

OHIO SHALE



QUARTERLY ECONOMIC TRENDS FOR
OHIO OIL AND GAS INDUSTRIES

October 2014

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A Message from Director Dungey

Oil and gas drilling has only recently begun to accelerate in Ohio, and already many families and communities have begun to see a positive impact. As you'll see in the pages that follow, core shale-related employment, which includes such things as pipeline construction and well drilling, increased more than 88 percent from the first quarter of 2011 to the first quarter of 2014. Ancillary employment – for example, freight trucking and environmental consulting – also increased. We expect non-shale industries, such as food and retail businesses near drilling sites and the surrounding communities, to benefit from increasing shale activity, as well.

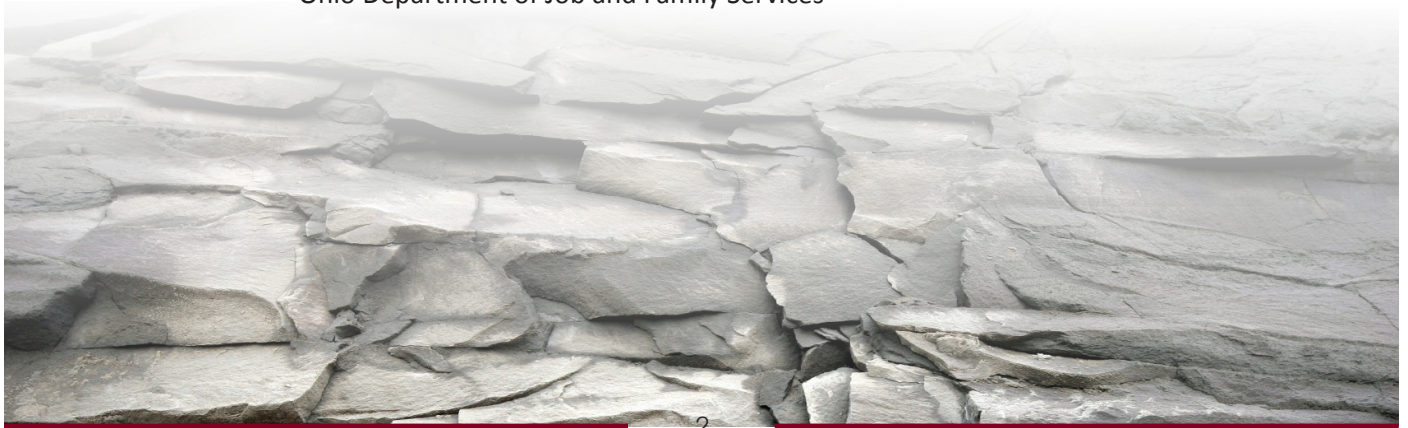
Ohio is fortunate to have this natural resource that can provide good jobs for families and reinvigorate many of our communities, especially those in the eastern part of the state. The average wages of shale-related jobs are excellent: \$70,761 in core industries and \$60,858 in ancillary industries. In both cases, this is higher than the average wage in all Ohio industries: \$44,994.

At the Ohio Department of Job and Family Services (ODJFS), we have been working hard to help more Ohioans take advantage of these opportunities. We've been working closely with local workforce investment areas, community colleges, other post-secondary educational institutions and employers to identify the occupations most in need of workers and to make sure that appropriate training programs are in place. In any given month, thousands of shale-related job openings are posted online, at www.ohiomeansjobs.com. The Ohio Board of Regents also provides an overview of shale-related employment opportunities and information about education and training at www.ohioenergypathways.org.

Individuals can sign up for on-the-job training opportunities at any of the state's local OhioMeansJobs Centers, which provide free job training and other services to Ohioans looking for work and employers looking for workers. Individuals can post their resumes, and employers can post job openings at www.ohiomeansjobs.com. We encourage any Ohioans in need of work or who may be considering new careers to explore these opportunities. We're committed to improving the well-being of Ohio's workforce and families, and are excited about the potential shale holds to make a significant difference in so many families' lives.

A handwritten signature in black ink that reads "Cynthia C. Dungey".

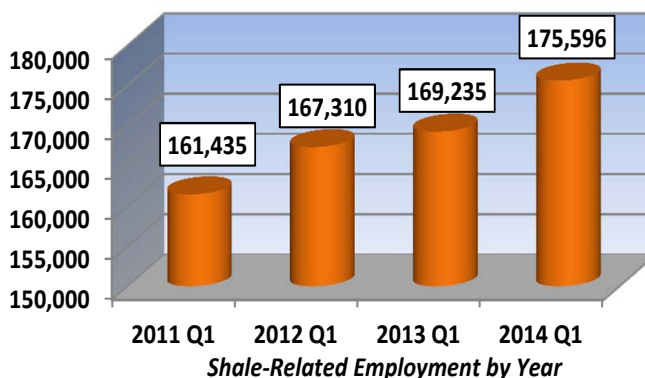
Cynthia C. Dungey, Director
Ohio Department of Job and Family Services



EXECUTIVE SUMMARY

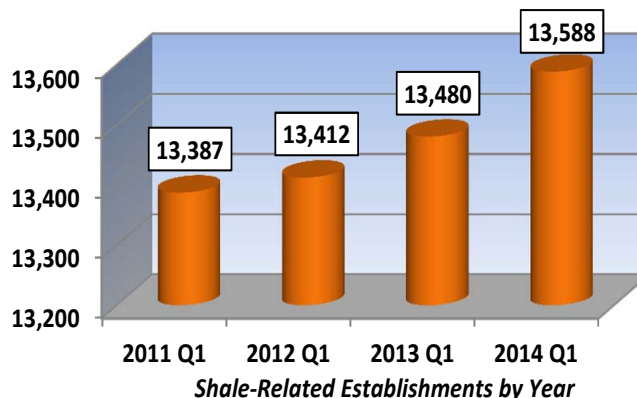
Employment (2011 Q1 to 2014 Q1)

- Core shale-related industry employment (such as pipeline construction and well drilling) was up 5,510 (88 percent).
- Ancillary shale-related industry employment (such as freight trucking and environmental consulting) increased 8,651 (5.6 percent).
- All industry employment was up 201,937 (4.2 percent).



Business Establishments (2011 Q1 to 2014 Q1)

- There were 191 core shale-related business establishments added (32.6 percent).
- Ancillary shale-related industries increased by 10 establishments (0.1 percent).
- Over the same time period, Ohio experienced an increase of 0.4 percent in business establishments in all industries.
- Shale-related business establishments totaled 13,588 during the first quarter of 2014.



Wages (2013 Q2 through 2014 Q1)

- The average wage across all industries was \$44,994.
- The average wage in core shale-related industries was \$70,761, which was \$25,767 greater than the average for all industries.
- The average wage in ancillary shale-related industries was \$60,858, which was \$15,864 greater than the average for all industries.

Stable Employment, All Hires and Separations (2011 Q3 to 2013 Q3)

- Stable jobs, those present at the beginning and end of a quarter, increased in three core shale-related industries: support activities for mining, utility system construction, and pipeline transportation of natural gas.

Online Job Postings (2014 Q3)

- There were 3,102 online job postings statewide in core and ancillary shale-related industries.

These data are meant to provide a barometer of shale-related economic activity and employment trends. While the vast majority of shale-related employment can be found in certain industries, not all business establishments in those industries are involved in shale activity. For those that are, not all of their products and services and, therefore, their employment, are necessarily linked to shale-related economic activity.

BACKGROUND INFORMATION

Data Sources

The purpose of this quarterly publication is to provide the most current available data on shale-related economic activity in Ohio as compared to the base year of 2011. Although several data sources are cited in this publication, the primary source is the Quarterly Census of Employment and Wages (QCEW).

The QCEW program derives its data from quarterly tax reports of employers subject to state and federal unemployment insurance laws. This includes 95 percent or more of all wage and salary employment in Ohio. Under the QCEW program, employment data represent the number of covered workers who worked during, or received pay for, the pay period including the 12th of the month. Excluded are members of the armed forces, the self-employed, unpaid family workers and railroad workers covered by the railroad unemployment insurance system. Data is published approximately six months after the quarter ends.

Also included in this publication are several additional data sources that capture Ohio's most current overall economic situation (Local Area Unemployment Statistics and Current Employment Statistics), employer demand (The Conference Board Help Wanted OnLine™ Data Set) and hiring activity (Quarterly Workforce Indicators). For an explanation of all data sources, please refer to the "Definitions" section on page 18.

In this edition, most current data from the QCEW program are for the first quarter of 2014. Because the data are not seasonally adjusted, the same quarter of a given year must be used when analyzing growth over time. This will ensure that seasonal factors are not influencing employment change. Therefore, first quarter 2014 QCEW data are compared to first quarter 2011 QCEW data.

Data Limitations

The North American Industry Classification System (NAICS) was used to define shale-related industries. Much of the information included in this publication reflects data on a group of six industries identified as "core" and a group of 30 industries identified as "ancillary." These data are meant to provide a barometer of shale-related economic activity and employment trends. While the vast majority of shale-related employment can be found in these industries, not all business establishments in these industries are involved in shale activity. For those that are, not all of their products and services and, therefore, their employment are necessarily linked to shale-related economic activity. This is particularly true for the ancillary industries.

The data in this publication include government employment (federal, state and local) in all shale-related industries because significant non-private employment is present in a number of these industries, most notably: highway, street and bridge construction; engineering services; water supply and irrigation systems; and sewage treatment facilities.

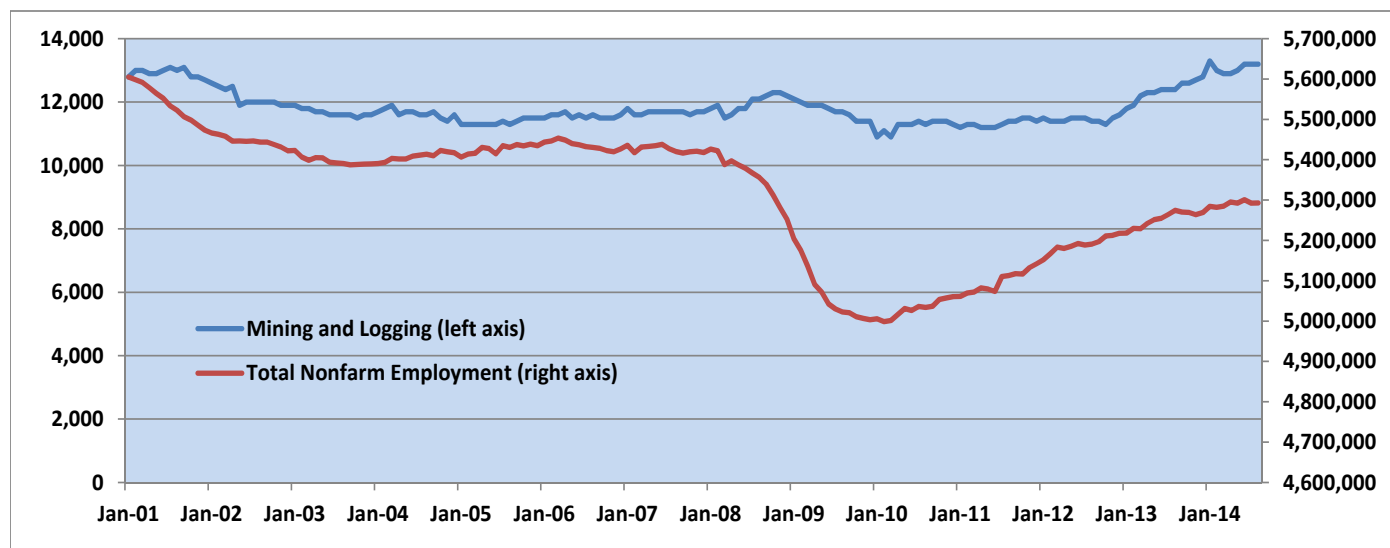
As shale-related activity develops further in Ohio, additional industries may be added to the ancillary group, based on such factors as significant employment gains in an industry in a geographic region or the identification of a group of companies in the same industry involved in shale-related activity.

Snapshot of Ohio's Economy

- **Ohio's seasonally adjusted unemployment rate for September 2014 was 5.6 percent.**
 - The rate was 1.8 percentage points lower than the September 2013 rate.
- **Ohio had 5,303,400 seasonally adjusted nonfarm jobs in September 2014.**
 - Compared to September 2013, employment increased by 32,700 jobs.
- **Ohio's hiring activity increased from the third quarter of 2011 to the third quarter of 2013.**
 - Across all industries, an estimated 823,917 workers started new jobs (new hires and rehires) during the third quarter of 2013, an increase of 13,841 hires over the third quarter of 2011.
- **Employer demand decreased in Ohio.**
 - 286,415 job ads were posted online in third quarter 2014, a decrease of 33,405 from third quarter 2013.
- **Ohio's supply/demand rate, which is the ratio of the number of unemployed people to advertised job vacancies, is lower than the U.S. rate (The Conference Board).**
 - The seasonally adjusted supply/demand rate for Ohio was 1.78 in September, which was below the U.S. rate of 1.84. A lower rate is better.

Mining and Logging Jobs vs. Total Jobs in Ohio

Total Mining and Logging Employment since January 2001 (Seasonally Adjusted)



Source: Current Employment Statistics. Estimates may be revised.

- **In September 2014, 13,300 workers were employed in the mining and logging industries.**
 - From September 2013 to September 2014, employment in the mining and logging industries increased by a total of 700 jobs.

STATEWIDE SHALE-RELATED INDUSTRIES

Number of Business Establishments and Employment in Shale-Related Industries (2011 Q1-2014 Q1)*

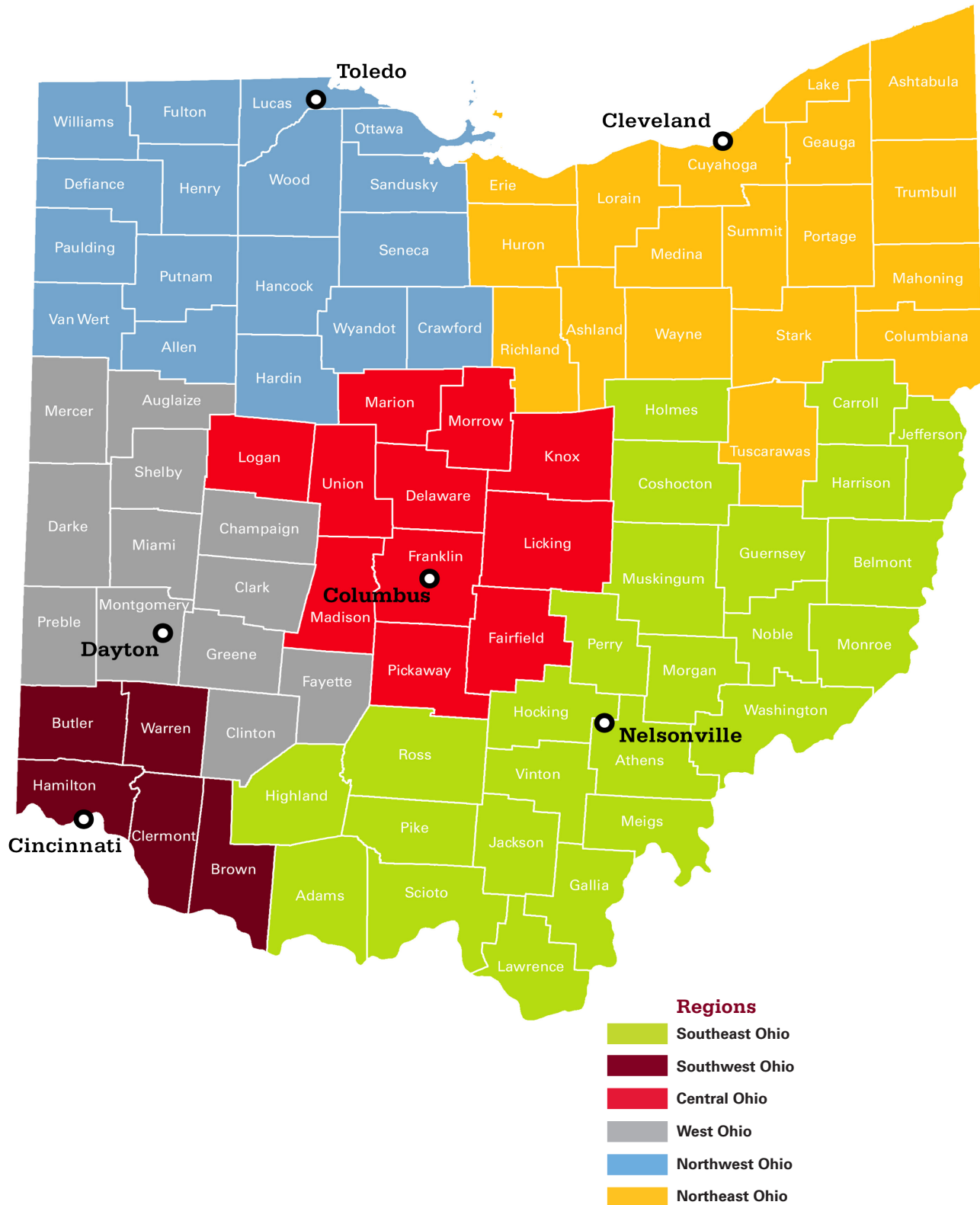
| Core Industries | | 2011 Q1 | | 2014 Q1 | | Change | |
|---|---|---------|---------|---------|---------|--------|--------|
| NAICS | Title | Estab. | Empl. | Estab. | Empl. | Estab. | Empl. |
| 211111 | Crude petroleum and natural gas extraction | 193 | 2,749 | 204 | 1,680 | 11 | -1,069 |
| 211112 | Natural gas liquid extraction | 4 | 26 | 17 | 367 | 13 | 341 |
| 213111 | Drilling oil and gas wells | 78 | 516 | 101 | 1,464 | 23 | 948 |
| 213112 | Support activities for oil and gas operations | 179 | 1,165 | 266 | 3,193 | 87 | 2,028 |
| 237120 | Oil and gas pipeline construction | 94 | 1,498 | 147 | 4,746 | 53 | 3,248 |
| 486210 | Pipeline transportation of natural gas | 37 | 309 | 41 | 323 | 4 | 14 |
| Core Industry Totals | | 585 | 6,263 | 776 | 11,773 | 191 | 5,510 |
| Ancillary Industries | | 2011 Q1 | | 2014 Q1 | | Change | |
| NAICS | Title | Estab. | Empl. | Estab. | Empl. | Estab. | Empl. |
| 221112 | Fossil fuel electric power generation | 83 | 5,326 | 71 | 4,040 | -12 | -1,286 |
| 221210 | Natural gas distribution | 141 | 3,697 | 143 | 3,955 | 2 | 258 |
| 221310 | Water supply and irrigation systems | 247 | 6,007 | 260 | 5,957 | 13 | -50 |
| 221320 | Sewage treatment facilities | 212 | 3,820 | 208 | 3,776 | -4 | -44 |
| 237110 | Water and sewer system construction | 394 | 4,167 | 371 | 4,439 | -23 | 272 |
| 237310 | Highway, street, and bridge construction | 721 | 10,906 | 717 | 11,773 | -4 | 867 |
| 238912 | Nonresidential site preparation contractors | 629 | 4,318 | 598 | 4,928 | -31 | 610 |
| 325110 | Petrochemical manufacturing | 5 | 358 | 5 | 332 | 0 | -26 |
| 325120 | Industrial gas manufacturing | 45 | 737 | 43 | 755 | -2 | 18 |
| 331110 | Iron and steel mills and ferroalloy manufacturing | 58 | 9,797 | 56 | 8,935 | -2 | -862 |
| 331210 | Iron, steel pipe and tube from purchase steel | 52 | 3,051 | 36 | 2,883 | -16 | -168 |
| 333131 | Mining machinery and equipment manufacturing | 12 | 451 | 13 | 448 | 1 | -3 |
| 333132 | Oil and gas field machinery and equipment | 6 | 141 | 12 | 407 | 6 | 266 |
| 423810 | Construction equipment merchant wholesalers | 195 | 2,419 | 192 | 3,292 | -3 | 873 |
| 423830 | Industrial machinery merchant wholesalers | 1,695 | 15,107 | 1,620 | 16,675 | -75 | 1,568 |
| 423840 | Industrial supplies merchant wholesalers | 503 | 4,678 | 485 | 5,438 | -18 | 760 |
| 484110 | General freight trucking, local | 1,346 | 11,667 | 1,346 | 11,696 | 0 | 29 |
| 484220 | Other specialized trucking, local | 1,004 | 6,057 | 1,039 | 7,148 | 35 | 1,091 |
| 484230 | Other specialized trucking, long-distance | 283 | 4,412 | 321 | 5,621 | 38 | 1,209 |
| 531190 | Lessors of other real estate property | 301 | 858 | 274 | 800 | -27 | -58 |
| 532412 | Other heavy machinery rental and leasing | 165 | 1,231 | 194 | 2,043 | 29 | 812 |
| 541330 | Engineering services | 2,247 | 26,920 | 2,363 | 28,308 | 116 | 1,388 |
| 541360 | Geophysical surveying and mapping services | 53 | 246 | 55 | 281 | 2 | 35 |
| 541380 | Testing laboratories | 359 | 6,379 | 374 | 6,015 | 15 | -364 |
| 541620 | Environmental consulting services | 291 | 1,528 | 314 | 1,749 | 23 | 221 |
| 562910 | Remediation services | 170 | 2,222 | 189 | 3,453 | 19 | 1,231 |
| 811310 | Commercial machinery repair and maintenance | 1,111 | 7,014 | 1,059 | 7,614 | -52 | 600 |
| 924110 | Air, water, and waste program administration | 164 | 6,089 | 154 | 5,945 | -10 | -144 |
| 924120 | Administration of conservation programs | 281 | 5,081 | 270 | 4,683 | -11 | -398 |
| 926130 | Utility regulation and administration | 29 | 488 | 30 | 434 | 1 | -54 |
| Ancillary Industry Totals | | 12,802 | 155,172 | 12,812 | 163,823 | 10 | 8,651 |
| Core Industries and Ancillary Industries Totals | | 13,387 | 161,435 | 13,588 | 175,596 | 201 | 14,161 |

Source: Quarterly Census of Employment and Wages.

*Large increases and decreases in employment may be the result of a change in industry classification following a routine NAICS assignment review.

- From 2011 Q1 to 2014 Q1, employment in core industries increased by 5,510 (88 percent). Over the same period, employment in ancillary industries increased by 8,651 (5.6 percent).
- From 2011 Q1 to 2014 Q1, the number of business establishments in the core industries grew by 191 (32.6 percent), while establishments in ancillary industries increased by 10 (0.1 percent).

JOB SOHIO NETWORK REGIONS

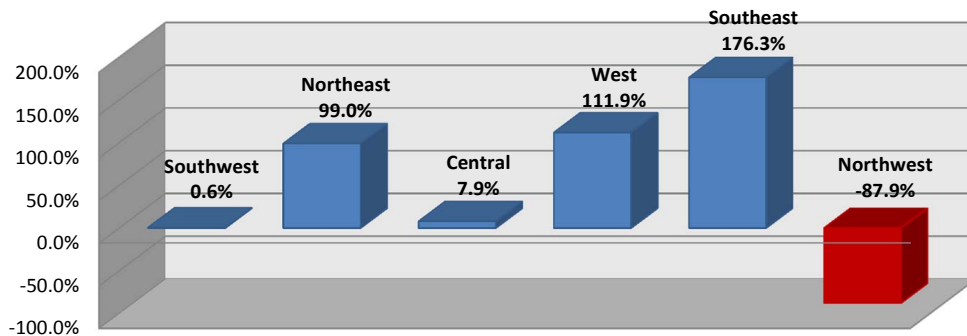


REGIONAL SHALE-RELATED INDUSTRIES

The JobsOhio Network is a partnership of statewide economic development organizations with deep ties to their business communities. The following charts show trends in shale-related employment for each of the six JobsOhio regions.

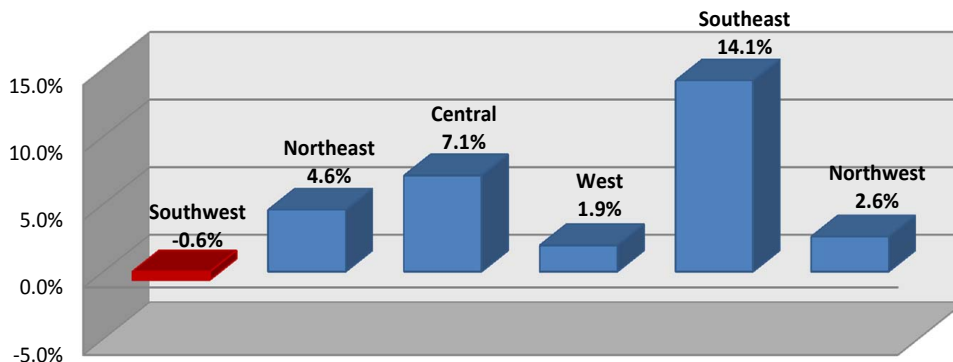
Large percentage increases and decreases in employment may be the result of a change in industry classification following a routine NAICS assignment review. Changes in NAICS assignments are typically done with the publication of the first quarter data.

Core Shale-Related Industries Percent Employment Change (2011 Q1 - 2014 Q1)



- For the core shale-related industries, the largest percent growth in employment was in the Southeast region (176.3 percent), followed by the West region (111.9 percent).

Ancillary Shale-Related Industries Percent Employment Change (2011 Q1 - 2014 Q1)

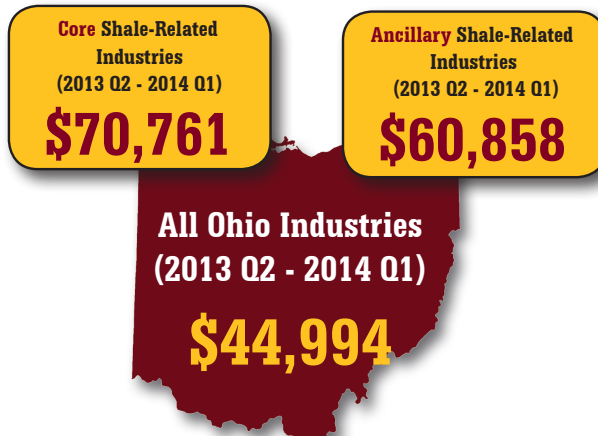


- For the ancillary shale-related industries, the largest percent growth in employment was in the Southeast region (14.1 percent), followed by the Central region (7.1 percent).

WAGES FOR OHIO SHALE-RELATED CORE AND ANCILLARY INDUSTRIES

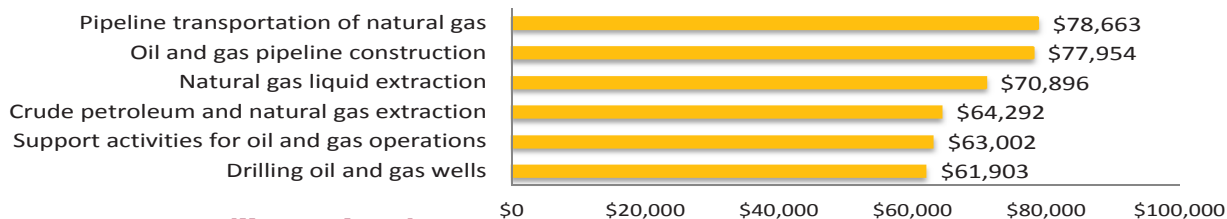
- The average wage across all industries for 2013 Q2 through 2014 Q1 was \$44,994.
- The average wage in the core industries was \$25,767 greater than the average wage for all industries.
- The average wage in the ancillary industries was \$15,864 higher than the average wage for all industries.

Large changes in average wages may be the result of a change in industry classification following a routine NAICS assignment review.

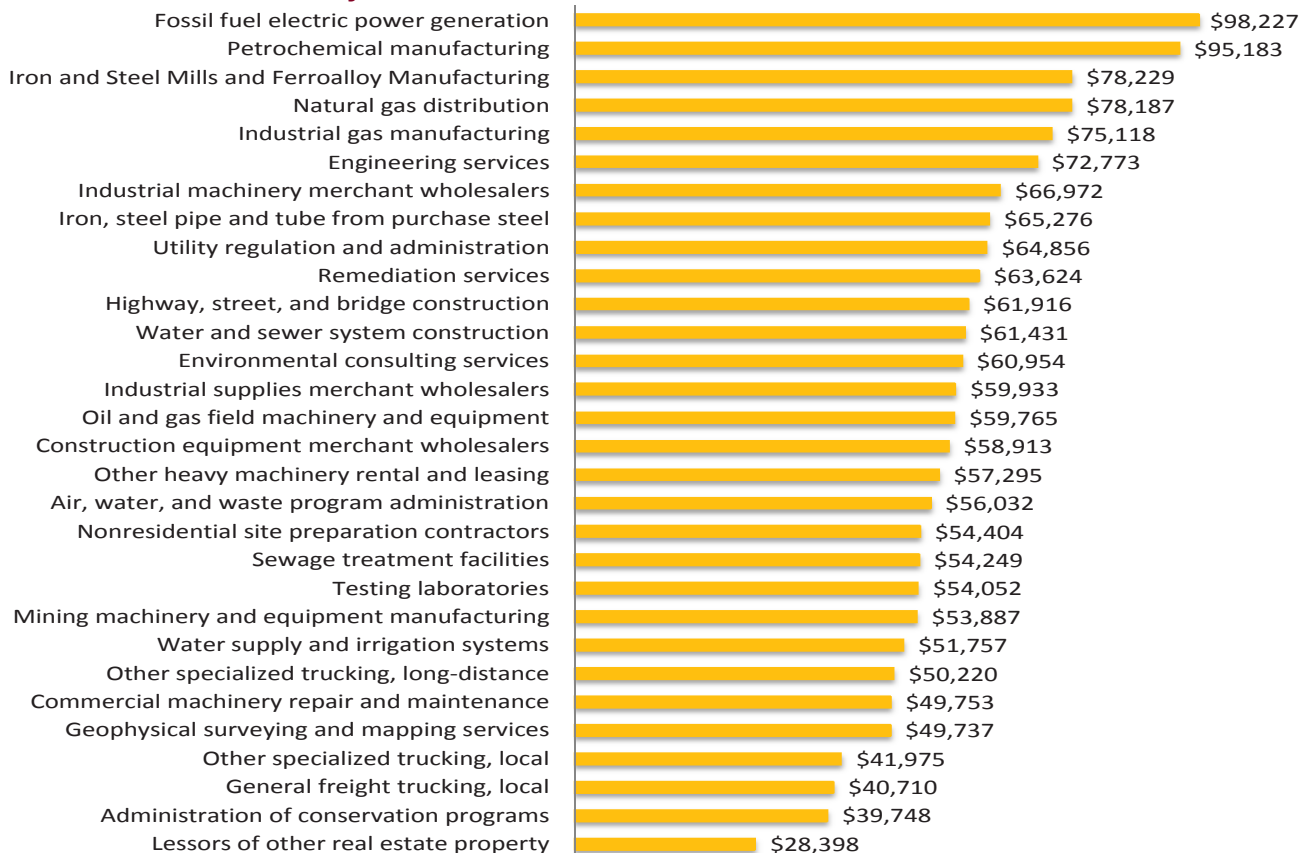


Average Wage by Industry

Core Industries



Ancillary Industries



Source: Quarterly Census of Employment and Wages.

OHIO SHALE-RELATED ONLINE JOB POSTINGS

Statewide Online Job Postings

| | 2013 Q3 | 2014 Q3 | % Change |
|------------------------------|----------------|----------------|---------------|
| Core Industries | 96 | 88 | -8.3% |
| Ancillary Industries | 2,969 | 3,012 | 1.4% |
| Total: ALL Industries | 319,820 | 286,415 | -10.4% |

Regional Online Job Postings

| Core and Ancillary Combined | 2013 Q3 | 2014 Q3 | % Change |
|-----------------------------|--------------|--------------|-------------|
| Southwest Ohio | 525 | 524 | -0.2% |
| Northeast Ohio | 997 | 1,038 | 4.1% |
| Central Ohio | 645 | 637 | -1.2% |
| West Ohio | 433 | 424 | -2.1% |
| Southeast Ohio | 196 | 176 | -10.2% |
| Northwest Ohio | 252 | 290 | 15.1% |
| Total* | 3,072 | 3,102 | 1.0% |

Source: The Conference Board Help Wanted Online® (HWOL). Data are subject to revision. Not seasonally adjusted.

Data are not comparable to previous *Ohio Shale Quarterly Economic Trends for Ohio Oil and Gas Industries* reports due to HWOL 2014 methodological revisions.

**The total includes job ads that may have listed Ohio as the only geographical area. As a result, the sum of the job ads for the regions may be lower, since it does not include these ads without a city or metropolitan statistical area specification.*

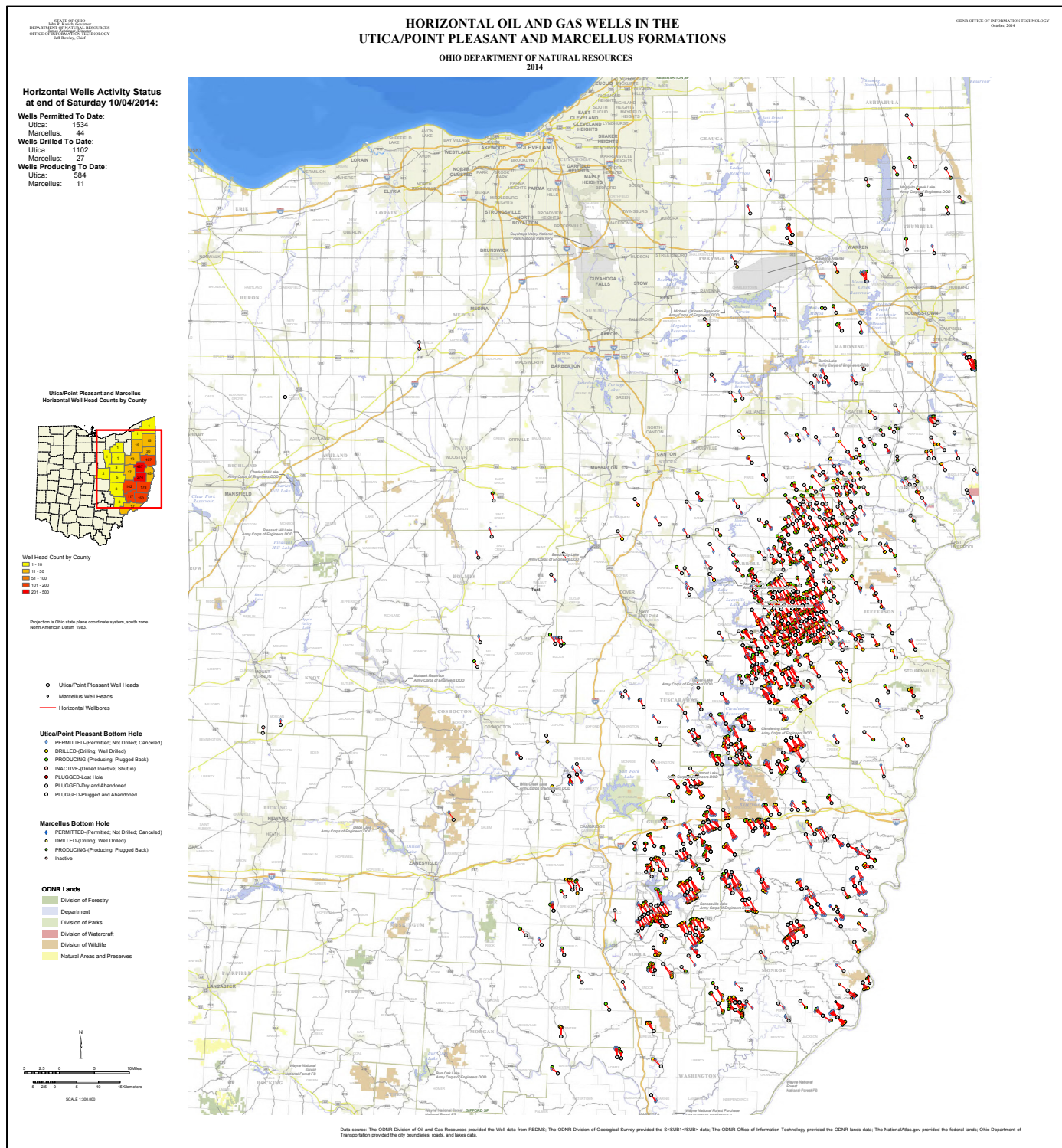
Statewide Online Job Postings

- Job postings across all Ohio industries and for core shale-related industries decreased in third quarter 2014 compared to third quarter 2013.
- Job postings increased 1.4 percent in ancillary shale-related industries in third quarter 2014 compared to third quarter 2013.
- Overall, job postings increased 1 percent for core and ancillary shale-related industries.

Regional Online Job Postings

- Job postings increased in the Northeast Ohio (4.1 percent) and Northwest Ohio (15.1 percent) regions in third quarter 2014 compared to third quarter 2013.

WELL ACTIVITY STATUS AS OF OCTOBER 4, 2014



KEY OCCUPATIONS IN CORE SHALE-RELATED INDUSTRIES

The occupations listed in the table below are found within the national staffing patterns of core shale-related industries. While these occupations are not exclusive to the core shale-related industries, all are in the top 20 of one or more of these industries.

A standard occupation classification (SOC) code is provided for each occupation. For a complete list of terms and definitions, please refer to the Staffing Patterns definition on page 19.

| SOC Code | SOC Title | Median Wage | Typical Education, Training, Experience |
|----------|--|-------------|--|
| 11-9041 | Architectural and engineering managers | \$112,470 | Bachelor's degree, 5+ years related experience |
| 13-1199 | Business operations specialists, all other | \$60,990 | HS/GED, Long-term OJT |
| 17-2171 | Petroleum engineers | \$95,730 | Bachelor's degree |
| 19-2042 | Geoscientists, except hydrologists and geographers | \$71,440 | Bachelor's degree |
| 19-4041 | Geological and petroleum technicians | \$52,070 | Associate's degree, Moderate-term OJT |
| 43-3031 | Bookkeeping, accounting, and auditing clerks | \$35,130 | HS/GED, Moderate-term OJT |
| 47-2111 | Electricians | \$49,660 | HS/GED, Apprenticeship |
| 47-2151 | Pipelayers | \$39,670 | HS/GED, Short-term OJT |
| 47-3015 | Helpers—pipelayers, plumbers, pipefitters, and steamfitters | \$23,420 | HS/GED, Short-term OJT |
| 47-5011 | Derrick operators, oil and gas | \$33,700 | Less than HS, Short-term OJT |
| 47-5012 | Rotary drill operators, oil and gas | \$30,080 | Less than HS, Moderate-term OJT |
| 47-5071 | Roustabouts, oil and gas | \$29,010 | Less than HS, Moderate-term OJT |
| 47-5081 | Helpers—extraction workers | \$28,990 | HS/GED, Short-term OJT |
| 49-1011 | First-line supervisors of mechanics, installers, and repairers | \$57,750 | HS/GED, 1-5 years related experience |
| 49-9012 | Control and valve installers and repairers, except mechanical door | \$54,910 | HS/GED, Moderate-term OJT |
| 49-9041 | Industrial machinery mechanics | \$45,580 | HS/GED, Long-term OJT |
| 51-1011 | First-line supervisors of production and operating workers | \$52,940 | Post-HS cert, 1-5 years related experience |
| 51-4121 | Welders, cutters, solderers, and brazers | \$35,330 | HS/GED, Moderate-term OJT |
| 51-8092 | Gas plant operators | \$64,280 | HS/GED, Long-term OJT |
| 51-8093 | Petroleum pump system operators, refinery operators, and gaugers | \$55,990 | HS/GED, Long-term OJT |
| 53-7062 | Laborers and freight, stock, and material movers, hand | \$22,570 | Less than HS, Short-term OJT |
| 53-7071 | Gas compressor and gas pumping station operators | \$66,730 | Less than HS, Moderate-term OJT |

Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2013.

IN-DEMAND SHALE-RELATED OCCUPATIONS

The occupations listed below are found in shale-related industries and have been identified as in-demand occupations through the Ohio Workforce Information Exchange — Job Forecast initiative as of October 2014. This initiative works directly with employers with at least one Ohio location to identify employers' most in-demand occupations over the next one, three and five years.

For more information on the Workforce Information Exchange, please refer to page 20.

| SOC Code | SOC Title | Median Wage* | Typical Education, Training and Experience* |
|----------|--|--------------|---|
| 11-3071 | Transportation, Storage and Distribution Managers | \$80,640 | HS/GED |
| 11-9021 | Construction Managers | \$78,480 | Associate's degree |
| 11-9199 | Managers, All Other | \$88,090 | HS/GED |
| 11-1021 | General and Operations Managers | \$89,740 | Associate's degree |
| 13-1081 | Logisticians | \$68,980 | Bachelor's degree |
| 13-1151 | Training and Development Specialists | \$56,050 | Bachelor's degree |
| 13-2051 | Financial Analysts | \$71,380 | Bachelor's degree |
| 15-1199 | Computer Occupations, All Other | \$80,020 | Bachelor's degree |
| 17-2041 | Chemical Engineers | \$83,430 | Bachelor's degree |
| 17-2141 | Mechanical Engineers | \$70,940 | Bachelor's degree |
| 17-3023 | Electrical and Electronic Engineering Technicians | \$56,260 | Associate's degree |
| 17-3026 | Industrial Engineering Technicians | \$46,910 | Associate's degree |
| 29-9011 | Occupational Health and Safety Specialists | \$69,870 | Bachelor's degree, Moderate-Term OJT |
| 47-1011 | First-Line Supervisors of Construction Trades and Extraction Workers | \$58,750 | HS/GED |
| 47-2061 | Construction Laborers | \$36,520 | Less than HS, Short-term OJT |
| 47-2073 | Operating Engineers and Other Construction Equipment Operators | \$44,510 | HS/GED, Moderate-Term OJT |
| 47-2152 | Plumbers, Pipefitters, and Steamfitters | \$48,990 | HS/GED, Apprenticeship |
| 47-5013 | Service unit operators, oil, gas, and mining | \$42,530 | Less than HS, Moderate-term OJT |
| 49-9071 | Maintenance and Repair Workers, General | \$35,800 | HS/GED, Short-Term OJT |
| 51-4121 | Welders, Cutters, Solderers and Brazers | \$35,330 | HS/GED, Moderate-Term OJT |
| 53-3032 | Heavy and Tractor-Trailer Truck Drivers | \$37,720 | HS/GED, Short-Term OJT |
| 53-3033 | Light Truck or Delivery Services Drivers | \$28,390 | HS/GED, Short-Term OJT |
| 53-7073 | Wellhead Pumps | \$31,150 | Less than HS, Moderate-Term OJT |

Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2013.

STATEWIDE SHALE-RELATED EMPLOYMENT DATA

The Quarterly Workforce Indicators (QWI) are a set of economic indicators derived from state administrative records and basic demographic information from the Census Bureau. They can be examined based on geography, industry, gender and age of workers. Data presented are the most recent available. Because QWI data are not seasonally adjusted, the same quarter must be used when analyzing changes over time. This will ensure that seasonal factors are not influencing employment change. Therefore, in the table below and on the following page, third quarter data from 2011 is presented with third quarter data from 2013.

The tables below and on the following page show Ohio shale-related employment. "Stable Employment" is an estimate of the number of jobs that were present at the beginning and end of a quarter. "All Hires" is the estimated number of workers who started a job during the quarter; it includes new and recalled employees. "Separations" is the estimated number of workers whose jobs with a given employer ended during a quarter.

| Ohio | 2011 Q3 | | | 2013 Q3 | | |
|---|-------------------|-----------|-------------|-------------------|-----------|-------------|
| | Stable Employment | All Hires | Separations | Stable Employment | All Hires | Separations |
| All industry groups | 4,324,090 | 810,076 | 819,218 | 4,421,434 | 823,917 | 854,554 |
| 2111 Oil and Gas Extraction | 2,810 | 206 | 248 | 1,640 | 379 | 323 |
| 2131 Support Activities for Mining | 2,691 | 844 | 615 | 4,156 | 1,560 | 1,100 |
| 2371 Utility System Construction | 10,274 | 3,930 | 3,056 | 12,784 | 6,789 | 6,142 |
| 4862 Pipeline Transportation of Natural Gas | 331 | 9 | 7 | 337 | 11 | 5 |

Source: U.S. Census Bureau, Quarterly Workforce Indicators.

Quarterly Workforce Indicators are only available at the four-digit NAICS level. Consequently, although these industry groups contain some employment from non-shale-related core industries, they provide an indication of labor activity for these shale-related industries.

- Stable jobs, those present at the beginning and end of a quarter, increased in three core shale-related industries from third quarter 2011 to third quarter 2013: support activities for mining, utility system construction, and pipeline transportation of natural gas.
- It is also clear there is significant turnover in the job market, as demonstrated by the number of hires and separations.

JOB OHIO NETWORK SHALE-RELATED EMPLOYMENT

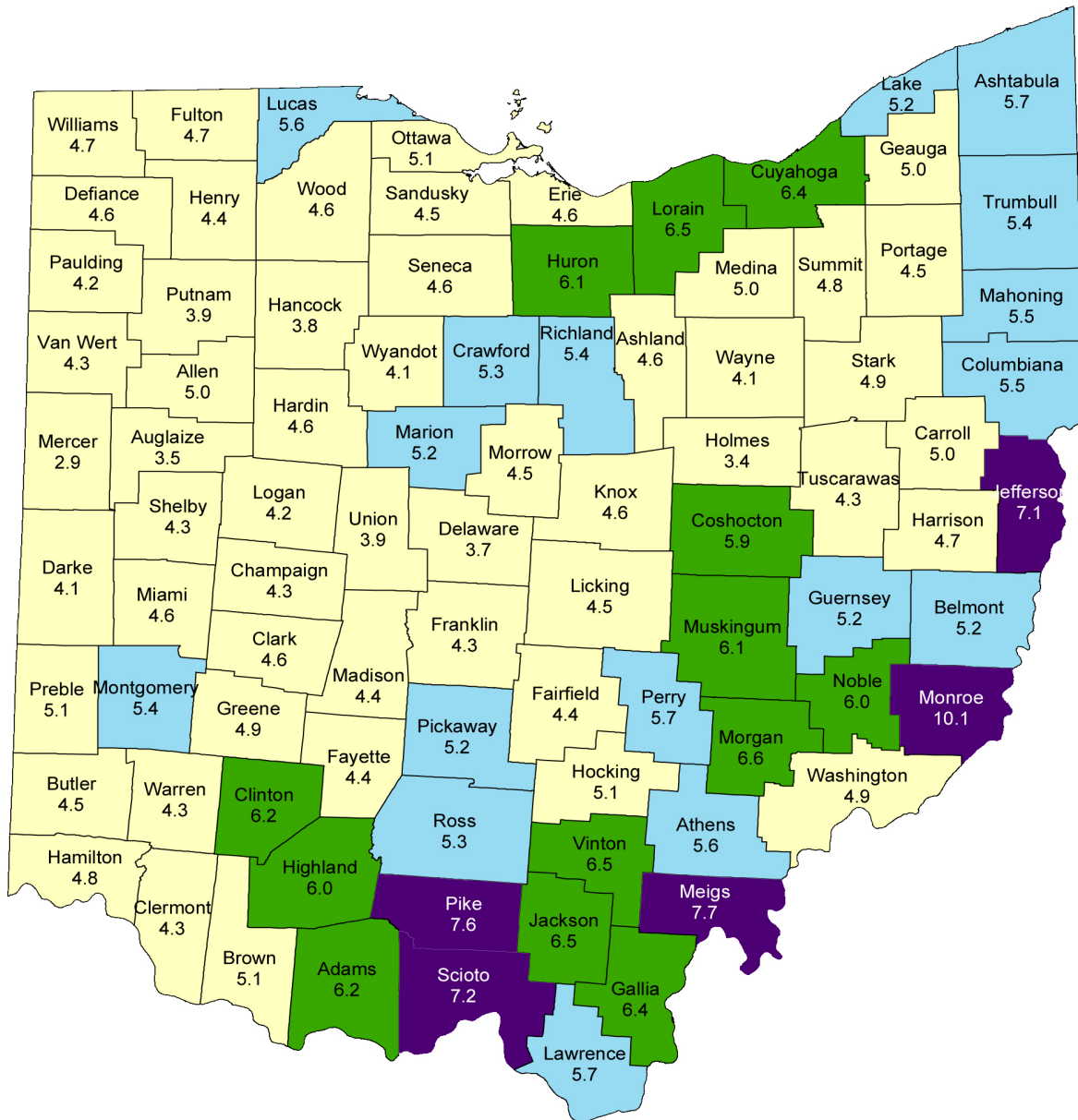
| | 2011 Q3 | | | 2013 Q3 | | |
|---|-------------------|-----------|-------------|-------------------|-----------|-------------|
| | Stable Employment | All Hires | Separations | Stable Employment | All Hires | Separations |
| Central Ohio | | | | | | |
| All industry groups | 856,609 | 168,439 | 164,174 | 886,533 | 179,218 | 179,566 |
| 2111 Oil and Gas Extraction | 167 | 11 | 13 | 173 | 9 | 7 |
| 2131 Support Activities for Mining | 273 | 112 | 85 | 291 | 85 | 63 |
| 2371 Utility System Construction | 1,941 | 548 | 466 | 2,339 | 691 | 537 |
| 4862 Pipeline Transportation of Natural Gas | 118 | 4 | *** | 118 | 3 | *** |
| Northeast Ohio | | | | | | |
| All industry groups | 1,634,975 | 305,084 | 312,808 | 1,674,823 | 300,586 | 320,291 |
| 2111 Oil and Gas Extraction | 632 | 43 | 63 | 927 | 198 | 126 |
| 2131 Support Activities for Mining | 691 | 171 | 104 | 1,152 | 448 | 328 |
| 2371 Utility System Construction | 3,648 | 1,234 | 884 | 4,195 | 2,359 | 1,973 |
| 4862 Pipeline Transportation of Natural Gas | 90 | *** | *** | 89 | 4 | *** |
| Northwest Ohio | | | | | | |
| All industry groups | 446,736 | 80,874 | 83,747 | 455,814 | 85,871 | 89,389 |
| 2111 Oil and Gas Extraction | 1,533 | 90 | 98 | 4 | 0 | 0 |
| 2131 Support Activities for Mining | 7 | *** | *** | 15 | 3 | 3 |
| 2371 Utility System Construction | 1,596 | 1,117 | 934 | 1,561 | 650 | 884 |
| 4862 Pipeline Transportation of Natural Gas | 28 | 0 | *** | 33 | *** | 0 |
| Southeast Ohio | | | | | | |
| All industry groups | 264,041 | 47,999 | 48,824 | 260,442 | 50,819 | 51,096 |
| 2111 Oil and Gas Extraction | 433 | 43 | 57 | 511 | 169 | 160 |
| 2131 Support Activities for Mining | 1,665 | 544 | 402 | 2,506 | 904 | 622 |
| 2371 Utility System Construction | 653 | 150 | 119 | 1,786 | 2,124 | 1,523 |
| 4862 Pipeline Transportation of Natural Gas | 79 | *** | *** | 81 | *** | *** |
| Southwest Ohio | | | | | | |
| All industry groups | 670,908 | 125,119 | 130,060 | 690,770 | 127,884 | 131,755 |
| 2111 Oil and Gas Extraction | 43 | 18 | 17 | *** | *** | *** |
| 2131 Support Activities for Mining | 32 | 5 | 8 | 89 | 34 | 31 |
| 2371 Utility System Construction | 1,665 | 591 | 416 | 1,824 | 495 | 567 |
| 4862 Pipeline Transportation of Natural Gas | *** | 0 | 0 | *** | 0 | 0 |
| West Ohio | | | | | | |
| All industry groups | 450,822 | 82,561 | 79,604 | 453,051 | 79,538 | 82,456 |
| 2111 Oil and Gas Extraction | *** | 0 | 0 | *** | *** | *** |
| 2131 Support Activities for Mining | 23 | 11 | 15 | 103 | 85 | 52 |
| 2371 Utility System Construction | 770 | 291 | 236 | 1,079 | 470 | 657 |
| 4862 Pipeline Transportation of Natural Gas | *** | 0 | 0 | *** | 0 | 0 |

Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics, Quarterly Workforce Indicators.

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

Quarterly Workforce Indicators are only available at the four-digit NAICS level. Consequently, although these industry groups contain some employment from non-shale related core industries, they help provide an indication of labor activity for these shale-related industries.

COUNTY UNEMPLOYMENT RATES IN SEPTEMBER 2014 (Not seasonally adjusted)



Unemployment Rates

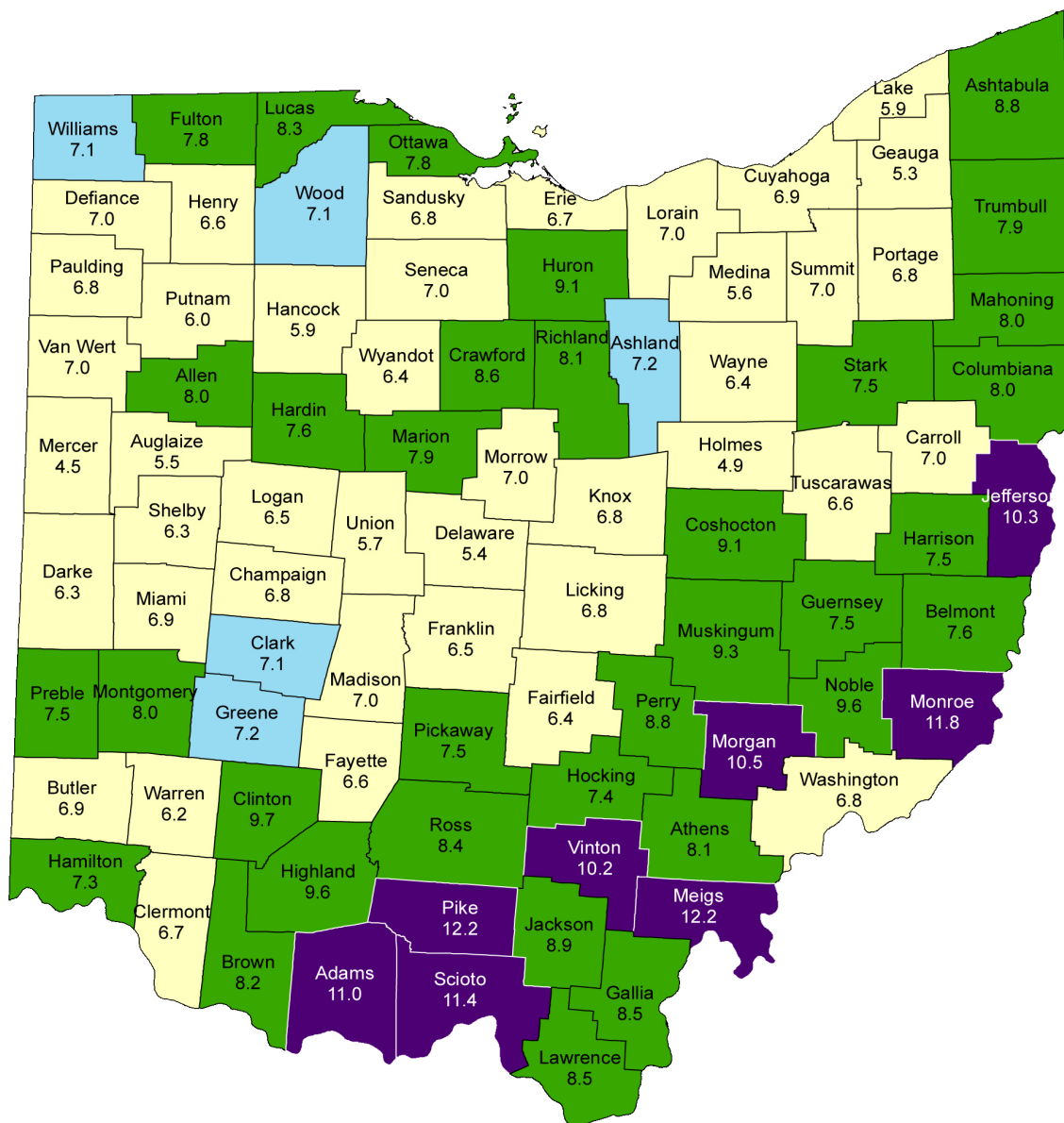
Not Seasonally Adjusted Seasonally Adjusted

| | | |
|---------------|------|------|
| United States | 5.7% | 5.9% |
| Ohio | 5.1% | 5.6% |

| | |
|--|--|
| Ohio rate of 5.1% or lower | |
| Above Ohio rate of 5.1%; U.S. rate of 5.7% or lower | |
| Above U.S. rate of 5.7%; below 7.0% | |
| 7.0% or above | |

Source: Ohio Department of Job and Family Services
Office of Workforce Development
Bureau of Labor Market Information
*Data are preliminary and subject to revision.

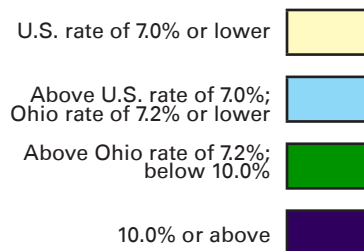
COUNTY UNEMPLOYMENT RATES IN SEPTEMBER 2013 (Not seasonally adjusted)



Unemployment Rates

Not Seasonally Adjusted Seasonally Adjusted

| | | |
|---------------|------|------|
| United States | 7.0% | 7.2% |
| Ohio | 7.2% | 7.4% |



Source: Ohio Department of Job and Family Services
Office of Workforce Development
Bureau of Labor Market Information
*Data based on 2013 benchmark.

DEFINITIONS

OHIO LABOR FORCE STATISTICS*

Source: Ohio Department of Job and Family Services' Bureau of Labor Market Information, 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 LAUS program measures employment and unemployment on a place-of-residence basis and produces estimates using equations based on regression techniques. This method uses data from several sources, including the CPS, the Current Employment Statistics (CES) program and state unemployment insurance programs. The LAUS program does not produce estimates for any demographic groups.

Employment – A count of all persons who, during the week that 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 – The population of people either working or looking for work, or classified as employed or unemployed.

Unemployment – A count of all persons aged 16 years and older who had no employment during the reference week (the week containing the 12th day of the month), who were available for work (except for temporary illness), and who had made specific efforts to find employment sometime during the four-week period ending with the reference week. This includes those waiting to be recalled to jobs from which they had been laid off.

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

JOBS*

Source: Ohio Department of Job and Family Services' Bureau of Labor Market Information, Current Employment Statistics

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

Nonfarm Jobs – The total number of persons on established 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 worked during only part of the specified pay period. A striking employee who works only a small portion of the survey period, and is paid, is included as employed. Those on payrolls of more than one establishment are counted in each establishment. Data exclude proprietors, self-employed workers, unpaid family or volunteer workers, farm workers, and domestic workers. Those 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.

QUARTERLY WORKFORCE INDICATORS

Source: U.S. Census Bureau

The Quarterly Workforce Indicators are data that can be examined by region, industry, gender and age of workers. These indicators are built on wage records in the unemployment insurance system and information from state Quarterly Census of Employment and Wages (QCEW) data.

*THESE DATA ARE SEASONALLY ADJUSTED. Seasonal adjustment removes changes in employment due to normal seasonal hiring or layoffs (such as holidays, weather, etc.).

DEFINITIONS

QUARTERLY CENSUS OF EMPLOYMENT AND WAGES

Source: Ohio Department of Job and Family Services' Bureau of Labor Market Information, Quarterly Census of Employment and Wages

Business Establishment – An establishment is the location of a certain economic activity, such as a factory, store, office or mine, which 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.

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

Wages – 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 (Key Occupations Section)

Source: Ohio Department of Job and Family Services' Bureau of Labor Market Information

A staffing pattern is a list of the occupations most commonly found within a particular industry. This information comes from the biennial Long-Term Occupational Employment Projections data.

Annual Median Wage – The annual median wage earned by workers in an occupation, assuming 40 hours of work per week, 52 weeks a year. Wage data is derived from the annual Occupational Employment Statistics survey.

Typical Education, Training and Experience - To assist with career planning, the BLS has determined the typical education needed for entry into an occupation, years of commonly needed work experience in a related occupation, and typical on-the-job training needed to attain competency in the occupation. For definitions of available categories, see

www.bls.gov/emp/ep_definitions_edtrain.pdf.

Typical Education Levels

- Less than high school
- High school diploma or equivalent (HS/GED)
- Postsecondary non-degree award (Post-HS Cert.)
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral or professional degree

Work Experience in a Related Occupation

- 5 years or more
- Less than 5 years

Typical On-The-Job (OJT) Training

- Long-term OJT – More than 12 months OJT or combined work experience and formal classroom instruction
- Moderate-term OJT – One to 12 months OJT and informal training
- Short-term OJT – Less than one month OJT

ONLINE JOB POSTINGS

Source: The Conference Board Help Wanted OnLine™ Data Set

The Conference Board HWOL data set provides real-time insight into the employment marketplace through the world's largest database of online job ads. Job 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.

DEFINITIONS

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CHANGES

NAICS, established in 1997, is reviewed for potential revisions every five years. The latest revision, in 2012, was implemented by BLS in the QCEW program with the release of first quarter 2011 data. As part of this revision, the NAICS code of only one 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).

Core Shale-Related 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).

Ancillary Shale-Related 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 (331101); 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); and Regulation and Administration of Communications, Electric, Gas, and Other Utilities (926130).

WORKFORCE INFORMATION EXCHANGE

Source: Governor's Office of Workforce Transformation

[\(http://workforce.ohio.gov/\)](http://workforce.ohio.gov/)

The Governor's Office of Workforce Transformation deployed a statewide jobs forecasting tool to the top companies of predefined industry clusters. These companies represent small, medium and large businesses with at least 10 employees and at least one Ohio location. Through the forecasting tool, businesses identify the top five critical, difficult-to-fill job needs over the next one, three and five years. The information from the forecast tool is aggregated with current job postings and occupation projections from ODJFS to better align the in-demand jobs with education and training providers and Ohio's workforce development system.

John R. Kasich, Governor
State of Ohio

Cynthia C. Dungey, Director
Ohio Department of Job and Family Services

October 2014

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