U.S. DEPARTMENT OF ENERGY | Fossil Energy and Carbon Management

Alaska Natural Gas Flaring and Venting Regulations

The U.S. Department of Energy's Office of Fossil Energy and Carbon Management (FECM) supports research and development of technologies that can reduce the volume of natural gas (e.g., methane) flared or vented (released) into the atmosphere during crude oil and natural gas production, processing, transportation, and storage operations. Methane is a potent greenhouse gas (GHG) and minimizing its release across the oil and natural gas supply chain is critical to the realization of a net GHG benefit and reducing climate and environmental impacts of carbon-based fuels. This fact sheet was created by FECM to inform stakeholders on state-level production and regulatory activities, as they relate to natural gas flaring and venting. FECM's research portfolio includes efforts to reduce natural gas flaring through the application of improved technologies to capture and utilize small volumes of natural gas at remote locations, as well as technologies to reduce methane release during upstream production operations, as well as midstream natural gas processing and transportation. While flaring activities in the prolific unconventional shale plays have steadily increased between 2011-2019 due to higher oil production levels and natural gas pipeline takeaway capacity constraints, this trend took a sharp downturn since 2020 as a result of significant decline in demand for oil. Other factors include federal and state regulatory efforts to reduce methane emissions, companies taking voluntary actions and measures to minimize flaring of associated natural gas, and additional pipeline projects connecting sources of supply and consumption.

Alaska Producing Basins and Plays

There are more than a dozen sedimentary basins either onshore or offshore Alaska (Figure 1). The large majority of oil production has come from the North Slope's Colville Basin, although there has been some oil and gas production from the southern Cook Inlet Basin. The Alaska Division of Oil and Gas reports that about 230 trillion cubic feet (Tcf) of natural gas and 45.5 billion barrels of crude oil remain undiscovered but technically recoverable from conventional reservoirs in Alaskan basins. Roughly 40 percent of this gas and a third of this oil are on the North Slope. Research has indicated that there is an additional 24 to 30 billion barrels of unproduced heavy and viscous oil resource on the North Slope. Because there is no natural gas pipeline connecting the North Slope with markets to the south, associated gas produced on the North Slope is reinjected to maintain pressure in the oil reservoirs. The U.S. Geological Survey estimates that technically recoverable natural gas resources in unconventional shale reservoirs in Alaska total about 40 Tcf, but the cost of operation and lack of nearby markets have hindered development. According to the U.S. Energy Information Administration (EIA), Alaska's proved reserves are 2.43 billion barrels of oil and 36.5 Tcf of natural gas (2020).

Figure 1: Alaskan producing basins (from Swenson, R., Sedimentary Basins of Alaska) *Source: State of Alaska*

Alaska Oil and Natural Gas Statistics (EIA)

	2015	2016	2017	2018	2019	2020	2021
Crude Oil Production (Average Thousand Barrels/Day)	483	490	494	479	466	448	437
Natural Gas Gross Withdrawals and Production (Average MMcf/Day)	8,699	8,826	8,906	8,917	8,905	9,370	9,551
Natural Gas Gross Withdrawals and Production (Vented and Flared) (MMcf/Day)	15	23	21	22.5	20	16	N/A
Natural Gas Gross Withdrawals and Production (Oil Wells) (MMcf/Day)	8,433	8,593	8,492	8,720	8,727	9,185	N/A
Natural Gas and Gas Producing Oil Wells (Thousands)	2.4	2.4	2.4	2	2	2	N/A

MMcf – million cubic feet
* All numbers are for Onshore activity

2021 ranking among 32 U.S. oil and natural gas producing states — Oil: 4 Natural Gas: 3 (marketed)

(Note: 3rd for gross withdrawls of natural gas; 90% of which are reinjected into oil fields)

Alaska Key Regulations Associated with Flaring and Venting

The Alaska Department of Natural Resources manages all state-owned land, water, and natural resources. The division develops and manages the state's oil and gas leasing programs; identifies prospective lease areas; and performs geologic, economic, and environmental analyses, among other responsibilities. The division conducts competitive oil and gas lease sales and monitors collection of all funds resulting from its programs. It is also responsible for the development of the state's geothermal and coalbed methane resources.

The Alaska Oil and Gas Conservation Commission (AOGCC) is an independent, quasi-judicial agency of the State of Alaska. It is established under the Alaska Oil and Gas Conservation Act (AS 31.05). Title 20, Chapter 25 of the Administrative Code outlines its regulatory authority. The Alaska Oil and Gas Conservation Act (Section 31.05.095) prohibits waste of oil and natural gas. This includes the release, burning, or escape into the open air of gas, from a well producing oil or gas, unless authorized by the AOGCC [Section 31.05.170(15)(H)]. Operators must report any instance of wasted oil or natural gas to the AOGCC along with a statement of compliance actions. Alaska Administrative Code (AAC) Chapter 25 Section 20 AAC 25.235, Gas Disposition also prohibits flaring except in the case of emergency or system testing. (Relevant subparts of this legislation include b, c, and d). This regulation stipulates operators must report any release of gas (other than incidental de minimis venting) to the AOGCC, with a written supplement including volumes vented or flared for any incident that exceeds one hour. Additionally, operators must minimize the volume of gas released by utilizing good oil field engineering practices. This regulation provides clarification that any gas released, burned, or permitted to escape into the air constitutes waste, except in the following authorized situations:

- Flaring or venting gas for a period not exceeding one hour as the result of an emergency or operational upset.
- Flaring or venting gas for a period not exceeding one hour as the result of a planned lease operation.
- Flaring pilot or purge gas to test or fuel the safety flare system.
- De minimis venting of gas incidental to normal oil field operations.
- Within 90 days after receipt of the report required under (b) of this section, the commission will, in its discretion, authorize the flaring or venting of gas for a period exceeding one hour if the flaring or venting is necessary for safety in emergencies; for the prevention of loss; and for facility operations, repairs, upgrades, or testing procedures. Section 20 AAC 25.235(d)(5)(b and c) stipulates that the AOGCC may also authorize flaring for safety in emergencies (part b) and if it is necessary to prevent the loss of ultimate recovery (part c).

Alaska State Points of Contact

Alaska Department of Natural Resources: Division of Oil and Gas

Contact this office for more information on oil and gas operations in Alaska.

Website: https://dog.dnr.alaska.gov/

Email: Sean.Clifton@alaska.gov

Phone: 907-269-8786

Alaska Oil and Gas Conservation Commission

Contact the AOGCC for information about Alaskan oil and gas regulations.

Website: https://www.commerce.alaska.gov/web/aogcc

Email: aogcc.customer.svc@alaska.gov

Phone: 907-279-1433

Visit https://www.energy.gov/fecm/findyourstate-natural-gas-flaring-and-venting-regulations-fact-sheets-state for a digital version of this fact sheet that includes hyperlinks to information sources.