



Importance of Methane

Methane (CH₄) is a hydrocarbon that is a primary component of natural gas. Methane is also a greenhouse gas (GHG), so its presence in the atmosphere affects the earth's temperature and climate system. Methane is emitted from a variety of anthropogenic (human-influenced) and natural sources. Anthropogenic emission sources include landfills, oil and natural gas systems, agricultural activities, coal mining, stationary and mobile combustion, wastewater treatment, and certain industrial processes.

Methane is the second most abundant anthropogenic GHG after carbon dioxide (CO₂), accounting for about 11 percent of global emissions <<https://epa.gov/ghgemissions/global-greenhouse-gas-overview>>. Methane is more than 28 times as potent as carbon dioxide at trapping heat in the atmosphere. Over the last two centuries, methane concentrations in the atmosphere have more than doubled, largely due to human-related activities. Because methane is both a powerful greenhouse gas and short-lived compared to carbon dioxide, achieving significant reductions would have a rapid and significant effect on atmospheric warming potential.

Introductory Videos

EPA developed a Background on Methane video [🔗](#) to provide an overview of methane – what it is, where it comes from, and why it is important to reduce methane emissions.



GMI also created a Methane Mitigation Matters video [🔗](#) to explain the role of methane in climate change and provide an overview of the biogas, coal mine, and oil & gas sectors.

- Visit EPA's Methane page
<<https://epa.gov/ghgemissions/overview-greenhouse-gases#methane>> for detailed information about sources of methane, trends, and projections of future methane emissions
- Read GMI's fact sheet, GMI Support for Methane Mitigation (pdf) [🔗](https://globalmethane.org/documents/gmi%20methane%20mitigation%20solutions%20factsheet.pdf)
<<https://globalmethane.org/documents/gmi%20methane%20mitigation%20solutions%20factsheet.pdf>> (1,753 KB).



Other Things to Know About Methane Emissions

Who are the biggest methane emitters?

China, the United States, Russia, India, Brazil, Indonesia, Nigeria, and Mexico are estimated to be responsible for nearly half of all anthropogenic methane emissions. The major methane emission sources for these countries vary greatly. For example, a key source of methane emissions in China is coal production, whereas Russia emits most of its methane from natural gas and oil systems. The largest sources of methane emissions from human activities in the United States <<https://epa.gov/ghgemissions/overview-greenhouse-gases#methane>> are oil and gas systems, livestock enteric fermentation, and landfills.

Why aren't efforts to capture and profitably use methane emissions more widespread?

Despite multiple benefits, methane recovery is not widespread for several reasons.

1. Methane is generally a secondary byproduct in the industrial processes from which it is emitted. Coal mines, for example, seek to vent methane from the mine workings because it can cause explosions. Historically, mining companies have not viewed the associated methane as an energy resource in its own right.

2. Those responsible for the emissions may not be familiar with the technologies available for methane recovery or the potential for profitable recovery projects. This is especially true in developing countries where improved access to information and technical training would be beneficial to generating support for methane recovery projects.
3. Poorly functioning energy markets and financially insolvent utilities and municipalities within many countries fail to provide the private sector with a climate that will attract their investment in projects to capture and utilize methane.

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