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**National Geographic**

## A Drive for New Jobs Through Energy



Lee Zavislak, at 46, is learning to drive an 18-wheel truck—a job much in demand thanks to natural gas drilling in the Marcellus Shale. Below, Iraq war veteran Joshua Cannon is among the first Pennsylvanians to land a job on a shale gas rig.

Photograph by Scott Goldsmith, National Geographic

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### **[SPECIAL REPORT: THE GREAT SHALE GAS RUSH](#)**

*Exploring the promise and challenge of a new energy supply.*

For Lee Zavislak, who at the age of 46 is learning to drive an 18-wheel truck, the Marcellus shale means hope for a new start.

Zavislak was a machine operator for seven years at one of the first Dasani water plants, about 20 miles south of Pittsburgh in Houston, Pennsylvania. She thought she'd work there until she retired. But bottled water sales dropped, and The Coca-Cola Company decided in 2009 to close down the production line, which once served 22 states.

"I never thought I'd be out of work for a year," said Zavislak. She trained to drive a delivery truck, thinking there might be jobs at Coke or elsewhere, but no opportunities panned out. She liked driving, though. So her caseworker from Pennsylvania's workforce development program asked her if she'd ever considered driving a big rig—the kind now much in demand thanks to the Marcellus shale industry.

(See Photos: ["A State Booms With New Energy"](#))

This energy business taking root in the Appalachian Mountains has opened the door to a new source of clean-burning fuel close to the population centers of the Eastern United States. In Pennsylvania, the epicenter of the development, there's been plenty of debate over potential environmental impact. (Related: ["A Dream Dashed by the Rush on Gas"](#) and ["Parks, Forests Eyed for the Fuel Beneath"](#))

But an equally great focus has been on the chance for a much-needed boost to the state's economy, and how state and local government can help with training and other steps to stoke the potential for revenue and jobs far beyond the drilling rigs.

Truck-driving jobs are among the first and most abundant benefits to flow to Pennsylvania workers. The gas companies are promising many more. In fact, [an industry-sponsored study \(pdf\)](#) by [Pennsylvania State University](#) energy experts projects 200,000 new jobs in the Keystone State by 2020 if the shale is developed to its full potential.

For the time being, at least, the jobs are not where one might expect them—the high-paying work on drilling rigs. Since drilling began in earnest in 2007, natural gas companies have been importing experienced crews from energy-producing states like Texas and Oklahoma to work on rigs that operate 24 hours a day, seven days a week.

But the number of these sought-after jobs is small; only 2,400 to 3,000 workers are employed on about 100 rigs currently operating in Pennsylvania. The economic boom for Pennsylvania—as its impact can be measured so far—is in the lives of people who have found a way to service the rigs and the new industry from the outside, either with their labor or their land.

### **An Opportunity Beyond Words**

The forecasts give shale-watchers hope for a surge of on- and off-rig jobs for Pennsylvanians in the future. The industry has drilled about 1,100 Marcellus wells so far this year, up from 780 in 2009, with projected growth to more than 3,500 wells a year by 2020. (Related interactive: ["Mapping a Gas Boom"](#)) Each individual well requires about 410 people working 150 different jobs, according to [a needs assessment \(pdf\)](#) by the [Marcellus Shale Education & Training Center \(MSETC\)](#) in Williamsport, Pennsylvania.

And the number is higher, perhaps more than 200 jobs, in southwestern Pennsylvania, where the gas requires extra processing, according to MSETC, a partnership between [Pennsylvania College of Technology](#) (Penn College), an applied technology education affiliate of Pennsylvania State University, and the [Penn State Cooperative Extension](#) educational outreach program.

“I have never seen an opportunity like this, ever,” says Larry Michael, executive director of workforce and economic development at Penn College, who oversees MSETC. “Words absolutely cannot describe what is going on.”

Shale looks like a boon to many in a state that was once the bustling nexus of the nation’s coal, steel, and rail industries, but which has struggled for at least a generation to create steady blue-collar jobs that provide a middle-class living.

But with the state’s economy suffering with that of the rest of the nation, the new energy business’s impact so far is hard to discern. Even though the [industry-sponsored study](#) (pdf) by Penn State energy experts says the shale industry created 44,000 jobs in Pennsylvania last year, the state’s overall employment is actually down by 64,000 workers, according to [the latest figures](#) from the [U.S. Bureau of Labor Statistics](#). Pennsylvania’s unemployment rate of 9.3 percent is only slightly below the national average, and marked a [1 percent increase](#) from 2009.

But there do appear to be localized impacts.

In Bradford County near the border with New York State, where the most wells have been drilled this year, unemployment is down a full percentage point to 7.5 percent—the second-lowest rate in the state. In Washington County, south of Pittsburgh, the next most active drilling area and birthplace of the state’s shale boom, wages are up 4 percent over last year and rank in the top fifth in the state—unusual for a rural county. “It is impossible to predict the impact of workforce needs for any one specific location,” the MSETC study said, because work at each drill site takes just a month, and companies move crews from site to site, depending on prospects and the land leases they happen to hold (which expire if drilling doesn’t begin within a certain time frame).

### **Lease on a New Life**

In fact, before shale brought any jobs at all to Pennsylvania, it brought money, as companies rushed to secure the most favorable land.

That meant signing lease deals for the right to drill on private property, agreements that early on paid landowners bonuses of about \$50 an acre, with the going rate escalating to as high as \$5,000 an acre for a time when the value of Marcellus became apparent. Pennsylvania law requires the lease deals to pay landowners royalties of at least 12 percent of the revenue from the gas extracted. In 2008 and 2009, the industry says, the deals netted Pennsylvania landowners \$3.5 billion, with another \$3.2 billion expected in 2010 and 2011.

The industry has a lot of fans among these landowners, although signs of wealth might not be apparent to outsiders. But Beverly Romanetti, whose family leased its approximately 150-acre cattle farm in Hickory, about 30 miles southwest of Pittsburgh, says the change is obvious to locals. “Farmers here never had any money to fix their farms,” she says. “They fixed their barns

with duct tape and baler twine, but they kept at it because if that's your way of life, that's what you are. If you're born a farmer, you die a farmer.

“Now because of the gas companies, you should see the barns getting fixed,” Romanetti says. “It's not going to give you money so that you can quit farming, but enough if you want to be able to keep farming.”

In addition to the farming they've been doing since the 1960s, the Romanettis have started a small business. Starting with just one truck used to haul stone, they now have a crew of 10 people, including two of her adult sons, who do the numerous small jobs that crop up around the gas sites—building fences and dikes, and road repair. (A third son works for a gas company contractor.)

### **Working Until the Job is Done**

The Romanettis aren't the only ones to reap benefits from the gas industry by finding a new need and setting out to fill it.

Just 10 miles up the road, Paul Battista, who has owned Sunnyside Supply for 28 years, has seen his sales double and his inventory triple after he revamped his store to service the gas industry. He stocks everything from fire-resistant clothing to filters, valves, and measurement tools needed in gas processing.

Battista for years had specialized in selling equipment to local manufacturers. But when he realized the gas business was growing around him, he did some research. “It's calling people in Oklahoma and asking them, ‘Well, what do you do for these guys?’ and ‘What is it that they look for?’ and ‘How do they operate?’”

One big change: He and his wife have learned to expect calls on Sunday. Battista remembers getting an apology from one gas company customer who couldn't wait until Monday for a 20-by-30-foot steel building to cover a compressor. “He said, ‘Tell your wife I'm sorry, I kind of lose track of what day of the week it is,’ ” Battista recalls. “In this business, they don't think about when the day is done, but when the job is done.”

Because rig equipment costs are so high, it is typical throughout the oil and gas industry to run drill sites 24 hours a day. In the Marcellus, the out-of-state workers typically live at the drill location in mobile trailers for two weeks at a time, working 12-hour shifts seven days a week, then heading home for two weeks off. It's no wonder that some of the first Pennsylvanians who are actually getting jobs doing the actual drilling are workers used to grueling schedules—war veterans.

One of them is Joshua Cannon, 30, of Bethel Park, Pennsylvania, who served three tours of duty in Iraq, the last two with the Army's highly regarded 101st Airborne Division. He was discharged in 2008, just as the recession hit, and found nothing but heartache in his search for a salaried job to support his wife and two children.

He lost out on a job as manager of a discount variety store to a candidate with a business administration degree. The work he did find was making deliveries—sometimes earning \$200 a day, sometimes \$20 a day, depending on calls completed—with no benefits. He and his wife

tried to move out of their cramped and cold apartment, but on the day of closing on their new house, the bank refused the loan because he had no steady salary. “I felt like I survived being in intense combat for three years, and I can’t survive in Pittsburgh,” Cannon says.

He decided to see whether there were any opportunities in a business he had first heard about from an old friend—gas drilling in the Marcellus shale. He got the call, and started work last February.

“Some days it's intensive labor, where you have to tackle one project individually or as a team,” he says. “Other days, when the driller is turning knobs and pushing buttons, you have to figure out little projects throughout the rig to keep things running. It might be cleaning or fixing or organizing something. It’s a good balance of work.” And it’s a steady salary, including health insurance and a 401 (k). “It’s a golden opportunity on so many levels,” Cannon says.

But for now, Cannon is an exception.

Gas companies say they want to move to a more local workforce on rigs, but the technical nature of the job—the actual driller manages the well from a bay of computer screens in an enclosed control room high in the derrick—means that only a small percentage of the team can be made up of inexperienced workers, producers say.

Certainly, the jobs are attractive. The average oil and gas worker salary in Pennsylvania is about \$60,000, or 50 percent higher than the average private wage job in the state, according to the Pennsylvania Economy League of Southwestern Pennsylvania. But job experts say at least 75 percent of rig workers are from out of state.

“There’s a lot of talk about the pick-up trucks with Texas and Oklahoma license plates,” says Joe Iannetti, principal of the [Western Area Career and Technology Center](#) (WACTC) in Canonsburg, Pennsylvania. “They’re skilled and good people and we like them because they spend their money here. But we want to see some Pennsylvania license plates at those work sites. I think that’s our duty, to make sure we can provide people who can work those jobs.”

So in the summer of 2009, WACTC, which draws students from nine public school districts in southwestern Pennsylvania’s Washington County and also provides adult workforce transition training, began a specialized program in Marcellus shale jobs. Nearly 90 students have been through the program so far. When he approached the gas companies that are now sponsoring the program and providing equipment, “they said we were a little bit ahead of them,” Iannetti says. “And I think that’s good—we believe we should be producing people before they need them, not after they need them.”

But jobs programs across the state have found there’s at least one way Pennsylvanians can immediately find jobs in the shale business—hauling pipes, equipment, sand, chemicals, water, and wastewater to and from drill sites. The [U.S. National Park Service](#)’s geologic resources division, which is looking at impact of shale development, estimated that it takes 300 to 1,400 truckloads to bring an average well to production. Penn College in Williamsport, which has not had a driving curriculum in recent years, began truck sessions each month after its needs assessment showed enormous demand for drivers. The gas companies need people behind the wheel who are accustomed to managing Pennsylvania’s icy roads in winter, says Michael, and trained for the rough off-road driving needed to reach the drill sites.

WACTC's commercial drivers' license program will do \$1 million of business this year—a 15-fold increase since the shale industry arrived, says Iannetti, and the school is placing students in jobs as fast as it can graduate them.

Lee Zavislak was delighted with WACTC's training program, although she admits she was intimidated at first by the idea of driving an 18-wheeler. And she did not easily see herself in a heavy industrial setting—she had passed on one possible steel mill opportunity because the vapors and dust in the enclosed space seemed unhealthy. She lives in a rural community because she loves peace and quiet and has mixed feelings about the new energy business.

“It's a good thing and it's a bad thing,” she says. “I think short-term, it's a very, very good thing, it will provide a lot of jobs, a lot of people will make a lot of money . . . and also [will be] creating American fuel instead of foreign. But then there's health risks. Our environment . . . nobody can really predict what the damage is going to be.”

Within two months of earning her commercial driver's license, Zavislak started a new job last month as a utility warehouse person and back-up truck driver for a local welding supply operation. Welding is one of the many local trade industries that have seen demand surge since the arrival of the shale gas industry. After the frustration of unemployment and a year of job searching, she was overjoyed to land a position that matched the salary and benefits she earned at the Dasani factory.

Despite her qualms about the industry that is generating the bulk of the new trucking jobs in the region, Zavislak looks at the big picture, and the benefit of gaining a skill she hopes will be in demand regardless of the gas industry's fortunes: “Every single thing, anywhere, is moved by a truck,” she says.

*\*This report is produced as part of National Geographic's [Great Energy Challenge](#) initiative, sponsored by [Royal Dutch Shell](#), which recently acquired a stake in the Marcellus shale. National Geographic maintains autonomy over content.*