Environmental Defense Fund

METHANE AND HEALTH

Oil and Gas Sector

255,000

premature deaths would be **prevented** by reducing methane emissions according to the Global Methane Assessment.

Reducing methane emissions is the quickest, most effective way to address climate change today as we take urgent steps to **decarbonize**. Cutting methane emissions delivers significant near-term health benefits. The **oil and gas industry**, which accounts for about a quarter of methane emissions, offers immediate opportunities, as its connection to negative health outcomes is **clear and affordable solutions** are available today.

Methane emissions across the oil and gas supply chain

Methane traps over 80 times more heat in the atmosphere than carbon dioxide during the first twenty years after its release. Its emissions bear significant responsibility to climate-related threats like more intense, severe and frequent extreme weather events, increased food insecurity, greater risk of infectious disease and heat-related illness and death. According to the Global Methane Assessment, reducing methane emissions would prevent 255,000 premature deaths, 775,000 asthma-related hospital visits, 73 billion hours of lost labor from extreme heat and 25 million tons of crop losses annually.

Methane emissions are released throughout the oil and gas supply chain, from extraction, to transport and storage, to residential or industrial use in three key ways: leaks (fugitive emissions), venting (planned or unplanned) and flaring.

Unintentional leaks escape from equipment like wells, flanges, valves, seals, pipelines and storage facilities. These fugitive emissions, by volume, make up most of the industry's methane emissions. Venting is the intentional release of methane directly into the atmosphere and often occurs during maintenance or when pressure in the system triggers safety requirements. Producers can also vent methane when infrastructure is unable to capture natural gas for sale or use. Flaring occurs when producers intentionally burn natural gas, usually as a byproduct of oil and gas extraction, when they are unable to transport it to market.

The climate crisis is a global health crisis

When methane is released, a series of co-pollutants are also emitted, including volatile organic compounds, nitrogen oxides, sulfur dioxide and fine particulate matter. Together, they contribute to poor air quality, threatening human health. These changes in air quality cause and exacerbate respiratory and cardiovascular diseases, as well as increase deaths due to

cancer and stroke. Impacts from fossil fuel industries are not distributed evenly, and many communities face disproportionate burdens from extraction, production and transportation.

Recent research has quantified the near-term health impacts of methane-emitting practices from the oil and gas industry in the United States, finding that the sector accounts for 7,500 premature deaths, 2,200 new asthma cases and $77 billion in health damages annually[1].

Affordable solutions exist today

The International Energy Agency estimates that 70% of methane from fossil fuel operations could be reduced with existing technology, and oil and gas emissions specifically could be reduced by over 75% with these existing and well-known measures[2]. The oil and gas sector has the tools it needs to stop more than half of this pollution from being released into the air. These solutions are low cost and straightforward, as simple as tightening valves and closing mechanical structure doors. Replacing pneumatic pumps with low-emissions alternatives, installing devices like vapor recovery units, improving leak detection and repair and eliminating non-emergency flaring will further support these efforts. Flaring and venting emissions alone are estimated to cause over $7.4 billion in health costs, 710 premature deaths and 73,000 pediatric asthma exacerbations in the United States[3].

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New measurement methods on the horizon

Innovations in remote sensing technologies will help policymakers, industry and regulators find and fix methane leaks faster and more effectively. Data from projects like MethaneSAT—launching in 2024—will make the invisible problem visible, by helping find sources anywhere on earth measure those emissions continuously.

By pinpointing where methane is coming from, how fast it is leaking and who is responsible for it, projects like MethaneSAT will help stakeholders find and fix leaks more quickly. This data will also allow governments and the public to see which companies and countries are—or are not—delivering on their promises so they can be held to account. Understanding and driving awareness of the health benefits of reducing methane emissions will further galvanize the support needed.

Reducing methane emissions by 45% by 2030 would unlock global health benefits

Avoid nearly **0.3°C** of warming by the 2040s.

Annually preventing:

255,000 deaths from respiratory and cardiovascular diseases

775,000 asthma-related hospital visits

26 million tonnes of staple crop losses

73 billion lost work hours to heat exposure

Source: Global Methane Assessment 2021

1. Jonathan J Buonocore et al 2023 Environ. Res.: Health 1 021006
2. https://www.iea.org/energy-system/fossil-fuels/methane-abatement
3. Huy Tran, Erin Polka, Jonathan Buonocore, et al. A Refined Satellite-based Emissions Estimate from Onshore Oil and Gas Flaring and Venting Activities in the United States and their Impacts on Air Quality and Health. *ESS Open Archive*. September 11, 2023.