U.S. DEPARTMENT OF ENERGY | Fossil Energy
OFFICE OF OIL & NATURAL GAS

Louisiana Natural Gas Flaring and Venting Regulations

The U.S. Department of Energy's Office of Fossil Energy (FE) 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 exploration, production, processing, transportation, and storage operations. This fact sheet was created by FE to inform stakeholders on state-level production and regulatory activity regarding natural gas flaring and venting. FE's research portfolio includes efforts to reduce methane (and other hydrocarbon) 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 (primarily) methane release during midstream gas processing and transportation. Intermittent flaring that occurs as a result of routine well testing, production facility process shutdowns, or facility and pipeline infrastructure maintenance, are normal aspects of safe oil and natural gas production. Increases in domestic oil and natural gas production have resulted in significant infrastructure buildouts, however, natural gas pipeline capacity constraints have led to regional increases in the flaring of associated gas in some unconventional plays (e.g., Permian Basin in Texas and New Mexico and Bakken Shale in North Dakota) in order to enable oil production.

Louisiana Producing Plays and Basins

The southern half of Louisiana, including state waters offshore, lies within the Gulf Coast Basin. In the northwestern corner of the states lies the North Louisiana Salt Basin, between the Sabine Uplift along the Texas border and the Monroe Uplift, which is in the northeastern part of the state. All of Louisiana, southern Mississippi, and parts of Texas and Alabama encompass what is also referred to as the TX-LA-MS Salt Basin (Figure 1). Oil and gas production is spread fairly evenly across the state, but concentrated in the southern half and northwestern corner. Unconventional developing and emerging plays include the oil- and gas-prone Deep Tuscaloosa/Austin Chalk/ Tuscaloosa Marine Shale trend across central Louisiana and the dry gas-prone Haynesville-Bossier play of Louisiana and Texas. Another unconventional play considered to have potential is the oil- and gas-prone Lower Smackover/Brown Dense limestone along the northern border of the state.

In 2016, the U.S. Geological Survey (USGS) assessed the mean undiscovered technically recoverable oil and gas resources of the Haynesville shale play in Texas/Louisiana to be 129.7 trillion cubic feet (Tcf). The Haynesville sandstone/ carbonate area that extends across Louisiana, southern Mississippi, and bits of the Alabama and western Florida panhandles was assessed to contain 1.1 billion barrels of oil and 20.6 Tcf.

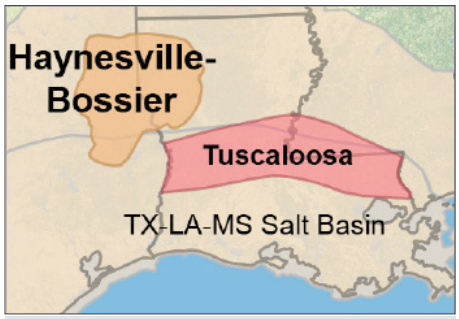

Figure 1: Louisiana basins and major unconventional oil and gas plays outlined. *Source: EIA*

Louisiana Oil and Natural Gas Statistics (EIA)

	2013	2014	2015	2016	2017	2018
Crude Oil Production (Average Thousand Barrels/Day)	197	190	174	155	143	127
Natural Gas Gross Withdrawals and Production (Average MMcf/Day)	6,272	5,225	4,821	4,888	5,789	7,480
Natural Gas Gross Withdrawals and Production (Vented and Flared) (MMcf/Day)	10.7	12.6	10.4	14.0	14.2	N/A
Natural Gas Gross Withdrawals and Production (Oil Wells) (Mcf/Day)	121	119	106	96	88	N/A
Natural Gas and Gas Producing Oil Wells (Thousands)	23.8	23.9	23.3	22.4	21.7	N/A

MMcf – million cubic feet
Mcf - thousand cubic feet
All numbers are for Onshore activity

2017 ranking among 32 U.S. oil and natural gas producing states — Oil: 9 Natural Gas: 6

The Bossier formation, which USGS assessed across roughly the same general area as the Haynesville area, totaled 2.9 billion barrels of oil and 53.3 Tcf in sandstone intervals. A 2018 USGS assessment of the upper Tuscaloosa Marine Shale determined there to be mean undiscovered, technically recoverable resources of 1.5 billion barrels of oil and 4.6 Tcf of gas in this Upper Cretaceous shale both onshore and in the state waters of Louisiana, Mississippi, Alabama, and Florida. Under the right economic conditions, Louisiana could see considerable development of tight oil and gas associated with these plays.

The Potential Gas Committee's 2016 report assessed a total of "most likely" technically recoverable gas resource of 11.42 Tcf for the onshore Louisiana portion of the Gulf Coast Basin (southern half of Louisiana) and of 127.17 Tcf for the onshore Louisiana-Mississippi-Alabama Salt Basin. According to the U.S. Energy Information Administration (EIA), Louisiana's proved reserves are 516 million barrels of oil and 36.48 Tcf of natural gas (2017).

Louisiana Key Regulations Associated with Flaring and Venting

The Geological Oil and Gas Division within the Office of Conservation at the Louisiana Department of Natural Resources (LDNR) regulates the waste of oil and gas with the goals of conserving natural resources, preventing the drilling of unnecessary wells, and protecting the correlative rights of mineral owners.

The Louisiana Department of Environmental Quality (LDEQ) administers air quality regulations and permitting programs in Louisiana through its Office of Environmental Services.

There are two primary pieces of legislation impacting natural gas flaring and venting in Louisiana Administrative Code (LAC), Title 33, Environmental Quality, Part III (which concerns air quality and authorizes administrative authority to LDEQ) and Title 43, Natural Resources, Part XIX (which concerns the Office of Conservation and authorizes administrative authority to LDNR).

As adopted in LAC 43:XIX in July 1943, and most recently amended in May 1997, Louisiana prohibits natural gas flaring and venting in the state, unless the LDNR approves an operator's application for exemption due to economic hardship. The regulations note that no economic hardship can be found if the current market value of natural gas exceeds the cost involved in making the gas available to market.

According to LAC 33: III.307, oil and gas production facilities must obtain an air permit from the LDEQ before beginning construction. The LDEQ's *Regulatory Permit for Oil and Gas Well Testing* can permit temporary flaring and venting to perform well testing and to establish the proper design of a permanent fluid-handling facility. Operations can begin after LDEQ notifies the operator that the appropriate form and fee have been completed and submitted. This legislation requires that flares be used to control any natural gas releases that are greater than 2.5 million cubic feet (MMcf) and to control any releases that will result in over 5,000 pounds of total volatile organic compound (VOC) emissions or 2,000 pounds of total BTEX (benzene, toluene, ethylbenzene, and zylene). Operators must send notice 3 days in advance of each instance of testing, and then must also provide a report to the Office of Environmental Services no later than 30 days following the completion of testing.

Louisiana State Points of Contact

Louisiana Department of Environmental Quality: Office of Environmental Services

Contact LDEQ for questions about air quality, emissions, and rules affecting oil and gas production and processing facilities.

Website: https://deq.louisiana.gov/directory/office/office-of-environmental-services

Email: webmaster-deq@la.gov

Phone: 225-219-3181

Department of Natural Resources: Office of Conservation, Geological Oil and Gas Division

Contact LDNR for questions about the state's regulatory programs to prevent waste of oil and gas, to conserve the natural resources of the state, to prevent the drilling of unnecessary wells, and to protect the correlative rights of mineral owners.

Website: http://www.dnr.louisiana.gov

Email: David.Elfert@la.gov

Phone: 225-342-5501

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.