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.

Utah Producing Plays and Basins

The large majority of Utah’s oil and natural gas production occurs in the eastern half of the state, primarily in portions of the Uinta and Paradox Basins (Figure 1). There is also a limited amount of production along the Wyoming border east of the Great Salt Lake where a portion of the Utah-Wyoming Thrust Belt extends into the state. The Utah Geological Survey reports that production from the large, historical conventional oil fields declined between 1985 and 2002, but production has recovered somewhat since then due to the discovery of several new conventional fields in central Utah’s Hingeline play and increased development drilling in the Uinta Basin.

Utah Oil and Natural Gas Statistics (EIA)

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Oil Production (Average Thousand Barrels/Day)</td>
<td>96</td>
<td>112</td>
<td>102</td>
<td>83</td>
<td>94</td>
<td>102</td>
</tr>
<tr>
<td>Natural Gas Gross Withdrawals and Production (Average MMcf/Day)</td>
<td>1,290</td>
<td>1,246</td>
<td>1,143</td>
<td>998</td>
<td>863</td>
<td>815</td>
</tr>
<tr>
<td>Natural Gas Gross Withdrawals and Production (Vented and Flared) (MMcf/Day)</td>
<td>6.6</td>
<td>5.5</td>
<td>2.7</td>
<td>1.6</td>
<td>3.3</td>
<td>N/A</td>
</tr>
<tr>
<td>Natural Gas Gross Withdrawals and Production (Oil Wells) (MMcf/Day)</td>
<td>101</td>
<td>125</td>
<td>124</td>
<td>109</td>
<td>109</td>
<td>N/A</td>
</tr>
<tr>
<td>Natural Gas and Gas Producing Oil Wells (Thousands)</td>
<td>12.3</td>
<td>12.8</td>
<td>12.7</td>
<td>12.3</td>
<td>12.2</td>
<td>11.4</td>
</tr>
</tbody>
</table>

MMcf – million cubic feet

*Data provided by the Utah Division of Oil, Gas and Mining’s Data Research Center

2017 ranking among 32 U.S. oil and natural gas producing states — Oil: 11 Natural Gas: 13
for 256 million barrels. The larger portion of the assessment units for these shales lies within Utah’s state lines.

A shale gas play currently in the early stages of development is the Mancos Shale in central Utah. Several other gas plays in the state that have been tested and show some potential are the Manning Canyon Shale in central Utah and the Hermosa Group Shales in the Paradox Basin. The Potential Gas Committee’s 2016 report estimates a total “most likely” technically recoverable resource values for the Uinta and Paradox Basins of 50.78 Tcf and 4.03 Tcf, respectively. According to the U.S. Energy Information Administration (EIA), Utah’s proved reserves are 318 million barrels of oil and 3.89 Tcf of natural gas (2017).

Utah Key Regulations Associated with Flaring and Venting

Utah’s oil and gas regulatory authority is the Division of Oil, Gas and Mining at the Department of Natural Resources. The Rule R649-3, entitled Drilling and Operating Practices, covers the gas flaring and venting regulations in the state. Effective on December 1, 2018, this regulation is part of the Utah Administrative Code, in chapter R649, concerning Natural Resources; Oil, Gas and Mining.

Section R649-3-20, Gas Flaring or Venting, allows flaring or venting in very specific circumstances. Up to 1,800 Mcf [thousand cubic feet] of casinghead gas produced from an oil well may be vented or flared from an individual well on a monthly basis, at any time without approval. The operator may vent or flare all produced oil well gas only as needed for conducting a stabilized production test. During the month immediately following the initial stabilized production test, the operator may vent or flare up to 3,000 Mcf of oil well gas without securing additional approval.

With respect to produced gas from a gas well, R649-3-20 mandates that an operator may vent or flare all produced gas well gas as needed during the period of time allowed for conducting a stabilized production test, the multipoint test, or other approved test. Venting or flaring is not permissible beyond the time allowed for conducting the tests. For both oil well and gas well operators, unavoidable or short-term oil well gas venting or flaring is allowed without approval under the following conditions: 1) the division determines that vapor recovery is warranted; 2) emergency situations where shutting in the well would cause waste or create adverse impact on the well or reservoir; and 3) operator notifies the division immediately.

In order to produce a well for testing and evaluation beyond the time or volumes allowed, R649-3-20 requires that an operator must submit a written request to the Division of Oil and Gas for approval. The request should include all information related to the determination that conserving or marketing the gas is not possible. In these instances, the Division may select to authorize venting or flaring at unrestricted rates for up to 30 days of testing or no more than 50 MMcf of gas vented or flared, whichever is less.

Any venting or flaring beyond these approved conditions must be presented to the Utah Board of Oil, Gas and Mining for consideration and approval. After reviewing the comprehensive “Request for Agency Action,” the Board may either allow the requested venting or flaring, restrict production, or take other appropriate action. In instances with noncompliance with the state venting and flaring restrictions, the Board may issue an order to cease and/or require the operator to provide justification in-person. Additionally, the Division of Oil, Gas and Mining is required to provide notification of the unapproved venting or flaring to all relevant governmental taxing and royalty agencies.

Per R649-3-32, Incident Reporting, both major and minor events of unauthorized flaring or venting must be reported. A major event is defined as “more than 500 Mcf of gas at any drilling or producing well site, or at any injection or disposal facility; or more than 1,500 Mcf of gas at any transportation, gathering, or processing facility” (Section 2.2.1 – 2.2.2) and a minor event is “more than 50 Mcf and up to 500 Mcf of gas at any drilling or producing well site, or at any injection or disposal facility; or…any transportation, gathering, or processing facility” (Section 4.2.4.3).

Finally, Utah does not allow gas flaring or venting from any extraction plants that process gas unless it is necessary due to temporary mechanical difficulty or if the gas vented or flared has no commercial value. The operator must provide immediate notification to the Division of Oil, Gas and Mining if there is a prolonged mechanical difficulty or plant shut-downs or curtailment due to scheduled or nonscheduled maintenance or testing operations or other reasons (R649-3-32, Sections 8-9).

Utah State Points of Contact

Utah Department of Natural Resource; Division of Oil, Gas and Mining; Oil and Gas Program

Contact the Division of Oil, Gas and Mining regarding the production of oil or natural gas, including flaring and venting of natural gas.

Website: https://oilgas.ogm.utah.gov/oilgasweb/
Email: OilGasMining@utah.gov
Phone: 801-538-5314

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.