Texas Producing Plays and Basins

Texas has several basins (Figure 1) with combined potential gas resources totaling nearly 500 trillion cubic feet (Tcf). According to the U.S. Energy Information Administration (EIA), proved reserves are 19.62 billion barrels of oil and 138.20 Tcf of natural gas (2018). The Permian Basin, the most prolific oil-producing basin in the United States, has an estimated tight oil recoverable-resource potential of 20–75 billion barrels. During the first quarter of 2020, natural gas production in the Permian Basin averaged about 17 billion cubic feet per day (Bcf/d).

Texas Producing Play and Basins with major unconventional oil and gas plays outlined.

Source: EIA

Texas is also home to one of the most established natural gas shale plays, the Barnett Shale, which contains 19.2 Tcf of proved reserves. There are also substantial proved reserves in the Eagle Ford Shale Play (27.4 Tcf) and the Haynesville Shale (13 Tcf). Texas accounts for more than 25 percent of U.S. marketed natural gas production, making it the leading natural gas producer among the states.

In 2019, Texas ranked first, both in U.S. oil production and vented and flared natural gas. In 2018, Texas accounted for 51 percent of the total 1.28 Bcf/d U.S. vented and flared natural gas. Of the two states operating in the Permian Basin (Texas and New Mexico), Texas accounted for 86 percent the 0.75 Bcf/d of vented and flared natural gas.

Texas Oil and Natural Gas Statistics (EIA)

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<tbody>
<tr>
<td>Crude Oil Production (Average Thousand Barrels/Day)</td>
<td>3,172</td>
<td>3,444</td>
<td>3,178</td>
<td>3,487</td>
<td>4,408</td>
<td>5,069</td>
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<td>Natural Gas Gross Withdrawals and Production (Average MMcf/Day)</td>
<td>23,200</td>
<td>24,083</td>
<td>22,325</td>
<td>21,890</td>
<td>24,415</td>
<td>27,974</td>
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<td>Natural Gas Gross Withdrawals and Production (Vented and Flared) (MMcf/Day)</td>
<td>247</td>
<td>312</td>
<td>240</td>
<td>338</td>
<td>652</td>
<td>750*</td>
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<tr>
<td>Natural Gas Gross Withdrawals and Production (Oil Wells) (MMcf/Day)</td>
<td>4,268</td>
<td>4,940</td>
<td>4,605</td>
<td>5,087</td>
<td>4,211</td>
<td>4,830*</td>
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<tr>
<td>Natural Gas and Gas Producing Oil Wells (Thousands)</td>
<td>246.5</td>
<td>238.4</td>
<td>232.8</td>
<td>229.9</td>
<td>216.3</td>
<td>264.7*</td>
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MMcf - Million cubic feet
* Estimated

2019 ranking among 32 U.S. oil and natural gas producing states — **Oil: 1, Natural Gas: 1**
Key Regulations Associated with Flaring and Venting

The Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ) are responsible for establishing standards and enforcing regulations for oil and natural gas exploration and production. RRC broadly regulates oil and natural gas production while TCEQ regulates air emissions and water pollution. RRC has jurisdiction over permitting of flaring operations with respect to prevention of waste of natural resources.

Upstream oil and gas operations that typically require air emissions permits from TCEQ may be eligible for authorization through a standard air quality permit for oil and gas facilities, a new source review permit, or a specific air permit by rule for projects in the 15 counties located over the Barnett Shale. TCEQ addresses the control of natural gas flaring and venting in the State Air Quality Implementation Plan adopted in 2004 and approved by the U.S. Environmental Protection Agency in 2006. Pursuant to the Texas Air Quality State Implementation Plan (SIP), the regulation entitled 30 TAC 115.720-115.729: Vent Gas Control is part of Chapter 115, Control of Air Pollution from Volatile Organic Compounds. This policy requires that the owner or operator of each affected flare or vent gas stream adhere to reporting and record-keeping requirements, including the development and implementation of a Quality Assurance Plan.

As outlined in Texas Administrative Code (Statewide Rule 32, Title 16, Part 1, Chapter 3 §3.32), well operators are allowed to flare during tests for well potential. The regulations depend upon the duration of the gas release. All gas releases lasting less than 24 hours may be vented to the air, unless flaring is necessary for safety reasons (contact RRC District Office for verification). RRC requires well operators to apply for permits in order to flare for more than 10 days following well completion, as well as for most short-term requests. If the RRC approves the application, then it will grant a 45-day flare permit. Operators must provide additional documentation for an extension beyond 45 days, and up to 180 days. Exceptions for more than 180 days may only be granted through a final order after hearing signed by the RCC. In addition, an exception may be indefinitely approved administratively if flaring is less than 50 Mcf/day. The RRC reports that most requests for flaring permits are related to flaring casing head gas from oil wells.

Rule 32 allows requests for exceptions to the no flaring rule, i.e., where pipeline connections are not available (the most common); gas plant shutdowns; repairing a compressor or gas line or well; and where pipelines reached capacity.

Oil producers in Texas have been working to reduce flaring levels through various efforts. In March 2020, a voluntary coalition of companies and organizations formed the Texas Methane and Flaring Coalition comprised of 40 state operators and industry groups. The Coalition will evaluate existing data and evidence on flaring and methane emissions from the industry in Texas and will develop opportunities and recommendations to continue to minimize these practices.

Texas Agency Points of Contact

Texas Railroad Commission: Oil and Gas Division; Engineering Unit
Contact the RRC Engineering Unit with any questions about the RRC permitting process for venting/flaring of casing head gas and well gas pursuant to Statewide Rule 32.
Website: http://www.rrc.state.tx.us/
Email: EngUnit@rrc.texas.gov
Phone: 512-463-1126

Texas Commission on Environmental Quality: Air Permits Division; Permit by Rule Section
Contact the TCEQ regarding industrial air permitting requirements in Texas.
Website: https://www.tceq.texas.gov/
Email: airperm@tceq.texas.gov
Phone: 512-239-1250

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.