

Overview

Methane, which is colorless, odorless, and flammable, is the largest component of natural gas and contributes significantly to global warming. In fact, it is the second most abundant greenhouse gas after carbon dioxide, accounting for approximately [20 percent of global emissions](#).

To help the United States move toward a clean energy and industrial future and achieve net-zero emissions by midcentury, the Biden-Harris Administration released the [U.S. Methane Emissions Reduction Action Plan](#) in 2021, which reflects an overall global goal to cut methane emissions by 30% from 2020 levels by 2030. The Administration is also making robust federal investments to reduce methane emissions across the U.S. economy.

These efforts are increasingly important. According to the [Intergovernmental Panel on Climate Change](#), the scale of reduction in global methane emissions could decide whether global warming can be kept below 1.5°C and whether tipping points will be reached, which would accelerate irreversible changes to the climate.

Methane Mitigation Technologies Program

In alignment with the Administration's climate goals, the U.S. Department of Energy's Office of Fossil Energy and Carbon Management (FECM) has a [Methane Mitigation Technologies Program](#) that focuses on achieving the near-elimination of emissions from the oil and natural gas supply chain by 2030.

Collectively, the projects that fall under FECM's portfolio are eliminating fugitive methane emissions (i.e., gases and vapors that are accidentally released into the atmosphere) and vented methane emissions (i.e., gases that are released as a part of the system design) to help improve air and water quality for communities across the nation.



A gas detector provides a warning if a gas leak occurs.

Research, Development, and Industry Partnerships

FECM's Methane Mitigation Technologies Program consists of two research and development areas: (1) **methane quantification**, which focuses on improving the understanding of methane emissions volumes throughout the oil and natural gas value chain, and (2) **methane mitigation**, which involves developing novel technologies to abate these emissions.

As a part of a broader decarbonization portfolio, FECM recently awarded nearly [\\$47 million in funding for 22 projects](#) in 2023 that will focus on the technical challenges of quantifying and mitigating methane emissions along the U.S. oil and natural gas supply chain. By 2025, these projects will help to advance the development of integrated networks of surface-based methane sensor technologies for more timely monitoring of methane emissions across large areas of oil- and natural gas-producing basins.

Other projects will design an integrated methane monitoring platform that will enable the early detection and improved quantification of methane emissions and help to advance the accuracy of methane emissions estimates.

FECM also has various partners across industry and with other U.S. government agencies as the office works to develop advanced technologies and solutions. A few of these efforts include:

- Developing advanced materials and sensor systems designed to eliminate or reduce methane emissions from natural gas and oil infrastructure by making it as leak-tight as possible;
- Developing integrated methane measurement and monitoring platforms to improve the accuracy of methane emissions estimates;
- Carrying out rigorous field testing in partnership with the Colorado State University and the Methane Emissions Technology Evaluation Center field site to accelerate the adoption of natural gas leak detection and quantification solutions by natural gas operators, and their approval by state and Federal regulatory authorities; and
- Collaborating with the Interstate Oil & Gas Compact Commission to assist Federal land management agencies, States, and Indian Tribes to locate, characterize and mitigate the environmental risks of [undocumented orphaned wells](#).

Societal Considerations and Impacts

As FECM advances the research and development of methane mitigation technologies and solutions, it is critical to understand and address the societal considerations and impacts of these projects at local and regional levels. That is why projects funded by the office must develop the following plans to ensure that they provide tangible economic and environmental benefits to affected communities:

- Community, Tribal, and Stakeholder Engagement
- Diversity, Equity, Inclusion, and Accessibility
- Justice40
- Quality Jobs

[Learn more about each of these project plan areas.](#)

Collectively, FECM's methane mitigation research and development efforts will help reduce methane emissions, create good-paying jobs, improve air and water quality for communities, and spur economic revitalization.

To keep up to date with information about the Methane Mitigation Technologies program and funding opportunity announcements, [visit FECM's website](#) and [sign up for news alerts](#)

