



Resources work:



Careers in mining, oil, and gas



**H**ow would you like to make \$40,000 or more per year with a high school education? Or make twice that with a college degree? If those earnings sound intriguing, consider exploring a career in mining or in oil and gas extraction.

Overall, the industry pays better than most: U.S. Bureau of Labor Statistics (BLS) data show that median annual wages of workers in mining, oil, and gas extraction were \$46,100 in May 2011, compared with \$34,460 for workers in all industries. And the industry had the highest starting salaries of any industry for 2012 bachelor's degree recipients, according to the National Association of Colleges and Employers.

Earnings are high, in part, because of working conditions. For example, jobs might require workers to live in remote areas, be out at sea for weeks at a time, or spend long periods underground. And mining, oil, and gas workers can face potentially hazardous conditions.

Still, much of the industry now relies on technology that has helped to make the work safer and more efficient. "It's not a pick-and-shovel operation. We have high-tech machines underground," says Jeff Tutalo, manager of human resources at an underground coal mine in Grafton, West Virginia. "The skills you need to play video games are the types of skills you need to operate our equipment."

This article describes occupations in the mining, oil, and gas extraction industry. It does not include occupations related to the processing or distribution of these resources. The first section covers the industry's employment and outlook. The second section highlights some common occupations. The third section discusses pros and cons of the work. The fourth section describes how to start a career in mining or oil and gas. And the fifth section provides sources for more information.

## About the industry

Workers in the mining, oil, and gas extraction industry locate and remove a variety of natural resources—including coal, stone, and

natural gas—from the earth. These resources are essential to our economy. They are used in many products around us. For example, oil is processed to make petroleum products, such as plastics, and minerals are used in computers. Stone provides building materials for construction, and coal and natural gas are used to create electricity.

Current and projected employment levels in the industry vary by location, type of resource extracted, and other factors.

### Industry employment

Mining, oil, and gas extraction is a relatively small industry in terms of employment. In May 2011, the industry employed about 693,000 workers, BLS data show. This contrasts sharply with the 11.6 million workers employed in manufacturing and the 5.5 million workers employed in construction, two other goods-producing industries.

The extraction industry's jobs include those in mining—in which workers remove minerals and other non-oil and gas resources from the ground—and in oil and gas extraction. Mining jobs differ, depending on whether the extraction of resources takes place closer to the earth's surface or deep underground. Underground mining, for example, usually employs workers in occupations such as mine shuttle car operators and roof bolters, among others, that are not part of surface mining. Oil extraction jobs are often similar to natural gas extraction jobs, and workers can be involved in recovering both because natural gas is sometimes mixed with oil.

Within the mining, oil, and gas extraction industry, there are two types of employers: firms that own the oil and gas wells or mines and firms that offer support services. Support services firms have an important role in the industry, employing nearly half of all workers in May 2011.

The resources that workers extract influence where they find jobs. Workers who extract nonmetallic minerals (such as limestone, granite, and sand) are employed in a number of states. Those who extract coal often work in states that include West Virginia,

Elka Torpey

*Elka Torpey is an economist in the Office of Occupational Statistics and Employment Projections, BLS. She is available at [torpey.elka@bls.gov](mailto:torpey.elka@bls.gov).*

Kentucky, or Pennsylvania. Large numbers of workers in metal ore mining are employed in Nevada, Arizona, and Minnesota. And many workers who extract oil and gas are employed in Texas, Oklahoma, and California.

### Industry outlook

BLS projects employment in the mining, oil, and gas extraction industry to grow by about 4 percent between 2010 and 2020—slower than the 14.3 percent growth projected for all industries during the decade. Most of the industry’s growth is expected to come from oil and gas extraction and nonmetallic mineral mining, which are projected to grow at 15 and 14 percent, respectively. Coal and metal ore mining employment is expected to decline, in part because of technologies that boost worker productivity.

Some studies, such as a November 2012 report by the International Energy Agency, predict stronger growth for mining, oil, and gas. These studies note some variables, such as increased demand and advances in extraction techniques that make it possible to access previously untapped resources, that could result in greater U.S. production and greater need for workers in the industry.

Increasing retirements of workers should lead to good job prospects in this industry. “There’s a huge amount of brain drain as far as aging workers,” says Brett Liming, a geologist in Golden, Colorado. “Baby-boomer

retirements are happening everywhere, but they’re accentuated in oil and gas because there was tremendous hiring in the early 1970s and ’80s.” As the large group of people hired during that period starts to retire, industry employers will likely need to hire workers to replace them.

But the industry is often marked by highs and lows in employment, and its future is hard to predict. Prices and demand for many of these resources fluctuate, for example, and employment and hiring reflect this volatility. A variety of global or political events, such as changing environmental laws, may also affect employment.

## Working in mining, oil, and gas extraction

There are many occupations in mining, oil, and gas extraction. The table starting on page 26 shows some of the ones that employ the most workers.

For most of the occupations in the table, workers typically have a high school diploma or less, plus on-the-job training. Occupations with the highest wages typically require a college degree.

Three occupational areas critical to mining, oil, and gas extraction are geoscientists and engineers, equipment operators, and roustabouts, laborers, and helpers. Typical tasks and wages differ for each.

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*The largest percentage of the industry’s growth is projected to come from oil and gas extraction.*

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## Geoscientists and engineers

Workers from many geoscience and engineering specialties help to find and remove oil, gas, coal, and minerals.

Geoscientists study the earth to locate natural resources, advise on how to extract these resources, and restore mine and drill sites. Engineers design systems and develop procedures for exploring and extracting resources, as well as for reclaiming the land.

Geoscientists and engineers sometimes work together on teams with other specialists. When determining which course of action to take, geoscientists and engineers might use modeling software or do simulation studies to assess options.

A variety of geoscientists work in mining and oil and gas extraction. Engineering occupations involved in this industry include petroleum, mining and geological, and other engineers.

**Geoscientists.** These workers analyze geological information from many sources, including rock or sediment samples and aerial photographs. They sometimes plan and conduct field studies or surveys to gather this information, but they might also work in a laboratory or on a computer to interpret findings. And they produce geologic maps, charts, and scientific reports to describe results.

Geoscientists specialize in fields such as engineering, mine, petroleum, exploration, and environmental protection geology. For example, a petroleum geologist might test samples collected from drilling to determine whether oil or gas is present.

**Petroleum engineers.** Petroleum engineers focus on a range of issues associated with oil and gas extraction. Specific job titles and tasks are often based on the different phases of the extraction process. Occupations include reservoir, drilling, completions, and production engineers.

Reservoir engineers estimate how much oil or gas can be recovered from underground deposits, known as reservoirs. They study a reservoir's characteristics and determine which methods will get the most oil or gas out of the reservoir. And they monitor operations



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*Many different types of geoscientists and engineers work in mining, oil, and gas extraction.*

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to ensure that the optimal levels of these resources are being recovered.

Drilling engineers determine the best way to drill an oil or gas well, taking into account a number of factors, including cost. They also ensure that the drilling process is safe, minimally disruptive to the environment, and efficient.

Completions engineers decide the optimal way to finish building a well so that the oil or gas will flow up from underground. They oversee this well-completions work, which might involve the use of tubing, hydraulic fracturing, or pressure control techniques.

Production engineers take over after a well is completed. They typically monitor the well's oil and gas production. If a well isn't producing as much as it was expected to, production engineers figure out ways to help increase the amount being extracted.

**Mining and geological engineers.** In mining, engineers develop plans for where and how to extract coal, metals, and nonmetallic

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*(Continued on page 27)*

**Selected mining, oil, and gas occupations' employment and wages, May 2011, and education and training, 2010**

Occupations	Employment	Median annual wage	Education	Work experience	On-the-job training
<b>Geoscientists and engineers</b>					
Petroleum engineers	20,170	\$126,240	Bachelor's degree	None	None
Geoscientists, except hydrologists and geographers	9,000	118,820	Bachelor's degree	None	None
Mining and geological engineers, including mining safety engineers	2,810	83,590	Bachelor's degree	None	None
Other types of engineers	9,460	Varies	Bachelor's degree	None	None
<b>Equipment operators</b>					
Rotary drill operators, oil and gas	20,980	51,350	Less than high school	None	Moderate-term
Continuous mining machine operators	12,180	50,680	High school or equivalent	None	Moderate-term
Derrick operators, oil and gas	19,380	45,240	Less than high school	None	Short-term
Operating engineers and other construction equipment operators	31,040	41,510	High school or equivalent	None	Moderate-term
Earth drillers, except oil and gas	6,350	41,400	High school or equivalent	None	Moderate-term
Wellhead pumpers	12,970	41,220	Less than high school	Less than 1 year	Moderate-term
Service unit operators, oil, gas, and mining	44,330	40,560	Less than high school	None	Moderate-term
Excavating and loading machine and dragline operators	13,090	38,610	Less than high school	1 to 5 years	Moderate-term
Heavy and tractor-trailer truck drivers	30,210	36,740	High school or equivalent	1 to 5 years	Short-term
<b>Roustabouts, laborers, and helpers</b>					
Helpers--extraction workers	20,460	34,060	High school or equivalent	None	Short-term
Roustabouts, oil and gas	46,840	33,110	Less than high school	None	Moderate-term
Construction laborers	10,440	29,570	Less than high school	None	Short-term
Laborers and freight, stock, and material movers, hand	9,410	26,470	Less than high school	None	Short-term
<b>Other</b>					
General and operations managers	16,010	111,070	Associate's degree	More than 5 years	None
Accountants and auditors	9,100	69,200	Bachelor's degree	None	None

**Selected mining, oil, and gas occupations' employment and wages, May 2011, and education and training, 2010 (continued)**

Occupations	Employment	Median annual wage	Education	Work experience	On-the-job training
First-line supervisors of construction trades and extraction workers	28,950	68,050	High school or equivalent	More than 5 years	None
Electricians	9,040	56,820	High school or equivalent	None	Apprenticeship
Industrial machinery mechanics	12,930	49,600	High school or equivalent	None	Long-term
Mobile heavy equipment mechanics, except engines	9,980	48,410	High school or equivalent	None	Long-term
Maintenance and repair workers, general	10,400	39,020	High school or equivalent	None	Moderate-term
Secretaries and administrative assistants, except legal, medical, and executive	11,340	30,890	High school or equivalent	None	Short-term

Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics (employment and wages) and Occupational Employment Projections (education, experience, and training).

*(Continued from page 25)*

minerals. For example, they might decide what types of workers, equipment, and processes to use. And they monitor construction and operations for safety and efficiency.

These engineers also might determine how to reclaim land or to solve problems related to water or air pollution. Mining safety engineers specialize in making sure that a mine, including its workers and practices, complies with all applicable safety rules.

**Other engineers.** A range of other types of engineers work in the mining, oil, and gas industries. These workers include industrial, mechanical, civil, environmental, chemical, and electrical engineers. Their tasks vary, and they often work on teams with other types of engineers, helping to solve problems related to resource extraction.

### Equipment operators

It takes a lot of expensive, high-tech equipment to get resources like oil, gas, coal, and minerals out of the ground. Job tasks for these workers include operating, maintaining, and, sometimes, fixing equipment. They also might oversee processes and direct other workers.

Equipment operators typically need on-the-job training, work experience in a related occupation, or both. Industry sources suggest that these jobs are not usually available for entry-level workers; most people start out as helpers or have experience operating other types of large equipment.

Occupations include drillers, derrick operators, wellhead pumpers, service unit operators, roof bolters, mining machine operators, and other equipment operators.

**Drillers.** Both mining and oil and gas extraction rely on drillers to help reach resources deep in the earth. Modern drilling techniques often involve drilling down vertically and then drilling horizontally or in other directions for better access to resources.

These workers operate a variety of types of drills. They select the proper drill and drill bits to use and attach additional drill bits, rods, and pipes as the drill reaches farther in the earth. They also control the drill's pressure and speed. When drilling, they use gauges to monitor critical information, such as the pressure in a well or how much debris is being pumped out. And they keep records of where they've drilled, how deep they've gone, and the nature of the layers they've penetrated.

Drillers operate a variety of drilling equipment.



Rotary driller operators usually work in the oil and gas industry, drilling wells to find or extract petroleum or natural gas. Other types of earth drillers are also employed in mining. These workers might drill holes to search for resources underground, for example, or to create tunnels in rock for blasting.

**Derrick operators.** A derrick, or drilling rig, is the tower-like structure over a well that holds the drilling machinery and supports the drilling equipment. Usually supervised by the driller, oil and gas derrick operators set up and oversee the operation of the derrick and derrick equipment. For example, they might clean and lubricate the derrick or help to position and align it.

These workers also operate pumps that circulate mud or other drilling fluids through the well. These fluids help to keep the drill bit cool, flush out the drilled earth, prevent well cave-ins, and equalize the pressure inside the hole. Derrick operators also might create drilling mud by mixing clay, water, and chemicals. And they control the consistency and weight of the fluids being pumped into the well.

**Wellhead pumpers.** These workers are responsible for tasks relating to the wellhead. A wellhead, which sits on top of an oil or gas well, helps pressure seal the well and provides other functions.

Wellhead pumpers attach pumps and hoses to wellheads and operate the power pumps and other equipment that helps to produce the flow of oil or gas. During pumping, these workers monitor control panels to make sure that the oil or gas is being pumped at the right speed, pressure, and concentration. They also operate engines and pumps to shut off wells and to move oil or gas into storage tanks. And they transport equipment to the well site.

**Service unit operators.** Once a well has been drilled and is producing oil or gas, the drilling rig is taken down and a service rig is put up. Service unit operators may transport and set up this rig. They also operate the equipment that services the well. Their goal is to make sure that the well continues to perform as it should. They monitor well operations—by listening to engines or studying gauges or pressure indicators, for example—to identify possible problems.

If they find a problem, service unit operators work to fix it. They might, for example, run pumps that circulate water or other fluids through wells to remove obstructions. Or they might install devices into a wellhead to control the pressure of the well, which helps to keep the oil or gas flowing up and out of the well.

These workers also close and seal wells that are no longer in use. Some operators perform similar services at mines.

**Roof bolters.** Roof bolters operate machines that install support bolts in the roof of underground mines. The long, steel bolts help to prevent the mine from collapsing.

First, roof bolters support a mine's roof with safety jacks. Next, they drill holes into the roof and force bolts into the holes, using a self-propelled bolting machine. Finally, they secure and tighten the bolts and test to be sure the bolts have enough tension to hold up the roof.

**Mining machine operators.** There are several types of mining machine operators. Many of these workers operate continuous miners, self-propelled machines that extract coal, rock, sand, stone, and other resources from mines. Others operate longwall shears, cutting machines, and other machinery that cuts or channels along mining surfaces.

Continuous mining machine operators determine where and what depth of a hole or channel should be dug. They position the machine and move controls to operate it. They might also control the conveyors onto which the continuous mining machine loads coal or other resources. And they check their equipment for malfunctions.

**Other equipment operators.** There are many different types of equipment operators in the mining, oil, and gas industry, only some of whom are described in this article. Most of the equipment these workers operate is similar to that found in the construction industry.

For example, operating engineers and other construction equipment operators use machines such as bulldozers, graders, scrapers, and front-end loaders to do tasks such as moving or grading earth. Excavating and loading machine and dragline operators use

equipment with scoops, shovels or buckets to dig and move dirt and other materials. And heavy and tractor trailer truck drivers operate a variety of trucks, including big dump trucks that carry loads as heavy as 300 tons.

### **Roustabouts, laborers, and helpers**

Many people start out in the mining, oil, and gas industry as roustabouts, laborers, or extraction worker helpers. Workers in these occupations usually do different tasks, as needed. The jobs are often physically challenging.

As they gain experience, these workers may move up to more complex jobs, which pay more than entry-level ones. A roustabout, for example, might eventually become a rotary driller helper, then advance to derrick operator before becoming a rotary driller.

**Roustabouts.** On oil and gas rigs, roustabouts have a range of duties, including general maintenance and construction work. For example, they might paint, sweep, or mop decks and other rig structures. Or they might move or assemble pipes, equipment, or other materials and machinery.

Other roustabout tasks include inspecting, maintaining, and fixing rig equipment.



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*Many people start out in the industry doing different tasks to gain experience.*

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For example, roustabouts might look for leaks in oil or gas flow lines. If they find a leak or other problems, they then help to fix it.

**Laborers.** Employed in both mining and oil and gas extraction, laborers are often in one of two categories: construction or material moving.

Mining and extraction laborers who do construction-related tasks might, for example, put braces in place to support the sides of a mining excavation. Or they might put up or take apart oil rig scaffolding. These laborers also dig tunnels and mine shafts and refill excavations.

Other laborers in mining and extraction move materials by hand from one place to another. These hand laborers might load and unload cargo from trucks, ships, or containers. They sometimes sort the cargo. Or they help to carry pipes or equipment.

**Extraction worker helpers.** Doing diverse tasks, extraction worker helpers assist other, more experienced workers at a mine, oil, or gas site. They work closely with a range of extraction workers, including drillers, derrick operators, and continuous mining machine operators. The types of tasks they do depend a lot on the types of extraction workers they help—and on the specific needs of those workers.

For example, rotary driller helpers, sometimes called roughnecks, might help on an oil or gas rig by connecting pipes so that a drill can reach farther into the ground. Roof bolter helpers might align a roof bolting machine into the correct position so that the machine operator can accurately place support bolts in the roof of a mine.

Other tasks for extraction worker helpers include monitoring equipment, helping to maintain equipment, and notifying workers of problems.

## Pros and cons of extraction work

High pay attracts many people to the mining, oil, and gas industry. And the recent job

market has been strong, BLS data show: In December 2012, the unemployment rate for workers in the industry was about 6.3 percent, lower than the 7.6 percent rate for all workers.

The mining, oil, and gas extraction industry isn't for everyone. But many who work in it enjoy what they do. "I love my job," says Sandeep Pedam, a completions engineer in Houston, Texas. "I like knowing that I'm helping people to drive to work every day and to heat their homes during the winter."

Other workers like the opportunity to travel and see new places. "If you want to be part of one of the last industries with some adventure to it, this is one way to do it," says Sid Banerjee of his job as a reservoir engineer in the oil and gas industry. His work has taken him to places as far away as Saudi Arabia and Argentina.

However, mining, oil, and gas jobs are often in rural or remote areas that might require workers to be away from family and friends for long periods. "It's hard work and long hours, especially if you're in the field all the time," says Pedam.

Chemical engineer Elyse Landry of Houston, Texas, occasionally works offshore. "You work and sleep in the middle of the ocean on a platform," she says.

Nonstandard hours and schedules—including 12-hour shifts and work at night or on holidays and weekends—are common in some mining, oil, and gas jobs. For example, many extraction operations run 24 hours a day, so workers can be on the clock at almost any hour. Offshore, workers typically stay on an ocean platform for a week or more, working consecutive days without a break, and then have a block of time off.

When a specific phase of a mine or well operation is complete, field workers often must change jobs or locations. And some jobs are seasonal; for example, a mineral mine might operate only during the warmer months.

The frequent change is not for everyone. "If you're the type of person who wants to be sure you know what happens next," says Banerjee, "this probably isn't the industry for you." Banerjee doesn't count himself among

those types, however: the variety of jobs and experiencing new locations is what he likes best.

Some workers in the industry are outside in all types of weather; others are underground. In both cases, their jobs may be hazardous. In 2011, the rate of injury and illness in the mining, oil, and gas industry was lower than that for all workers, BLS data show. But the fatality rate was higher in the industry than that for all workers.

In spite of workers' hardships in the industry, they enjoy the camaraderie among colleagues and crew. "I really like the people that I work with, both offshore and onshore," says Landry. "I think the job that I'm doing is neat, but it wouldn't be as fun if it wasn't for the people."

Workers also share in their frustrations about how others view their work. "The perception of the industry is that we're out there taking advantage of the environment," says geologist Liming. "But the people I've known in the industry are conscientious, responsible people. We are not in any way trying to damage the planet."

Others agree, while at the same time expressing pride in their work. "I grew up in Alaska," says Banerjee. "I know how pretty that place is, and I want the work that we do there to be done well."

## Getting started in a career

There are many ways to get started in an occupation in the mining, oil, and gas industry. Some requirements are general for most workers; others are specific to occupations. Mining, oil, and gas workers often must be at least 18 years old, pass a drug test, and be in good physical condition.

Many of these jobs require special skills, training and licensure, or work experience. And for some occupations, higher education is important.

**Skills.** Employers prefer to hire people who work well on teams and have good decision-making and problem-solving skills. Com-



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*Some occupations, such as heavy equipment operators, require special training or licensure.*

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munication skills, flexibility, and a willingness to learn a variety of tasks are also important.

To succeed in the industry, workers also need determination. "You definitely need to be open to asking questions and be persistent and self driven," says Landry.

Another key for many workers is technological expertise, which may involve performing computer simulations, using joysticks and computers to operate equipment, or handling electronic detectors to identify leaks in oil or gas lines. And workers who operate or move heavy equipment or machinery need physical strength, eye-hand coordination, and good depth perception.

**Training and licensure.** Many mining, oil, and gas workers learn on the job from more experienced workers. The training needed for competency varies by occupation. For example, extraction worker helpers typically need 1 month or less of on-the-job training. Equipment operators usually need more, typically between 1 and 12 months of on-the-job training.

To work at a mine or on an oil rig, workers often must complete mandatory safety

training. This training is usually provided or paid for by employers after workers are hired.

In addition, some workers need special licenses, such as those required to drive heavy trucks or operate equipment. And employers occasionally require, or prefer to hire, engineers who are licensed.

**Work experience.** Work experience in a related occupation is typically needed for some mining, oil, and gas occupations. Excavating machine operators, for example, often must have worked as construction laborers or construction equipment operators.

In many cases, workers start out in the industry as helpers or laborers before they are promoted to more specialized jobs. Sometimes, an oil and gas employer may require workers to have experience at an onshore oil or gas rig before it assigns them duties offshore. And employers often prefer to hire construction or other heavy equipment operators who have experience using similar types of large equipment.

Apprenticeships are available in some occupations. For example, heavy equipment operators, such as those who operate graders or excavators, sometimes complete apprenticeship programs through the International Association of Operating Engineers.

**Education and internships.** Workers can qualify for many mining, oil, and gas jobs with little formal education. Other positions have specific educational requirements, with internships recommended.

Roustabouts, laborers, rotary drill operators, wellhead pumpers, and service unit operators typically need less than a high school diploma. Some employers, however, might prefer to hire workers in these occupations who have finished their secondary education. Other workers, such as continuous mining machine operators or construction equipment operators, typically need a high school diploma.

Most engineers need a bachelor's degree in engineering. Although employers hire college graduates from a variety of engineering disciplines, mining or petroleum engineering studies are beneficial. Some engineers have

a master's degree or Ph.D. in a related field. A limited number of schools offer bachelor's, master's, or higher degrees in petroleum or mining engineering.

Participating in internships during college is also important for engineering students who hope to start a career in mining, oil, and gas, say workers in the industry. "An internship is how you get jobs," says Landry, "and it gives you a chance to test out the company and see if you enjoy this type of work."

## Digging deeper

To read more about many of the occupations discussed in this article, as well as hundreds of others, visit the *Occupational Outlook Handbook* online at [www.bls.gov/ooh](http://www.bls.gov/ooh).

Two recent articles in the BLS publication *Beyond the Numbers* cover mining-related topics. "Coal: A key player in expanded U.S. energy exports," which describes recent trends related to coal mining, is online at [www.bls.gov/opub/btn/volume-2/coal-a-key-player-in-expanded-us-energy-exports.htm](http://www.bls.gov/opub/btn/volume-2/coal-a-key-player-in-expanded-us-energy-exports.htm). And "Injuries, illnesses, and fatal injuries in mining in 2010" is available at [www.bls.gov/opub/btn/volume-2/injuries-illnesses-and-fatal-injuries-in-mining-in-2010.htm](http://www.bls.gov/opub/btn/volume-2/injuries-illnesses-and-fatal-injuries-in-mining-in-2010.htm).

BLS also publishes *Industries at a Glance* profiles for industries and their sectors. The profile for the mining, quarrying, and oil and gas extraction sector is online at [www.bls.gov/iag/tgs/iag21.htm](http://www.bls.gov/iag/tgs/iag21.htm).

Recent articles in the *Occupational Outlook Quarterly* cover topics that might also be of interest. "Career in geothermal energy: Power from below," at [www.bls.gov/ooq/2012/winter/art02.pdf](http://www.bls.gov/ooq/2012/winter/art02.pdf), describes the geothermal energy-related work of some of the same occupations in oil and gas extraction, such as roustabout and rotary drill operator. Another article, "High wages after high school—without a bachelor's degree," [www.bls.gov/ooq/2012/summer/art03.pdf](http://www.bls.gov/ooq/2012/summer/art03.pdf), highlights other high-paying occupations that typically don't require a 4-year college degree.

The U.S. Department of Labor Occupational Safety and Health Administration has



information about oil and gas well drilling and servicing hazards, as well as a glossary of industry terms. Check out its e-tool at [www.osha.gov/SLTC/etools/oilandgas](http://www.osha.gov/SLTC/etools/oilandgas).

To learn more about the oil and gas industry, contact:

American Petroleum Institute  
1220 L St. NW.  
Washington, DC 20005  
(202) 682-8000  
[www.api.org](http://www.api.org)

Association of Energy Service Companies  
14531 FM 529, Suite 250  
Houston, TX 77095  
(713) 781-0758  
[aesc.net](http://aesc.net)

International Association of  
Drilling Contractors  
PO Box 4287  
Houston, TX 77210  
(713) 292-1945  
[www.iadc.org](http://www.iadc.org)

Society of Petroleum Engineers  
PO Box 833836  
Richardson, TX 75083  
Toll-free: 1 (800) 456-6863  
[www.spe.org](http://www.spe.org)  
[service@spe.org](mailto:service@spe.org)

The Society sponsors a website that describes energy careers, including those in petroleum engineering and geology, at [www.energy4me.org](http://www.energy4me.org).

To learn more about the mining industry, contact:

Mine Safety and Health Administration  
1100 Wilson Blvd., 21st Floor  
Arlington, VA 22209  
[www.msha.gov](http://www.msha.gov)

National Mining Association  
101 Constitution Ave. NW.  
Suite 500 East  
Washington, DC 20010  
(202) 463-2600  
[www.nma.org](http://www.nma.org)

Society for Mining, Metallurgy, and  
Exploration, Inc.  
12999 E. Adam Aircraft Circle  
Englewood, CO 80112  
Toll-free: (800) 763-3132  
[www.smenet.org](http://www.smenet.org)  
[cs@smenet.org](mailto:cs@smenet.org)

United Mine Workers of America  
18354 Quantico Gateway Dr.  
Suite 200  
Triangle, VA 22172  
(703) 291-2400  
[www.umwa.org](http://www.umwa.org)

