

INTERNATIONAL BUSINESS | CHINA TAKES ON BIG RISKS IN ITS PUSH FOR SHALE GAS

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# China Takes On Big Risks in Its Push for Shale Gas

By KEITH BRADSHER APRIL 11, 2014

## Chinese Fireball Mystery

China's largest energy company has made the country's first commercially viable shale gas discovery, but the path to energy independence is fraught with risks, as one town has seen first-hand.

JIAOSHIZHEN, China — Residents of this isolated mountain valley of terraced cornfields were just going to sleep last April when they were jolted by an enormous roar, followed by a tower of flames. A shock wave rolled across the valley, rattling windows in farmhouses and village shops, and a mysterious, pungent gas swiftly pervaded homes.

“It was so scary — everyone who had a car fled the village and the rest of us without cars just stayed and waited to die,” said Zhang Mengsu, a hardware store owner.

All too quickly, residents realized the source of the midnight fireball: a shale gas drilling rig in their tiny rural hamlet.

This verdant valley represents the latest frontier in the worldwide hunt for shale gas retrievable by the technology of hydraulic fracturing, or fracking. It is a drilling boom that has upended the energy industry and spurred billions of dollars of investment.

Like the United States and Europe, China wants to wean itself from its dependence on energy imports — and in Jiaoshizhen, the Chinese energy giant Sinopec says it has made the country's first commercially viable shale gas discovery. Its efforts could also help address another urgent issue, as Beijing looks to curb an overwhelming reliance on coal that has blackened skies and made China the largest contributor to global warming.

Huge drilling projects can be seen embedded into farm land outside of Fuling, China. Shale gas has been discovered in the region.

But the path to energy independence and a cleaner fossil fuel is fraught with potential pitfalls. Threats to workplace safety, public health and the environment all loom large in the shale gas debate — and the question is whether those short-term risks threaten to undermine China's long-term goal.

The energy industry around the world has faced criticism about the economic viability of vast shale projects and the environmental impact of the fracking process. But interviews with residents of six

hamlets here where drilling is being done, as well as with executives and experts in Beijing, the United States and Europe, suggest that China's search poses even greater challenges.

In China, companies must drill two to three times as deep as in the United States, making the process significantly more expensive, noisier and potentially more dangerous. Chinese energy giants also operate in strict secrecy; they rarely engage with local communities, and accidents claim a high death toll.

The still-disputed incident in Jiaoshizhen has raised serious concerns among its residents.

Villagers said that employees at the time told them that eight workers died when the rig exploded that night. Sinopec officials and village leaders then ordered residents not to discuss the event, according to the villagers. Now villagers complain of fouled streams and polluted fields.

"There was a huge ball of fire," said Liu Jiazhen, a mustard greens farmer with three children who lives a five-minute walk from the site. "The managers here all raced for their lives up the hill."

Ms. Liu said that the flames rose higher than the pines on a nearby ridge, covering the steel frame of the rig, which is nearly 100 feet high. The flames burned for hours, she said.

Sinopec describes the incident as a controlled flaring of gas and denies that anybody died. While the company would not speak in detail about its shale projects, Sinopec said it ran its operations safely and without harm to the environment.

Li Chunguang, the president of Sinopec, said in an interview in late March that nothing had gone wrong in Jiaoshizhen. "There is no basis for this," he said.

The bustling activity in Jiaoshizhen indicates a significant find for Sinopec.

Feeder pipes connect some of the dozen or so drilling sites, and 100 more wells are planned. Bright blue, boxy equipment for gas compression is being installed on large, flat lots next to at least two of the drilling rigs. A two-lane road has been paved across a mountain pass from Fuling, the nearest city, to help carry the 1,100 truckloads of steel, cement and other supplies needed for each well.

The valley has been so isolated for centuries that residents of its 16 hamlets still speak a dialect that is distinct even from Fuling, 13 miles away. Jiaoshizhen had only two-story concrete buildings and single-story mud brick farmhouses last August; Sinopec workers lived in trailers while managers rented the upstairs of concrete homes. On a visit six months later, at least 20 tower cranes were erecting high-rises.

The gas field in Jiaoshizhen "is the closest we have in China to a breakthrough project," said Gavin Thompson, the head of Asia and Pacific gas and power research at Wood Mackenzie, one of the largest energy consulting companies. He noted, however, that Sinopec was providing few details and that he, like most Western experts, had not been able to visit the valley.

Chris Faulkner, the chief executive and president of Breitling Energy, a Dallas company that has advised Sinopec on its drilling in western China for four years, said that the energy giants' reluctance to have open discussions about health, safety and environmental issues might prompt communities to fear the worst.

"If they think that they're going to go out and drill 1,000 wells, and no one is going to Google

‘fracking,’ they’re fools,” he said, adding that even in China, “the days of ‘shut up and be quiet’ are gone.”

The Chinese energy giants have plenty of money to fund their efforts. Sinopec has one million employees and is the world’s fourth-largest company by revenue after Royal Dutch Shell, Walmart and Exxon Mobil; the fifth-largest is China National Petroleum. With their deep pockets, the companies have been investing heavily in North American shale businesses; Sinopec paid \$2.2 billion in 2012 for a 30 percent stake in Devon Energy’s shale gas and oil operations in the United States.

In China, workplace safety is a significant concern. Thousands die each year in coal mines, according to government statistics that have prompted a successful national crackdown over the last decade.

Scant information is publicly available about the safety and environmental records of the politically powerful, mostly state-owned oil and gas industry. But Sinopec has acknowledged two deadly accidents in the last year, albeit not related to fracking. An oil pipeline explosion in Qingdao killed 62 and injured 136, and a cooking gas explosion in Dongguan killed one.

In Jiaoshizhen, after the blast, worries linger about the impact on the residents’ health and their fields.

Villagers said in interviews in August and February that the fast-spreading gas they encountered last year had been foul-smelling. Sinopec said that it had done air tests and not found any toxic pollution, although it declined to identify the gas.

The gas evoked particular fear here because drilling by China National Petroleum in 2003 about 120 miles to the northeast released toxic gases that killed 243 people and sickened thousands. That accident involved conventional gas exploration, however, not fracking.

Residents here also worry about diesel runoff from the drilling sites, tainting local streams and at least one shallow well. The drilling “makes so much noise and the water that comes down the mountain has become so much dirtier to drink; now it smells of diesel,” said Tian Shiao Yung, a farmer.

Sinopec said that it temporarily provided drinking water to residents after drilling foam surfaced in a nearby cave last spring, and it changed its drilling practice. The company said that subsequent tests had shown the local water to be “drinkable.”

Despite her complaints, Ms. Tian, like every other resident interviewed, welcomed the drilling for one reason: money.

Sinopec rents land from farmers for 9,000 renminbi, or \$1,475, per acre each year. Farmers earn that much money from growing crops only in the best years, and then after hundreds of hours of labor.

“Farmers don’t mind; now they can buy their rice instead of having to grow it,” Ms. Tian said, adding: “I’m still drinking the water.”

A version of this article appears in print on April 12, 2014, on page A1 of the New York edition with the headline: China Takes On Big Risks in Its Push for Shale Gas.

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