

The U.S. has been emitting a lot more methane than we thought, says EPA

By **Chris Mooney** April 15

This story has been updated.

The Environmental Protection Agency has released a major upward revision to its estimates of total emissions of methane, a hard-hitting if short-lived greenhouse gas, in an [annual inventory](#) that the agency submits to the United Nations. The revisions will further up the stakes in a political battle over [regulations that the agency is preparing](#) to issue that could affect operations at thousands of oil and gas wells.

“Data on oil and gas show that methane emissions from the sector are higher than previously estimated,” said the agency in a [news release](#) upon the report’s release. “The oil and gas sector is the largest emitting-sector for methane and accounts for a third of total U.S. methane emissions.”

Prior inventories, such as [last year’s report](#), which provided data through the year 2013, had suggested that the U.S.’s highest source of methane was [ruminant animals](#) like cattle and other livestock, rather than the oil and gas industry.

The agency revised upward total methane emissions in the U.S. for the year 2013 from 636.3 million metric tons to 721.5 million metric tons of carbon dioxide equivalents, driven in significant part by increased estimates of emissions from oil and gas operations. And the overall methane emissions number is still higher for 2014, the most recent year in the inventory, at 730.8 million metric tons.

“What EPA essentially is doing is restating the numbers using the better data, that has been collected from the field,” said Mark Brownstein, who heads the oil and gas program at the Environmental Defense Fund, which has focused heavily on the methane issue in recent years. “What has long been thought is that emissions in the field are higher than what had been historically reported in EPA’s emissions inventory, and now, when you use that better data, it is higher.”

Some of the most substantial upward revisions involved emissions from natural gas and petroleum systems across the country — an emissions source

that has increasingly been targeted by environmentalists, who say that the boom in domestic oil and gas production has driven greater methane emissions.

The EPA revised its methane numbers upward for multiple years in its inventory. According to the agency, the average increase per year due to its revisions was 12.9 million metric tons of carbon dioxide equivalents for natural gas systems (now the largest category of methane emissions), and 20.7 million metric tons for petroleum systems.

Methane totals are reported in units of “carbon dioxide equivalents” so that scientists can better make an apples-to-apples comparison between different greenhouse gases. Methane is known to have a much larger warming effect than carbon dioxide, but only over a short time period, whereas carbon dioxide has a far longer time of residence in the atmosphere.

“The big picture is that, yes, EPA’s estimate of methane emissions has increased, most likely due to them receiving better data,” said Kristin Igusky, an expert on methane with the World Resources Institute. “Because methane emissions are greater than we previously thought, it’s that much more important that policies are put into place to bring emissions down in this category,” she said.

It’s important to emphasize that the latest upward revisions only account for a relatively small fraction of total U.S. greenhouse gas emissions, which were predominantly in the form of carbon dioxide, rather than methane. Overall, emissions increased about 1 percent from the year 2013 to 2014, the last year in the newest inventory, according to the EPA.

Yet the upward methane revisions were still substantial when considered as a percentage. For instance, an analysis provided by the Environmental Defense Fund (EDF) found that if you compare oil and gas emissions for the year 2014 in the EPA’s latest inventory, with emissions for 2013 in the last year’s inventory, then there is a 34 percent increase — and the group said that 31 percent of that is “solely due to methodological change.”

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A growing body of scientific research has suggested of late that EPA’s prior estimates of methane emissions might be too low. “An overall increase is appropriate, given what we’ve been seeing for the last few years,” said Stanford University researcher Rob Jackson, who has published a number of these

studies.

The EDF's Brownstein observed that, "Overall, these numbers refute the industry claim that methane emissions from the oil and gas industry have been declining over time."

But a major industry group, the American Petroleum Institute, disputed the numbers Friday. "They've made a significant modification to the inventory estimates, and we believe that it is seriously flawed," said Kyle Isakower, the group's vice president of regulatory and economic policy.

Concerns about methane emissions from leaking oil and gas operations and systems has led to more and more emphasis on controlling these sources, fast, to lessen warming in the short term. President Obama and Canadian premier Justin Trudeau just [jointly announced](#) plans to seek a cut in oil and gas methane emissions by 40 or 45 percent below 2012 levels by 2025.

But if the new EPA data are right, 2012 levels themselves were considerably higher than previously thought.

Chris Mooney reports on science and the environment.
