



ADDRESSING OIL AND GAS METHANE POLLUTION: THREATS AND OPPORTUNITIES

Methane is the primary component of natural gas.¹ When natural gas is leaked or intentionally released to the air during oil and gas production and transport, methane and toxic air pollution are released along with it. The previous Administration adopted a goal of cutting methane emissions from the oil and gas sector by 40 to 45 percent below 2012 levels by 2025. To achieve this goal, the Environmental Protection Agency (EPA) and the Department of the Interior's Bureau of Land Management (BLM) produced common-sense rules that reduce pollution cost-effectively while also cutting the waste of valuable natural gas resources on federal and tribal lands. The rules also curb accompanying toxic air pollution that impacts communities, along with wildlife and outdoor enthusiasts, near and downwind of oil and gas sites. Plus, by requiring greater capture of escaping gas on taxpayer-owned public and tribal lands, the rules generate more royalty revenues that can be used to better protect special places and support communities and infrastructure. It is critical to ensure these rules remain intact and to support additional opportunities to reduce methane pollution from this sector going forward.

METHANE: QUICK FACTS

- Methane, which has more than 80 times the climate-altering impact of carbon dioxide (CO₂) over a 20-year period, is the second most prevalent greenhouse gas. Methane is a super-pollutant that fuels climate change, threatening human health², wildlife, and natural resources across the U.S.³
- The oil and gas sector is the single largest source of methane emissions in the U.S., accounting for one-third of total methane pollution.⁴ Methane can be a by-product of oil or natural gas production.
- In 2014, methane emissions comprised nearly 11 percent of total U.S. greenhouse gas emissions.⁵
- Methane emissions can occur at any stage of the oil and gas supply chain (i.e., drilling and production, processing, transmission, storage, and distribution to end users), but most emissions occur during oil and natural gas production.⁶
- Operators typically release natural gas directly into the atmosphere through venting (direct release) and/or flaring (burning). Methane is also wasted through leaks in oil and gas infrastructure.⁷
- In addition to methane, other harmful pollutants are emitted by the oil and gas sector, including volatile organic compounds (VOCs) and air toxics like benzene (a known carcinogen). These pollutants cause a range of harmful health effects such as asthma and some cancers, as well as environmental impacts. These pollutants can be particularly concerning for communities on and near tribal and federal lands where oil and gas production occurs.⁸ *Regulations that reduce methane will also reduce emissions of these other damaging pollutants.*

BUREAU OF LAND MANAGEMENT'S RULE

- In November 2016, the BLM issued a rule to reduce methane pollution and waste from the oil and gas industry on public and Indian lands.⁹ More specifically, the rule aims “to reduce the waste of natural gas from flaring, venting, and leaks from oil and gas production operations on public and Indian lands.”¹⁰ BLM estimates that the rule’s net benefits could be worth between \$46-\$204 million each year.¹¹
- The rule is projected to cut methane emissions by as much as 35 percent, and could save enough natural gas to be able to power up to about 740,000 households each year.^{12,13}
- States, Tribes, and federal taxpayers lose royalty revenues when natural gas is wasted. A GAO analysis suggests 40 percent of natural gas that is vented and flared on public lands could be captured economically with currently available technologies. This could mean as much as \$23 million annually in additional royalty revenue.¹⁴

EPA REGULATIONS

- In May 2016, the EPA finalized a rule to reduce methane and volatile organic compound (VOC) emissions from new and modified oil and gas sources, including regular methane leak inspection and repair requirements.¹⁵
- EPA estimates that this rule will result in net climate benefits of \$170 million in 2025, by reducing 462,000 metric tons of methane (an amount equivalent to 11 million metric tons of carbon dioxide). It also will reduce 210,000 tons of VOCs and 3,900 tons of air toxics by 2025.¹⁶
- One analysis estimates that without existing source standards, 75 percent of methane from today’s oil and gas infrastructure would remain unregulated at the federal level, even after the rule on new and modified sources goes into effect.¹⁷
- EPA in the previous Administration undertook a data collection process to serve as the foundation for regulating existing oil and gas sources. On March 2, 2017, the current Administration canceled the data collection request. The new source rule remains intact.

HUMAN HEALTH CONSEQUENCES

- Air pollution from oil and gas facilities can have a significant impact on public health—even in areas far from oil and gas production.



- 238 counties in 21 states face cancer risk that exceeds EPA’s one-in-a-million threshold level of concern due to emissions from oil and gas facilities—these counties have a population of over 9 million people.
- Oil and gas production creates air pollution that results in ozone, also known as smog. Ozone smog harms public health. Smog especially poses a threat to children who suffer from asthma.
- Nationally, there are more than 750,000 summertime asthma attacks in children under the age of 18 due to ozone smog resulting from oil and gas pollution.
- Each summer, there are more than 2,000 asthma related emergency room visits and over 600 respiratory related hospital admissions

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- Children miss 500,000 days of school nationally each year due to ozone smog resulting from oil and gas pollution.
- Nationally, 12.4 million people live within one-half of a mile of oil and gas facilities, including nearly 156,000 Native Americans. Peer-reviewed science shows that living near oil and gas facilities is associated with negative health impacts, including fetal defects and respiratory ailments.

WILDLIFE IMPACTS

- Climate change is one of the greatest threats to wildlife because of its potential to alter ecosystems, food and water resources, and wildlife behavior.
- Climate change—partly fueled by methane pollution—is leading to rapid shifts in the habitat, landscapes, and seascapes American wildlife depend on, placing numerous species at risk of extinction within this century if current rates of emissions continue unabated.¹⁸
- Oil and gas wells and infrastructure on federal and tribal lands can fragment wildlife habitat for species like the pronghorn, compounding harm for wildlife already impacted by a rapidly-changing climate. This can hinder migration routes, limit access to food, water, and other resources, and ultimately can lead to species population declines.
- Wildlife also can be harmed as a result of spills, chronic leaks, and crude oil releases.
- Loss of wildlife affects hunters and anglers, as well as wildlife watchers, outdoor recreational businesses, and wildlife managers, all of whom have a vested interest in conservation.¹⁹



IMPACTS OF METHANE WASTE ON THE ECONOMY AND ON TRIBAL LANDS

- A recent study by ICF International found that “[o]il and gas operations on federal and tribal lands emitted over 1 million tons of methane in 2013, about 12 percent of the nation’s methane emissions from oil and gas operations.”²⁰ This same study “estimates that fugitive and vented losses from oil and natural gas operations on federal and tribal lands amounted to over 65 billion cubic feet (Bcf) in 2013. This gas would be worth nearly \$330 million at current prices.”²¹
- Analysis by the Clean Air Task Force has shown that emissions on federal and tribal lands are disproportionately high—reported emissions from production basins dominated by these lands are much higher than expected, based on the portion of U.S. oil and gas produced on them.²² This analysis suggests that the ICF International analysis is conservative.
- Tribal communities lose resources when royalty revenues from oil and gas development on tribal lands are wasted. These revenues, if recovered, could be used to construct schools, hospitals, and hotels, and could generate additional jobs and economic development to improve the well-being of local communities, as well as remediate environmental impacts.
- In 2011, total expenditures on wildlife watching, hunting, and fishing in the U.S. amounted to \$54.9 billion.²³ A rapidly-changing climate threatens this outdoor economy. Fees and taxes paid by hunters and anglers support non-game conservation programs run by state wildlife agencies, so a decline in outdoor recreation means a decrease in the funds for such programs.²⁴

POLICY RECOMMENDATIONS

- Defend and implement EPA and BLM standards to limit methane waste from new and modified sources in the oil and gas industry and from existing and new sources of oil and gas production on public and tribal lands, respectively.
- Support additional opportunities at the federal and state levels to reduce methane pollution from this sector.

¹ EPA Methane Emissions.

² U.S. National Climate Assessment (NCA), 2014, Highlights: Human Health. U.S. Global Change Research Program. <http://nca2014.globalchange.gov/highlights/report-findings/human-health#intro-section-2>

³ U.S. NCA 2014, Highlights: Ecosystems and Biodiversity, Plants and Animals. U.S. Global Change Research Program. <http://nca2014.globalchange.gov/highlights/report-findings/ecosystems-and-biodiversity#statement-16341>

⁴ EPA, Climate Change, Emissions, Overview of Greenhouse Gases, Methane Emissions.

<https://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html>. Emissions estimates are from the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014*.

⁵ EPA, Climate Change, Emissions, Overview of Greenhouse Gases. <https://www3.epa.gov/climatechange/ghgemissions/gases.html>. Emissions Estimates are from: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014*.

⁶ ICF International, Methane Emissions from the Oil and Gas Industry: 'Making Sense of the Noise,' 2015, page 4. <http://www.icfi.com/insights/white-papers/2015/methane-emissions-from-the-oil-and-gas-industry>

⁷ U.S. Government Accountability Office (GAO), Report to Congressional Requesters, Oil and Gas, Interior Could Do More to Account for and Manage Natural Gas Emissions, July 2016, page 6. <http://democrats-naturalresources.house.gov/imo/media/doc/Interior%20Could%20Do%20More%20to%20Account%20for%20and%20Manage%20Natural%20Gas%20Emissions.pdf>

⁸ EPA 2016. Proposed Climate, Air Quality and Permitting Rules for the Oil and Gas Industry: Fact Sheet. https://www.epa.gov/sites/production/files/2016-09/documents/og_fs_081815.pdf

⁹ U.S. Bureau of Land Management (BLM), Fact Sheet on Methane and Waste Prevention Rule. https://www.doi.gov/sites/doi.gov/files/uploads/methane_waste_prevention_rule_factsheet.pdf

¹⁰ Ibid.

¹¹ Ibid.

¹² BLM, November 15, 2016, Interior Department Announces Final Rule to Reduce Methane Emissions & Wasted Gas on Public, Tribal Lands. <https://www.doi.gov/pressreleases/interior-department-announces-final-rule-reduce-methane-emissions-wasted-gas-public>

¹³ BLM Fact Sheet on Methane and Waste Prevention Rule.

¹⁴ GAO, October 2010, Federal Oil and Gas Leases: Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases. <http://www.gao.gov/products/GAO-11-34>

¹⁵ EPA, EPA's Actions to Reduce Methane Emissions from the Oil and Natural Gas Industry: Final Rules and Draft Information Collection Request, pages 1-2. <https://www3.epa.gov/airquality/oilandgas/may2016/nsps-overview-fs.pdf>

¹⁶ EPA's Actions to Reduce Methane Emissions, page 4.

¹⁷ Cassidy, A., The Who's Who of Methane Pollution in the Onshore Oil and Gas Production Sector, Center for American Progress, June 20, 2016, page 4. <https://cdn.americanprogress.org/wp-content/uploads/2016/06/20070044/MethanePollution-report.pdf>

¹⁸ U.S. NCA 2014, Ecosystems and Biodiversity.

¹⁹ NWF 2015. Game Changers: Climate Impacts to America's Hunting, Fishing, and Wildlife heritage. <http://www.nwf.org/News-and-Magazines/Media-Center/Reports/Archive/2015/11-16-2015-Game-Changers.aspx>

²⁰ Environmental Defense Fund (EDF), New Study Quantifies Natural Gas Loss from Production on U.S. Public and Tribal Lands, June 23, 2015. <https://www.edf.org/media/new-study-quantifies-natural-gas-loss-production-us-public-and-tribal-lands>

²¹ EDF, Substantial Loss Of Natural Gas On Public Lands, Report: Cutting Energy Waste On Us Federal, Tribal Lands Could Save Millions. <https://www.edf.org/energy/substantial-loss-natural-gas-public-lands>

²² Clean Air Task Force, Supplemental Comments to May 30, 2014 Comments Submitted to Inform Modernization of the U.S. Bureau of Land Management's 34-Year-Old Rules. http://www.catf.us/resources/filings/BLM_Oil_and_Gas_Regulations/20150626-CATF%20Supplement%20to%20May%2030%20BLM%20Comments.pdf

²³ U.S. Fish and Wildlife Service (USFWS) 2012. 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. <http://www.census.gov/prod/2012pubs/fhw11-nat.pdf>

²⁴ Voggesser, Garrit, Big Impacts on Big Game, Voices from the Field: Sportsmen Speak Out, NWF Blog, November 17, 2015. <http://blog.nwf.org/2015/11/big-impacts-on-big-game/>