

EXPERTS: FRACKING METHANE LEAKAGE STUDY FINANCED BY GAS INDUSTRY WITH PARTNER, EDF, IS DEEPLY FLAWED

Numerous Problems Outlined With How Study Was Conducted in Order to Achieve Results Inconsistent with Findings of Independent Researchers

WASHINGTON, D.C./September 17, 2013//Anthony Ingraffea, Ph.D., Dwight C. Baum professor of engineering, Cornell University, and president, Physicians, Scientists, and Engineers for Healthy Energy (PSE), and Seth B. Shonkoff, PhD, MPH, executive director, Physicians, Scientists, & Engineers for Healthy Energy, and environmental researcher, University of California, Berkeley, issued the following statement today:

“The new gas industry/Environmental Defense Fund (EDF) study released Monday on methane gas leakage appears to be fatally flawed.

The study, “Measurements of Methane Emissions at Natural Gas Production Sites in the United States” by David T. Allen and colleagues was published yesterday in the Journal, Proceedings of the National Academy of Sciences at 3pm EST on Monday, September 16, 2013. The Environmental Defense Fund together with many oil and gas companies funded and supported this research effort.

The research bears directly on the powerful GHG/global warming effects of methane and thus the implications for regulation and continued widespread development of shale gas. But it has concluded that methane leakage at well sites, selected in time and location by industry participants, is so low as to be nearly trivial. This is a finding at odds with other researchers’ work that shows much higher rates.

Allen and colleagues conclude that upstream (at the well site) methane emissions from the natural gas industry amount to just 0.42% of gross annual domestic production of associated (oil wells) and non-associated (gas wells) natural gas. However, the study - much like its widely-criticized predecessor, (EPA/GRI 1996), which this study seems to closely follow – is based on a small sampling of hydraulically fractured wells which may not adequately represent national oil and gas activity and the variability within and across production basins.

Furthermore, the fugitive losses reported by Allen and colleagues are 10 to 20 times lower than those calculated from more complete (field-level) measurements.

A fatal flaw in the study by Allen and colleagues is that they make no attempt to discuss these conflicting results, nor do they even reference these other studies as relevant evidence to uncertainty. How might one explain this huge discrepancy in measured emissions?

- Possible explanation #1 for discrepancy: industry well selection. While it is possible that the gas industry can produce gas with relatively low associated emissions at the well site, this is likely not now the norm nationally, regionally, or even within a single production play. It is in the interest of industry to select lower emitting wells for sampling. Studies carried out by NOAA and other independent researchers which report significantly higher rates of emissions rely on atmospheric measurements and chemical analysis of atmospheric samples to assess emissions across the entirety of a production field rather than a small subset of selected wells. As such, these studies are more likely to reflect accurately real-world emissions from the industry as a whole.
- Possible explanation #2 for discrepancy: The effect of oversight. This paper suggests that when industry knows that they are being carefully watched they are motivated to, and capable of, substantially reducing fugitive methane emissions at the well site. However, in the real world, not every well has oversight by scientists and engineers of the caliber of Allen and colleagues during all of their work. In fact, many state oil and gas regulatory agencies in the United States have too few inspectors to monitor the large numbers of wells and regulatory oversight is, thus, greatly limited (<http://goo.gl/VK4nzf>). In the real world, gas production operators may not take all precautions necessary to limit fugitive methane loss; field-level measurements capture the emissions from wells owned by these operators as well as exemplary wells.

The results of this study fall within the range of upstream methane emissions reported in the controversial EPA/GRI 1996 study: 0.38% (± 0.17) of gross U.S. production. One can't help but notice other similarities between the studies: e.g. relative sample size, sampling methods. The EPA/GRI study has been widely

criticized for limited data and unrepresentative sampling (Howarth et al. 2011; EPA 2010; OIG 2013). Given the politically charged environment around unconventional natural gas development, we must question whether this study is simply an attempt to manipulate science and reverse the political discussions of fugitive methane emissions. A confirmation of high rates of fugitive methane losses as is concluded in all of the field-level studies to date (again, these were omitted from the Allen et al. paper) would discredit the "clean natural gas" narrative.

It is likely that a higher methane emission rate would necessitate more regulatory oversight of the oil and gas industry and this study may be an industry maneuver to counter that possibility.

It is disappointing that Allen and colleagues seem to have failed to employ basic scientific rules including transparent criteria for the selection of study sites to measure, sufficient sample sizes, and the attempt to place their results in the context of other scientific studies to date. This study falls short in its attempt to help answer questions about methane emissions from modern gas development beyond the small number of gas industry-selected wells where measures were taken.”

ABOUT PSE

Physicians, Scientists, and Engineers for Healthy Energy is dedicated to supplying objective, evidence-based, scientific information and resources on unconventional gas development (high-volume hydrofracking) and other novel energy production methods. PSE's mission is to bring transparency to the important scientific and public policy issues surrounding energy, helping to level the playing field for citizens, scientists, advocacy groups, media, and policy-makers. For more information, go to <http://www.psehealthyenergy.org/>.

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EDITOR'S NOTE: A streaming audio replay of the news event will be available on the Web at <http://www.psehealthyenergy.org/> as of 5 p.m. EDT on September 17, 2013.