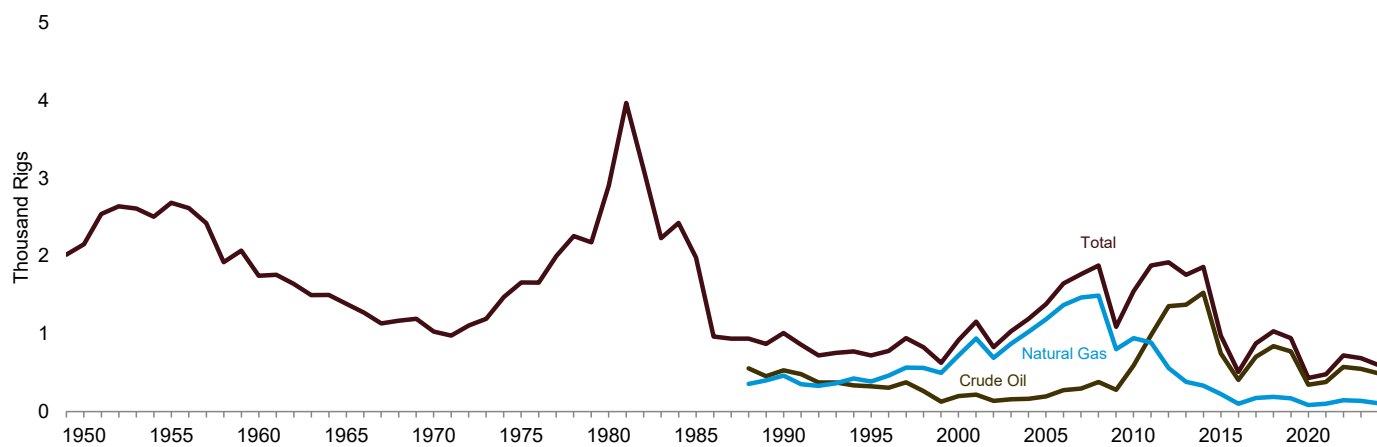


## **5. Crude Oil and Natural Gas Resource Development**

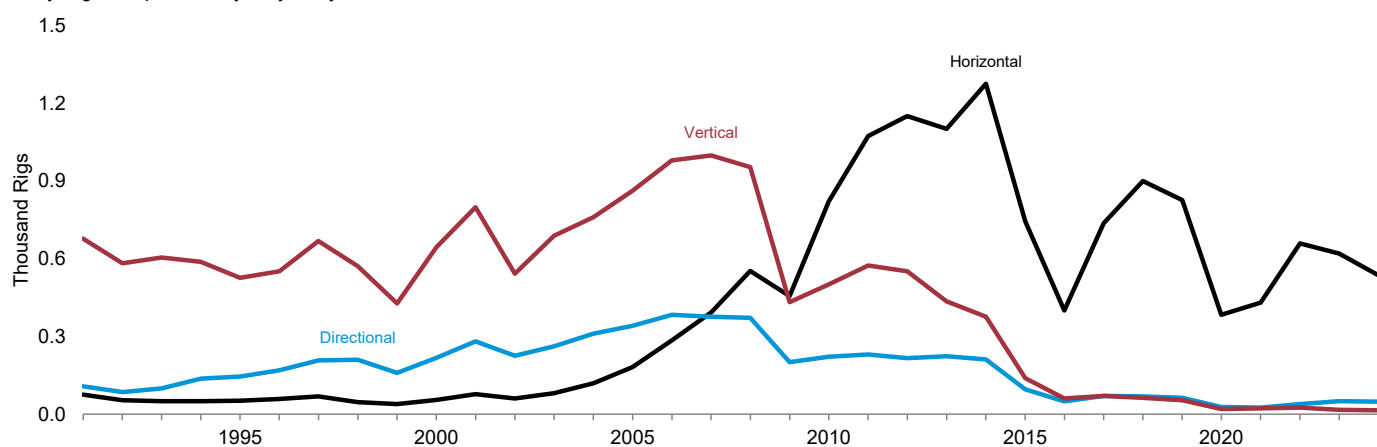
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**Figure 5.1 Crude Oil and Natural Gas Drilling Activity Measurements**

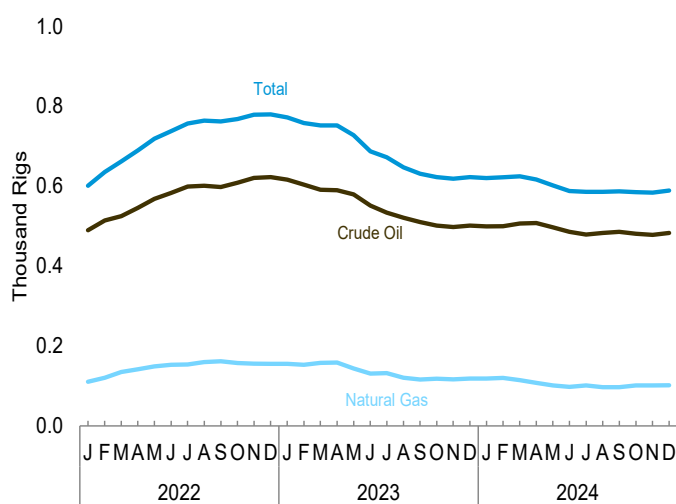
Rotary Rigs in Operation by Type, 1949–2024



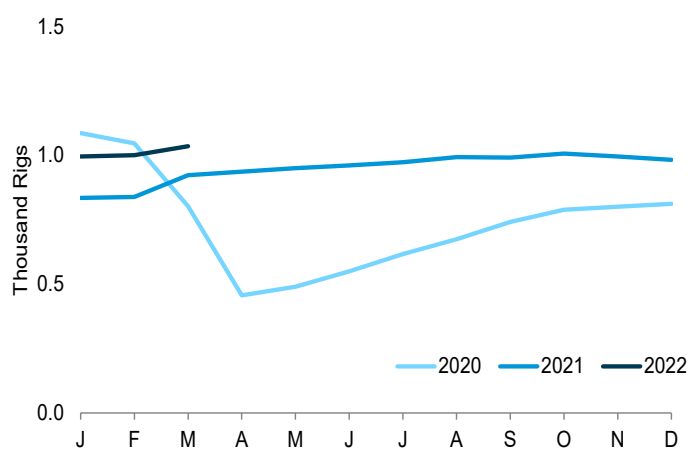
Rotary Rigs in Operation by Trajectory, 1991–2024



Rotary Rigs in Operation by Type, Monthly



Active Well Service Rig Count, Monthly



Web Page: <http://www.eia.gov/totalenergy/data/monthly/#crude>.

Sources: Table 5.1.

**Table 5.1 Crude Oil and Natural Gas Drilling Activity Measurements**  
(Number of Rigs)

	Rotary Rigs in Operation <sup>a,b</sup>								Active Well Service Rig Count <sup>d</sup>
	By Location <sup>c</sup>		By Type <sup>c</sup>		By Trajectory <sup>c</sup>			Total <sup>c</sup>	
	Onshore	Offshore	Crude Oil	Natural Gas	Horizontal	Directional	Vertical		
1950 Average .....	NA	NA	NA	NA	NA	NA	NA	2,154	NA
1955 Average .....	NA	NA	NA	NA	NA	NA	NA	2,686	NA
1960 Average .....	NA	NA	NA	NA	NA	NA	NA	1,748	NA
1965 Average .....	NA	NA	NA	NA	NA	NA	NA	1,388	NA
1970 Average .....	NA	NA	NA	NA	NA	NA	NA	1,028	NA
1975 Average .....	1,554	106	NA	NA	NA	NA	NA	1,660	2,486
1980 Average .....	2,678	231	NA	NA	NA	NA	NA	2,909	4,089
1985 Average .....	1,774	206	NA	NA	NA	NA	NA	1,980	4,716
1990 Average .....	902	108	532	464	NA	NA	NA	1,010	3,658
1995 Average .....	622	101	323	385	52	145	526	723	3,041
2000 Average .....	778	140	197	720	55	217	645	918	2,692
2005 Average .....	1,290	93	194	1,186	181	341	862	1,383	2,222
2010 Average .....	1,514	31	591	943	822	222	501	1,546	1,854
2011 Average .....	1,846	32	984	887	1,074	230	574	1,879	2,075
2012 Average .....	1,871	48	1,357	558	1,151	216	552	1,919	2,113
2013 Average .....	1,705	56	1,373	383	1,102	224	435	1,761	2,064
2014 Average .....	1,804	57	1,527	333	1,275	211	376	1,862	2,024
2015 Average .....	943	35	750	226	744	95	139	978	1,481
2016 Average .....	486	23	408	100	400	49	60	509	1,061
2017 Average .....	856	20	703	172	737	70	70	876	1,187
2018 Average .....	1,013	19	841	190	900	69	63	1,032	1,292
2019 Average .....	920	23	774	169	826	63	54	943	1,253
2020 Average .....	417	15	345	85	384	28	20	433	738
2021 Average .....	464	14	380	98	431	25	22	478	949
2022 January .....	583	18	490	111	543	35	23	601	995
February .....	622	14	514	121	578	32	26	636	1,000
March .....	649	12	525	135	605	34	24	662	1,035
April .....	677	13	546	142	632	32	25	690	NA
May .....	701	17	568	149	657	37	25	719	NA
June .....	723	16	583	153	673	39	27	738	NA
July .....	740	16	599	154	687	41	29	757	NA
August .....	746	18	601	160	695	39	30	764	NA
September .....	747	16	598	162	694	44	24	762	NA
October .....	754	14	609	157	704	42	23	768	NA
November .....	763	16	621	156	711	45	23	779	NA
December .....	763	16	623	155	708	45	26	780	NA
Average .....	708	15	574	147	659	39	25	723	NA
2023 January .....	756	16	616	155	701	47	24	772	NA
February .....	742	16	604	153	698	42	18	758	NA
March .....	736	17	591	158	691	47	14	752	NA
April .....	733	19	590	159	685	48	19	752	NA
May .....	707	21	580	144	657	52	19	728	NA
June .....	667	20	551	131	617	51	18	687	NA
July .....	654	19	534	132	602	52	18	672	NA
August .....	629	18	521	121	576	52	19	647	NA
September .....	613	19	510	116	561	55	15	631	NA
October .....	600	23	501	118	556	52	15	623	NA
November .....	599	20	498	117	552	54	13	619	NA
December .....	603	20	501	119	561	49	13	623	NA
Average .....	669	19	549	135	620	50	17	687	NA
2024 January .....	601	20	499	119	561	48	12	620	NA
February .....	603	20	500	120	560	50	13	622	NA
March .....	603	22	507	115	559	53	13	625	NA
April .....	598	19	508	108	555	50	13	617	NA
May .....	582	20	497	101	544	42	17	602	NA
June .....	567	21	486	98	525	44	19	588	NA
July .....	564	22	479	101	519	49	18	586	NA
August .....	566	19	483	97	521	48	16	586	NA
September .....	567	20	486	97	522	50	15	587	NA
October .....	568	18	481	101	517	53	15	585	NA
November .....	570	14	478	101	520	48	16	584	NA
December .....	575	14	483	102	526	49	14	589	NA
Average .....	580	19	491	105	536	48	15	599	NA

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> Not shown under "By Type" are other rigs 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.

<sup>d</sup> 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.

NA=Not available.

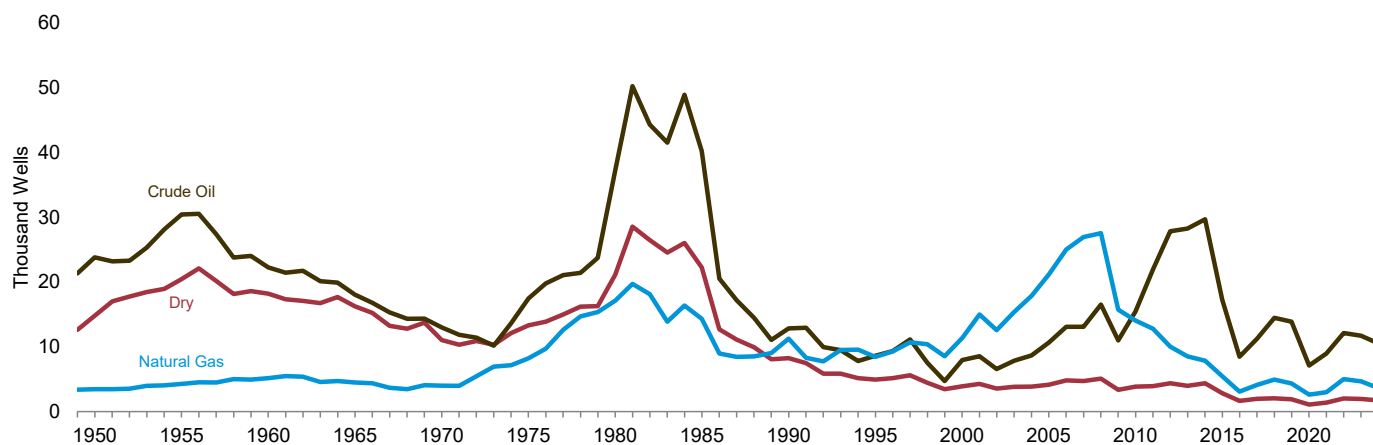
Note: Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#crude> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

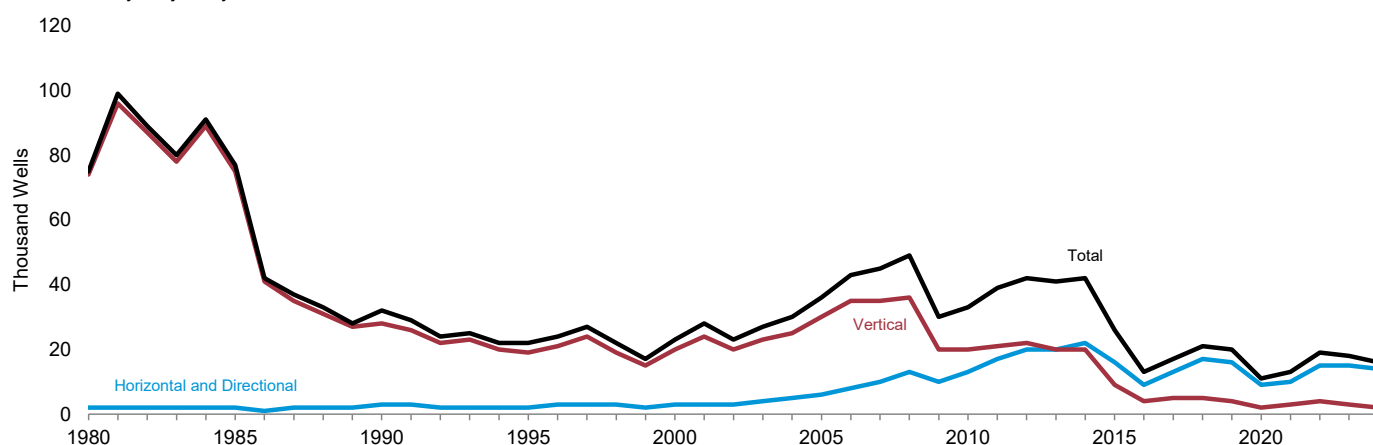
Sources: • **Rotary Rigs in Operation:** Baker Hughes, Inc., Houston, TX, "North America Rig Count," used with permission. See <http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reports&other>. • **Active Well Service Rig Count:** Energy Workforce & Technology Council, Houston, TX.

**Figure 5.2 Crude Oil and Natural Gas Wells and Footage Drilled**

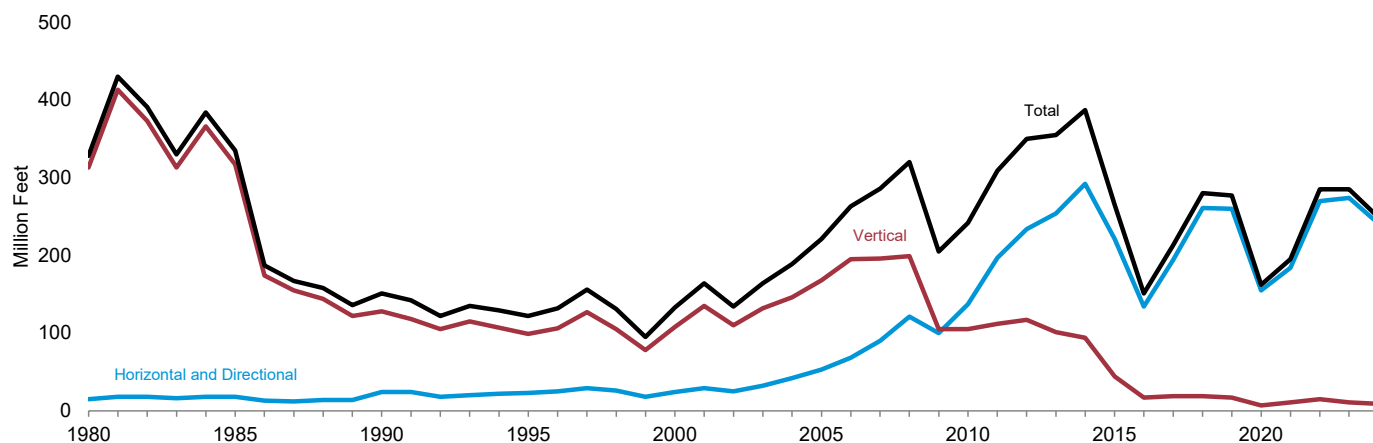
Wells Drilled by Type, 1949–2024



Wells Drilled by Trajectory, 1980–2024



Footage Drilled by Trajectory, 1980–2024



Web Page: <http://www.eia.gov/totalenergy/data/monthly/#crude>.

Sources: Table 5.2.

Table 5.2 Crude Oil and Natural Gas Wells and Footage Drilled

	Wells Drilled						Footage Drilled					
	By Type			By Trajectory		Total	By Type			By Trajectory		Total
	Crude Oil	Natural Gas	Dry	Horizontal and Directional	Vertical		Crude Oil	Natural Gas	Dry	Horizontal and Directional	Vertical	
	Number						Thousand Feet					
1950 Total	23,812	3,439	14,799	NA	NA	42,050	NA	NA	NA	NA	NA	157,358
1955 Total	30,432	4,266	20,452	NA	NA	55,150	NA	NA	NA	NA	NA	226,182
1960 Total	22,258	5,149	18,212	NA	NA	45,619	NA	NA	NA	NA	NA	192,176
1965 Total	18,065	4,482	16,226	NA	NA	38,773	NA	NA	NA	NA	NA	174,882
1970 Total	12,968	4,011	11,031	NA	NA	28,010	NA	NA	NA	NA	NA	138,556
1975 Total	17,449	8,200	13,321	NA	NA	38,970	NA	NA	NA	NA	NA	182,199
1980 Total	37,209	17,108	21,125	1,677	73,765	75,442	137,273	92,649	98,054	14,607	313,369	327,976
1985 Total	40,217	14,309	22,270	2,184	74,612	76,796	152,575	77,699	104,791	17,944	317,122	335,066
1990 Total	12,839	11,246	8,245	2,839	27,987	32,330	57,153	52,870	41,360	23,619	127,764	151,383
1995 Total	R 8,610	R 8,446	R 4,935	2,498	R 19,493	R 21,991	R 41,750	R 53,428	R 26,600	R 23,115	R 98,662	R 121,777
2000 Total	R 7,944	R 11,366	R 3,889	2,919	R 20,280	R 23,199	R 34,777	R 75,285	R 22,702	R 24,346	R 108,418	R 132,764
2005 Total	R 10,646	R 21,197	R 4,149	5,993	R 29,999	R 35,992	R 49,581	R 148,788	R 22,906	R 52,976	R 168,300	R 221,276
2010 Total	15,448	R 14,053	R 3,865	R 12,917	R 20,449	R 33,366	R 93,259	R 130,035	R 19,163	R 137,265	R 105,191	R 242,457
2011 Total	R 21,933	R 12,815	R 3,935	R 17,214	R 21,469	R 38,683	R 154,594	R 135,834	R 18,958	R 197,207	R 112,179	R 309,386
2012 Total	R 27,844	R 10,025	R 4,352	R 19,806	R 22,415	R 42,221	R 218,110	R 111,636	R 20,732	R 233,857	R 116,621	R 350,478
2013 Total	R 28,257	R 8,500	R 3,948	R 20,470	R 20,235	R 40,705	R 235,119	R 100,333	R 19,914	R 254,470	R 100,896	R 355,367
2014 Total	29,706	R 7,840	R 4,356	R 22,355	R 19,547	R 41,902	R 266,956	R 96,509	R 23,253	R 292,355	R 94,363	R 386,718
2015 Total	R 17,260	R 5,428	R 2,828	R 16,022	R 9,494	R 25,516	R 176,559	R 71,797	R 16,635	R 221,360	R 43,631	R 264,991
2016 Total	R 8,475	R 3,088	R 1,635	R 9,069	R 4,129	R 13,198	R 97,994	R 43,801	R 9,494	R 134,152	R 17,137	R 151,289
2017 Total	11,229	R 4,104	R 1,954	R 12,649	R 4,638	R 17,287	138,566	R 61,621	R 12,954	R 193,667	R 19,474	R 213,141
2018 Total	R 14,474	R 4,929	R 2,048	R 16,550	R 4,901	R 21,451	R 187,910	R 78,055	R 14,053	R 260,988	R 19,031	R 280,019
2019 Total	R 13,886	R 4,330	R 1,900	R 15,856	R 4,260	R 20,116	R 190,577	R 72,542	R 13,693	R 259,932	R 16,880	R 276,812
2020 Total	R 7,123	R 2,609	R 1,064	R 8,893	R 1,903	R 10,796	R 106,492	R 47,622	R 8,282	R 155,196	R 7,199	R 162,396
2021 Total	R 8,965	R 2,981	R 1,369	R 10,364	R 2,951	R 13,315	R 130,887	R 54,858	R 9,324	R 184,025	R 11,045	R 195,070
2022 January	R 904	R 317	R 140	R 1,039	R 322	R 1,361	R 13,003	R 5,792	R 1,137	R 18,689	R 1,242	R 19,931
February	R 905	R 346	R 148	R 1,099	R 300	R 1,399	R 13,067	R 6,425	R 1,070	R 19,425	R 1,137	R 20,562
March	R 925	R 385	R 154	R 1,165	R 299	R 1,464	R 13,452	R 7,201	R 1,122	R 20,591	R 1,184	R 21,775
April	R 961	R 405	R 161	R 1,219	R 308	R 1,527	R 13,969	R 7,572	R 1,172	R 21,546	R 1,167	R 22,713
May	R 999	R 425	R 167	R 1,259	R 332	R 1,591	R 14,423	R 7,892	R 1,207	R 22,253	R 1,269	R 23,522
June	R 1,026	R 437	R 172	R 1,308	R 327	R 1,635	R 14,928	R 8,177	R 1,253	R 23,119	R 1,239	R 24,358
July	R 1,055	R 440	R 176	R 1,329	R 342	R 1,671	R 15,301	R 8,207	R 1,278	R 23,490	R 1,296	R 24,786
August	R 1,059	R 455	R 178	R 1,338	R 354	R 1,692	R 15,268	R 8,437	R 1,285	R 23,649	R 1,342	R 24,991
September	R 1,053	R 462	R 178	R 1,354	R 339	R 1,693	R 15,845	R 8,441	R 1,266	R 24,250	R 1,302	R 25,552
October	R 1,071	R 448	R 179	R 1,334	R 364	R 1,698	R 15,454	R 8,273	R 1,287	R 23,578	R 1,437	R 25,015
November	R 1,094	R 444	R 181	R 1,399	R 320	R 1,719	R 16,164	R 8,437	R 1,339	R 24,727	R 1,213	R 25,940
December	R 1,097	R 441	R 182	R 1,404	R 316	R 1,720	R 16,257	R 8,406	R 1,351	R 24,816	R 1,198	R 26,013
Total	R 12,149	R 5,005	R 2,016	R 15,247	R 3,923	R 19,170	R 177,131	R 93,260	R 14,769	R 270,134	R 15,027	R 285,160
2023 January	R 1,084	R 441	R 180	R 1,405	R 300	R 1,705	R 16,167	R 8,459	R 1,344	R 24,833	R 1,137	R 25,970
February	R 1,063	R 435	R 177	R 1,445	R 230	R 1,675	R 16,408	R 8,636	R 1,368	R 25,540	R 872	R 26,412
March	R 1,041	R 452	R 175	R 1,402	R 266	R 1,668	R 15,725	R 8,781	R 1,324	R 24,780	R 1,050	R 25,830
April	R 1,039	R 453	R 175	R 1,424	R 243	R 1,667	R 16,022	R 8,752	R 1,317	R 25,169	R 921	R 26,090
May	R 1,021	R 411	R 170	R 1,356	R 246	R 1,602	R 15,585	R 8,022	R 1,292	R 23,967	R 932	R 24,900
June	R 974	R 376	R 161	R 1,282	R 229	R 1,511	R 15,458	R 6,916	R 1,153	R 22,659	R 868	R 23,527
July	R 944	R 377	R 158	R 1,242	R 237	R 1,479	R 14,709	R 6,999	R 1,142	R 21,952	R 898	R 22,851
August	R 923	R 348	R 152	R 1,155	R 268	R 1,423	R 14,812	R 6,358	R 1,081	R 21,173	R 1,078	R 22,251
September	R 906	R 335	R 148	R 1,148	R 241	R 1,389	R 14,504	R 6,121	R 1,053	R 20,744	R 934	R 21,678
October	R 940	R 351	R 147	R 1,198	R 240	R 1,438	R 15,974	R 6,506	R 1,046	R 22,603	R 923	R 23,526
November	R 881	R 335	R 145	R 1,128	R 233	R 1,361	R 13,582	R 6,195	R 1,044	R 19,937	R 883	R 20,821
December	R 886	R 340	R 145	R 1,147	R 224	R 1,371	R 13,780	R 6,297	R 1,046	R 20,273	R 849	R 21,122
Total	R 11,702	R 4,654	R 1,933	R 15,332	R 2,957	R 18,289	R 182,726	R 88,042	R 14,210	R 273,632	R 11,346	R 284,979
2024 January	R 881	R 339	R 145	R 1,216	R 149	R 1,365	R 14,026	R 6,942	R 1,156	R 21,493	R 631	R 22,124
February	R 881	R 343	R 145	R 1,201	R 168	R 1,369	R 14,782	R 6,267	R 1,032	R 21,438	R 643	R 22,081
March	R 898	R 330	R 147	R 1,191	R 184	R 1,375	R 14,490	R 6,185	R 1,073	R 21,051	R 697	R 21,748
April	R 903	R 310	R 145	R 1,162	R 196	R 1,358	R 15,307	R 5,664	R 1,032	R 21,234	R 768	R 22,002
May	R 889	R 294	R 142	R 1,114	R 211	R 1,325	R 13,963	R 5,493	R 1,033	R 19,690	R 800	R 20,490
June	R 871	R 284	R 139	R 1,061	R 233	R 1,294	R 13,431	R 5,212	R 993	R 18,753	R 883	R 19,636
July	R 857	R 294	R 138	R 1,072	R 217	R 1,289	R 14,155	R 5,371	R 982	R 19,655	R 853	R 20,508
August	R 867	R 282	R 139	R 1,092	R 196	R 1,288	R 13,765	R 5,268	R 1,011	R 19,301	R 743	R 20,044
September	R 871	R 280	R 140	R 1,109	R 182	R 1,291	R 13,582	R 5,616	R 1,093	R 19,602	R 690	R 20,291
October	R 858	R 292	R 138	R 1,098	R 190	R 1,288	R 13,257	R 5,803	R 1,068	R 19,407	R 720	R 20,127
November	R 854	R 292	R 138	R 1,082	R 202	R 1,284	R 13,080	R 5,752	R 1,058	R 19,124	R 766	R 19,890
December	861	296	139	1,126	170	1,296	13,491	5,965	1,091	19,902	644	20,546
Total	10,491	3,636	1,695	13,524	2,298	15,822	167,330	69,537	12,622	240,650	8,839	249,489

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 1989, 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 drilling for resources other than crude oil or natural gas are excluded. Due to the methodology used to estimate ultimate well counts from the available partially reported data, the counts shown on this page are frequently revised. See Note, "Crude Oil and Natural Gas Wells," at

end of section. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#crude> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **1949–1965:** Gulf Publishing Company, *World Oil*, "Forecast-Review" issue. • **1966–1969:** American Petroleum Institute (API), *Quarterly Review of Drilling Statistics for the United States*, annual summaries and monthly reports. • **1970–1989:** U.S. Energy Information Administration (EIA) computations based on well reports submitted to the API. • **1990 forward:** EIA computations based on well reports submitted to IHS Markit, Inc.

## Crude Oil and Natural Gas Resource Development

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**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).