# Study Supports Fracking, Says Leaks From Gas Drilling Not Immense

Kevin Begos & Seth Borenstein, AP

Drilling and fracking for natural gas doesn't seem to spew immense amounts of the greenhouse gas methane into the air, as has been feared, a new study says. The findings bolster a big selling point for natural gas - that it's not as bad for global warming as coal. And they undercut a major environmental argument against fracking, a process that breaks apart deep rock to recover more gas. The study, mostly funded by energy interests, doesn't address other fracking concerns about potential air and water pollution.

The results, which generally agree with earlier Environmental Protection Agency estimates, were published Monday by the *Proceedings of the National Academy of Sciences*. About 90 percent of the study funding came from nine energy companies that drill for natural gas, with the rest coming from an environmental group. But study authors said they controlled how the research was done and how the wells were chosen for study. Even Robert Howarth of Cornell University, one of the scientists who first raised the methane leak alarm, calls the results "good news." Howarth, who didn't participate in the new work, did caution that the results may represent a "best-case scenario." It might be, he said, that industry can produce gas with very low emissions, "but they very often do not do so. They do better when they know they are being carefully watched."

He and the study authors say more research is needed to explain why some studies have found high rates of leaking methane and others have not. The University of Texas study wasn't a comprehensive study of all the places natural gas can leak. But Steve Hamburg, chief scientist at the market-oriented Environmental Defense Fund, which helped fund the study, noted that it presents "direct measures of things that everyone's been hand-waving about before. These are hard numbers using the best scientific approach that we can."

The study found that during the process of extracting natural gas from the ground, total leakage at the study sites was 0.42 percent of all produced gas. That is a bit less than what the EPA suggested is the national average. The U.S. produced 24.1 trillion cubic feet of natural gas in 2012, so that means about 101 billion cubic feet of methane leaked into the air during the first stage of production. Additional leaks occur in the second half of the process: delivery from wells to homes and power plants.

The study was one of the first time scientists were allowed to visit wells and use company data to measure escaping methane, said study lead author David Allen of the University of Texas. Some experts who didn't participate in the work praised it for its direct measurements and access, but said the way it was designed had limits and they worried about making broad conclusions from it. Although the study team

looked at 489 wells across the country, that's about one-tenth of 1 percent of all the natural gas wells in the United States. "Even very high quality measurements cannot overcome the small number of operations or sites measured," said Gabrielle Petron, a top methane monitoring scientist for the National Oceanic and Atmospheric Administration. She said she worried about high-emitters, which are rare but can account for a whopping portion of emissions.

Ira Leifer, a University of California Santa Barbara scientist who has driven across country measuring methane leaks, said there's a problem in looking at "normal operations," as the new study did, versus "real operations," which includes big leaks that companies will steer scientists away from. "Their study was not designed to look at the combination of normal and abnormal operations," Leifer said.

Over the last five years, advances in technology have led to a surge of gas drilling in states such as Pennsylvania, Colorado, Arkansas and North Dakota. Previously inaccessible deposits of shale oil and gas have been unlocked by fracking. Leakage of methane, the primary component of natural gas, has been an issue because the gas is 21 times more effective than carbon dioxide at trapping heat. But it generally lasts in the air about a decade, rather than hundreds of years as carbon dioxide does. While methane concentrations in the atmosphere have been rising since 2007, federal scientists say they've found no sign that gas or oil drilling is contributing because the methane emissions come from a different part of the globe.

Some environmental groups that oppose fracking said the industry funding of the $2.3 million study presented a conflict. But Ralph Cicerone, president of the National Academy of Sciences and an atmospheric scientist who has researched methane, disagreed. Cicerone said the authors represent "some of the very best experts around the country. It doesn't matter who is paying these people. They're going to give you the straight scoop."

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