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

Illinois 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.

Illinois Producing Plays and Basins

While the Illinois Basin extends over most of the state, historical Illinois oil and gas production is limited to the southern half of the state, with the greatest concentration occurring in Illinois' southeastern corner (Figure 1). The New Albany Shale is an unconventional gas play that has undergone significant study and testing in southern Indiana and Kentucky; however, to date, only the Russellville field, in eastern Lawrence County, has established commercial production in the New Albany in Illinois; it remains an emerging play in the region. In 2017, Illinois regulators approved the first permit to allow high-volume hydraulic fracturing in a well targeting the New Albany Shale. Currently, the U.S. Energy Information Administration (EIA) estimates that the technically recoverable reserve estimates for this play stand at 11 trillion cubic feet (Tcf) of natural gas and 189 million barrels of oil, although only a portion of that might be in Illinois.

Figure 1: Illinois basin outline. *Source: EIA*

Illinois Key Regulations Associated with Flaring and Venting

The Illinois Department of Natural Resources (DNR) regulates the oil and gas industry and has the primary authority to administer the Hydraulic Fracturing Regulatory Act with the assistance of

Illinois Oil and Natural Gas Statistics (EIA)

	2014	2015	2016	2017	2018	2019	2020
Crude Oil Production (Average Thousand Barrels/Day)	26	26	24	23	23	23	20
Natural Gas Gross Withdrawals and Production (Average MMcf/Day)	5	6	6	6	7	6	5
Natural Gas Gross Withdrawals and Production (Vented and Flared) (MMcf/Day)	Illinois does not maintain a database of natural gas venting and flaring.						
Natural Gas Gross Withdrawals and Production (Oil Wells) (MMcf/Day)	Illinois does not maintain a database of natural gas withdrawals and production from oil wells. *						
Natural Gas Producing Wells	36	35	36	N/A	N/A	N/A	N/A
Gas Producing Oil Wells	This data is not available from neither EIA nor the State of Illinois. *						

MMcf – million cubic feet
Mcf - thousand cubic feet
**Information provided by the Illinois Department of Natural Resources, Office of Oil and Gas Resource Management*

Ranking among 32 U.S. oil and natural gas producing states — Oil: 16 (2021) Natural Gas: 25 (2020)

the Illinois State Geological Survey, the Illinois State Water Survey, the State Fire Marshal, and the Illinois Environmental Protection Agency. DNR's Office of Oil and Gas Resource Management is the regulatory authority in Illinois for permitting, drilling, operating, and plugging oil and gas production wells. The Office implements the Illinois Oil and Gas Act and enforces standards for the construction and operation of related production equipment and facilities. In addition, the Office regulates the injection of fluids into underground injection wells, through the Underground Injection Control Program, and cleans up abandoned well sites through the Plugging and Restoration Fund and Landowner Grant Programs.

As described on DNR's Oil and Gas Programs and Regulations website, the Illinois Oil and Gas Act (225 ILCS 725) provides for the: regulation of drilling, construction, operation, and plugging of oil and gas production wells; operation and maintenance of oil production facilities; and handling, transportation, and disposal of oilfield wastes. The Oil and Gas Wells on Public Lands Act (5 ILCS 615) establishes the administrative procedures for leasing state-owned lands for oil and gas development, and the Hydraulic Fracturing Regulatory Act (Part 245) applies to all wells in which high-volume, horizontal hydraulic fracturing operations will take place in Illinois.

The Oil and Gas Act prohibits unnecessary or excessive surface loss or destruction of oil or gas resulting from evaporation, seepage, leakage, or fire into the open air in excessive or unreasonable amounts. The Act also states, "*It shall not be unlawful for the operator or owner of any well producing both oil and gas to burn such gas in flares when such gas is lawfully produced, and where there is no market at the well for such escaping gas.*"

The Hydraulic Fracturing Regulatory Act, Section 245.900, states permittees are responsible for minimizing the emissions associated with venting of hydrocarbon fluids and natural gas during the production phase to safely maximize resource recovery and minimize releases to the environment. If the permittee establishes that it is technically infeasible or economically unreasonable to minimize emissions associated with the venting of hydrocarbon fluids and natural gas during production, the permittee must capture and direct any natural gas produced during the production phase to a flare. All flares must operate with a combustion efficiency of at least 98 percent.

Pursuant to Sections 245.900 and 245.910, permittees need to record the amount of gas flared or vented from each high-volume horizontal hydraulic fracturing well or storage tank on a weekly basis and report the total amount of gas flared or vented from each well during the previous 12 months. Per the Section 245.845, permittees shall be responsible for managing natural gas and hydrocarbon fluids produced during the flowback period. If it is technically infeasible or economically unreasonable to minimize emissions associated with the venting of hydrocarbon fluids and natural gas during the flowback period, permittees must ensure that there is no direct release to the atmosphere or environment. In addition, Section 245.910 states that operators must recover and route to a flare any uncontrolled emissions exceeding 6 tons per year from storage tanks containing natural gas or hydrocarbon fluids.

Illinois State Points of Contacts

Illinois Department of Natural Resources; Office of Oil and Gas Resource Management

Contact the Office for more information pertaining to regulatory information, as well as permitting and operating processes.

Website: https://www.dnr.illinois.gov/OilandGas/Pages/default.aspx

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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.