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

Tennessee 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.

Tennessee Producing Plays and Basins

Oil and gas production in Tennessee is concentrated along a trend across the central-east portion of the state within the sountern limits of the Appalachian Basin (Figure 1). According to the Tennessee Oil and Gas Association, the large majority of the historical and current well producing activity stretches across an eight-county area along the north central border of the state. The Illinois Basin extends slightly into the state, but no wells are currently producing there. Most of the oil and gas production is from conventional reservoirs such as the Monteagle (Big Lime), the Fort Payne Limestone, the Stones River, and the Knox Group. Several companies have tested an unconventional shale play, the Chattanooga Shale, with limited success. This shale, located beneath the Mississippian Fort Payne Limestone at depths between 3,000 and 4,000 feet, is 80-200 feet thick in Tennessee and stratagraphically equivalent to the Lower Huron Shale of eastern Kentucky and southern West Virginia.

Tennessee has no significant proved crude oil reserves and accounts for less than 0.01 percent of the nation's crude oil output. In the past 34 years, crude oil production in the state has not reached 1 million barrels per year. Tennessee also does not have significant proved natural gas reserves and produces less than 0.02 percent of the nation's natural gas. Most of the state's natural gas-producing wells are in northeastern Tennessee on the Cumberland Plateau. Natural gas exploration permits issued in the past 10 years have focused on exploration of the Chattanooga Shale, which underlies

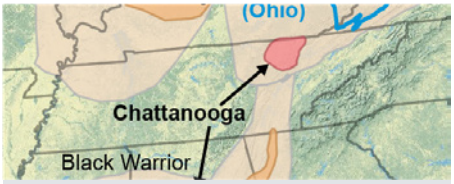

Figure 1: Tennessee producing basins
Source: EIA

Tennessee Oil and Natural Gas Statistics (EIA)

	2014	2015	2016	2017	2018	2019	2020
Crude Oil Production (Average Thousand Barrels/Day)*	0.9	0.8	0.7	0.7	0.6	0.6	0.4
Natural Gas Gross Withdrawals and Production (Average MMcf/Day)*	14.5	12	10	8.3	10	8.5	9.6
Natural Gas Gross Withdrawals and Production (Vented and Flared) (MMcf/Day)	0	0	0	0	0	0	0
Natural Gas Gross Withdrawals and Production (Oil Wells) (MMcf/Day)	0	0	41	0	0	0	0
Natural Gas Producing Wells *	1,006	1,005	985	973	997	964	946

MMcf – million cubic feet

**Information provided by the Tennessee Department of Environment and Conservation*

Ranking among 32 U.S. oil and natural gas producing states — Oil: 27 (2021) Natural Gas: 24 (2020)

the eastern part of the state. However, the industry focus has shifted toward oil production in recent years, and the state has issued fewer natural gas well permits.

Tennessee Regulations Associated with Flaring and Venting

The Tennessee Department of Environment and Conservation (TDEC) is the primary environmental and natural resource regulatory agency in Tennessee. The Tennessee Board of Water Quality, Oil, and Gas operates as an interagency governance council that is staffed by the Division of Water Resources at the TDEC. The Board is responsible for regulating all oil and gas operations in Tennessee, except underground injection control.

Tennessee does not have upstream flaring and venting-specific regulations. Chapter 1, Title 60 of the Tennessee Code describes Tennessee oil and gas laws. Section 60-1-102 prohibits the production or handling of crude petroleum oil or natural gas in such a manner or under such conditions as to constitute or result in waste as defined in Section 60-1-101.

Tennessee State Points of Contact

Tennessee Department of Environment and Conservation; Division of Water Resources, Oil and Gas Program

The State Oil and Gas Board of TDEC, as part of the Division of Water Resources, is responsible for preventing waste and protecting the waters and natural resources of the state from any adverse effects associated with drilling, deepening or reopening gas and oil wells. Contact the Division for additional information about the Board and oil and gas related regulations.

Website: https://www.tn.gov/environment/permit-permits/redirect---other-permits/oil-and-gas-well-permit.html

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Visit energy.gov/fe/state-natural-gas-flaring-and-venting-regulations for a digital version of this fact sheet that includes hyperlinks to information sources.