Amid US gas boom, split over environment risks

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A sign indicating the location of the Millenium Pipeline buried under a cut in the forest in Hancock, New York, about 140 miles northwest of New York City. The United States is seeing a natural gas boom thanks to discoveries of abundant shale gas, and at the same time a groundswell of opposition from critics who say the environmental risks from drilling are too great.

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At the heart of the issue is a drilling technique known as hydraulic fracturing, or "fracking," of underground rock formations by injecting chemicals and water to release trapped gas.

The natural gas reserves could supply US needs for 110 years, thanks in

part to advances in horizontal drilling, according to the US Energy Information Administration.

But much of the gas is in areas which are not accustomed to drilling, including towns in Pennsylvania and around the Dallas metropolitan area in Texas.

Chris Tucker, spokesman for the industry funded group Energy In Depth, said that the Marcellus Shale over a wide area of the eastern United States, the Barnett Shale in Texas and others in the west could produce the energy equivalent of 87 billion barrels of oil.

And since the gas is close to population centers where energy demands are greatest, Tucker said, "you can produce it in the morning and have it in New York City by lunchtime."

Over 3,000 gas wells have been drilled in Pennsylvania alone in the past six years, according to industry figures, and 15,000 in north Texas. This has helped drive down the price of natural gas from around $13 per million cubic feet in 2005 to just over $4 today.

Shale gas is projected to increase its share of production from 16 percent in 2009 to 45 percent in 2035, according to government estimates.

Turkeys forage for food at a dairy farm whose owners have refused to sign an agreement with energy companies to allow drilling rights on their land in Callicoon, New York for access to part of the largest natural gas reserve in the US. The US is seeing a natural gas boom, and at the same time a groundswell of opposition from critics who say the environmental risks from drilling are too great.

Critics however say the industry has moved too fast with little regulation, and cite concerns about spills, leaks and contamination from chemicals used in the process. Similar debates are ongoing in Canada, France and other countries.

"No one really knows what the health impacts are from living near oil and gas exploration and production sites," said Amy Mall of the Natural Resources Defense Council.

"Families from California to Pennsylvania, Texas to Wyoming, and in between, report very serious health symptoms that they believe are related to exposure to contaminants in their water, air, or both... we need

a suite of new rules."

Vera Scroggins, a member of Citizens for Clean Water in northeast Pennsylvania, said residents began to organize against fracking in 2009.

"I and others started to see problems with contamination in waters," she said. "We saw air pollution, noise, habitat disruption, soil disruption."

Because of the money paid by drillers to residents, she said, "most of the population is still starry-eyed about it."

The Oscar-nominated documentary "Gasland," which notably showed images of a kitchen faucet set ablaze due to methane in water, has galvanized opponents.

The industry argues there are misconceptions about fracking, and say the technique itself has been used in conventional wells for decades.

"Science is on our side," Tucker said. "The fracturing process has no relation whatsoever to the contamination of water."

Tucker said that private wells in gas-producing areas will have naturally occurring methane because the water is in a coal seam.

"When you dig into a coal seam you get methane," he said. "But the methane separates from the faucet water. You don't drink it."

A Duke University study in May prompted claims of vindication on both sides of the debate.

The study found methane in 85 percent of the samples, but levels were 17 times higher at sites within a kilometer (0.6 mile) of active hydraulic-fracturing operations.

Gas prices of more than $4.00 a gallon are displayed at a gas station in Burbank, California. The United States is seeing a natural gas boom thanks to discoveries of abundant shale gas, and at the same time a groundswell of opposition from critics who say the environmental risks from drilling are too great.

The researchers however found no evidence of contamination from the chemicals used to fracture the rock or from "produced" water -- the wastewater that emerges from the wells after the shale has been fractured.

The study also noted that "compared to other forms of fossil-fuel extraction, hydraulic fracturing is relatively poorly regulated at the federal level."

Congress and federal officials are considering new regulatory efforts, but Tucker said states have been regulating the process for years and that a federal effort would "throw away the states' expertise."

Separately, New York state lawmakers are considering extended a moratorium on fracking, and some cities have banned the technique within their municipal limits.

Tucker said concerns are often related to the temporary impact of the initial drilling. "It takes us two days to fracture the well, and then the well will produce for 40 years," he said.

But even some industry leaders acknowledge they must address public unease.

"We have to find ways to give the public confidence," said Robin West, chairman of PFC Energy, an industry consulting firm. "If shale is going to be a game changer, these (safety) issues have to be resolved."

Still, it is likely that the energy-hungry United States will be drilling more for gas, because of its relative low cost and carbon footprint.

"In North America, shale gas development over the past decade has substantially increased assessments of resources producible at modest cost," an MIT study concluded.

"Consequently, the role of natural gas is likely to continue to expand, and its relative importance is likely to increase even further when greenhouse gas emissions are constrained."