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

# Kansas 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.

## Kansas Producing Plays and Basins

The U.S. Energy Information Administration (EIA) estimates Kansas' proved reserves to be at 290 million barrels of oil and 2.1 trillion cubic feet (Tcf) of natural gas (2020). The majority of the oil and natural gas production in Kansas is in the southern half of the state (Figure 1). Historical production has been from the large Hugoton gas field in western Kansas, the Sedgwick Basin in south central Kansas, along the Central Kansas Uplift in the center of the state, and from the Cherokee Basin in the southeastern part of the state. According to the Kansas Geological Survey, the most significant unconventional play currently in development is the Mississippian Limestone (ML), a carbonate that produces primarily oil. The play underlies northern Oklahoma and southern central Kansas and extends slightly into northwestern Kansas. The first horizontal wells in the ML were drilled in 2007, and drilling rose through 2012 but declined during 2014 along with oil prices. The ML is shallower and somewhat easier to fracture than the Bakken or Eagle Ford plays but produces much more brine that requires disposal.

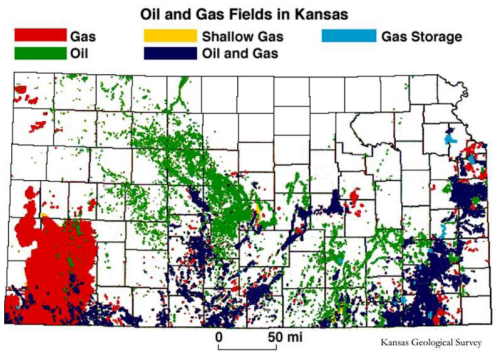


Figure 1: Kansas basins and major oil and gas producing areas outlined. *Source: Kansas Geological Survey*

## Kansas Key Regulations Associated with Flaring and Venting

Kansas Statute 55-102b, *Control and Management of Oil and Gas Wells*, applies to natural gas produced from natural gas wells, in connection with the production of

### Kansas Oil and Natural Gas Statistics (EIA)

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Crude Oil Production (Average Thousand Barrels/Day) | 125 | 104 | 98 | 95 | 91 | 77 | 75 |
| Natural Gas Gross Withdrawals and Production (Average MMcf/Day)* | 783 | 689 | 602 | 552 | 501.6 | 446 | 405 |
| Natural Gas Gross Withdrawals and Production (Vented and Flared) (Mcf/Day)* | The state of Kansas does not maintain an online, publicly accessible database of permitted gas vented or flared.* | | | | | | |
| Natural Gas Gross Withdrawals and Production (Oil Wells) (MMcf/Day) | 0 | 0 | 0 | 0 | 0 | 0 | N/A |
| Natural Gas Producing Wells (thousands) | 24.4 | 23.5 | 22.7 | 18.6 | 18 | 17.4 | N/A |
| Gas Producing Oil Wells (thousands)* | 1.6 | 1.5 | 1.4 | 1.4 | 1.4 | 1.3 | N/A |

MMcf – million cubic feet  Mcf - thousand cubic feet  * Data provided by the Kansas Geological Survey

2021 ranking among 32 U.S. oil and natural gas producing states — Oil: 11 Natural Gas: 14

oil, or coalbed natural gas produced from coal seams or associated shale. Under this statute, operators may flare, vent, or use that gas in any manner as authorized by regulations of the state corporation commission. The Conservation Division of the Kansas Corporation Commission (KCC) regulates oil and natural gas production in the state per the Kansas Administrative Regulations. The KCC Article, Agency 82, provides guidance to operators regarding the permissible circumstances, application requirements, and reporting mandates associated with natural gas venting and flaring.

The state may permit venting or flaring of non-sour casinghead gas if the operator files an affidavit with the Conservation Division ensuring that the facility meets eligibility requirements outlined in Section 82-3-208 entitled *Venting or Flaring of Casinghead Gas*. Requirements include that: 1) the well produce equal to or less than 25 thousand cubic feet per day (Mcf/day) of casinghead gas; 2) marketing of the casinghead gas volume is uneconomic due to pipeline or marketing expenses; and 3) the operator has made a diligent effort to obtain a market for the gas. For instances where operators want to vent or flare more than 25 Mcf/day of casinghead gas, operators must file an application with the Conservation Division. The Commission may permit venting or flaring only following its consideration of the necessity of it and the well's compliance with air quality regulations, among other factors. For any volume vented or flared under these permissions, operators must meter and report it to the KCC semiannually. Additionally, regulations require that all gas venting or flaring activity take effort to prevent injury or damage to property.

The KCC considerations for the flaring of sour casinghead gas include anticipated change in the gas-to-oil ratio, the hydrogen sulfide content of the gas, the feasibility of desulfurization of the gas, the proposed flaring facility, and the applicant's compliance with the Department's air quality regulations (Section 82-3-209, *Flaring of Sour Gas*).

The Commission will also permit the venting or flaring of natural gas, other than casinghead gas, without a hearing if it is necessary for the well's evaluation or operation under various circumstances, including well dewatering, testing, and cleaning, as well as emergencies (Section 82-3-314). Operators only need to provide notification in these circumstances if they need to vent or flare the well for more than seven days. In any other conditions not listed in this section, the operator may flare or vent gas if the operator files an application and the Commission approves the application before the commencement of the venting or flaring activity.

In addition, Kansas Statute 65-3010, *Emission Control Requirements*, establishes requirements for emission control and open burning. Local air quality conservation programs have the authority to enforce the statewide rules, regulations, and standards and to establish additional requirements as necessary (Kansas Statute 65-3016).

## Kansas State Points of Contact

### Kansas Corporation Commission; Conservation Division

Contact the Conservation Division of KCC for information on regulatory oversight of oil and gas production and exploration.

**Website**: https://kcc.ks.gov/oil-gas

**Email**: fcip@kcc.ks.gov

**Phone**: 316-337-6200

### Kansas Department of Health and Environment; Division of Environment

Contact the Kansas Department of Health and Environment for information about permits, inspections, and compliance measures of oil and gas producing entities.

**Website**: https://www.kdhe.ks.gov/158/Division-of-Environment

**Email**: kdhe.info@ks.gov

**Phone**: 785-291-3092

*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.*