The Distribution of U.S. Oil and Natural Gas Wells by Production Rate with Data Through 2024

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Overview

Technological innovation in drilling and completions has resulted in growth in U.S. oil and natural gas production over the last 15 years. Exploring how U.S. oil and natural gas wells have changed provides deeper insight into this rapid growth. In this report, we present data on the distribution of wells by size and technology and analyze emerging trends.

In December 2023, U.S. oil production, which includes crude oil and lease condensate, averaged 13.3 million barrels per day (b/d) and U.S. natural gas production (gross withdrawals) averaged 128.0 billion cubic feet per day (Bcf/d). U.S. oil production and natural gas production both increased in 2024, with oil production averaging 13.4 million b/d and natural gas production averaging 128.8 Bcf/d in December 2024.[1]

The number of producing wells in the United States reached a high of 1,031,161 wells in 2014 but declined to 930,445 wells by 2023 and continued to decline in 2024 to 918,481 wells (Figure 1). The percentage share of horizontal wells during the past decade increased from 10% in 2014 to 22% in 2024, which illustrates the impact of technological change on well type (Figure 2). Since 2018, more than two-thirds of U.S. oil and natural gas production has come from wells that produced between 100 barrels of oil equivalent per day (BOE/d) and 3,200 BOE/d (Figure 3 and Figure 4). However, most individual wells are not that productive; the share of U.S. oil and natural gas wells producing 15 BOE/d or less remained steady at about 80% from 2000 through 2022 and declined to 78% in 2023 through 2024 (Figure 1).

This report provides yearly estimates of producing oil and natural gas wells in the United States, which are grouped according to volume among 22 production volume brackets that range from less than 1 BOE/d to more than 12,800 BOE/d. We designate wells as either oil or natural gas wells based on a gas-oil ratio (GOR) of 6,000 cubic feet of natural gas to 1 barrel (cf/b) of oil for each year's production. If the GOR is equal to or less than 6,000 cf/b, we classify the well as an oil well for that year. If the GOR is greater than 6,000 cf/b, we classify the well as a natural gas well for that year.

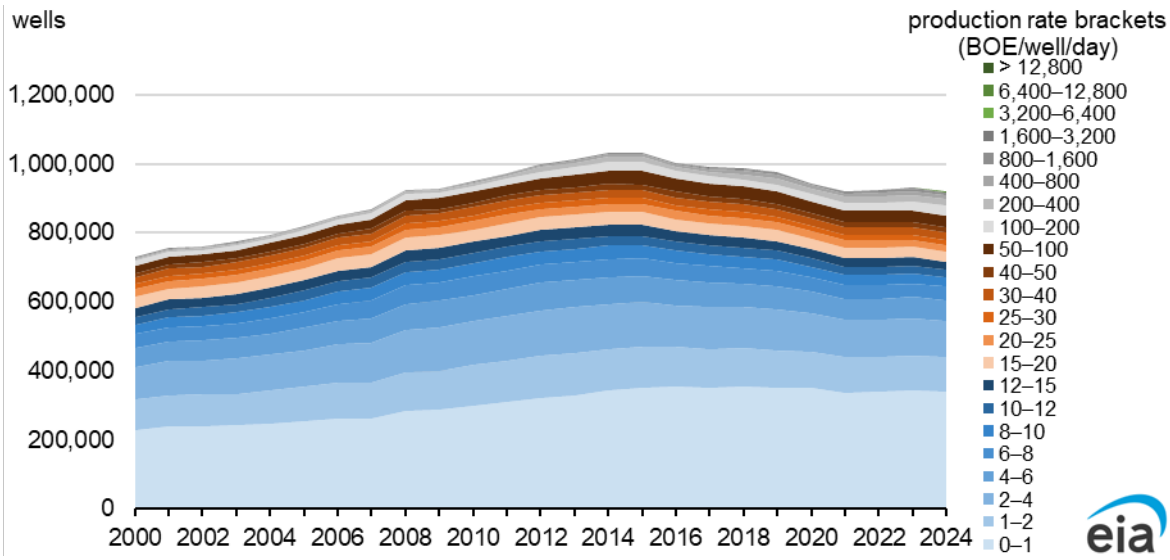
The distribution tables for the production rates of all U.S. oil and natural gas wells range from calendar years 2000 through 2024. Appendix B provides summary breakouts for the total United States, each state, the Federal Offshore Gulf of America, and the Federal Offshore Pacific. You can use the Appendix C spreadsheet to generate figures for all regions.

The quality and completeness of the available data we used to build the tables vary by state. The data originate from state administrative records of monthly well- or lease-level natural gas and liquid fuels production. We receive the data from the commercial source Enverus, which collects the data from various state agencies. Some state agencies do not make well-production data available until years after production occurs, and others have never made well-production data available. For the late-reporting states—Arizona, Kentucky, Maryland, Missouri, and Tennessee—we use the last year of reported data to populate recent missing years to achieve the most complete U.S. total well counts. Data are not

[1] U.S. Energy Information Administration, *Monthly Crude Oil and Natural Gas Production*, October 31, 2025.

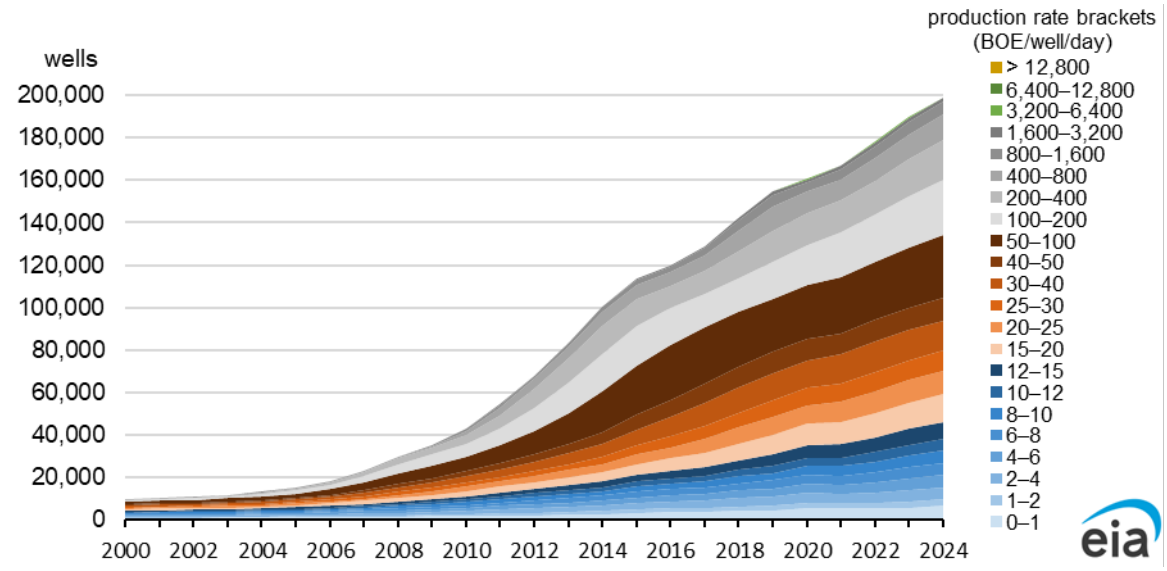
available for Illinois and Indiana. Appendix A shows the reporting status for each state and year covered in the report and the availability of completion, well, and lease data by state.

Figure 1. Total U.S. wells by production rate bracket



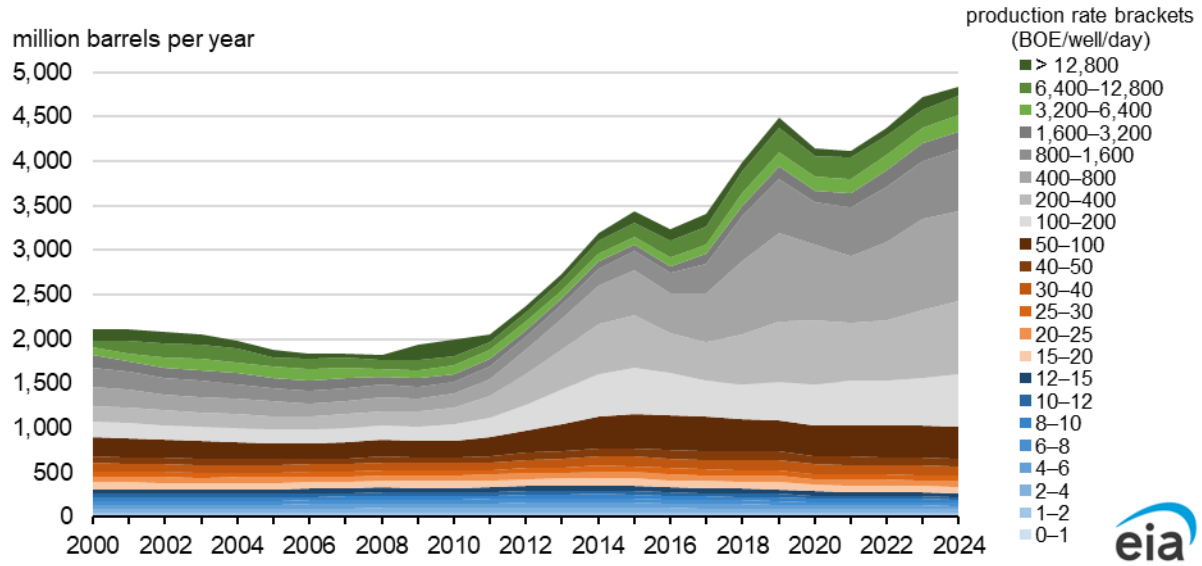
Data source: U.S. Energy Information Administration and Enverus
Note: BOE=barrels of oil equivalent

Figure 2. U.S. horizontal wells by production rate bracket



Data source: U.S. Energy Information Administration and Enverus
Note: BOE=barrels of oil equivalent

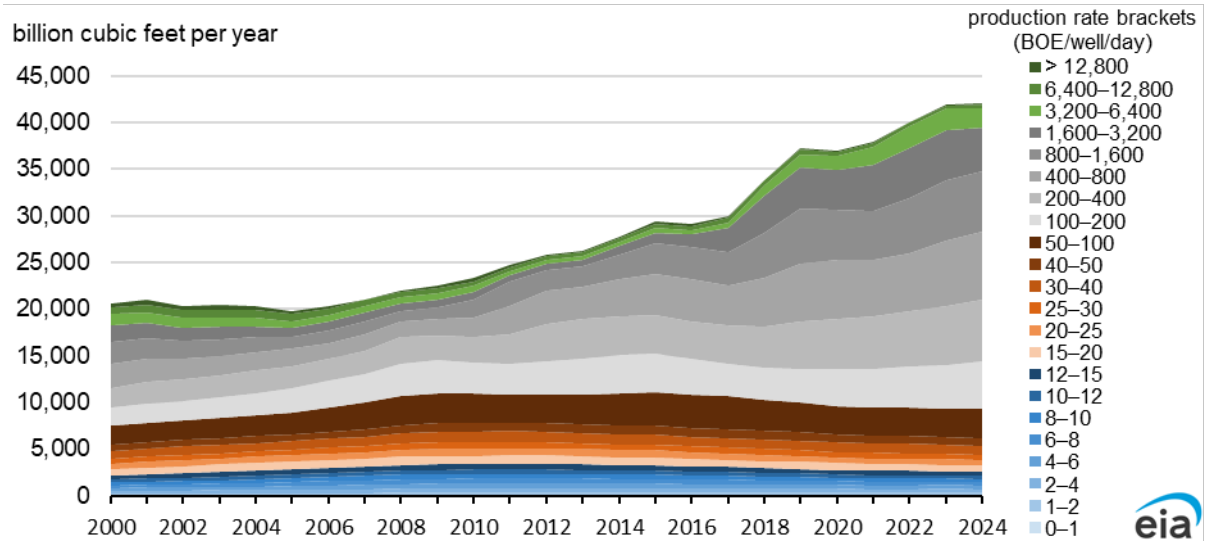
Figure 3. Oil production from U.S. wells by production rate bracket



Data source: U.S. Energy Information Administration and Enverus

Note: Oil production includes crude oil and lease condensate; BOE=barrels of oil equivalent

Figure 4. Natural gas production from U.S. wells by production rate bracket



Data source: U.S. Energy Information Administration and Enverus

Note: BOE=barrels of oil equivalent

Methodology

How we define wells

This report and its tables include five well types:

- Single wellhead
- Sidetrack
- Completion
- Recompletion
- Lease

This report includes every producing entity in the Enverus database. When we know the number of wells on a lease, we distribute the total lease production equally among the wells; however, in some cases, the commercial source has allocated individual well production in proportion to well test results. Sometimes, only a lease and its total production are available (without the well counts), which leads to undercounted wells in some areas.

Production volume accounting

We removed identifiable reinjected and recycled natural gas from the gross natural gas volumes reported by some states, such as Alaska. For fields identified as having undergone or as currently undergoing natural gas injection, we reduce production levels by an equal share of the field-level injected natural gas that the state reported. We do not include injection wells in the counts unless they were producing wells at one time; in such cases, we included those wells for the years they were producing.

The pressure base that producers use to record natural gas volumes varies by state. For consistency, we converted all natural gas volumes to the federal pressure base of 14.73 pounds per square inch absolute (psia). We did not, however, adjust to account for differences in the temperature base; instead, we assumed states used 60^{o}F as the temperature base. Because states vary in how they define a well type (oil or natural gas), we used a GOR of greater than 6,000 cf/b to designate a natural gas well. We designated wells with less than or equal to 6,000 cf/b as oil wells.

We excluded storage wells, dry holes, and wells that produce exclusively within CO_2 fields.

How we analyzed and aggregated the data

First, we used the number of days of production activity to convert volumes to a daily rate for the BOE-rate classes in the tables. For this calculation, we did not use the reported *days on* production measure for a well because it is often not available in the database. Instead, we used calendar days for consistency. To calculate the months in production, we determined the monthly production data for the first month and for the first year of production and the last month and last year of production for each well. We counted days of production using the number of calendar days in each month for the first year and last year of production. For the middle years of production, we used full years of 365 (or 366) days for days of production.

Next, we added the monthly oil and natural gas volumes, multiplied by the number of days of production, to determine annual totals for each well. We converted the annual natural gas volume to

BOE using the GOR of 6,000 cf/b, and we used the GOR threshold to classify a well as natural gas or oil. We classified the well as an oil well if its production of barrels of oil was greater than the natural gas production converted to BOE. We classified it as a natural gas well if its BOE production was greater than the oil production. We then added the natural gas BOE to the liquid fuels value for a total BOE for each year of the well's production. We divided this total BOE by the number of calendar days the well was in production status, which often reflected partial years for the first and last years and full years for years in between. We used these calculations to assign each well to the appropriate BOE/d rate class in the tables.

Finally, we added the well counts and production levels for each rate class to produce the yearly state tables for the report.

Frequently Asked Questions

What is the average production rate of a well, and how does this rate differ between oil wells and natural gas wells?

In 2024, the average oil well produced 29 b/d (or about 39 BOE/d, if including natural gas), and the average natural gas well produced nearly 185,000 cubic feet per day (cf/d) (about 35 BOE/d of total oil and natural gas). The distribution by well size, however, is generally skewed. Many wells produce smaller volumes per day, and fewer wells produce very large volumes per day. In 2024, 78% of the more than 918,000 U.S. wells produced 15 BOE/d or less, and 8% of the wells produced more than 100 BOE/d.

What is the source of our data, and how do we collect it?

Our data source is Enverus. We receive a monthly download from Enverus containing the most recent production information. This commercial data source collects data from various state agencies involved in regulating oil and natural gas production. In this year's report, we are using the November 2025 download of the Enverus data.

This year's report reflects minor methodological changes that have affected a small number of wells and related well size distributions compared with the 2024 report.

How are the reported volumes consistent with other data sources?

The total volumes in the distribution tables represent a snapshot of available data at the time we assembled the report and may not exactly equal other related data, including other EIA sources. Differences sometimes exist in:

- The timing of updates from state and commercial sources
- The availability of state-level aggregate production data versus well-level data
- The definition of a well and which entities we counted and summed

How often do we collect well-production data for the Lower 48 states?

Some states make data available within a few months after a new well begins production, and other states may take more than 18 months to release that data. The average lag between a new well's first production and reported production in the database is six to eight months.

In addition, states sometimes revise historical data because they continue collecting and digitizing older well datasets or their databases. States may also revise data if they identify inaccuracies.

How often will we update this report?

We plan to update this report each year in December, when complete or nearly complete data for the previous year are available for most states.

Does a natural gas well remain a natural gas well during its entire production history?

In this report, we sometimes classify a well as a natural gas well in one year and as an oil well in another year, and vice versa, depending on a well's GOR. We use this approach because the respective volumes of liquid fuels and natural gas produced by a well can change significantly during the well's production history.

Do we distinguish between associated natural gas and nonassociated natural gas?

The report distinguishes between associated and nonassociated natural gas based on whether we classify the well as an oil well or a natural gas well. If we classify the well as a natural gas well, then we consider the natural gas as nonassociated gas and the liquid fuels as condensate, which is counted as oil. If we classify the well as an oil well, then we consider the natural gas as associated gas and the liquid fuels as oil.

How do we account for lags in data reporting?

We include notes in the tables to indicate states that are missing current data because of a lag in annual reporting. For missing years, we repeat a state's latest data. We don't attempt to estimate data that may be missing within a reported year. Appendix A provides a summary table of missing or incomplete state data.

How long after a well starts producing is it classified into a production-rate bracket?

We include a well in our analysis as soon as data for the first month of production are available in our database.

Do all wells produce both oil and natural gas?

Most wells produce both oil and natural gas, but some wells produce only one or the other.

Does the specific reservoir, formation, or play determine the amount of oil and natural gas produced?

Yes. Different zones within the same reservoir (depending on the hydrocarbon content, depth, and burial history) will produce only liquids, a mix of liquids and natural gas, or only natural gas.

Why do some states have productive drilling sites and others do not?

The best producing areas are often large basins with thick layers of sedimentary rock that accumulated over a long time and also contain oil and natural gas. States such as North Dakota, Texas, and Pennsylvania have productive drilling sites because they cover large areas of these basins. Subsurface geology and paleogeography are the most important factors in determining whether a state may be an oil and natural gas producer.

Has the productivity of wells changed since horizontal drilling technology and hydraulic fracturing technology have advanced?

Horizontal drilling and hydraulic fracturing have greatly increased both oil and natural gas production rates of onshore wells in the United States. The decline rates of hydraulically fractured horizontal wells within shale or tight formations are typically greater than for wells drilled vertically into conventional reservoirs.

Our estimates for production derived from shale or tight formations is available in our *Short-Term Energy Outlook*.

What is a *stripper well*?

A *stripper well*, also called a *marginal well*, is an oil or natural gas well that is nearing the end of its economically useful life. These wells can continue to produce small volumes for long periods. Many of these wells are still operating, and together they produced approximately 6% of total U.S. oil and natural gas in 2024. The Interstate Oil and Gas Compact Commission defines a stripper well as a well that produces 10 b/d or less of oil or 60,000 cf/d or less of natural gas during a 12-month period. The Internal Revenue Service (IRS)—for tax purposes—defines this type of well as one that produces 15 b/d or less of oil over a calendar year. In addition, 15 b/d or less of oil converts to 90,000 cubic feet or less of natural gas per day over a calendar year. We use the IRS definition.

What happens to a well after it stops producing oil or natural gas?

Operators usually plug and abandon nonproducing wells. If they suspect significant amounts of hydrocarbons are still in the reservoir, the well may undergo secondary or tertiary recovery.

What is the difference between gross natural gas, wet natural gas, and dry natural gas?

You can find definitions for natural gas gross withdrawals, wet natural gas, and dry natural gas in our glossary.

Are any wells still drilled using only conventional drilling practices?

Yes, some vertical wells are still drilled and completed without hydraulic fracturing; however, these wells and older completion techniques are becoming less common. Based on the larger number of wells and footage drilled, horizontal drilling combined with hydraulic fracturing has become standard practice for oil and natural gas production in the United States.

Suggestions for Querying the Appendix C Excel Data File

Data are provided in a flat-file format for all states for each year from 2000 through 2024 and by well-size class (Figure 5). The *Filter* tool in Excel is one of the fastest methods for viewing a subset of the data. For example, the filters in Figure 6 are set to select only Alaska (AK) and the year 2000. In Figure 7, the filters are set to select Alaska totals for all years and to sort chronologically.

Figure 5. Example of data provided in flat-file format with filter tool added

				Oil wells								Natural gas wells			
State	Year	Production rate bracket (barrel of oil equivalent per day)	Class number for sorting	Number of oil wells	Oil wells: percentage of oil wells	Oil wells: annual oil production (million barrels)	Oil wells: percentage of oil production	Oil wells: oil rate per well (barrels per day)	Oil wells: annual gas production (billion cubic feet)	Oil wells: natural gas rate per well (thousand cubic feet per day)	Number of natural gas wells	Natural gas wells: percentage of natural gas wells	Natural gas wells: annual gas production (billion cubic feet)	Natural gas wells: percentage of natural gas production
AK	2024	A_ 0-1	1	49	3	0	0	0	0	0	36	7	0	0
AK	2024	B_ 1-2	2	21	1	0	0	1	0	1	11	2	0	0
AK	2024	C_ 2-4	3	16	1	0	0	3	0	2	7	1	0	0
AK	2024	D_ 4-6	4	14	1	0	0	4	0	6	9	2	0	0
AK	2024	E_ 6-8	5	17	1	0	0	6	0	5	12	2	0	0
AK	2024	F_ 8-10	6	9	0	0	0	8	0	9	8	2	0	0
AK	2024	G_ Subtotal <=10	6.5	126	7	0	0	3	0	3	83	17	0	0
AK	2024	H_ 10-12	7	15	1	0	0	10	0	9	4	1	0	0
AK	2024	I_ 12-15	8	20	1	0	0	12	0	13	6	1	0	0
AK	2024	J_ Subtotal <=15	8.5	161	9	0	0	5	0	5	93	19	0	0
AK	2024	K_ 15-20	9	22	1	0	0	16	0	11	17	4	0	0
AK	2024	L_ 20-25	10	26	1	0	0	20	0	17	5	1	0	0
AK	2024	M_ 25-30	11	31	2	0	0	25	0	15	6	1	0	0
AK	2024	N_ 30-40	12	58	3	1	0	30	1	26	14	3	1	0
AK	2024	O_ 40-50	13	62	3	1	1	41	1	26	13	3	1	0
AK	2024	P_ 50-100	14	301	16	7	5	69	4	39	59	12	8	4
AK	2024	Q_ Subtotal <=100	14.5	661	35	10	7	44	6	27	207	43	11	6
AK	2024	R_ 100-200	15	443	24	21	15	129	15	94	82	17	23	11
AK	2024	S_ 200-400	16	368	20	31	22	236	42	320	85	18	37	18
AK	2024	T_ 400-800	17	273	15	39	27	406	75	793	64	13	52	25
AK	2024	U_ 800-1,600	18	103	6	29	21	887	38	1154	40	8	65	32
AK	2024	V_ 1,600-3,200	19	19	1	12	8	2063	4	636	5	1	17	8

Data source: U.S. Energy Information Administration

Figure 6. Example of data with filters set to select Alaska (AK) and the year 2000

				Oil wells								Natural gas wells			
State	Year	Production rate bracket (barrel of oil equivalent per day)	Class number for sorting	Number of oil wells	Oil wells: percentage of oil wells	Oil wells: annual oil production (million barrels)	Oil wells: percentage of oil production	Oil wells: oil rate per well (barrels per day)	Oil wells: annual gas production (billion cubic feet)	Oil wells: natural gas rate per well (thousand cubic feet per day)	Number of natural gas wells	Natural gas wells: percentage of natural gas wells	Natural gas wells: annual gas production (billion cubic feet)	Natural gas wells: percentage of natural gas production
AK	2000	A_ 0-1	1	13	1	0	0	0	0	0	9	6	0	0
AK	2000	B_ 1-2	2	6	0	0	0	1	0	1	1	1	0	0
AK	2000	C_ 2-4	3	10	0	0	0	2	0	2	3	2	0	0
AK	2000	D_ 4-6	4	11	1	0	0	4	0	6	1	1	0	0
AK	2000	E_ 6-8	5	7	0	0	0	6	0	6	1	1	0	0
AK	2000	F_ 8-10	6	6	0	0	0	9	0	4	1	1	0	0
AK	2000	G_ Subtotal <=10	6.5	53	3	0	0	3	0	3	16	10	0	0
AK	2000	H_ 10-12	7	4	0	0	0	10	0	6	0	0	0	0
AK	2000	I_ 12-15	8	6	0	0	0	12	0	11	3	2	0	0
AK	2000	J_ Subtotal <=15	8.5	63	3	0	0	4	0	4	19	12	0	0
AK	2000	K_ 15-20	9	13	1	0	0	16	0	11	2	1	0	0
AK	2000	L_ 20-25	10	10	0	0	0	20	0	13	1	1	0	0
AK	2000	M_ 25-30	11	8	0	0	0	24	0	21	1	1	0	0
AK	2000	N_ 30-40	12	15	1	0	0	29	0	31	1	1	0	0
AK	2000	O_ 40-50	13	25	1	0	0	39	0	38	4	3	0	0
AK	2000	P_ 50-100	14	122	6	3	1	66	2	46	20	13	3	1
AK	2000	Q_ Subtotal <=100	14.5	256	13	4	1	41	3	31	48	30	3	2
AK	2000	R_ 100-200	15	264	13	13	4	141	6	65	19	12	6	3
AK	2000	S_ 200-400	16	518	25	50	14	270	23	122	23	14	13	6
AK	2000	T_ 400-800	17	540	27	98	28	512	63	329	25	16	27	12
AK	2000	U_ 800-1,600	18	342	17	116	33	978	97	817	22	14	53	24
AK	2000	V_ 1,600-3,200	19	102	5	56	16	1781	56	1781	16	10	70	31

Data source: U.S. Energy Information Administration

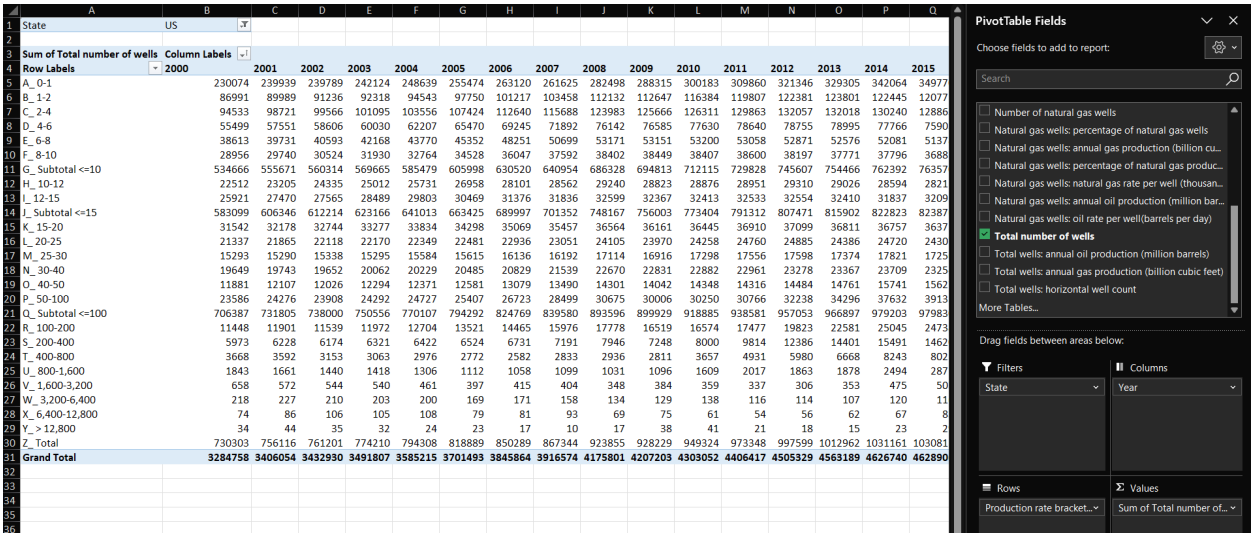
Figure 7. Example of filters set to select Alaska (AK) totals for all years and to sort chronologically

				Oil wells							Natural gas wells			
State	Year	Production rate bracket (barrel of oil equivalent per day)	Class number for sorting	Number of oil we	Oil wells: percentage of oil we	Oil wells: annual oil production (million barre	Oil wells: percentage of oil product	Oil wells: oil rate per well (barrels per d	Oil wells: annual gas production (billion cubic fe	Oil wells: natural gas rate per well (thousand cubic feet per d	Number of natural gas we	Natural gas wells: percentage of natural gas we	Natural gas wells: annual gas production (billion cubic fe	Natural gas wells: percentage of natural gas product
AK	2024	Z_ Total	23	1869	100	142	100	221	180	281	483	100	205	100
AK	2023	Z_ Total	23	1857	100	143	100	220	188	289	488	100	198	100
AK	2022	Z_ Total	23	1781	100	142	100	227	181	290	559	100	224	100
AK	2021	Z_ Total	23	1867	100	147	100	219	187	279	500	100	176	100
AK	2020	Z_ Total	23	1868	100	152	100	226	199	295	456	100	153	100
AK	2019	Z_ Total	23	2002	100	163	100	230	214	302	373	100	124	100
AK	2018	Z_ Total	23	2015	100	167	100	231	215	298	357	100	136	100
AK	2017	Z_ Total	23	2071	100	174	100	239	229	314	351	100	140	100
AK	2016	Z_ Total	23	2104	100	175	100	235	234	315	325	100	122	100
AK	2015	Z_ Total	23	2112	100	173	100	234	241	325	311	100	122	100
AK	2014	Z_ Total	23	2066	100	179	100	245	244	335	299	100	125	100
AK	2013	Z_ Total	23	1996	100	184	100	264	235	337	292	100	119	100
AK	2012	Z_ Total	23	1985	100	191	100	272	246	350	257	100	121	100
AK	2011	Z_ Total	23	2042	100	203	100	281	245	339	247	100	124	100
AK	2010	Z_ Total	23	2055	100	218	100	300	263	363	236	100	131	100
AK	2009	Z_ Total	23	2064	100	234	100	320	280	384	253	100	148	100
AK	2008	Z_ Total	23	2047	100	248	100	342	275	379	244	100	161	100
AK	2007	Z_ Total	23	1943	100	257	100	375	317	463	294	100	218	100
AK	2006	Z_ Total	23	2032	100	268	100	373	280	389	236	100	219	100

Data source: U.S. Energy Information Administration

We also set up a pivot table to help organize the data to make charts. In Figure 8, the United States is selected in cell B1, the subtotal rows have been deselected in cell A4, and *Total number of wells* is selected in the *PivotTable Fields* pane. Figure 9 shows a chart of the data in Figure 8.

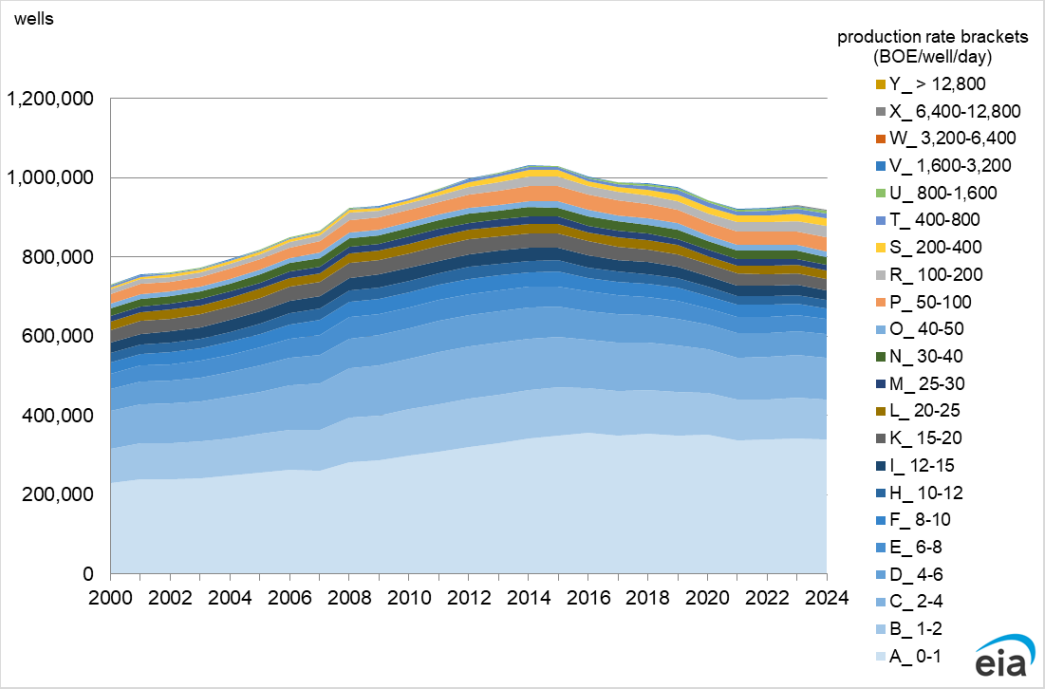
Figure 8. Example of a pivot table to help organize data to make charts



State	US															
Sum of Total number of wells	Column Labels															
Row Labels	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
A_ 0-1	230074	239939	239789	242124	248639	255474	263120	261625	282498	288315	300183	309860	321346	329305	342064	34977
B_ 1-2	86991	89989	91236	92318	94543	97750	101217	103458	112132	112647	116384	119807	122381	123801	122445	12077
C_ 2-4	94533	98721	99566	101095	103556	107424	112640	115688	123983	125666	126311	129863	132057	132018	130240	12886
D_ 4-6	55499	57551	58606	60030	62207	65470	69245	71892	76142	76585	77630	78640	78755	78995	77766	7590
E_ 6-8	38613	39731	40593	42168	43770	45352	48251	50699	53171	53151	53200	53058	52871	52576	52081	5137
F_ 8-10	28956	29740	30524	31930	32764	34528	36047	37592	38402	38449	38407	38600	38197	37771	37796	3688
G_ Subtotal <=10	534666	555671	560314	569665	585479	605998	630520	640954	686328	694813	712115	729828	745607	754466	762392	76357
H_ 10-12	22512	23205	24335	25012	25731	26958	28101	28562	29240	28823	28876	28951	29310	29026	28594	2821
I_ 12-15	25921	27470	27565	28489	29803	30469	31376	31836	32599	32367	32413	32533	32554	32410	31837	3209
J_ Subtotal <=15	583099	606346	612214	623166	641013	663425	689997	701352	748167	756003	773404	791312	807471	815902	822823	82387
K_ 15-20	31542	32178	32744	33277	33834	34298	35069	35457	36564	36161	36445	36910	37099	36811	36757	3637
L_ 20-25	21337	21865	22118	22170	22349	22481	22936	23051	24105	23970	24258	24760	24885	24386	24720	2430
M_ 25-30	15293	15290	15338	15295	15584	15615	16136	16192	17114	16916	17298	17556	17598	17374	17821	1725
N_ 30-40	19649	19743	19652	20062	20229	20485	20829	21539	22670	22831	22882	22961	23278	23367	23709	2325
O_ 40-50	11881	12107	12026	12294	12371	12581	13079	13490	14301	14042	14348	14316	14484	14761	15741	1562
P_ 50-100	23586	24276	23908	24292	24727	25407	26723	28499	30675	30006	30250	30766	32238	34296	37632	3913
Q_ Subtotal <=100	706387	731805	738000	750556	770107	794292	824769	839580	893596	899929	918885	938581	957053	966897	979203	97983
R_ 100-200	11448	11901	11539	11972	12704	13521	14465	15976	17778	16519	16574	17477	19823	22581	25045	2473
S_ 200-400	5973	6228	6174	6321	6422	6524	6731	7191	7946	7248	8000	9814	12386	14401	15491	1462
T_ 400-800	3668	3592	3153	3063	2976	2772	2582	2833	2936	2811	3657	4931	5980	6668	8243	802
U_ 800-1,600	1843	1661	1440	1418	1306	1112	1058	1099	1031	1096	1609	2017	1863	1878	2494	287
V_ 1,600-3,200	658	572	544	540	461	397	415	404	348	384	359	337	306	353	475	50
W_ 3,200-6,400	218	227	210	203	200	169	171	158	134	129	138	116	114	107	120	11
X_ 6,400-12,800	74	86	106	105	108	79	81	93	69	75	61	54	56	62	67	8
Y_ > 12,800	34	44	35	32	24	23	17	10	17	38	41	21	18	15	23	2
Z_ Total	730303	756116	761201	774210	794308	818889	850289	867344	923855	928229	949324	973348	997599	1012962	1031161	103081
Grand Total	3284758	3406054	3432930	3491807	3585215	3701493	3845864	3916574	4175801	4207203	4303052	4406417	4505329	4563189	4626740	462890

Data source: U.S. Energy Information Administration

Figure 9. Example of a chart made with a pivot table



Data source: U.S. Energy Information Administration and Enverus
Note: BOE=barrels of oil equivalent

Data Appendices

The linked Excel files contain the following:

Appendix A

Appendix A contains information about data availability.

Appendix B

Appendix B contains oil and natural gas well summary statistics.

Appendix C

Appendix C is a separate Excel flat file with all data.