



Fracking site. (photo: Eric Gay/AP)

Methane Leaks Erase Climate Benefit of Fracked Gas, Countless Studies Find

By Joe Romm, ThinkProgress, 18 February 16

Fracking is not good for the climate. Or, to put it a tad more scientifically, “By The Time Natural Gas Has A Net Climate Benefit You’ll Likely Be Dead And The Climate Ruined,” as I wrote [two years ago](#).

New satellite data and surface observations analyzed by [Harvard researchers](#) confirm previous [data and observations](#): U.S. methane emissions are considerably higher than the official numbers from the EPA. Significantly, the EPA numbers are mostly based on industry-provided estimates, not actual measurements.

While this new study doesn’t attribute a specific source to the remarkable 30 percent increase in U.S. methane emissions from 2002–2014, [many other studies](#) have identified the source of those emissions as leakage of methane from the natural gas production and delivery system.

The central problem for the climate is that [natural gas is mostly methane](#) (CH₄), a super-potent greenhouse gas, which traps [86 times](#) as much heat as CO₂ over a 20-year period. That’s why many [studies](#) find that even a very small leakage rate can have a large climate impact — enough to gut the entire benefit of switching from coal-fired power to gas for a long, long time.

Even worse, other studies find — surprise, surprise — natural gas plants don’t replace only high-carbon coal

plants. They often replace very low carbon power sources like solar, wind, nuclear, and even energy efficiency. That means even a [very low leakage rate](#) wipes out the climate benefit of fracking.

Indeed, researchers confirmed [in 2014](#) that — even if methane leakage were zero percent — “increased natural gas use for electricity will not substantially reduce US GHG [greenhouse gas] emissions, and by delaying deployment of renewable energy technologies, may actually exacerbate the climate change problem in the long term.” Exactly. In fact, a study just [last month](#) found that natural gas and renewables are competing directly with each other to replace coal plants in this country.

All of these findings taken together vindicate the concerns of high leakage rates raised by Cornell professors Howarth, Santoro and Ingraffea, which I reported on [back in 2011](#). Howarth told [Climate Central](#) this week that the increase in methane emissions “almost certainly must be coming from the fracking and from the increase in use of natural gas.” Howarth notes that even with deep CO₂ cuts, we’re headed toward dangerous 2°C warming by mid-century.

“But the planet responds much more rapidly to methane, so a reduction in methane emissions now would slow the rate of global warming immediately,” he said.

The good news is that [renewables are ready](#) to handle the job of running a modern economy, so we don’t need to

rely on natural gas as a “bridge” to a carbon-free future. The bad news is that many people still tout the supposed climate benefits of the fracking revolution — despite a paucity of observations and analysis to support that view and a plethora of data and research undermining it.

So let me end this post by linking to a number of the umpteen studies that undermine the climate case for fracked gas:

- IEA’s (2011) “Golden Age of Gas Scenario” Leads to More Than 6°F Warming and Out-of-Control Climate Change
- Study (2011): Switching From Coal to Gas Increases Warming for Decades, Has Minimal Benefit Even in 2100
- Study (2012): High Methane Emissions Measured Over Gas Field “May Offset Climate Benefits of Natural Gas”
- Study (2012): You Can’t Slow Projected Warming With Gas, You Need ‘Rapid and Massive Deployment’ of Zero-Carbon Power
- Study (2012): Natural Gas Is A Bridge To Nowhere Absent A Carbon Price AND Strong Standards To Reduce Methane Leakage
- NOAA study (2013) Confirms High Methane Leakage Rate Up To 9% From Gas Fields, Gutting Climate Benefit
- Study (2013) Projects No Long-Term Climate Benefit From Shale Gas Revolution (based on work of 14 different modeling teams)
- Study (2013) Finds Methane Leakage From Gas Fields High Enough To Gut Climate Benefit
- Study (2013) Finds Methane Emissions From Natural Gas Production Far Higher Than EPA Estimates
- “A review [2014] of **more than 200 earlier studies** confirms that U.S. emissions of methane are considerably higher than official estimates. Leaks from the nation’s natural gas system are an important part of the problem.”
- Study (2014): Up To 1,000 Times More Methane Released At Gas Wells Than EPA Estimates
- Study (2014): Expanded Natural Gas Use Worsens Climate Change
- NASA (2014): “U.S. Methane ‘Hot Spot’ (over 3 times) Bigger than Expected”
- Satellite Observations (2014) Confirm Methane Leaks Wipe Out Any Climate Benefit Of Fracking
- 10 Studies (2015) find methane leakage from major fracking region much higher than EPA estimates

Bottom Line: Wishful thinking and industry estimates do not actually make fracked gas a good climate strategy.