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 2023 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 num	Number of oil w	Oil wells: percentage of oil w	Oil wells: annual oil production (million barr	Oil wells: percentage of oil produc	Oil wells: oil rate per Well (barrels per (	Oil wells: annual gas production (billion cubic f	Oil wells: natural gas rate per well (thousand cubic feet per (	Number of natural gas w	Natural gas wells: percentage of natural gas w	Natural gas wells: annual gas production (billion cubic f	Natural gas wells: percentage of natural gas produc	Natural gas wells: natural gas rate per well (thousand cubic feet per (	Natural gas wells: annual oil production (million barr	Natural gas wells: oil rate per well(barrels per (
AK	2023	A_ 0–1	1	29	1.57	0.002	0	0.341	0.003	0.383	36	7.39	0.006	0	0.646	0	0
AK	2023	B_ 1–2	2	12	0.65	0.004	0	1.166	0.007	2.487	7	1.44	0.014	0.01	7.785	0	0
AK	2023	C_ 2–4	3	14	0.76	0.009	0.01	2.431	0.013	3.663	15	3.08	0.056	0.03	12.308	0.003	0.616
AK	2023	D_ 4–6	4	20	1.08	0.02	0.01	3.935	0.033	6.585	9	1.85	0.073	0.04	25.519	0.002	0.682
AK	2023	E_ 6–8	5	8	0.43	0.011	0.01	5.685	0.018	9.656	5	1.03	0.049	0.02	32.614	0.002	1.498
AK	2023	F_ 8–10	6	18	0.97	0.041	0.03	7.426	0.042	7.572	6	1.23	0.07	0.03	40.223	0.003	1.788
AK	2023	G_Subtotal <=10	6.5	101	5.45	0.087	0.06	3.304	0.117	4.468	78	16.02	0.268	0.13	12.478	0.011	0.501
AK	2023	H_10–12	7	12	0.65	0.038	0.03	9.422	0.042	10.422	2	0.41	0.038	0.02	52.504	0.001	1.814
AK	2023	I_12–15	8	13	0.7	0.045	0.03	11.633	0.037	9.654	6	1.23	0.15	0.08	73.55	0.003	1.698
AK	2023	J_Subtotal <=15	8.5	126	6.8	0.169	0.12	4.963	0.196	5.752	86	17.66	0.456	0.23	18.824	0.016	0.641
AK	2023	K_15–20	9	28	1.51	0.128	0.09	15.225	0.111	13.24	12	2.46	0.217	0.11	78.873	0.012	4.462
AK	2023	L_20–25	10	18	0.97	0.124	0.09	20.158	0.083	13.471	11	2.26	0.434	0.22	115.097	0.012	3.091
AK	2023	M_25–30	11	26	1.4	0.177	0.12	24.445	0.13	17.964	5	1.03	0.257	0.13	153.879	0.002	1.212
AK	2023	N_30–40	12	46	2.48	0.48	0.34	31.872	0.308	20.454	14	2.87	0.741	0.37	188.97	0.012	3.039
AK	2023	O_40–50	13	65	3.51	0.83	0.58	40.29	0.639	31.026	17	3.49	1.243	0.63	236.426	0.035	6.614
AK	2023	P_50–100	14	307	16.57	7.23	5.07	69.348	4.15	39.804	55	11.29	7.196	3.62	389.271	0.19	10.292
AK	2023	Q_Subtotal <=100	14.5	616	33.24	9.138	6.4	46.68	5.617	28.694	200	41.07	10.544	5.3	175.534	0.278	4.636
AK	2023	R_100–200	15	452	24.39	20.425	14.31	128.591	14.731	92.741	71	14.58	17.463	8.78	736.473	0.597	25.188
AK	2023	S_200–400	16	386	20.83	31.484	22.06	234.271	40.015	297.75	106	21.77	45.247	22.75	1287.187	2.363	67.209
AK	2023	T_400–800	17	284	15.33	42.172	29.55	433.729	70.984	730.046	77	15.81	61.664	31.01	2343.736	4.858	184.636
AK	2023	U_800–1,600	18	93	5.02	26.307	18.44	882.474	37.613	1261.704	26	5.34	39.085	19.66	4297.921	3.427	376.892
AK	2023	V_1,600–3,200	19	18	0.97	8.673	6.08	1695.192	10.513	2054.843	7	1.44	24.853	12.5	9727.05	1.072	419.629
AK	2023	W_3,200–6,400	20	3	0.16	3.636	2.55	3416.87	6.386	6002.082	0	0	0	0	0	0	0
AK	2023	X_6,400–12,800	21	1	0.05	0.856	0.6	5597.307	1.461	9546.275	0	0	0	0	0	0	0
AK	2023	Y_>12,800	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AK	2023	Z_Total	23	1853	100	142.691	100	229.272	187.319	300.979	487	100	198.856	100	1267.461	12.596	80.282

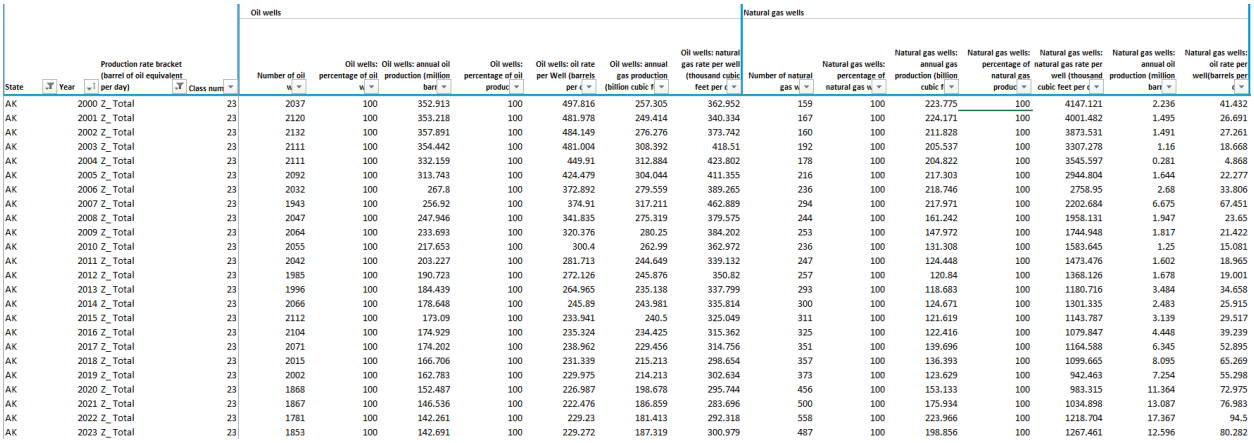
Data source: U.S. Energy Information Administration

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 num	Number of oil w	Oil wells: percentage of oil w	Oil wells: annual oil production (million barr	Oil wells: percentage of oil produc	Oil wells: oil rate per Well (barrels per (	Oil wells: annual gas production (billion cubic f	Oil wells: natural gas rate per well (thousand cubic feet per (	Number of natural gas w	Natural gas wells: percentage of natural gas w	Natural gas wells: annual gas production (billion cubic f	Natural gas wells: percentage of natural gas produc	Natural gas wells: natural gas rate per well (thousand cubic feet per (	Natural gas wells: annual oil production (million barr	Natural gas wells: oil rate per well(barrels per (
AK	2000	A_ 0–1	1	13	0.64	0.001	0	0.318	0.001	0.193	9	5.66	0.002	0	0.731	0	0
AK	2000	B_ 1–2	2	6	0.29	0.003	0	1.381	0.001	0.615	0	0	0	0	0	0	0
AK	2000	C_ 2–4	3	9	0.44	0.007	0	2.496	0.007	2.371	3	1.89	0.021	0.01	19.968	0	0
AK	2000	D_ 4–6	4	11	0.54	0.013	0	4.027	0.02	6.115	2	1.26	0.006	0	22.234	0	0
AK	2000	E_ 6–8	5	8	0.39	0.011	0	6.091	0.011	6.015	1	0.63	0.014	0.01	39.508	0	0
AK	2000	F_ 8–10	6	6	0.29	0.019	0.01	8.575	0.008	3.504	0	0	0	0	0	0	0
AK	2000	G_Subtotal <=10	6.5	53	2.6	0.054	0.02	3.315	0.047	2.884	15	9.43	0.043	0.02	10.036	0	0
AK	2000	H_10–12	7	4	0.2	0.015	0	10.228	0.009	6.478	1	0.63	0.017	0.01	70.611	0	0
AK	2000	I_12–15	8	6	0.29	0.019	0.01	11.515	0.018	11.093	3	1.89	0.066	0.03	60.034	0.004	3.66
AK	2000	J_Subtotal <=15	8.5	63	3.09	0.088	0.02	4.514	0.075	3.834	19	11.95	0.126	0.06	22.386	0.004	0.741
AK	2000	K_15–20	9	13	0.64	0.071	0.02	15.521	0.051	11.168	2	1.26	0.041	0.02	102.816	0	0
AK	2000	L_20–25	10	9	0.44	0.066	0.02	20.364	0.047	14.371	1	0.63	0.044	0.02	120.978	0	0
AK	2000	M_25–30	11	8	0.39	0.063	0.02	23.662	0.057	21.076	1	0.63	0.059	0.03	161.074	0	0
AK	2000	N_30–40	12	15	0.74	0.141	0.04	28.546	0.151	30.532	1	0.63	0.041	0.02	113.254	0.007	18.708
AK	2000	O_40–50	13	24	1.18	0.329	0.09	39.184	0.315	37.587	4	2.52	0.334	0.15	243.313	0.007	5.202
AK	2000	P_50–100	14	123	6.04	2.786	0.79	66.207	1.945	46.211	20	12.58	2.822	1.26	385.515	0.068	9.325
AK	2000	Q_Subtotal <=100	14.5	255	12.52	3.545	1	41.511	2.64	30.916	48	30.19	3.468	1.55	219.067	0.086	5.46
AK	2000	R_100–200	15	264	12.96	13.114	3.72	140.506	6.059	64.915	19	11.95	6.166	2.76	910.566	0.054	7.956
AK	2000	S_200–400	16	518	25.43	49.956	14.16	269.974	22.416	121.143	23	14.47	13.121	5.86	1660.639	0.064	8.151
AK	2000	T_400–800	17	541	26.56	97.956	27.76	511.729	63.027	329.256	25	15.72	27.193	12.15	3242.223	0.195	23.27
AK	2000	U_800–1,600	18	342	16.79	115.748	32.8	977.725	96.663	816.513	22	13.84	53.166	23.76	7231.558	0.029	3.948
AK	2000	V_1,600–3,200	19	102	5.01	55.949	15.85	1780.637	55.963	1781.071	16	10.06	70.269	31.4	12727.585	0.017	3.003
AK	2000	W_3,200–6,400	20	12	0.59	12.173	3.45	3837.608	6.43	2027.143	5	3.14	41.156	18.39	22489.825	0.35	191.142
AK	2000	X_6,400–12,800	21	3	0.15	4.473	1.27	5862.385	4.107	5382.948	1	0.63	9.235	4.13	25233.077	1.44	3935.432
AK	2000	Y_>12,800	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AK	2000	Z_Total	23	2037	100	352.913	100	497.816	257.305	362.952	159	100	223.775	100	4147.121	2.236	41.432

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

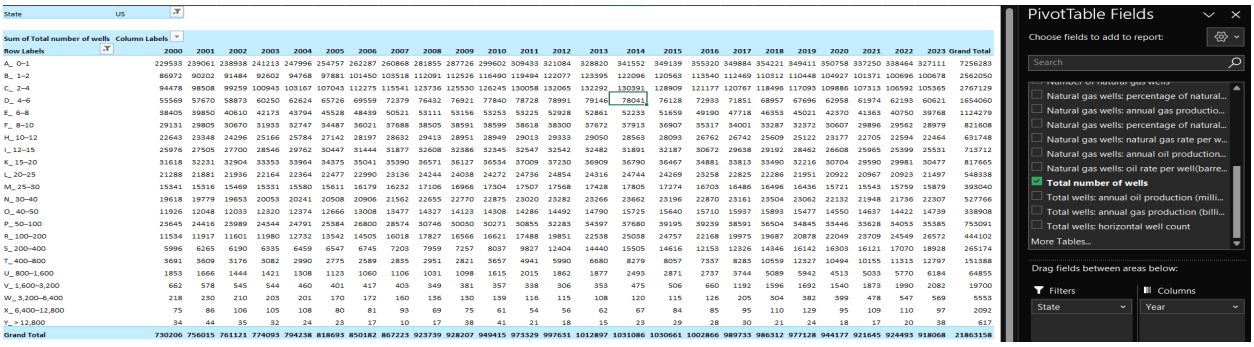


				Oil wells							Natural gas wells						
State	Year	Production rate bracket (barrel of oil equivalent per day)	Class num	Number of oil w	Oil wells: percentage of oil w	Oil wells: annual oil production (million barr	Oil wells: percentage of oil produc	Oil wells: oil rate per Well (barrels per (	Oil wells: annual gas production (billion cubic f	Oil wells: natural gas rate per well (thousand cubic feet per (	Number of natural gas w	Natural gas wells: percentage of natural gas w	Natural gas wells: annual gas production (billion cubic f	Natural gas wells: percentage of natural gas produc	Natural gas wells: natural gas rate per well (thousand cubic feet per (	Natural gas wells: annual oil production (million barr	Natural gas wells: oil rate per well(barrels per (
AK	2000	Z_Total	23	2037	100	352.913	100	497.816	257.305	362.952	159	100	223.775	100	4147.121	2.236	41.432
AK	2001	Z_Total	23	2120	100	353.218	100	481.978	249.414	340.334	167	100	224.171	100	4001.482	1.495	26.691
AK	2002	Z_Total	23	2132	100	357.891	100	484.149	276.276	373.742	160	100	211.828	100	3873.531	1.491	27.261
AK	2003	Z_Total	23	2111	100	354.442	100	481.004	308.392	418.51	192	100	205.537	100	3307.278	1.16	18.668
AK	2004	Z_Total	23	2111	100	332.159	100	449.91	312.884	423.802	178	100	204.822	100	3545.597	0.281	4.868
AK	2005	Z_Total	23	2092	100	313.743	100	424.479	304.044	411.355	216	100	217.303	100	2944.804	1.644	22.277
AK	2006	Z_Total	23	2032	100	267.8	100	372.892	279.559	389.265	236	100	218.746	100	2758.95	2.68	33.806
AK	2007	Z_Total	23	1943	100	256.92	100	374.91	317.211	462.889	294	100	217.971	100	2202.684	6.675	67.451
AK	2008	Z_Total	23	2047	100	247.946	100	341.835	275.319	379.575	244	100	161.242	100	1958.131	1.947	23.65
AK	2009	Z_Total	23	2064	100	233.693	100	320.376	280.25	384.202	253	100	147.972	100	1744.948	1.817	21.422
AK	2010	Z_Total	23	2055	100	217.653	100	300.4	262.99	362.972	236	100	131.308	100	1583.645	1.25	15.081
AK	2011	Z_Total	23	2042	100	203.227	100	281.713	244.649	339.132	247	100	124.448	100	1473.476	1.602	18.965
AK	2012	Z_Total	23	1985	100	190.723	100	272.126	245.876	350.82	257	100	120.84	100	1368.126	1.678	19.001
AK	2013	Z_Total	23	1996	100	184.439	100	264.965	235.138	337.799	293	100	118.683	100	1180.716	3.484	34.658
AK	2014	Z_Total	23	2066	100	178.648	100	245.89	243.981	335.814	300	100	124.671	100	1301.335	2.483	25.915
AK	2015	Z_Total	23	2112	100	173.09	100	233.941	240.5	325.049	311	100	121.619	100	1143.787	3.139	29.517
AK	2016	Z_Total	23	2104	100	174.929	100	235.324	234.425	315.362	325	100	122.416	100	1079.847	4.448	39.239
AK	2017	Z_Total	23	2071	100	174.202	100	238.962	229.456	314.756	351	100	139.696	100	1164.588	6.345	52.895
AK	2018	Z_Total	23	2015	100	166.706	100	231.339	215.213	298.654	357	100	136.393	100	1099.665	8.095	65.269
AK	2019	Z_Total	23	2002	100	162.783	100	229.975	214.213	302.634	373	100	123.629	100	942.463	7.254	55.298
AK	2020	Z_Total	23	1868	100	152.487	100	226.987	198.678	295.744	456	100	153.133	100	983.315	11.364	72.975
AK	2021	Z_Total	23	1867	100	146.536	100	222.476	186.859	283.696	500	100	175.934	100	1034.898	13.087	76.983
AK	2022	Z_Total	23	1781	100	142.261	100	229.23	181.413	292.318	558	100	223.966	100	1218.704	17.367	94.5
AK	2023	Z_Total	23	1853	100	142.691	100	229.272	187.319	300.979	487	100	198.856	100	1267.461	12.596	80.282

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, and 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	2016	2017	2018	2019	2020	2021	2022	2023	Grand Total
A_ 0–1	229533	239061	238938	241213	247996	254757	262287	260868	281855	287726	299602	309433	321084	328820	341552	349139	355320	349884	354221	349411	350758	337250	338464	327111	7256283
B_ 1–2	86972	90202	91484	92602	94768	97881	101450	103518	112091	112526	116490	119494	122077	123395	122096	120563	113540	112469	110312	110448	104927	101371	100696	100678	2562050
C_ 2–4	94478	98508	99259	100943	103167	107043	112275	115541	123736	125530	126245	130058	132065	132292	130391	128909	121177	120767	118496	117093	109886	107313	106592	105365	2767129
D_ 4–6	55569	57670	58873	60250	62624	65726	69559	72379	76432	76921	77840	78728	78991	79146	78041	76128	72933	71851	68957	67696	62958	61974	62193	60621	1654060
E_ 6–8	38405	39850	40610	42173	43794	45528	48439	50521	53111	53156	53253	53225	52928	52861	52233	51659	49190	47718	46353	45021	42370	41363	40750	39768	1124279
F_ 8–10	29131	29805	30670	31933	32747	34487	36021	37688	38505	38591	38599	38618	38300	37672	37913	36907	35317	34001	33287	32372	30607	29896	29562	28979	821608
H_ 10–12	22643	23348	24296	25166	25784	27142	28197	28632	29413	28951	28949	29013	29333	29050	28563	28093	26762	26742	25609	25122	23177	22705	22594	22464	631748
I_ 12–15	25976	27505	27700	28546	29762	30447	31444	31877	32608	32386	32345	32547	32542	32482	31891	32187	30672	29638	29192	28462	26608	25965	25399	25531	713712
K_ 15–20	31618	32231	32904	33353	33964	34375	35041	35390	36571	36127	36534	37009	37230	36909	36790	36467	34881	33813	33490	32216	30704	29590	29981	30477	817665
L_ 20–25	21288	21881	21936	22164	22364	22477	22990	23136	24244	24038	24272	24736	24854	24316	24744	24269	23258	22825	22286	21951	20922	20967	20923	21497	548338
M_ 25–30	15341	15516	15469	15331	15580	15611	16179	16232	17106	16966	17304	17507	17568	17428	17805	17274	16703	16486	16496	16436	15721	15543	15759	15879	393040
N_ 30–40	19618	19779	19653	20053	20241	20508	20906	21562	22655	22770	22875	23020	23282	23266	23662	23196	22870	23161	23504	23062	22132	21948	21736	22307	527766
O_ 40–50	11926	12048	12033	12320	12374	12666	13008	13477	14327	14123	14308	14286	14492	14790	15725	15640	15710	15937	15893	15477	14550	14637	14422	14739	338908
P_ 50–100	23645	24416	23989	24344	24791	25384	26800	28574	30746	30030	30271	30855	32283	34397	37680	39195	39239	38591	36504	34845	33446	33628	34053	35585	753091
R_ 100–200	11534	11917	11601	11980	12732	13542	14505	16018	17827	16566	16621	17488	19851	22538	25038	24757	22168	19975	19687	20878	22049	23709	24549	26572	444102
S_ 200–400	5996	6265	6190	6335	6459	6547	6745	7203	7959	7257	8037	9827	12404	14440	15505	14616	12153	12326	14346	16142	16303	16121	17070	18928	265174
T_ 400–800	3691	3609	3176	3082	2990	2775	2589	2835	2951	2821	3657	4941	5990	6680	8279	8057	7337	8283	10559	12327	10494	10155	11313	12797	151388
U_ 800–1,600	1853	1666	1444	1421	1308	1123	1060	1106	1031	1098	1615	2015	1862	1877	2493	2871	2737	3744	5089	5942	4513	5033	5770	6184	64855
V_ 1,600–3,200	662	578	545	544	460	401	417	403	349	381	357	338	306	353	475	506	660	1192	1596	1692	1540	1873	1990	2082	19700
W_ 3,200–6,400	218	230	210	203	201	170	172	160	136	130	139	116	115	108	120	115	126	205	304	382	399	478	547	569	5553
X_ 6,400–12,800	75	86	106	105	108	80	81	93	69	75	61	54	56	62	67	84	85	95	110	129	95	109	110	97	2092
Y_ > 12,800	34	44	35	32	24	23	17	10	17	38	41	21	18	15	23	29	28	30	21	24	18	17	20	38	617
Grand Total	730206	756015	761121	774093	794238	818693	850182	867223	923739	928207	949415	973329	997631	1012897	1031086	1030661	1002866	989733	986312	977128	944177	921645	924493	918068	21863158

PivotTable Fields

Choose fields to add to report:

Search

Natural gas wells: percentage of natural...
Natural gas wells: annual gas productio...
Natural gas wells: percentage of natural...
Natural gas wells: natural gas rate per w...
Natural gas wells: annual oil production...
Natural gas wells: oil rate per well(barre...
Total number of wells
Total wells: annual oil production (milli...
Total wells: annual gas production (billi...
Total wells: horizontal well count
More Tables...

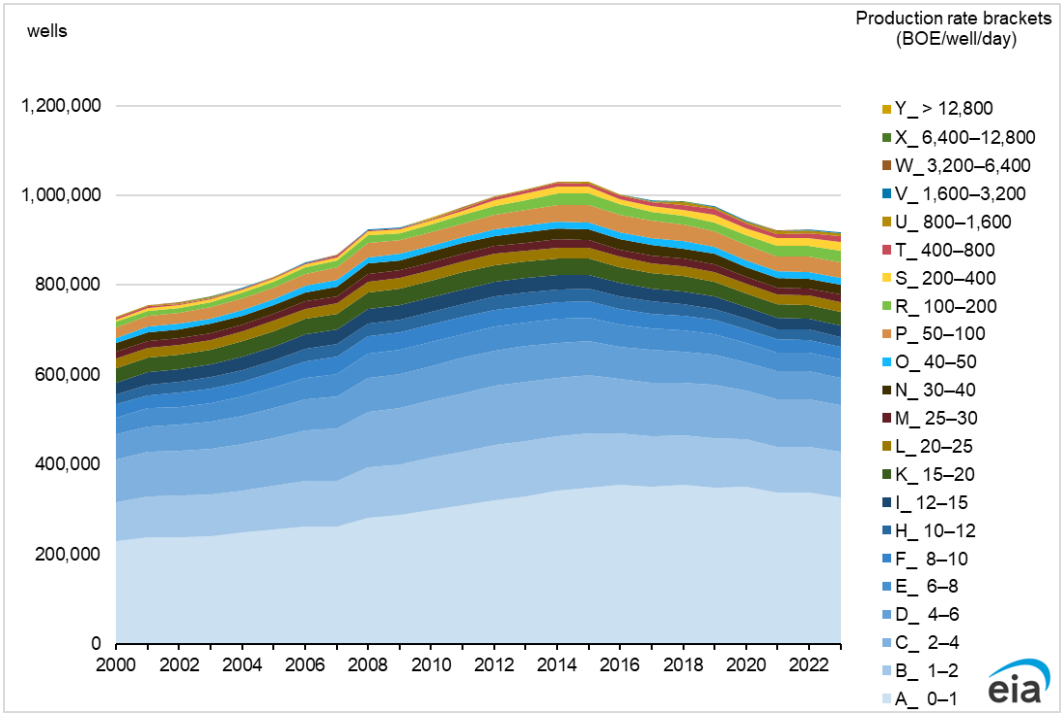
Drag fields between areas below:

Filters: State

Columns: Year

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