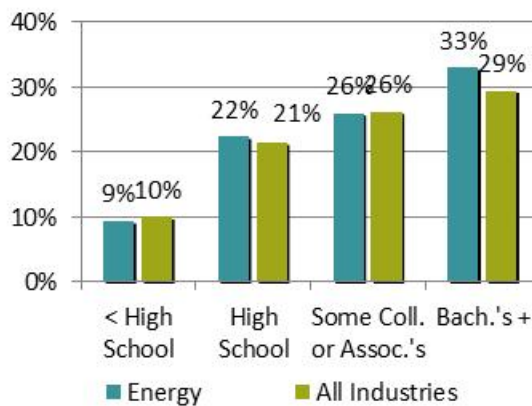
- The majority of workers in the Energy industry cluster have a Bachelor’s degree or higher education. Philadelphia workers in the cluster are more educated compared to Pennsylvania and all other industry clusters in Philadelphia.

EDUCATION OF WORKERS IN 2013Q1+3 PREVIOUS QUARTERS:

EMPLOYED IN ENERGY IN PHILADELPHIA VS. PA



EMPLOYED IN ENERGY VS. ALL INDUSTRIES IN PHILADELPHIA



Source: Philadelphia Works Analysis of Quarterly Workforce Indicators data. Energy attainment is not available for workers under 25 – this category is not shown.

TOP INDUSTRIES IN ENERGY IN PHILADELPHIA BY EDUCATION OF WORKERS IN 2013Q1+3 PREVIOUS QUARTERS

Industry/Education	< High School	High School	Some College or Assoc.'s	Bach.'s +	Unknown	Total	# Employed
Power Generation & Supply	4.7%	14.1%	23.3%	48.2%	9.7%	100%	1,454
Petroleum & Coal Prod. Mfg	4.4%	18.1%	26.0%	45.2%	6.4%	100%	1,094
Misc Durable Goods Merch. Whls.	13.7%	24.8%	27.1%	23.2%	11.3%	100%	975
Support Act. for Mining	15.2%	32.1%	26.9%	12.0%	13.9%	100%	820
Waste Collection	16.8%	30.5%	27.0%	19.0%	6.7%	100%	489
Direct Selling Estab.	10.4%	30.1%	29.8%	23.5%	6.2%	100%	301
Energy	9.4%	22.4%	26.0%	33.0%	9.3%	100%	5,238
All Industries	10.0%	21.4%	26.2%	29.5%	12.9%	100%	558,394

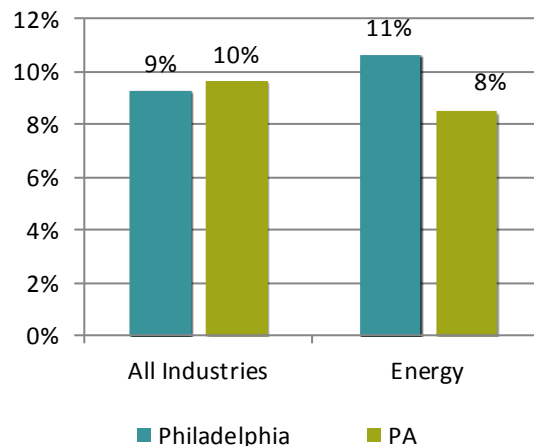
Source: Philadelphia Works Analysis of Quarterly Workforce Indicators data.

Turnover in Energy

- Turnover rates help us evaluate the churning in the labor force – average number of separations and hires for the industry group. The rate shows what percentage of the labor force is new.
- Turnover rates in Energy in Philadelphia (11 percent) were similar to turnover in Pennsylvania and below the turnover across all industries.

TURNOVER RATES IN ENERGY IN PHILADELPHIA IN 2012Q3 (FOUR QUARTER MOVING AVERAGE)

Industry/Turnover Rate	Turnover
Petroleum & Coal Prod. Mfg	19%
Support Act. for Mining	17%
Energy	11%
Misc Durable Goods Merch. Whls.	10%
All Industries	9%
Waste Collection	8%
Direct Selling Estab.	6%
Power Generation & Supply	5%

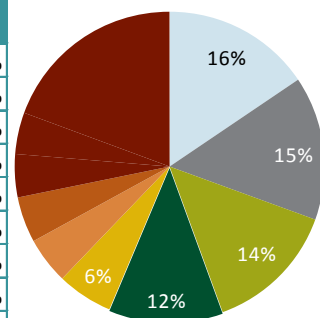


Source: Philadelphia Works Analysis of Quarterly Workforce Indicators data.

Occupation Highlights

TOP OCCUPATIONAL FAMILIES IN ENERGY INDUSTRY CLUSTER

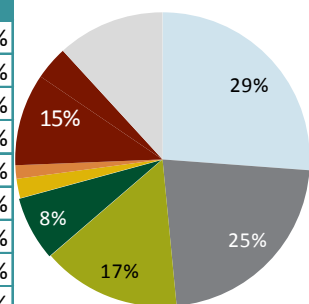
Occupational Family	Jobs 2007	Jobs 2013	Change %	% of 2013 Jobs
Production	382	762	99%	16%
Office and admin. support	530	737	39%	15%
Transportation	465	681	46%	14%
Installation, maint., and repair	370	584	58%	12%
Business and financial operations	127	285	124%	6%
Sales and related	238	238	0%	5%
Architecture and Engineering	133	234	76%	5%
Construction	86	221	157%	5%
Management	106	213	101%	4%
Unidentified + Other	770	950	23%	19%
Total	3,207	4,905	53%	516%



Source: Philadelphia Works analysis of the QCEW Employees & Non-QCEW Employees - EMSI 2013.4 Class of Worker data

EDUCAITON REQUIRED OF WORKERS IN ENERGY INDUSTRY CLUSTER

Skill	Jobs 2007	Jobs 2013	Change %	% of 2013 Jobs
Short-term on-the-job training	957	1,430	49%	29%
Moderate-term on-the-job training	454	660	45%	25%
Long-term on-the-job training	424	831	96%	17%
Work experience in a related occupation	202	387	92%	8%
Postsecondary non-degree award	93	116	25%	2%
Associate's degree	45	81	80%	2%
Bachelor's degree	241	554	130%	11%
Bachelor's or higher degree, plus work experience	124	201	62%	4%
Unidentified	667	645	n/a	13%
Total	3,207	4,905	53%	100%



Source: Philadelphia Works analysis of the QCEW Employees & Non-QCEW Employees - EMSI 2013.4 Class of Worker data

Top occupations in the cluster are shown in the tables below. Highlighted occupations are Philadelphia 2013 High Priority Occupations important to the Energy industry cluster. Wage data are not industry specific and describe all workers in the occupation.

TOP OCCUPATIONS IN ENERGY

SOC	Occupation	Jobs 2013	% Change from 2007	Entry-Level Earnings	Median Hourly Earnings	% of the Total Jobs in Cluster
Limited Skills Required						
53-7081	Refuse and Recyclable Material Collectors	213	134%	\$8.76	\$17.50	4.3%
53-3032	Heavy and Tractor-Trailer Truck Drivers	175	48%	\$13.74	\$19.39	3.6%
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	162	10%	\$8.31	\$12.60	3.3%
43-4051	Customer Service Representatives	159	24%	\$11.28	\$17.30	3.2%
43-9061	Office Clerks, General	131	52%	\$8.72	\$14.76	2.7%
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	93	48%	\$10.32	\$16.61	1.9%
47-2061	Construction Laborers	55	139%	\$10.74	\$18.61	1.1%
21-1093	Social and Human Service Assistants	41	141%	\$9.45	\$12.98	0.8%
43-5041	Meter Readers, Utilities	34	62%	\$10.88	\$19.34	0.7%
53-7051	Industrial Truck and Tractor Operators	34	48%	\$10.79	\$15.81	0.7%
43-5071	Shipping, Receiving, and Traffic Clerks	33	0%	\$9.34	\$14.52	0.7%
43-5081	Stock Clerks and Order Fillers	33	3%	\$7.70	\$10.10	0.7%
53-3031	Driver/Sales Workers	30	(12%)	\$7.30	\$8.79	0.6%
Some Training or Experience						
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	151	(4%)	\$14.20	\$25.51	3.1%
49-9051	Electrical Power-Line Installers and Repairers	149	43%	\$21.15	\$31.30	3.0%
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	137	389%	\$17.00	\$22.07	2.8%
51-1011	First-Line Supervisors of Production and Operating Workers	116	100%	\$16.83	\$28.11	2.4%
49-9041	Industrial Machinery Mechanics	101	124%	\$14.77	\$20.74	2.1%
51-8013	Power Plant Operators	93	35%	\$21.43	\$28.30	1.9%
49-9071	Maintenance and Repair Workers, General	72	50%	\$11.66	\$17.56	1.5%
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	67	49%	\$22.24	\$33.40	1.4%
43-3031	Bookkeeping, Accounting, and Auditing Clerks	66	43%	\$12.41	\$19.49	1.3%
43-1011	First-Line Supervisors of Office and Administrative Support Workers	56	47%	\$16.73	\$27.43	1.1%
51-2092	Team Assemblers	44	13%	\$8.82	\$13.13	0.9%
47-2073	Operating Engineers and Other Construction Equipment Operators	43	87%	\$17.70	\$26.81	0.9%
47-2111	Electricians	41	58%	\$16.82	\$26.39	0.8%
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	37	61%	\$19.47	\$29.89	0.8%
51-8011	Nuclear Power Reactor Operators	37	32%	\$23.19	\$34.54	0.8%
51-9011	Chemical Equipment Operators and Tenders	36	(8%)	\$11.42	\$18.66	0.7%
51-8012	Power Distributors and Dispatchers	34	36%	\$22.10	\$35.27	0.7%
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	34	26%	\$11.97	\$18.38	0.7%
43-6011	Executive Secretaries and Executive Administrative Assistants	33	57%	\$18.41	\$25.27	0.7%
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	33	136%	\$25.98	\$38.37	0.7%

TOP OCCUPATIONS IN ENERGY, CONTINUED

SOC	Occupation	Jobs 2013	% Change from 2007	Entry-Level Earnings	Median Hourly Earnings	% of the Total Jobs in Cluster
Some College or Associate's						
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	47	42%	\$24.67	\$33.10	1.0%
17-3023	Electrical and Electronics Engineering Technicians	28	22%	\$15.03	\$24.09	0.6%
19-4031	Chemical Technicians	24	118%	\$11.87	\$18.28	0.5%
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	22	69%	\$15.18	\$20.82	0.4%
Bachelor's or Higher						
11-1021	General and Operations Managers	92	39%	\$28.37	\$56.04	1.9%
17-2071	Electrical Engineers	75	25%	\$27.14	\$41.88	1.5%
13-2011	Accountants and Auditors	68	62%	\$21.15	\$34.46	1.4%
15-1121	Computer Systems Analysts	36	227%	\$25.40	\$41.04	0.7%

Source: Philadelphia Works analysis of the QCEW Employees & Non-QCEW Employees - EMSI 2013.4 Class of Worker data

Notes on Data

We followed industry cluster definitions proposed by the Center for Workforce Information & Analysis. Some industries that have a low number of jobs in Philadelphia County were excluded from the analysis and PA industry clusters were formed in the same way to make comparisons possible.

All the wage, employment, and staffing patterns data in this report come from the EMSI 2013.4 Class of Worker Data. EMSI industry data have various sources including the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns and Current Employment Statistics. Non-QCEW employee data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, BEA State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics.

Philadelphia Works worked with the Quarterly Workforce Indicators data available through the U.S. Census and defined the industry clusters at the four-digit NAICS code level. An industry group was assigned to a cluster if most of the employment fell in that cluster. Because the data are cyclical, the quarterly data were smoothed using a simple moving average. This report shows the data for the third quarter of 2012 plus three previous quarters.

The PA Employer Database available through the Center for Workforce Information & Analysis was used to report on the employers by size.