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## Taxpayer Costs of Methane Emissions



*Orvis State Natural Gas Flare | Tim Evanson*

Methane—the primary component of natural gas—is a valuable energy resource. When it is lost during production and distribution, released into the air instead of being brought to market, it creates harmful pollution and costs American taxpayers and consumers. Every year, hundreds of billions of cubic feet of natural gas are needlessly wasted by the oil and gas industry through purposeful venting, flaring (or burning), and accidental leakage. Commonsense steps can be taken to minimize this waste, saving money, helping local communities breathe easier, and reducing costly future liabilities.

### Gas Lost During Oil and Gas Development

The oil and gas industry is one of the largest sources of methane emissions in the U.S.,<sup>1</sup> wasting methane through three primary methods:

- **Venting:** The intentional release of natural gas from equipment into the atmosphere.
- **Flaring:** The practice of burning natural gas during oil and gas extraction instead of capturing and marketing it. Flaring is also used to burn gases that pose a safety risk.
- **Leakage:** The unintentional release of gases due to improperly sealed equipment, often referred to as “fugitive” emissions.

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<sup>1</sup> Environmental Protection Agency (EPA), “Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022”, <https://www.epa.gov/ghgemissions/draft-inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022>

According to the Energy Information Administration (EIA), approximately 3,170 billion cubic feet (bcf) of natural gas was vented or flared in the United States between FY2012 and FY2021.<sup>2</sup> On federal lands alone, 300 bcf of natural gas were released into the atmosphere during this period.<sup>3</sup> However, these figures are likely underreported due to reliance on self-reported data from operators, who have little incentive to accurately estimate the volume of lost gas.

## Cost-Effective Solutions to Reduce Methane Waste

Venting and flaring wastes natural gas that could otherwise be brought to market. Cost-efficient solutions exist to reduce this waste. In 2010, the Government Accountability Office concluded 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.”<sup>4</sup> Despite the increasingly widespread availability of cost-effective methane mitigation technology, oil and gas companies often prioritize rapid oil production over investing in infrastructure to capture co-produced natural gas. A study by Taxpayers for Common Sense and the Environmental Defense Fund found that oil and gas companies flared \$274 million worth of natural gas (87.5 bcf) on federal and tribal lands in 2019.<sup>5</sup>

The industry has access to a range of cost-effective technologies to curb methane emissions, but many operators fail to implement them. Advanced leak detection systems, including satellite monitoring, infrared cameras, and drones, can pinpoint methane leaks in real time. Replacing outdated equipment with “zero-bleed” pneumatic controllers and low-emission valves further reduces unintentional emissions. Beyond minimizing waste, these technologies also create economic opportunities for companies specializing in methane mitigation, demonstrating that reducing emissions can be a win-win for both industry and the public.

Investing in infrastructure to capture and market natural gas—rather than flaring or venting it—is another practical, revenue-generating solution. Modular gas capture systems, for example, allow operators to convert otherwise wasted gas into electricity or other marketable products. These systems not only reduce waste but also strengthen the domestic natural gas supply.

## Consumer and Taxpayer Costs of Methane Waste

Methane waste denies consumers access to a valuable energy resource and deprives taxpayers of federal, tribal, and state royalty revenues. The 300 bcf of natural gas wasted on federal lands

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<sup>2</sup> Energy Information Administration, “Natural Gas Gross Withdrawals and Production, Vented and Flared,” accessed February 21, 2025. [https://www.eia.gov/dnav/ng/ng\\_prod\\_sum\\_a\\_EPG0\\_VGV\\_mmcf\\_m.htm](https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_VGV_mmcf_m.htm)

<sup>3</sup> Taxpayers for Common Sense (TCS), “Gas Giveaways II,” August 2022. <https://www.taxpayer.net/energy-natural-resources/gas-giveaways-ii-methane-waste-on-federal-lands-is-business-as-usual/>

<sup>4</sup> Government Accountability Office, “GAO-11-34: Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases,” October 2010. <https://www.gao.gov/products/gao-11-34>

<sup>5</sup> Environmental Defense Fund (EDF) and TCS, “Onshore Oil and Natural Gas Operations on Federal and Tribal Lands in the United States, Synapse Energy Economics,” January 2023. [https://www.taxpayer.net/wp-content/uploads/2023/01/EDF-TCS\\_Public\\_Lands\\_Analysis.pdf](https://www.taxpayer.net/wp-content/uploads/2023/01/EDF-TCS_Public_Lands_Analysis.pdf)

between FY2012 and FY2021 could have powered 3.2 million households for a year,<sup>6</sup> with a market value of \$949 million.<sup>7</sup>

This waste also represents \$76 million in lost potential revenue for federal and state taxpayers. Companies extracting taxpayer-owned energy resources, like oil and natural gas, on federal lands are required to pay royalties to the federal Treasury and the states. At a royalty rate of 12.5%, taxpayers should have received \$119 million during this period. Instead, the Office of Natural Resources Revenue collected only \$43 million—just one-third of the potential royalties.<sup>8</sup>

A study commissioned by Taxpayers for Common Sense and the Environmental Defense Fund, using satellite and production data, found that in 2019 alone, 163 bcf of natural gas was wasted on federal and tribal lands. Worth \$509 million, this could have met the annual energy needs of 2.2 million households. The loss also represented \$64 million in uncollected federal, tribal, and state royalty revenues.

Methane waste is especially prevalent in major oil and gas-producing states. In 2019, operators in Texas wasted \$1.7 billion worth of gas (564 bcf) across federal and nonfederal lands, costing state residents and federal taxpayers \$128 million in potential revenue.<sup>9</sup> Similarly, operators in North Dakota wasted \$680 million worth of gas (226 bcf), resulting in \$43.3 million in lost potential revenue.<sup>10</sup>

## Costly Liabilities of Methane Waste

Methane waste creates costly liabilities for communities. Petroleum and natural gas systems are the largest industrial source of methane emissions in the U.S., accounting for 30% of all methane emissions in 2022.<sup>11</sup> Methane is 80 times more potent than carbon dioxide over a 20-year period and swift sustained reductions in methane are critical to mitigating near-term climate disruptions and its destructive impacts.<sup>12</sup>

The destructive impacts of methane emissions include immediate costs and escalating liabilities for taxpayers. Federal emergency spending to address climate-related extreme weather events has grown significantly. The National Oceanic and Atmospheric Administration reports that natural disasters are becoming more frequent and costly, with a record number of billion-dollar weather-

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<sup>6</sup> EPA, Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

<sup>7</sup> TCS, “Gas Giveaways II,” August 2022. <https://www.taxpayer.net/energy-natural-resources/gas-giveaways-ii-methane-waste-on-federal-lands-is-business-as-usual/>

<sup>8</sup> Ibid.

<sup>9</sup> TCS, “Methane Waste and Pollution in Texas,” July 2023. <https://www.taxpayer.net/climate/methane-waste-and-pollution-in-texas/>

<sup>10</sup> TCS, “Methane Waste and Pollution in North Dakota,” June 2023. <https://www.taxpayer.net/climate/methane-waste-and-pollution-in-north-dakota/>

<sup>11</sup> EPA, “Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022,” <https://www.epa.gov/ghgemissions/draft-inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022>

<sup>12</sup> Intergovernmental Panel on Climate Change, “Climate change widespread, rapid, and intensifying – IPCC,” August 2021. <https://www.ipcc.ch/2021/08/09/ar6-wg120210809-pr/>

related disasters in 2020.<sup>13</sup> Over the past five years, taxpayers have faced an average annual cost of \$62 billion for programs to combat and mitigate climate impacts —35% higher than the previous five-year average.<sup>14</sup> Reducing methane emissions is essential to shielding taxpayers from these growing costs and liabilities.

Methane emissions pose significant public health risks, especially for the more than 10 million Americans living within half a mile of active oil and gas operations.<sup>15</sup> Methane leaks often release harmful co-pollutants like benzene, a known carcinogen, and volatile organic compounds (VOCs) that contribute to ground-level ozone (smog). Exposure to these pollutants has been linked to respiratory diseases such as asthma and other serious health conditions. Children, the elderly, and individuals in low-income communities are particularly vulnerable to these health impacts due to their proximity to energy infrastructure.

Beyond health concerns, methane leaks also increase safety risks for nearby communities. Aging pipelines and poorly maintained infrastructure can lead to catastrophic accidents such as explosions or fires. Proactive measures to repair leaks and modernize infrastructure are essential not only for reducing emissions but also for protecting public safety.

## Conclusion

Oil and gas operators waste billions of cubic feet of valuable methane through reckless practices. This waste denies consumers access to natural gas, reduces royalty revenues for taxpayers, and creates costly liabilities. The oil and gas industry has access to a variety of cost-effective methane mitigation technologies and has recently received \$1.36 billion in federal funding to reduce emissions.<sup>16</sup> Reducing methane waste raises revenue, increases the supply of domestic natural gas for consumers, and helps protect American taxpayers and local communities from the long-term liabilities associated with methane emissions.

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<sup>13</sup> National Oceanic and Atmospheric Administration, National Centers for Environmental Information (NCEI), “U.S. Billion-Dollar Weather and Climate Disasters,” 2023. <https://www.ncei.noaa.gov/access/billions/>

<sup>14</sup> TCS, “Paying the Price,” June 2023. <https://www.taxpayer.net/climate/paying-the-price/>

<sup>15</sup> EDF, Study Explores the Demographics of Communities Living Near Oil and Gas Wells, January 2024, <https://www.edf.org/media/study-explores-demographics-communities-living-near-oil-and-gas-wells>.

<sup>16</sup> TCS, “The Methane Emissions Reduction Program (MERP),” May 2024. <https://www.taxpayer.net/energy-natural-resources/the-methane-emissions-reduction-program-merp/>