New Data: Permian Oil & Gas Producers Releasing Methane at Three Times National Rate

Field readings by EDF PermianMAP show emissions far exceed industry commitments; 1.4 million tonnes of wasted gas is enough to supply every home in Houston, Dallas for a year

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(AUSTIN, TX) New measurements by atmospheric scientists working with Environmental Defense Fund's PermianMAP initiative found methane escaping from oil and gas operations in the most productive part of the basin at nearly three times the rate reported in the Environmental Protection Agency's nationwide statistics.

The 3.5% loss rate estimated in the study area is roughly 15 times higher than reduction targets set by leading producers, and much higher than many companies have reported. It represents 1.4 million tonnes of wasted gas each year, enough to meet the annual natural gas needs of every home in Dallas and Houston combined. Some wells were found to be releasing methane through leaks, venting and malfunctioning flares at more than 100 times the national average rate.

Methane, the primary component of natural gas, is a potent greenhouse gas causing a quarter of the warming we're experiencing today.

Oil and gas methane emissions are receiving renewed attention, as the oil and gas industry grapples with severe disruption to energy markets. Last week, the International Energy Agency warned that emissions could increase as companies cut staff and regulators dial back oversight. The report said oil and gas methane emissions could be reduced by a third at no net cost to industry, even with today's low oil and gas prices.

"Oil and gas companies have a core responsibility to protect health, safety and the environment. This data shows that operators in Permian are failing to meet that basic obligation," said Matt Watson, EDF Vice

President for Energy. “As company staffing and state oversight are stretched thin, it’s all the more crucial to maintain close watch on these emissions so leaks don’t go unnoticed or unrepaired.”

Two states in the forefront

The Permian Basin straddles Texas and New Mexico, two of the largest oil and gas producing states, where methane emissions and unchecked flaring of natural gas have been the subject of increasing attention and concern in recent years. The only backstop has been federal methane safeguards, which the Trump administration is working to eliminate.

Methane lost to venting, flaring and leaks costs New Mexico taxpayers $43 million in foregone revenue a year. But the state has operated for years with virtually no state rules to control oil and gas emissions. Now, under the leadership of Gov. Michelle Lujan Grisham, New Mexico has embarked on a process to adopt nation-leading methane rules by the end of the year, and a goal of reducing the state’s greenhouse gas emissions by 45 percent by 2030.

Regulators at the Texas Railroad Commission have come under increasing scrutiny for allowing enormous waste and pollution through the flaring of natural gas produced alongside oil. The commission has not denied any of the more than 27,000 requests for flaring permits submitted over the past seven years. Now, in response to falling oil prices, energy companies and others in Texas have begun discussing production limits. EDF has urged that any such policies be crafted to reduce flaring and protect the rights of mineral owners.

“The jaw-dropping emission rates we see across the basin underscore the failure of these two states to protect communities and prevent waste to date.” Watson said. “The data underscores the importance of Gov. Lujan Grisham’s commitment to enact strong methane rules and why Texas needs to get serious and get itself out of the back of the pack. It also shows just how dangerous the Trump administration rollback efforts are.”

Aiming for better performance

The PermianMAP findings are the first from the year-long project launched last October to help both regulators and operators reduce methane emissions in one of the largest oil-producing regions in the world – and to provide policymakers, the public and community groups hard data that can help inform the development of new policies to tackle the ongoing methane problem.

“Our goal is to protect communities, help companies improve field practices and make sure the public knows what’s happening and can engage on critical policy questions,” Watson said. “As we collect more data and are able to draw comparisons in the performance of individual operators, we anticipate this information will also be helpful to investors, who are increasingly focused on what companies are doing to reduce emissions.”

Data was collected between October 2019 and March 2020 across a 10,000 square-kilometer study area responsible for 40%of the basin’s production, using tower-based monitors, ground-based mobile sensors, fixed-wing aircraft and helicopters. New data will made available on a periodic basis as researchers continue to measure emissions over the course of the year.

In recent weeks, researchers have been operating under strict protocols to protect against the coronavirus and will continue to operate in accordance with all local, state and federal guidelines, including suspending operations as necessary.

Filling the data gap

Until now, there's been only limited data showing where methane is coming from, or which companies are managing their methane well and which still need to improve performance. The methane data developed by EDF's PermianMAP effort will be regularly updated to give users a current emissions snapshot. By integrating new data at regular intervals, we will generate a never-before-seen view of the region's emissions that can help inform mitigation efforts.

The report covers methane emissions associated with both oil and natural gas production. To achieve a total leak rate for the study area, figures are normalized to gas production to allow apples-to-apples comparison.

Details, maps and complete methodology are available at the PermianMAP site. The site also includes links to operator response forms, which give them an opportunity to let us know what they are doing with the data – whether they send out a crew, fix a leak, change maintenance protocols or take other steps.

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