

TABLE 10

U.S. R&D expenditures, by state, performing sector, and source of funds: 2021

(Millions of current dollars)

State	R&D Rank ^d	All performers	Federal	FFRDCs			Business				Higher education ^a						NPOs	State, internal ^b	GDP	GDP rank	R&D intensity ^{c,d}		
		All funding sources	Federal	Total	Federal	Nonfederal ^e	Total	Own	Paid by others		Total	Federal	Other government	Business	Higher education	NPO	Other	Total			Total	Percent	Rank
									Nonfederal ^f	Federal													
U.S. total ^g	na	789,072	41,464	25,322	24,873	449	608,625	532,355	51,683	24,587	85,787	44,683	4,621	5,080	23,506	5,381	2,517	27,190	685	23,594,031	na	3.34	na
States total ^h	na	779,260	35,223	24,921	24,510	412	601,718	527,093	50,765 - 53,770	20,865 - 36,365	89,566	49,030	4,729	5,111	22,417	5,589	2,690	27,158	674	23,434,490	na	3.33	na
Alabama	26	6,289	1,969	0	0	0	2,910	1,383	319	1,209	1,272	735	64	76	352	36	12	120	17	230,892	29	2.72	16
Alaska	49	543	108	0	0	0	207	188	0 - 19	0 - 19	197	145	4	4	41	2	2	17	14	58,646	49	0.93	45
Arizona	18	11,337	188	75	73	2	9,386	6,947	795	1,645	1,516	669	82	49	508	89	119	168	4	432,280	18	2.62	18
Arkansas	42	1,025	66	0	0	0	497	452	0 - 46	0 - 46	388	149	81	21	120	11	6	74	*	151,932	35	0.67	48
California	1	236,140	3,032	6,646	6,535	111	211,615	199,157	8,611	3,847	11,230	5,770	436	732	2,372	1,172	748	3,535	81	3,416,939	1	6.91	4
Colorado	17	11,386	441	740	658	82	8,098	7,213	286	599	1,747	1,269	66	83	194	89	46	348	12	447,052	15	2.55	21
Connecticut	20	10,176	123	0	0	0	8,429	6,887	187	1,356	1,494	842	10	87	434	108	13	103	27	295,908	23	3.44	12
Delaware	30	3,852	3	0	0	0	3,592	2,137	1,444	11	255	174	13	6	51	4	6	D	2	82,953	43	4.64	6
District of Columbia ⁱ	27	6,276	3,767	10	10	0	744	652	35	57	718	375	7	25	178	95	38	1,033	4	156,140	34	4.02	9
Florida	14	13,838	870	0	0	0	9,688	7,545	834	1,310	2,769	1,333	273	105	894	104	59	460	51	1,292,391	4	1.07	41
Georgia	21	9,753	262	0	0	0	6,448	5,249	1,098	101	2,950	1,784	171	139	719	122	15	91	2	701,606	8	1.39	34
Hawaii	43	948	202	0	0	0	409	372	0 - 38	0 - 38	295	179	21	3	80	12	1	39	2	93,090	41	1.02	42
Idaho	33	3,059	48	517	504	13	2,258	2,203	49	5	166	90	38	3	31	2	3	64	7	98,793	40	3.10	13
Illinois	10	21,550	228	1,176	1,150	25	16,485	15,398	1,027	60	2,914	1,798	40	178	708	155	36	747	1	943,993	5	2.28	25
Indiana	16	11,434	193	0	0	0	9,514	7,888	1,504	123	1,699	768	44	110	595	119	63	28	*	422,952	19	2.70	17
Iowa	29	4,106	86	34	34	*	3,045	2,338	0 - 708	0 - 708	931	459	40	46	352	29	5	6	3	220,818	30	1.86	30
Kansas	32	3,659	111	0	0	0	2,748	1,960	760	29	785	344	83	122	201	20	15	14	1	191,832	33	1.91	29
Kentucky	36	2,321	168	0	0	0	1,486	897	325	265	655	331	46	19	199	19	41	10	2	237,926	27	0.98	43
Louisiana	39	1,475	66	0	0	0	530	444	41	45	831	363	91	92	231	30	24	39	10	263,163	26	0.56	50
Maine	44	870	17	0	0	0	499	444	18	37	165	76	21	4	60	4	1	179	10	78,918	44	1.10	38
Maryland	8	25,108	10,741	1,289	1,289	0	6,432	4,550	664	1,218	4,914	3,890	89	136	564	221	14	1,731	1	446,941	16	5.62	5
Massachusetts	3	52,383	551	2,164	2,135	29	39,749	33,937	4,258	1,554	4,569	2,616	48	312	1,006	424	163	5,349	1	645,434	12	8.12	2
Michigan	7	25,795	324	0	0	0	22,381	19,420	2,663	299	2,842	1,467	59	119	1,039	118	39	247	*	576,502	14	4.47	8
Minnesota	19	10,801	85	0	0	0	8,248	7,754	365	128	1,115	581	77	47	330	47	33	1,350	2	413,063	20	2.61	19
Mississippi	41	1,071	234	0	0	0	343	307	0 - 37	0 - 37	491	262	109	7	100	11	2	1	2	128,365	37	0.83	46
Missouri	24	8,917	161	0	0	0	7,060	4,927	0 - 2,134	0 - 2,134	1,583	883	44	128	408	107	13	107	6	365,145	22	2.44	22
Montana	47	679	78	0	0	0	261	237	21	3	330	190	24	3	102	7	3	7	3	59,997	48	1.13	37
Nebraska	38	1,703	47	0	0	0	1,067	1,004	50	12	576	263	75	31	162	21	24	11	2	149,360	36	1.14	36
Nevada	40	1,407	50	0	0	0	1,033	757	256	20	309	121	10	4	152	6	15	15	*	200,127	32	0.70	47

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		All funding sources	Federal	Total	Federal	Nonfederal ^e	Total	Own	Paid by others		Total	Federal	Other government	Business	Higher education	NPO	Other	Total			Total	Percent	Rank
									Nonfederal ^f	Federal													
New Hampshire	31	3,701	19	0	0	0	3,183	1,461	332	1,391	499	253	9	13	191	23	10	D	*	99,100	39	3.73	11
New Jersey	6	27,749	1,057	116	114	2	25,049	20,091	4,863	95	1,353	702	108	65	295	120	63	171	3	692,227	9	4.01	10
New Mexico	22	9,748	1,025	6,535	6,476	59	1,693	1,351	28	314	473	333	31	8	78	16	7	21	2	111,731	38	8.72	1
New York	4	38,224	223	638	620	18	26,319	23,939	1,746	634	7,577	4,065	425	498	1,744	542	303	3,207	259	1,911,346	3	2.00	28
North Carolina	11	20,281	384	0	0	0	15,490	9,812	5,537	140	3,504	2,088	175	311	675	208	46	886	17	659,529	11	3.08	14
North Dakota	46	693	42	0	0	0	343	330	10	2	308	101	79	10	110	1	7	D	*	63,209	46	1.10	40
Ohio	12	16,734	1,108	0	0	0	11,545	7,814	2,911	820	2,788	1,595	71	193	766	122	42	1,292	2	759,626	7	2.20	27
Oklahoma	35	2,907	1,139	0	0	0	1,056	969	33	54	623	255	61	37	252	13	4	87	3	217,731	31	1.34	35
Oregon	15	12,570	287	0	0	0	11,292	10,954	230	107	929	627	57	50	129	49	17	45	16	275,444	24	4.56	7
Pennsylvania	9	23,818	442	120	120	0	17,555	14,541	2,725	290	4,935	2,794	105	341	1,327	260	107	758	8	844,392	6	2.82	15
Rhode Island	37	1,715	273	0	0	0	837	689	28	121	426	290	13	7	88	22	4	171	8	67,237	45	2.55	20
South Carolina	34	2,984	148	192	189	2	1,857	1,601	131	125	753	366	38	42	272	24	12	7	28	271,495	25	1.10	39
South Dakota	50	345	24	0	0	0	221	213	7	1	101	47	19	2	20	3	9	0	*	62,607	47	0.55	51
Tennessee	25	7,922	1,124	1,761	1,747	14	2,776	1,802	902	72	1,630	863	35	94	567	56	14	631	1	438,180	17	1.81	31
Texas	5	37,256	900	6	5	0	28,264	24,495	2,735	1,035	6,850	2,872	930	478	1,873	418	279	1,234	3	2,087,491	2	1.78	33
Utah	28	5,196	209	0	0	0	3,962	3,730	170	62	994	635	28	49	235	36	10	26	5	232,125	28	2.24	26
Vermont	48	679	14	0	0	0	456	434	0 - 23	0 - 23	198	106	1	2	74	9	6	10	1	37,594	51	1.81	32
Virginia	13	14,789	2,066	1,728	1,698	29	8,179	6,330	506	1,342	1,942	877	131	83	681	95	75	858	17	613,920	13	2.41	24
Washington	2	53,969	365	1,168	1,143	25	49,083	47,644	1,250	190	1,881	1,243	73	65	220	230	50	1,451	21	688,632	10	7.84	3
West Virginia ^j	45	831	43	9	9	0	522	435	12	74	231	107	13	5	83	7	17	22	3	86,510	42	0.96	44
Wisconsin	23	9,011	64	0	0	0	6,781	5,723	997	61	1,771	831	157	60	529	147	47	390	4	369,032	21	2.44	23
Wyoming	51	238	49	0	0	0	93	88	2	2	93	54	5	6	26	2	0	0	3	42,176	50	0.57	49
U.S. undistributed ^k	na	5,725	4,912	0	0	0	780	712	0 - 68	0 - 68	0	0	0	0	0	0	0	0	0	0	na	na	na
Puerto Rico	na	692	29	0	0	0	539	519	NA	NA	124	85	3	5	30	1	0	0	na	111,067	na	na	na
Other ^k	na	150	117	0	0	0	0	0	0	0	34	28	4	0.17	1	0.31	0	0	na	11,276	na	na	na

* amount > \$0.5 million; D = suppressed for data quality; na = not applicable; NA = not available.

FFRDC = federally funded R&D center; GDP = gross domestic product; NPO = nonprofit organization.

^a State-level higher education R&D data have not been adjusted to eliminate the double counting of funds passed through from an academic institution to subrecipients (other academic institutions, businesses, NPOs, and others). At the national level, funds passed through to such subrecipients accounted for 8% of total R&D expenditures reported by higher education institutions in FY 2021.^b Internal performers include state agency and department employees and services performed by others in support of an internal R&D project.^c R&D intensity is the ratio of total R&D performed in a state to its state GDP.

^d Ranks are based on the point estimates for state R&D and do not consider sampling error, suppression, or the undistributed R&D.

^e Nonfederal sources of R&D expenditures reported by FFRDCs in FY 2021 included state and local governments, business, NPOs, and other sources.

^f R&D paid for by nonfederal sources included funding from other companies located inside or outside the United States; U.S. state government agencies; U.S. universities, colleges, and academic researchers; foreign universities, colleges, and academic researchers; and organizations located inside or outside the United States.

^g U.S. R&D totals as reported by the NCSSES *National Patterns of R&D Resources* series, 2021–22 edition. (See tables 1–9 in this report.)

^h The states totals differ from U.S. totals for several reasons: (1) some R&D expenditures cannot be allocated to any 1 of the 50 states or the District of Columbia; (2) data are not available to allocate the portion of business R&D performed by companies with fewer than 10 employees (\$6.1 billion in 2021) by state; (3) the state-level higher education data have not been adjusted to eliminate the double counting of funds passed through to other performers; (4) state-level R&D data are not converted from fiscal years to calendar years, and (5) State-level data for nonprofit organizations in Delaware, New Hampshire, and North Dakota are suppressed for data quality. The suppressed values of U.S R&D expenditures at nonprofit organizations in these states total \$32 million but are treated as zero in the calculation of the state totals for all performers and all funding sources. Therefore, the overall states' total of U.S R&D expenditures at nonprofit organizations underestimates the U.S. total by this amount. Underestimation for state-level totals of U.S R&D expenditures at nonprofit organizations for each of these three states is less than \$32 million.

ⁱ Federal total excludes \$31.4 billion in federally funded R&D performed by others.

^j FFRDC performance in West Virginia represents Green Bank Observatory. While Green Bank Observatory was split from the National Radio Astronomy Observatory on 1 October 2016, with each retaining FFRDC status, Green Bank Observatory was separately measured for the first time in FY 2021.

^k R&D expenditures that could not be assigned to any of the 50 states or the District of Columbia.

^l GDP and R&D expenditures reported for outlying areas (Guam, U.S. Virgin Islands, American Samoa) and offices abroad but excluding Puerto Rico.

Note(s):

Business R&D data refer to calendar years; the data for the other R&D performers refer to fiscal years but are used here as approximations to calendar year data.

Source(s):

National Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series). State GDP data are from the U.S. Bureau of Economic Analysis, <https://www.bea.gov/data/gdp/gdp-state>, accessed 14 November 2023.