

Monitoring Methane Emissions: Addressing Climate Change

ACTION

Members of Congress should reintroduce and support the Methane Emissions Mitigation Research and Development Act, ensuring that it addresses **three critical research needs**:

- Expand spectroscopic databases to support methane sensing
- Improve measurement of fuel tracers (carbon isotopes, ethane)
- Develop high efficiency detectors to support Lidar

Methane Emissions from Oil and Gas: Key Climate Change Contributor

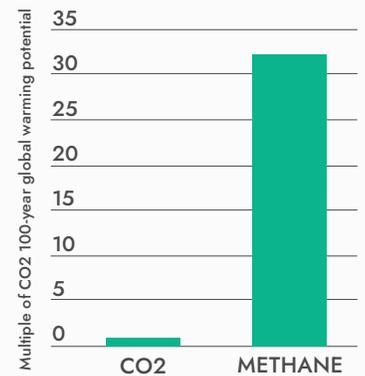
Methane (CH₄) is the second-most abundant anthropogenic greenhouse gas and significantly contributes to global warming.



2017 Global Methane Budget from Man-made Sources

Sources: The Global Methane Budget 2000-2017, by Marielle Saunio et al, Earth System Science Data, DOI:10.5194/essd-12-1561-2020

100-Year Global Warming Potential



Source: M. Etminan et al., Geophysical Research Letters 43 (2016)

“Although the challenge of reducing methane emissions can be daunting, the results from aerial monitoring show that with a technology and data-driven approach, operators can significantly reduce emissions while simultaneously reducing costs and improving operational efficiency.”

- Pioneer Natural Resources (major U.S. oil and gas producer)

Opportunity for Impactful Action

Methane emissions from oil and gas production are localized, intermittent, and dominated by a relatively small number of super-emitters: less than 10% of sources of methane in oil and gas operations contribute more than half of the emissions in the sector.

Current Monitoring Capabilities are Ineffective

- Current methane monitoring systematically underestimates emissions by up to a factor of three.
- There are no calibration standards that allow for comparison or aggregation of observations from different tools.
- There is no national repository of methane emissions observations to enable future effective monitoring and verification of reduction targets.

A National Approach is Needed for Effective Methane Emissions Reduction

- Decisive actions have both short- and long-term benefits, increasing efficiency of the oil and gas industry and mitigating climate change.
- The ability to accurately measure and monitor methane emissions is critical for any strategy that addresses climate change, including the Global Methane Pledge launched at COP26 in 2021.