

# Investors in US oil, gas companies have not ignored science behind unburnable carbon, study says

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Investors in U.S. oil and gas companies have not ignored the science when considering whether the potential carbon asset stock prices constitute a bubble—a concern raised in recent media reports, a new University of California, Davis, study suggests. The study found, instead, that investors' rational expectations for future cash flows are based on all possible scenarios, not just particular negative ones that crop up in the media.

Researchers found that there was a limited negative impact on stock prices of fossil-fuel companies in response to the original science disclosures. These disclosures found that only a fraction of the world's oil, gas, and coal reserves could be emitted if global warming by 2050 is not to exceed 2 degrees Celsius above pre-industrial levels. Subsequent media stories have suggested that the value of burnable carbon reserves held by big oil and gas companies could diminish rapidly as alternative energy resources replace fossil fuels.

The study, "Science and the Stock Market: Investors' Recognition of Unburnable Carbon," provides market evidence refuting the prediction that there is a carbon bubble about to burst. Two of the study's co-authors are Paul A. Griffin, a professor of management, and Amy Myers Jaffe, executive director of energy and sustainability, both of the UC Davis Graduate School of Management. Jaffe holds a joint appointment with the UC Davis Institute of Transportation Studies.

"It's essential that the media interpret accurately the meaning of results from science, but that does not seem to have happened with media reports about unburnable carbon," said Griffin, an international authority in accounting and corporate disclosure. "Our study tries to set the record straight."

Under a scenario offered by former Vice President Al Gore and others, climate change regulations could force fossil-fuel companies to leave large reserves of oil, gas and coal in the ground untouched in order for the world to avoid global warming. The companies' oil and gas reserves, which are a large component of their assets and market value, could be stranded as "unburnable" and potentially worthless.

Jaffe, a global expert on energy policy, geopolitical risk, and energy and sustainability, added: "This important energy policy issue needs a full debate and additional analysis, so that pension funds do not simply dump their oil and gas company investments for the wrong reasons."

Jaffe is attending special energy sessions at the annual meeting of the World Economic Forum, Jan. 22 to 25 in Davos-Klosters, Switzerland. On Jan. 24, Jaffe and John Negroponte, former U.S. ambassador to the United Nations and former U.S. ambassador to Iraq, will speak at an additional energy event on "Unconventional Oil and Gas: Reshaping the Geopolitical Map."

For the study, researchers analyzed how U.S. oil and gas company stock prices reacted to media coverage about the potential consequences of unburnable carbon for fossil-fuel companies.

The study examined the stocks of the 63 largest U.S. oil and gas companies that trade on the major U.S. exchanges. Most of them disclosed significant oil and [gas reserves](#) in their financial statements. As a result, there was a higher likelihood that these companies' stock prices

might be affected by investors' perceptions about the consequences of unburnable carbon.

The researchers studied 88 stories from 59 print media outlets, most in 2012 and 2013, and an initial story in 2009 published in the scientific journal *Nature*. Each story was considered a separate event that could potentially affect stock prices, with researchers measuring the average effect.

U.S. oil and [gas](#) stock prices dropped about 2 percent after the original 2009 *Nature* story (a total value of \$27 billion). The ensuing widespread coverage had little impact on the U.S. [oil and gas companies](#)' stock prices, which dipped by a half percent collectively.

**More information:** Dominguez-Faus, Rosa and Griffin, Paul A. and Jaffe, Amy Myers and Lont, David H., "Science and the Stock Market: Investors' Recognition of Unburnable Carbon." (November 30, 2013). Available at SSRN: [ssrn.com/abstract=2362154](https://ssrn.com/abstract=2362154) or [dx.doi.org/10.2139/ssrn.2362154](https://doi.org/10.2139/ssrn.2362154)

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