Chapter 8. State Indicators

8-49 Patents Awarded per 1,000 Individuals in Science and Engineering Occupations

Description

This indicator represents state patent activity normalized to the size of its S&E workforce, specifically employees in S&E occupations. People in S&E occupations include engineers and computer, mathematical, life, physical, and social scientists. Managers, technicians, elementary and secondary schoolteachers, and medical personnel are not included.

Although the U.S. Patent and Trademark Office (USPTO) grants several types of patents, this indicator covers only utility patents, commonly known as patents for inventions. Utility patents can be granted for any new, useful, or improved method, process, machine, device, manufactured item, or chemical compound and represent a key measure of intellectual property. Patents were fractionally allocated among states based on the proportion of residences of all named inventors.

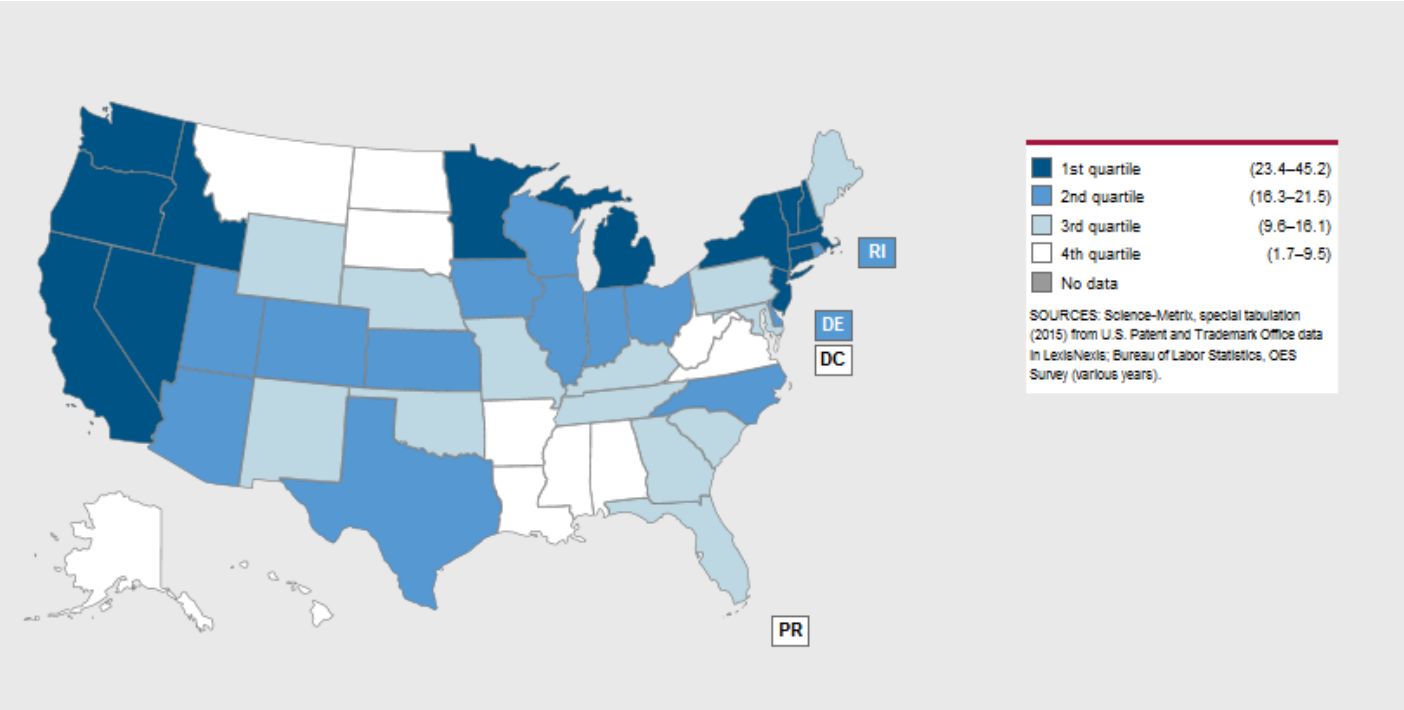
Data on individuals in S&E occupations come from a survey of workplaces that assigns workers to a state based on where they work. Estimates do not include self-employed persons and are developed by the Bureau of Labor Statistics. Situations in which workers live in one state and work in another introduce some imprecision into the calculation of this indicator. Estimates for states with smaller populations are generally less precise than estimates for states with larger populations.

Findings

- About 141,000 utility patents were awarded to inventors residing in the United States in 2014, an increase from the approximately 84,000 utility patents awarded in 2004.
- In 2014, the national average was 22.4 patents per 1,000 individuals in an S&E occupation—higher than the average of 16.2 in 2004.
- Values for individual states varied widely, ranging from 3.6 to 45.2 patents per 1,000 individuals in S&E occupations in 2014.
- Approximately 28% of all 2014 U.S. utility patents were awarded to residents of California. Texas and New York were each awarded approximately 10,000 and 9,000 utility patents respectively in 2014 and together represented 13% of the total.

8-49 Patents Awarded per 1,000 Individuals in Science and Engineering Occupations

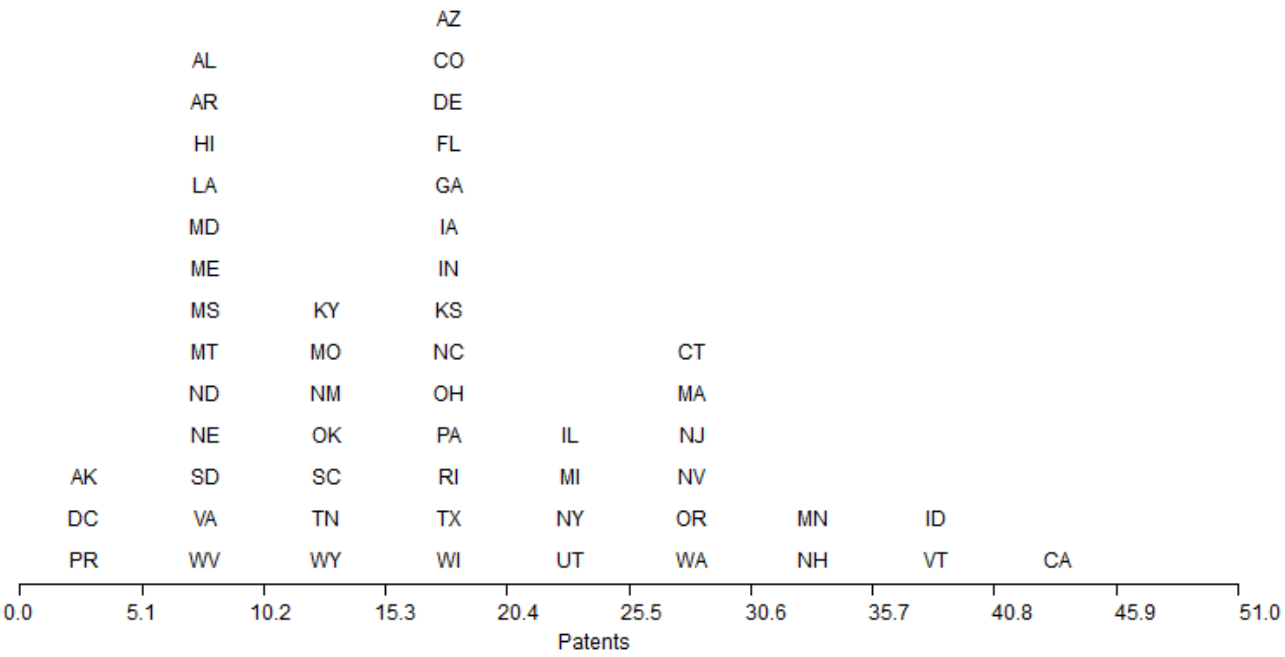
Year: 2014



8-49 Patents Awarded per 1,000 Individuals in Science and Engineering Occupations

Year: 2014

Distribution of states across indicator values



Histograms do not display states with extreme values. Please consult the data tables for exact indicator values for each state.

Chapter 8. State Indicators

Table 8-49 Patents Awarded per 1,000 Individuals in Science and Engineering Occupations

	Patents/1,000 individuals in S&E occupations (Patents)											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
United States	17.7	16.2	14.2	16.5	14.2	13.4	14.2	19.3	18.7	20.2	21.7	22.4
Alabama	7.2	6.2	5.1	5.6	4.4	3.8	4.4	6.6	5.2	5.9	6.7	6.6
Alaska	3.8	4.4	3.5	3.3	1.5	1.4	2.6	1.8	1.9	1.9	3.4	3.6
Arizona	17.0	16.1	14.9	17.0	15.2	15.2	15.0	18.8	17.3	18.6	17.9	19.2
Arkansas	7.3	5.5	4.9	5.8	4.0	3.8	3.0	4.9	4.7	6.0	5.4	6.4
California	29.1	27.7	25.0	NA	26.0	24.3	25.9	35.9	35.1	39.0	42.5	45.2
Colorado	16.6	16.5	14.7	15.9	12.6	11.0	11.6	15.0	14.4	16.3	18.1	19.1
Connecticut	20.4	18.4	17.9	20.9	17.2	16.5	17.7	24.4	25.0	26.9	27.7	28.6
Delaware	20.1	19.3	18.3	17.0	15.2	13.7	14.2	18.0	19.4	19.1	21.7	20.0
District of Columbia	1.0	1.2	0.9	1.1	1.1	1.0	0.9	1.4	1.5	1.7	1.9	2.2
Florida	11.4	10.2	9.4	10.4	9.4	8.1	8.7	12.1	12.5	14.5	15.5	15.8
Georgia	9.3	9.5	8.8	10.8	9.5	9.1	NA	13.1	13.2	14.3	15.4	15.4
Hawaii	4.5	4.5	2.9	4.6	3.7	4.3	3.8	6.4	4.7	5.6	5.7	5.7
Idaho	81.3	77.7	63.9	NA	55.5	49.9	40.1	45.2	40.1	36.8	38.5	37.9
Illinois	15.5	14.3	12.3	14.4	12.7	12.1	13.0	18.4	18.6	19.5	20.3	21.4
Indiana	17.7	15.8	13.9	14.9	13.7	11.1	12.2	16.6	15.6	18.5	18.9	19.6
Iowa	17.5	16.0	13.8	15.2	13.1	11.7	13.8	16.9	16.5	16.9	18.0	18.3
Kansas	8.1	8.3	7.3	9.9	8.3	7.5	7.6	12.5	13.3	19.2	19.8	18.7
Kentucky	9.6	9.5	7.7	9.3	8.8	NA	7.1	11.0	9.1	10.3	10.4	11.7
Louisiana	9.5	8.4	6.7	8.2	6.8	6.1	6.1	6.8	7.4	7.8	8.4	8.5
Maine	9.9	9.1	9.8	9.0	7.1	6.9	6.4	11.6	10.0	11.3	12.0	10.0
Maryland	9.6	8.4	7.4	8.7	7.4	7.1	7.4	9.4	8.7	9.0	9.3	9.6
Massachusetts	21.2	19.2	16.0	20.0	17.2	16.2	17.1	23.7	23.3	24.8	28.2	28.7
Michigan	21.2	19.8	17.3	17.9	14.8	14.5	15.8	21.5	20.8	22.9	24.4	23.4

	Patents/1,000 individuals in S&E occupations (Patents)											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Minnesota	25.1	23.0	19.9	23.4	19.8	19.1	19.5	28.6	29.6	29.8	32.0	32.0
Mississippi	7.0	5.8	5.0	5.0	5.5	3.9	5.1	6.6	6.7	6.3	6.6	6.2
Missouri	10.0	8.4	6.9	7.6	6.7	5.9	6.8	9.5	8.2	9.5	11.4	11.6
Montana	10.7	10.3	8.2	9.2	8.1	NA	5.6	6.9	6.6	8.3	7.8	7.2
Nebraska	5.9	6.0	5.6	5.5	6.5	6.0	6.0	6.8	6.2	8.2	8.3	9.6
Nevada	17.1	16.9	15.6	14.2	13.5	13.7	12.4	19.9	19.5	27.7	31.2	29.9
New Hampshire	28.7	24.9	18.6	22.1	19.0	16.6	18.0	25.2	25.6	25.4	29.8	31.6
New Jersey	21.5	17.0	14.4	17.7	14.3	13.5	14.2	20.7	20.9	23.2	25.4	25.9
New Mexico	11.3	11.5	8.2	11.3	8.6	8.3	8.4	12.0	11.1	12.4	13.1	11.9
New York	22.8	20.5	16.2	18.2	15.4	14.9	16.5	NA	22.3	23.6	25.2	24.6
North Carolina	14.1	13.1	11.9	14.1	12.1	11.9	12.7	17.0	16.5	17.8	17.9	18.6
North Dakota	6.9	6.6	8.4	7.3	7.9	6.7	8.1	9.4	7.5	7.3	8.7	7.5
Ohio	17.9	15.9	12.8	14.1	11.4	10.8	11.2	16.4	15.2	NA	17.1	16.8
Oklahoma	11.7	9.7	8.8	10.9	9.1	8.5	9.0	11.7	10.4	9.2	10.7	10.6
Oregon	27.4	26.6	26.3	32.1	27.8	25.8	25.6	NA	NA	27.4	27.6	29.6
Pennsylvania	17.2	14.6	11.4	13.3	11.4	10.8	NA	NA	NA	NA	16.2	16.1
Rhode Island	14.8	15.4	14.3	15.3	13.6	11.6	11.5	14.1	14.2	15.0	14.8	16.3
South Carolina	11.8	10.2	9.1	10.8	7.7	6.7	8.0	9.2	10.7	13.1	13.1	13.5
South Dakota	8.9	8.5	7.3	7.3	5.0	4.4	4.0	6.6	8.1	10.0	11.7	9.5
Tennessee	12.6	10.6	8.8	9.9	8.8	7.9	9.2	12.7	12.5	11.5	NA	12.5
Texas	16.3	15.3	13.5	15.3	13.0	12.3	12.5	16.6	16.0	16.8	17.8	18.0
Utah	14.0	15.2	12.3	14.1	12.5	12.2	14.8	19.8	20.3	20.7	21.4	21.5
Vermont	38.5	32.3	28.4	34.0	35.5	34.9	34.3	50.7	39.2	38.2	41.4	40.5
Virginia	5.3	4.6	4.1	4.4	3.9	4.0	4.1	6.3	5.9	6.2	6.9	7.6
Washington	15.1	14.2	14.1	18.9	17.4	NA	21.8	28.1	24.1	NA	27.7	30.3
West Virginia	8.5	6.2	5.7	5.9	6.1	4.5	5.9	7.0	5.5	6.7	7.7	6.7
Wisconsin	18.9	17.4	15.8	17.4	14.0	13.3	14.3	18.4	17.3	17.5	19.1	18.3
Wyoming	11.1	7.2	6.3	6.3	6.7	4.3	6.7	9.7	7.5	11.8	NA	11.4

State	Patents/1,000 individuals in S&E occupations (Patents)											
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Puerto Rico	1.4	0.9	1.2	1.1	1.3	0.7	0.7	1.2	1.2	1.7	1.0	1.7

NA = not available.

NOTES: Patents are fractionally allocated among regions/countries/economies based on the proportion of residences of all named inventors. The total for the United States includes patents for which the location could not be determined. Occupational Employment Statistics (OES) estimates for 2004 and earlier are based on November data; estimates for the remaining years are based on May data. The total for the United States includes states with suppressed data.

SOURCES: Science-Metrix, special tabulation (2015) from U.S. Patent and Trademark Office data in LexisNexis; Bureau of Labor Statistics, OES Survey (various years).

Science and Engineering Indicators 2016

	Patents awarded											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
United States	87,586	83,966	74,314	89,388	79,213	77,207	81,989	107,226	108,092	120,449	133,135	141,370
Alabama	407	372	320	368	305	263	300	454	366	433	517	495
Alaska	40	48	39	35	18	19	39	28	30	31	51	54
Arizona	1,563	1,589	1,434	1,670	1,560	1,552	1,541	1,937	1,998	2,179	2,208	2,449
Arkansas	156	133	122	144	115	111	95	143	138	178	165	206
California	19,677	19,459	17,901	22,198	19,602	19,204	20,614	27,258	28,064	32,015	36,087	39,771
Colorado	2,059	2,068	1,850	2,121	1,750	1,611	1,715	2,147	2,082	2,424	2,783	3,076
Connecticut	1,658	1,545	1,499	1,661	1,382	1,322	1,398	1,833	1,917	2,110	2,188	2,258
Delaware	349	355	330	367	337	307	315	376	436	447	479	456
District of Columbia	54	74	57	69	72	62	57	81	97	106	127	151
Florida	2,516	2,409	2,254	2,568	2,307	2,015	2,159	2,902	3,055	3,601	3,881	4,069
Georgia	1,338	1,327	1,209	1,477	1,299	1,341	1,411	1,901	1,948	2,122	2,481	2,610
Hawaii	73	79	51	87	70	81	73	124	94	117	121	120
Idaho	1,801	1,791	1,525	1,664	1,350	1,163	942	1,090	1,041	930	996	1,002
Illinois	3,283	3,141	2,724	3,214	2,871	2,718	2,877	3,626	3,796	4,285	4,607	5,047
Indiana	1,386	1,283	1,108	1,191	1,140	1,008	1,108	1,504	1,458	1,751	1,904	2,043
Iowa	652	639	558	662	596	541	652	746	808	860	944	979
Kansas	423	436	376	481	413	406	429	613	685	980	1,015	938
Kentucky	433	414	343	416	432	414	366	536	473	534	559	635
Louisiana	396	357	273	328	261	257	266	302	318	360	394	417
Maine	149	136	152	144	113	118	115	203	175	203	227	195
Maryland	1,436	1,328	1,192	1,386	1,208	1,187	1,258	1,567	1,500	1,618	1,739	1,818
Massachusetts	3,912	3,669	3,098	3,979	3,527	3,517	3,716	4,923	5,132	5,672	6,421	6,619
Michigan	3,881	3,736	3,330	3,729	3,143	2,970	2,961	3,798	3,922	4,554	5,060	5,149
Minnesota	2,938	2,725	2,407	2,951	2,576	2,562	2,608	3,577	3,855	3,918	4,277	4,486
Mississippi	155	134	117	124	140	105	131	156	156	150	161	153
Missouri	842	769	640	736	688	617	710	967	879	1,043	1,204	1,245
Montana	122	120	98	120	107	91	80	101	99	127	121	112

	Patents awarded											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nebraska	180	192	175	180	205	190	192	211	209	286	304	349
Nevada	382	413	380	382	363	375	341	534	554	747	839	804
New Hampshire	672	639	499	613	541	483	550	737	750	736	848	895
New Jersey	3,470	2,927	2,512	3,117	2,658	2,672	2,788	3,837	3,814	4,214	4,690	4,867
New Mexico	381	368	266	349	289	287	310	432	396	439	456	431
New York	6,215	5,810	4,695	5,584	4,962	4,880	5,202	6,954	6,914	7,572	8,397	8,570
North Carolina	1,865	1,783	1,601	1,956	1,727	1,825	2,018	2,637	2,673	2,984	3,114	3,376
North Dakota	58	56	76	68	76	63	80	104	90	96	109	97
Ohio	3,163	2,885	2,324	2,612	2,240	2,222	2,336	3,216	3,166	3,395	3,721	3,694
Oklahoma	519	451	407	552	467	415	412	517	488	466	553	562
Oregon	1,677	1,725	1,632	2,074	1,888	1,806	1,781	2,036	1,959	2,073	2,178	2,380
Pennsylvania	3,188	2,847	2,333	2,857	2,500	2,450	2,651	3,332	3,223	3,490	3,961	4,007
Rhode Island	278	297	258	277	250	209	208	256	277	302	306	346
South Carolina	577	520	458	574	418	386	461	517	653	826	855	909
South Dakota	81	81	69	74	58	52	46	74	96	120	149	126
Tennessee	802	695	587	666	620	575	636	914	972	918	1,004	1,082
Texas	5,956	5,902	5,265	6,236	5,727	5,692	5,864	7,504	7,508	8,302	9,174	9,746
Utah	639	686	556	700	640	641	758	1,006	1,043	1,134	1,239	1,352
Vermont	440	404	363	435	453	431	438	643	513	492	535	538
Virginia	1,108	1,086	962	1,104	1,003	1,045	1,081	1,603	1,588	1,698	1,900	2,071
Washington	2,265	2,224	2,275	3,246	3,191	3,483	4,299	5,239	4,748	5,368	5,808	6,315
West Virginia	138	99	92	102	101	76	96	120	101	133	150	135
Wisconsin	1,761	1,632	1,475	1,688	1,395	1,348	1,442	1,829	1,772	1,805	2,024	2,058
Wyoming	68	50	46	48	54	38	60	80	63	103	101	103
Puerto Rico	27	18	25	27	30	17	15	26	26	37	22	40

	Patents awarded											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014

NA = not available.

NOTES: Patents are fractionally allocated among regions/countries/economies based on the proportion of residences of all named inventors. The total for the United States includes patents for which the location could not be determined. Occupational Employment Statistics (OES) estimates for 2004 and earlier are based on November data; estimates for the remaining years are based on May data. The total for the United States includes states with suppressed data.

SOURCES: Science-Metrix, special tabulation (2015) from U.S. Patent and Trademark Office data in LexisNexis; Bureau of Labor Statistics, OES Survey (various years).

Science and Engineering Indicators 2016

	Individuals in S&E occupations											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
United States	4,961,540	5,174,260	5,233,520	5,407,710	5,591,990	5,781,460	5,785,710	5,549,980	5,794,980	5,968,240	6,139,220	6,318,580
Alabama	56,380	59,880	62,790	66,100	69,650	68,580	68,670	68,450	70,290	72,880	76,650	74,480
Alaska	10,600	10,870	11,230	10,720	11,990	13,260	14,780	15,430	15,680	16,260	15,210	14,920
Arizona	92,120	98,400	96,410	98,110	102,380	102,100	102,820	102,870	115,330	116,930	123,410	127,760
Arkansas	21,340	24,170	24,660	24,860	28,460	29,310	31,420	29,200	29,350	29,530	30,660	32,050
California	676,180	703,250	716,530	NA	753,570	791,750	795,240	758,830	800,430	821,780	849,510	880,850
Colorado	124,140	125,510	126,110	133,730	138,990	147,000	148,090	143,210	144,750	149,020	154,020	160,700
Connecticut	81,380	83,840	83,930	79,380	80,280	80,290	79,160	74,990	76,550	78,450	78,850	79,000
Delaware	17,370	18,420	18,010	21,550	22,140	22,330	22,200	20,920	22,430	23,440	22,030	22,830
District of Columbia	54,890	61,460	63,410	64,120	63,150	63,360	61,430	59,870	62,660	63,600	65,300	68,820
Florida	221,070	235,170	241,000	246,190	244,140	248,200	247,070	239,600	244,970	248,300	250,330	257,450
Georgia	144,170	139,230	137,580	136,470	136,880	147,380	NA	145,220	147,820	148,830	160,820	169,940
Hawaii	16,090	17,630	17,460	18,940	18,740	18,830	19,020	19,500	20,100	20,930	21,140	20,900
Idaho	22,150	23,050	23,880	NA	24,330	23,310	23,520	24,130	25,950	25,260	25,850	26,460
Illinois	211,230	219,040	221,630	222,470	225,180	224,370	221,170	197,120	204,420	220,170	226,850	235,380
Indiana	78,410	80,950	79,910	80,110	83,080	90,840	90,750	90,710	93,640	94,620	100,870	104,000
Iowa	37,320	40,060	40,300	43,670	45,430	46,180	47,080	44,140	48,930	50,950	52,440	53,440
Kansas	51,970	52,650	51,630	48,620	50,040	54,260	56,200	48,970	51,530	50,930	51,240	50,120
Kentucky	45,230	43,740	44,530	44,680	49,030	NA	51,200	48,790	51,990	51,830	53,920	54,350
Louisiana	41,900	42,520	41,030	40,180	38,450	41,790	43,630	44,200	42,760	45,920	46,750	49,120
Maine	15,020	14,980	15,500	15,950	15,960	17,000	17,910	17,470	17,490	17,910	18,840	19,410
Maryland	149,250	158,350	160,120	159,470	162,540	167,070	169,540	166,700	173,020	179,550	186,780	190,080
Massachusetts	184,690	190,960	193,180	198,670	205,610	217,310	217,690	208,160	220,670	229,160	227,780	230,480
Michigan	182,940	188,580	192,150	208,520	212,040	204,290	187,760	176,570	188,380	198,610	207,800	219,630
Minnesota	117,120	118,590	120,930	125,930	129,840	134,440	134,060	125,100	130,340	131,690	133,580	140,190
Mississippi	22,190	22,970	23,480	24,910	25,520	27,270	25,940	23,770	23,440	23,640	24,320	24,860
Missouri	84,150	91,820	92,260	96,420	102,170	105,390	104,310	102,300	106,930	109,650	105,730	106,980
Montana	11,450	11,640	11,940	13,010	13,240	NA	14,210	14,620	14,960	15,360	15,570	15,540

	Individuals in S&E occupations											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nebraska	30,710	31,760	31,530	32,500	31,420	31,820	31,790	30,930	33,800	34,720	36,480	36,220
Nevada	22,330	24,440	24,400	26,930	26,920	27,300	27,560	26,840	28,370	27,000	26,850	26,890
New Hampshire	23,430	25,620	26,840	27,680	28,450	29,150	30,550	29,200	29,260	28,950	28,460	28,320
New Jersey	161,420	171,990	174,270	176,460	186,120	198,060	195,690	185,360	182,210	181,480	184,720	188,240
New Mexico	33,600	32,000	32,530	30,800	33,440	34,560	36,950	36,130	35,520	35,310	34,900	36,180
New York	272,440	283,150	289,010	306,810	322,520	326,510	315,480	NA	310,510	321,480	333,710	348,740
North Carolina	132,440	136,430	134,290	138,790	142,970	153,680	158,920	155,030	161,880	167,900	173,960	181,030
North Dakota	8,430	8,460	9,070	9,360	9,660	9,450	9,930	11,050	12,070	13,120	12,520	12,970
Ohio	177,100	181,180	180,900	185,190	196,390	206,320	207,930	195,840	208,140	NA	218,030	219,830
Oklahoma	44,360	46,320	46,370	50,770	51,430	48,900	45,730	44,190	47,090	50,420	51,900	52,910
Oregon	61,230	64,820	62,030	64,520	67,890	70,070	69,630	NA	NA	75,780	79,040	80,470
Pennsylvania	185,560	195,510	204,270	214,910	218,890	227,170	NA	NA	NA	NA	243,850	248,750
Rhode Island	18,740	19,330	18,080	18,060	18,400	18,090	18,120	18,210	19,450	20,180	20,740	21,210
South Carolina	48,740	50,840	50,460	53,230	54,120	57,770	57,370	56,230	61,020	63,170	65,140	67,300
South Dakota	9,150	9,530	9,460	10,120	11,550	11,870	11,570	11,150	11,790	12,000	12,770	13,220
Tennessee	63,680	65,730	66,390	67,040	70,820	72,760	68,970	71,850	77,630	79,830	NA	86,680
Texas	365,270	384,600	389,550	408,710	441,410	463,850	470,010	451,390	469,080	493,980	514,400	541,060
Utah	45,570	45,250	45,110	49,690	51,340	52,570	51,270	50,830	51,350	54,720	57,980	62,810
Vermont	11,420	12,510	12,770	12,780	12,760	12,360	12,780	12,670	13,100	12,870	12,920	13,280
Virginia	209,280	233,590	236,650	251,720	254,710	259,280	264,090	255,800	267,620	274,280	276,230	272,410
Washington	150,230	156,780	160,960	171,780	183,900	NA	196,850	186,210	196,760	NA	209,710	208,630
West Virginia	16,220	15,990	16,040	17,150	16,560	17,000	16,350	17,070	18,300	19,900	19,490	20,110
Wisconsin	93,320	93,760	93,590	96,860	99,380	101,680	100,850	99,240	102,320	103,030	106,210	112,540
Wyoming	6,130	6,960	7,350	7,640	8,110	8,850	8,920	8,260	8,440	8,710	NA	9,050
Puerto Rico	19,940	20,600	20,950	23,850	23,630	22,970	22,760	20,850	20,990	21,750	22,790	23,320

	Individuals in S&E occupations											
State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014

NA = not available.

NOTES: Patents are fractionally allocated among regions/countries/economies based on the proportion of residences of all named inventors. The total for the United States includes patents for which the location could not be determined. Occupational Employment Statistics (OES) estimates for 2004 and earlier are based on November data; estimates for the remaining years are based on May data. The total for the United States includes states with suppressed data.

SOURCES: Science-Metrix, special tabulation (2015) from U.S. Patent and Trademark Office data in LexisNexis; Bureau of Labor Statistics, OES Survey (various years).

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