

Five Things to Know About the Cornell Shale Study

THING #1

The study's conclusions rely on a Global Warming Potential (GWP) factor that's **45 percent higher** than the UN's Intergovernmental Panel on Climate Change (IPCC) in 2007.

Context:

The authors manipulate the study parameters by using a **20-year timeframe** to study the GWP of methane in the atmosphere as opposed to the more common 100-year horizon.

Even NRDC disagrees with Howarth: "While I can see an argument for using a time horizon shorter than 100 years, I personally believe that the 20-year GWP is **too short a period** to be appropriate for policy analysis."

Source: NRDC's Dan Lashof, April 12, 2011

THING #2

Even the study's authors admit their data is **"pretty lousy."**

Context:

Howarth: "Let me just as an aside say that, again, the quality of the data behind that number [methane emissions during well completion] are **pretty lousy**. You know, they're these weird PowerPoint sort of things."

Ingraffea: "I hope you don't gather from this presentation that we think we're right."

Source: Howarth presentation to colleagues, March 15, 2011

THING #3

Howarth and Ingraffea completely misinterpret "lost and unaccounted for" (LUG) data

Context:

Howarth mistakenly believes that all gas categorized as "LUG" is gas that is lost (read: leaked) into the atmosphere. In reality, very little "LUG" gas enters the air; most is used to transport the gas itself.

THING #4

The authors' estimates on pipeline leakage are based on data and assumptions that are completely irrelevant to the Marcellus Shale.

Context:

Howarth bases his leakage projections in part on long-distance pipeline performance in ... get this ... Russia. This data is completely irrelevant to the Marcellus, most notably because of proximity to markets.

THING #5

Could it be possible that politics played at least a small part in the process of assembling this study?

Facts:

The study was funded by the Park Foundation, an Ithaca, N.Y.-based organization that also funds some of the most active elements of the opposition. Among the groups supported by Park: Natural Resources Defense Council (NRDC), Earthworks (Oil & Gas Accountability Project), Riverkeeper, and American Rivers.

What They're Saying About the Cornell Study

"Relatively **few actual observations** were used to estimate 'emission factors,' which were then extrapolated to estimate emissions from the system as a whole."

- Dan Lashof, *Natural Resources Defense Council (NRDC)*

"What he has done in his analysis is **deviated from what are accepted standards**, accepted by EPA, DOE, the IPCC, European Trading Scheme, California Air Resources Board, where essentially the denominator that they use to calculate the impacts of various greenhouse gases is an agreed upon 100 years; Professor Howarth uses 20 years."

- Melanie Kenderdine, *MIT Energy Initiative exec. director*

"Howarth's gas-to-coal comparisons are all done on a per energy unit basis. That means that he compares the amount of emissions involved in producing a gigajoule of coal with the amount involved in producing a gigajoule of gas. ... The per kWh comparison is the correct one, but Howarth doesn't do it. This is an **unforgivable methodological flaw** ..."

- Michael A. Levi, *Council on Foreign Relations*

"And Howarth, he's alleging that gas might actually be dirtier than coal. He throws a **whole bunch of assumptions** into that. And while it's an interesting prospect, I don't know yet if it can be said with any certainty."

- Abrahm Lustgarten, *ProPublica*

"This paper is selective in its use of some **very questionable data** and too readily ignores or dismisses available data that would change its conclusions."

- Dave McCabe, *atmospheric scientist posting on Clean Air Task Force*

"One thing that disturbed me and some of the scientists I consulted was the big gap in the definitiveness of [Howarth's] abstract summary and the actual paper. ... I find that they are **more value judgments than scientific judgments**."

- Andrew Revkin, *NYT Dot Earth blog*

"In performing a lifecycle assessment, gas and coal must be held to the same standard, and **it's not clear** that Howarth is doing this in his analysis."

- Worldwatch Institute

"A paper that some of you may have seen authored by a professor professing to show carbon emissions are greater from gas is **riddled with errors**."

- John Hanger, *former PA DEP secretary*

Numerous Studies Refute Howarth's Findings

American Gas Association, *Reducing Greenhouse Gas Emissions with Natural Gas* (May 3, 2011)

"Some of the major flaws include ... use of data that the authors note is **limited and questionable**; failure to adequately consider industry control technologies; and **misinterpretation of industry terms and data** such as 'lost and unaccounted for' gas."

Wood Mackenzie, *Methane Emissions from Unconventional Well Completions* (May 2011)

"Our analysis indicates that the Cornell study **overestimated the average volume** of natural gas vented during the completion and flowback stages by 60-65%. We conclude that the Cornell study **overestimated the impact of emissions** during well completions by up to 90%."

Global Warming Policy Foundation, *The Shale Gas Shock* (May 4, 2011)

This conclusion requires **unrealistic assumptions** about: the quantity of methane that leaks during fracking, production and transport; the lack of methane leaks from coal mines; the residence time of methane in the atmosphere; and the greenhouse warming potential of methane compared with carbon dioxide.

Navigant Energy Practice, *How Does the Howarth Team's Report Affect Natural Gas Development?* (May 2011)

"[T]he report concludes that the average well [in the Haynesville Shale] spits 250 million cubic feet of methane into the sky. That's about a million and a half dollars' worth of gas at today's prices. ... **I have to wonder whether the authors have ever seen a working drilling / fracturing operation**."