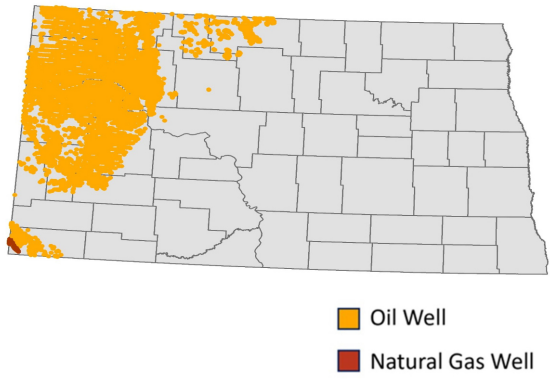
Methane Waste and Pollution in North Dakota

Fossil fuel producers in North Dakota are wasting energy resources in the form of methane. In doing so, they're harming the climate, public health, and the economy.

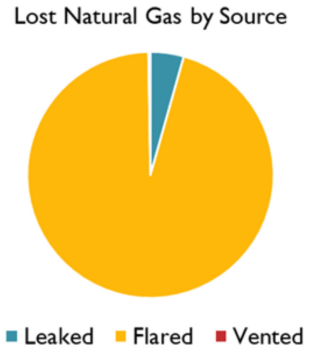
Methane waste problem

The primary component of natural gas is methane, which is a potent greenhouse gas. When methane is wasted through venting, flaring, and leaks, it means less natural gas is brought to market to sell for energy use. In 2019, North Dakota had approximately 17,600 actively producing oil and gas wells.



The scope of the problem in North Dakota

In 2019, fossil fuel producers wasted 226 billion cubic feet of gas in total: 95% by flaring; 4% by leaking; and <1% by venting.



[1] https://www.ndlegis.gov/files/fiscal/2021-23/docs/21.9535.01000.pdf
[2] https://www.land.nd.gov/sites/www/files/documents/Press%20Releases/DTL%202023%20TRUSTS%20AND%20FUNDS%20VALUE%20AND%20DISTRIBUTIONS%20OVERVIEW.pdf

The impact of wasted gas in North Dakota

Economy: Natural gas waste takes an economic toll. In 2019, North Dakota saw $680 million of gas wasted—more than enough to meet the annual needs of the entire state. Eliminating venting and flaring alone would provide enough natural gas to supply every household in North Dakota 16 times over. Oil and gas operators also avoid paying taxes and royalties on wasted gas, so federal, state and tribal governments lose revenue. In 2019, the lost potential revenue amounted to $43.3 million – including $18.6 million for the Three Affiliated Tribes. In North Dakota, this revenue would go to a variety of programs, including public K-12 and post secondary education, local county and city governments, and the state Legacy Fund.[1,2,3]

Air quality: Oil and gas production sites emit methane alongside other pollutants that worsen air quality. These volatile organic compounds (VOCs) contribute to the formation of ground-level ozone, also known as smog. Smog is a hazardous air pollutant that exacerbates asthma and respiratory diseases. In addition, oil and gas production releases toxic pollutants such as hydrogen sulfide, toluene, xylene, and benzene. Exposure to these pollutants can lead to serious public health impacts, including increased incidence of cancer.

EDF found that air pollution in 2016 from the oil and gas sector in the US resulted in $77 billion in total health impacts. In North Dakota in 2016, this air pollution was responsible for 37 deaths per million and 7,570 asthma exacerbations among children per million.[4]

[3] https://headwaterseconomics.org/wp-content/uploads/HE_Federal_Fossil_Fuel_Disbursements_Report.pdf
[4] https://iopscience.iop.org/article/10.1088/2752-5309/acc886

Climate: Methane is a greenhouse gas more than 80 times more powerful than carbon dioxide in the near term and is responsible for at least a quarter of today's global warming.

One study found that a 1% increase in flaring led to a 0.73% increase in hospitalizations. Tribal communities are often disproportionately affected by flaring pollution.[5]

Photo courtesy of Trudy Bell c/o FracTracker Alliance

Lost revenue from wasted gas

Sources of Government Revenue: Governments receive revenue from gas extraction through royalties and taxes. The sources of revenue depend on land ownership:

> **Private lands:** North Dakota collected a gross production tax of $80.25 (2022$) per million cubic feet of gas extracted from private lands in 2019. Private land owners may also assess a royalty rate on leases on their lands.
>
> **Tribal lands**: Royalty rates can vary on tribal lands. EDF, TCS, and Synapse decided to use 12.5% as the royalty rate for tribal lands based on interviews with federal staff.
>
> **State lands:** North Dakota collects royalties of 18.75% from state leases in the seven northwestern counties where the majority of gas production occurs and 16.67% from state leases in other counties. The state also collects gross production taxes on gas extracted from state land.
>
> **Federal lands:** The federal government collects royalties on gas extracted from federal lands. In 2019, the royalty rate was 12.5%. The federal government returns 49% of this revenue to states. The state also collects gross production taxes on gas extracted from federal land.

Volume of Wasted Gas by Land Type: In 2019, 5% of the wasted gas was lost from federal lands, 5% from state lands, 22% from tribal lands and 68% from private lands.

Amount of Lost Revenue: Wasted gas resulted in the following lost potential volume and value by source:

Source of Wasted Gas	Volume of Wasted Gas (Bcf)	Value of Wasted Gas (2022$)
Leaking	9.9	$29,698,000
Venting	0.6	$1,841,000
Flaring	215.2	$648,323,000
Total	**225.7**	**$679,862,000**

The following revenue could have been collected from royalties and taxes if the gas had not been wasted:

Level of Government	Revenue Lost (thousands $2022)			
	Total	Leaking	Venting	Flaring
Federal share of federal royalties	$2,046	$131	$4	$1,912
State	$22,746	$1,219	$74	$21,453
State taxes	$14,150	$700	$49	$13,402
State royalties	$6,630	$394	$22	$6,214
State share of federal royalties	$1,966	$125	$4	$1,837
Tribal royalities	$18,579	$429	$1	$18,149

Benefits of policy action

Strong, commonsense rules to cut methane waste and pollution will help slow the rate of climate change happening today, protect public health, create jobs, generate additional tax revenue, and prevent the needless waste of domestic energy resources. Strong rules are also critical to protect the health of tribal communities and ensure a fair return of tax revenue to the Three Affiliated Tribes.

[5] https://www.sciencedirect.com/science/article/pii/S0047272722000032