5. Crude Oil and Natural Gas Resource Development
Figure 5.1 Crude Oil and Natural Gas Drilling Activity Measurements

Rotary Rigs in Operation by Type, 1949–2021

Rotary Rigs in Operation by Trajectory, 1991–2021

Rotary Rigs in Operation by Type, Monthly

Active Well Service Rig Count, Monthly

Sources: Table 5.1.
### Table 5.1  Crude Oil and Natural Gas Drilling Activity Measurements  
(Number of Rigs)

<table>
<thead>
<tr>
<th>Year</th>
<th>Offshore</th>
<th>Crude Oil</th>
<th>Natural Gas</th>
<th>Horizontal</th>
<th>Directional</th>
<th>Vertical</th>
<th>Total</th>
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<td>323</td>
<td>385</td>
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<td>526</td>
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<td>2000</td>
<td>778</td>
<td>140</td>
<td>197</td>
<td>720</td>
<td>55</td>
<td>217</td>
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<td>2005</td>
<td>1,290</td>
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<td>194</td>
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<td>1,272</td>
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<td>297</td>
<td>1,466</td>
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<td>379</td>
<td>1,491</td>
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<td>2009</td>
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<td>276</td>
<td>801</td>
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<td>591</td>
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<td>32</td>
<td>984</td>
<td>887</td>
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<td>56</td>
<td>1,373</td>
<td>383</td>
<td>1,102</td>
<td>224</td>
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<td>2014</td>
<td>1,804</td>
<td>57</td>
<td>1,527</td>
<td>333</td>
<td>1,275</td>
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<td>2015</td>
<td>943</td>
<td>35</td>
<td>750</td>
<td>226</td>
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<td>408</td>
<td>100</td>
<td>400</td>
<td>49</td>
<td>60</td>
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<tr>
<td>2017</td>
<td>865</td>
<td>20</td>
<td>703</td>
<td>172</td>
<td>737</td>
<td>70</td>
<td>876</td>
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<tr>
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<td>1,013</td>
<td>19</td>
<td>841</td>
<td>190</td>
<td>903</td>
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<tr>
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<td>23</td>
<td>774</td>
<td>169</td>
<td>826</td>
<td>63</td>
<td>54</td>
</tr>
</tbody>
</table>

### Note:
- a Data are for rigs drilling for crude oil, rigs drilling for natural gas, and other rigs (not shown separately) drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests. Therefore, the sum of "Crude Oil" and "Natural Gas" may not equal "Total" values. In addition, for "By Location," "By Type," and "By Trajectory," the sum of the components in each category may not equal "Total" values due to independent rounding.
- b Rotary rigs in operation are reported weekly on Fridays. Monthly data are averages of 4- or 5-week reporting periods. Multi-month data are averages of the reported weekly data over the covered months. Annual data are averages of 52- or 53-week reporting periods. Published data are rounded to the nearest whole number.
- c Not shown under "By Type" are other rigs drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests. Therefore, the number of rigs doing true workovers (where tubing is pulled from the well), or doing rod string and pump repair operations, and that are, on average, crewed and working every day of the month.
- d The number of rigs doing true workovers (where tubing is pulled from the well), or doing rod string and pump repair operations, and that are, on average, crewed and working every day of the month.
- e Revises. NA=Not available.
- g Sources: • Rotary Rigs in Operation: Baker Hughes, Inc., Houston, TX. "North America Rig Count," used with permission. See http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother. • Active Well Service Rig Count: Energy Workforce & Technology Council, Houston, TX.
Figure 5.2  Crude Oil and Natural Gas Wells and Footage Drilled

Wells Drilled by Type, 1949–2021

Wells Drilled by Trajectory, 1980–2021

Footage Drilled by Trajectory, 1980–2021

Sources:  Table 5.2.
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Crude Oil Drilled</th>
<th>Total Natural Gas Drilled</th>
<th>Total Horizontal Drilled</th>
<th>Total Vertical Drilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
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<td>4,349</td>
<td>14,799</td>
<td>90</td>
<td>42,050</td>
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<tr>
<td>March</td>
<td>22,558</td>
<td>3,149</td>
<td>13,922</td>
<td>85</td>
<td>42,569</td>
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<tr>
<td>April</td>
<td>20,865</td>
<td>4,482</td>
<td>16,226</td>
<td>110</td>
<td>38,975</td>
</tr>
<tr>
<td>May</td>
<td>19,701</td>
<td>4,011</td>
<td>11,031</td>
<td>80</td>
<td>34,943</td>
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<tr>
<td>June</td>
<td>17,449</td>
<td>5,200</td>
<td>13,321</td>
<td>110</td>
<td>36,970</td>
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<tr>
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<td>18,055</td>
<td>4,482</td>
<td>16,226</td>
<td>110</td>
<td>38,975</td>
</tr>
<tr>
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<td>4,375</td>
<td>13,806</td>
<td>90</td>
<td>35,093</td>
</tr>
<tr>
<td>September</td>
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<td>5,149</td>
<td>13,011</td>
<td>80</td>
<td>35,538</td>
</tr>
<tr>
<td>October</td>
<td>17,729</td>
<td>5,020</td>
<td>12,912</td>
<td>80</td>
<td>34,943</td>
</tr>
<tr>
<td>November</td>
<td>16,303</td>
<td>6,123</td>
<td>14,102</td>
<td>110</td>
<td>35,464</td>
</tr>
<tr>
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<td>8,804</td>
<td>4,482</td>
<td>16,226</td>
<td>110</td>
<td>38,975</td>
</tr>
</tbody>
</table>

R- Revised, NA- Not available.
Notes: • Data are estimates. • For 1960-1969, data are for well completion reports received by the American Petroleum Institute during the reporting year; for all other years, data are for well completions in a given year. • Through 1986, these well counts include only the original drilling of a hole intended to discover or further develop already discovered crude oil or natural gas resources. Other drilling activities, such as drilling an old well deeper, drilling of laterals from the original well, drilling of service and injection wells, and workovers of existing oil and gas wells, are not included.


Note. Crude Oil and Natural Gas Wells. The U.S. Energy Information Administration (EIA) considers six well types in the *Monthly Energy Review* (MER): “completed for crude oil,” “completed for natural gas,” “dry hole,” “vertical,” “horizontal and directional,” and “total.” Wells that produce both crude oil and natural gas are categorized by the state. EIA includes both developmental wells and exploratory wells in the six well types, but excludes all other classes of wells drilled in connection with the search for producible hydrocarbons. If a lateral well (such as a service well, stratigraphic test well, observation well, etc.) is drilled at the same time as the original hole, EIA does not separately count the lateral well. However, EIA includes all of the well footage. EIA counts only horizontal wells after the first lateral is drilled and does not count pilot holes.

Prior to the March 1985 MER, drilling statistics consisted of completion data for crude oil, natural gas, and dry wells as reported to the American Petroleum Institute (API) during a given month. Due to time lags between the date of well completion and the date of completion reporting to the API, as-reported well completions were an inaccurate indicator of drilling activity. For example, in 1982, as-reported well completions increased, while the number of actual completions decreased. As a result, for 1973 forward, the data shown in this section are revised estimates based on the partial data available from IHS Markit. EIA continuously revises these estimates as new data become available. Each month, EIA estimates the latest 36 months of wells using the rig count and a 3-month average wells per rig ratio. EIA applies three conditions to the result: 1) if the model result is less than the actual reported value, then EIA uses the reported value, and 2) the published total well count is the maximum of the modeled total, or the sum of modeled oil, gas, and dry, or the sum of modeled horizontal and vertical well counts, and 3) the modeled component well counts are prorated so that they add exactly to the total published well count. EIA uses a similar process to estimate drilled footage using a 6-month average footage-per-well ratio. Because there is no reported dry rig count data, EIA estimates the number of dry wells using a 6-month average dry-wells-to-total-wells ratio, which EIA then applies to the modeled total wells. In general, the most recent 12 months of estimated well counts will have the highest errors because they are the farthest from the average well-per-rig ratio used in the model (at least 25 months).