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Taxpayer and Climate Costs of Methane Emissions

Every year, oil and gas companies waste thousands of billions of cubic feet of natural gas in the United States. On federal lands alone, 300 billion cubic feet of natural gas were released into the atmosphere over the last decade. Methane is the largest component of unprocessed natural gas and a greenhouse gas that is 80 times more potent than CO₂ for the first 20 years it's in the atmosphere.¹ When companies drill for oil and natural gas, methane is released through purposeful venting (when natural gas is released directly into the atmosphere) and flaring (when natural gas is burned), and accidental leakage. These practices waste valuable resources, hurting taxpayers, consumers, and the climate.

Gas Lost During Oil and Gas Development

Methane is regularly emitted throughout the oil and gas development process through venting, flaring, and leakage.

- **Venting** is the intentional release of natural gas from operators' equipment into the atmosphere.
- **Flaring** is the practice of burning natural gas during oil and gas extraction rather than capturing and bringing it to market. This is also used to burn gases that would otherwise present a safety problem.
- **Leakage** is the release of gases due to improperly sealed equipment, allowing gas to escape during extraction. These are sometimes called "fugitive" emissions.

Orvis State Natural Gas Flare | Photo Credit: Tim Evanson



In the ten-year period FY2012-2021, oil and gas operators reported venting, flaring, or losing 300 billion cubic feet (bcf)² of natural gas on federal lands. However, evidence indicates that the true amount of lost gas is likely much larger as the estimate is based on data self-reported by operators drilling on federal lands. There are multiple reasons that operators might underestimate the amount of lost gas, including little oversight and the fact that operators are not required to check for leaks or detect fugitive emissions.

According to the Energy Information Administration (EIA), approximately 3,259 bcf of natural gas was vented and flared from 2012 to 2021 in the United States.³ However, this estimate is also likely to be underestimated since some states' data are not available in the EIA aggregated database.

Taxpayer Costs of Lost Methane

Venting and flaring practices waste natural gas that could have been brought to market. For example, oil and gas companies rushing to produce oil choose to flare the comingled natural gas instead of setting up proper infrastructure to capture it. Back in 2010, the Government Accountability Office concluded that at least some of the losses were preventable, asserting that "... about 40 percent of natural gas estimated to be vented and flared on federal onshore leases could be economically captured with currently available control technologies."⁴ The 300 bcf of natural gas wasted on federal lands alone from FY2012 to FY2021 could power 3.2 million household's electricity use for a year⁴ and has a market value of \$949 million.

For lost gas that is released from federal lands, taxpayers were also deprived of potential royalty revenue due to the lack of clarification on when royalties should be charged on that lost gas. Over the past decade, taxpayers have lost at least \$76 million in potential revenue over the past decade on wasted gas. Taxpayers should have received \$119 million given the royalty rate of 12.5%. Instead, the Office of Natural Resources Revenue (ONRR) reported collecting just \$43

¹ The Intergovernmental Panel on Climate Change (IPCC) Working Group, Fifth Assessment Report, 2013. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf

² TCS, Gas Giveaways II, Aug 30, 2022. <https://www.taxpayer.net/energy-natural-resources/gas-giveaways-ii-methane-waste-on-federal-lands-is-business-as-usual/>

³ EIA, Natural Gas Gross Withdrawals and Production, Vented and Flared. https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_VGV_mmc_m.htm

⁴ GAO, GAO-11-34: Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases, Oct. 29, 2010. <https://www.gao.gov/products/gao-11-34>

⁴ EPA, Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

million in royalties on gas vented or flared over the decade, approximately one-third of the potential royalties.⁵

Climate Impact of Lost Methane

Lost gas has a significant effect on the climate. As a greenhouse gas, methane has a global warming potential 80 times higher than carbon dioxide over a 20-year period. About 60 percent of total global methane emissions come from human activities, of which fossil fuel production accounts for about 34 percent.⁶

The costs of climate change are mounting for taxpayers and the impacts are being felt across the country. Climate change costs taxpayers billions of dollars in disaster aid every year. On a cost-adjusted basis, billion-dollar disasters in the U.S. have increased from 3.1 per year, costing the federal government an average of \$20.2 billion in the 1980s, to 17.8 per year at an average annual cost of \$157.7 billion from 2017-2021.⁷ Federal climate policies and common sense should dictate increased urgency for the federal government to take action to limit methane emissions.

Conclusion

Operators drilling for oil and gas waste billions of cubic feet of valuable methane through reckless drilling practices. This waste prevents natural gas from reaching interested consumers, costs taxpayers in lost royalty revenue, and contributes to the growing taxpayer costs of climate change. It's time to prohibit non-emergency venting and flaring, eliminate waste, and protect taxpayers' interest and the climate.

⁵ TCS, Gas Giveaways II, Aug 30, 2022. <https://www.taxpayer.net/energy-natural-resources/gas-giveaways-ii-methane-waste-on-federal-lands-is-business-as-usual/>

⁶ National Academies of Sciences, Engineering, and Medicine, Improving Characterization of Anthropogenic Methane Emissions in the United States (Washington, D.C.: The National Academies Press, 2018). <https://doi.org/10.17226/24987> as cited in GAO-22-104759, Oil and Gas: Federal Actions Needed to Address Methane Emissions from Oil and Gas Development.

⁷ NOAA National Centers for Environmental Information (NCEI), U.S. Billion-Dollar Weather and Climate Disasters, 2022. <https://www.ncei.noaa.gov/access/billions/>