

TABLE 23

## Federal funding for R&amp;D, R&amp;D plant, and basic research, by budget function: FYs 1955–2019

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other <sup>a</sup>
R&D and R&D plant <sup>b</sup>																			
2000	83,581	43,161	200	5,593	8,437	1,000	2,082	1,561	530	1,664	46	429	18,121	na	25	645	73	14	na
2001	91,505	46,202	252	6,353	8,951	1,320	2,138	1,826	468	1,654	54	424	21,023	na	30	719	88	3	na
2002	103,057	53,731	279	6,605	9,227	1,332	2,175	1,909	549	1,889	50	426	23,998	na	37	756	91	3	na
2003	118,065	63,708	269	6,999	9,677	1,412	2,198	2,042	534	1,888	48	444	27,677	na	38	817	316	0	na
2004	126,270	70,344	264	7,352	9,746	1,369	2,244	1,910	499	1,881	47	469	28,480	na	47	866	752	0	na
2005	131,259	74,641	255	7,477	9,656	1,324	2,245	2,094	475	1,866	45	495	29,129	na	35	742	779	0	na
2006	136,019	78,737	255	7,539	10,401	1,244	2,219	2,118	461	1,730	55	523	28,932	na	27	769	1,008	0	na
2007	141,890	82,658	246	8,712	10,988	1,922	2,096	1,950	516	1,380	49	577	29,581	na	27	820	369	0	na
2008	144,391	85,129	255	9,007	10,672	2,076	2,202	1,997	560	1,413	50	549	29,212	na	27	886	355	0	na
2009 <sup>c</sup>	164,292	85,642	255	14,128	9,060	3,794	2,615	2,249	1,051	1,461	62	553	42,051	30	63	943	335	0	na
Non-ARRA	145,553	85,342	255	9,941	8,374	2,234	2,371	2,073	641	1,357	62	543	30,989	30	63	943	335	0	na
ARRA	18,739	300	0	4,187	686	1,560	244	176	410	104	0	10	11,062	0	0	0	0	0	na
2010	148,962	86,789	194	10,509	8,232	2,570	2,430	2,206	668	1,517	109	581	31,693	36	77	1,034	318	0	na
2011	144,379	83,226	196	10,581	8,658	2,265	2,314	1,768	650	1,420	83	636	30,990	180	68	1,160	184	0	na
2012	143,737	79,875	269	10,536	10,801	2,231	2,300	2,005	698	1,511	58	640	31,411	80	18	1,160	143	1	na
2013	132,477	70,781	350	9,620	10,476	2,289	2,169	1,818	795	1,359	54	572	30,200	72	26	1,164	730	0	na
2014	136,159	70,992	410	10,524	11,228	2,407	2,328	2,077	957	1,278	66	542	31,099	25	58	1,101	1,067	0	na
2015	138,544	72,950	290	11,088	10,928	3,173	2,358	2,149	889	1,389	55	527	30,495	71	55	1,178	949	0	na
2016	150,393	80,202	288	11,328	12,811	3,492	2,471	2,350	1,033	1,361	65	505	32,526	21	105	1,222	613	0	na
2017 <sup>d</sup>	127,306	57,530	289	11,289	10,187	3,544	2,533	2,302	1,036	1,479	71	505	34,393	21	74	1,346	707	0	na
2018 preliminary <sup>e</sup>	130,541	61,088	322	11,337	9,735	3,508	2,582	2,206	1,087	1,473	70	485	34,572	19	63	1,338	656	0	na
2019 proposed <sup>f</sup>	123,766	66,027	117	11,456	10,163	2,027	1,876	2,063	811	1,344	65	596	25,259	17	105	1,345	495	0	na
R&D <sup>g</sup>																			
1955	2,533	2,151	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	67	na	NA	NA	NA	NA	315
1956	2,988	2,535	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83	na	NA	NA	NA	NA	370
1957	3,932	3,327	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	140	na	NA	NA	NA	NA	465

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1958	4,570	3,801	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	177	na	NA	NA	NA	NA	592
1959	6,694	5,556	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	233	na	NA	NA	NA	NA	904
1960	7,552	6,107	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	305	na	NA	NA	NA	NA	1,140
1961	9,059	7,005	NA	137	777	373	73	125	NA	55	NA	NA	405	na	NA	NA	NA	NA	108
1962	10,290	7,238	NA	187	1,413	448	108	136	NA	101	NA	NA	551	na	NA	NA	NA	NA	107
1963	12,495	7,764	NA	246	2,812	515	120	146	NA	142	NA	NA	626	na	NA	NA	NA	NA	125
1964	14,225	7,829	NA	277	4,241	571	134	165	NA	122	NA	NA	728	na	NA	NA	NA	NA	160
1965	14,614	7,342	NA	304	4,887	585	159	195	NA	147	NA	NA	792	na	NA	NA	NA	NA	203
1966	15,320	7,536	NA	377	4,976	575	189	201	NA	251	NA	NA	900	na	NA	NA	NA	NA	315
1967	16,529	8,566	18	409	4,778	600	320	218	43	380	37	154	915	na	48	41	*	3	na
1968	15,921	8,275	17	437	4,304	657	331	217	48	304	44	166	1,021	na	50	45	1	5	na
1969	15,641	8,356	26	433	3,799	597	323	221	54	404	32	169	1,088	na	78	50	5	5	na
1970	15,339	7,981	32	452	3,606	574	340	238	79	535	47	164	1,084	na	136	59	9	6	na
1971	15,543	8,110	32	513	3,048	556	416	259	90	728	65	215	1,288	na	145	63	10	7	na
1972	16,496	8,902	29	625	2,932	574	479	294	50	558	66	235	1,547	na	106	69	23	8	na
1973	16,800	9,002	28	658	2,824	630	554	308	50	572	78	290	1,585	na	106	74	33	7	na
1974	17,410	9,016	24	749	2,702	759	516	313	51	693	82	236	2,069	na	71	85	35	9	na
1975	19,039	9,679	29	813	2,764	1,363	624	342	65	635	93	239	2,170	na	72	95	44	12	na
1976	20,780	10,430	42	858	3,130	1,649	683	383	69	631	109	255	2,351	na	48	98	35	12	na
1977	23,450	11,864	66	974	2,832	2,562	753	457	71	708	101	230	2,629	na	55	107	30	13	na
1978	25,976	12,899	57	1,050	2,939	3,134	904	501	77	768	92	345	2,968	na	67	111	44	20	na
1979	28,208	13,791	117	1,119	3,136	3,461	1,010	552	93	798	127	354	3,401	na	57	123	47	23	na
1980	29,739	14,946	125	1,233	2,738	3,603	999	585	101	887	119	468	3,694	na	47	126	45	22	na
1981	33,735	18,413	160	1,340	3,111	3,501	1,061	659	106	869	104	298	3,871	na	43	143	34	22	na
1982	36,115	22,070	165	1,359	2,584	3,012	965	693	104	791	63	228	3,869	na	32	139	31	10	na
1983	38,768	24,936	177	1,502	2,134	2,578	952	745	107	876	44	189	4,298	na	32	157	37	6	na
1984	44,214	29,287	192	1,676	2,300	2,581	963	762	110	1,040	46	200	4,779	na	26	218	24	8	na
1985	49,887	33,698	210	1,862	2,725	2,389	1,059	836	114	1,030	50	220	5,418	na	21	193	47	17	na

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1986	53,249	36,926	211	1,873	2,894	2,286	1,062	815	111	917	88	248	5,565	na	14	183	41	14	na
1987	57,069	39,152	223	2,042	3,398	2,053	1,133	822	110	908	99	267	6,556	na	25	215	49	17	na
1988	59,106	40,099	224	2,160	3,683	2,126	1,160	882	122	896	108	285	7,076	na	23	195	51	17	na
1989	62,115	40,642	279	2,373	4,555	2,419	1,255	907	128	1,064	74	347	7,773	na	27	212	45	15	na
1990	63,781	39,925	375	2,410	5,765	2,726	1,386	950	140	1,045	67	374	8,308	na	33	216	44	17	na
1991	65,898	39,328	378	2,635	6,511	2,953	1,582	1,052	178	1,231	88	433	9,226	na	30	219	51	4	na
1992	68,398	40,083	371	2,659	6,744	3,099	1,688	1,155	192	1,523	127	365	10,055	na	37	245	51	4	na
1993	69,884	41,249	382	2,691	6,988	2,677	1,802	1,152	220	1,703	57	348	10,280	na	36	250	49	*	na
1994	68,331	37,764	254	2,712	7,414	2,873	2,062	1,193	380	1,888	68	373	10,993	na	45	265	46	0	na
1995	68,791	37,204	287	2,794	7,916	2,844	1,988	1,194	525	1,833	70	369	11,407	na	43	257	59	1	na
1996	69,049	37,801	252	2,846	7,844	2,521	1,802	1,176	432	1,795	50	331	11,867	na	16	259	56	2	na
1997	71,653	39,591	190	2,944	7,844	2,372	1,886	1,203	409	1,785	48	373	12,670	na	9	267	59	2	na
1998	73,569	39,823	163	4,360	8,198	948	1,855	1,249	398	1,833	42	444	13,576	na	18	587	72	2	na
1999	77,637	41,306	190	4,690	8,245	1,131	1,842	1,288	432	1,725	59	403	15,553	na	38	644	88	3	na
2000	78,664	42,580	200	4,977	5,363	996	1,999	1,426	406	1,636	46	418	17,869	na	25	645	73	6	na
2001	86,756	45,713	252	5,468	6,126	1,314	2,096	1,657	429	1,640	54	411	20,758	na	30	719	88	3	na
2002	97,624	53,016	279	5,753	6,270	1,327	2,160	1,606	467	1,838	50	411	23,560	na	37	756	91	3	na
2003	112,544	63,048	269	6,129	7,355	1,403	2,151	1,708	463	1,869	48	430	26,517	na	38	817	299	0	na
2004	121,867	69,593	264	6,466	7,612	1,343	2,168	1,750	454	1,863	47	459	28,251	na	47	866	684	0	na
2005	126,601	74,047	255	6,570	7,300	1,296	2,168	1,820	423	1,847	45	470	28,824	na	35	742	758	0	na
2006	131,624	78,037	255	6,691	8,204	1,195	2,120	1,869	390	1,711	55	495	28,797	na	27	769	1,008	0	na
2007	138,087	82,272	246	7,809	9,024	1,893	1,936	1,857	428	1,361	49	536	29,461	na	27	819	369	0	na
2008	140,113	84,713	255	8,234	8,323	1,896	2,106	1,864	450	1,394	50	497	29,063	na	27	886	355	0	na
2009 <sup>c</sup>	156,009	85,166	255	11,840	6,891	3,318	2,245	1,935	618	1,440	62	479	40,389	30	63	943	335	0	na
Non-ARRA	140,903	84,866	255	8,885	6,205	2,014	2,171	1,935	507	1,336	62	469	30,827	30	63	943	335	0	na
ARRA	15,106	300	0	2,955	686	1,304	74	0	111	104	0	10	9,562	0	0	0	0	0	na
2010	146,596	86,517	194	9,280	8,232	2,455	2,237	2,043	550	1,496	109	535	31,488	36	77	1,034	313	0	na
2011	142,457	82,972	196	9,483	8,398	2,233	2,171	1,916	548	1,420	83	578	30,903	180	68	1,160	172	0	na

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2012	141,450	79,559	269	9,304	10,661	2,197	2,147	1,920	607	1,486	58	597	31,243	80	18	1,160	143	1	na
2013	130,861	70,620	350	8,802	10,476	2,269	2,020	1,753	719	1,337	54	536	30,044	72	26	1,164	618	0	na
2014	133,547	70,611	410	9,482	11,055	2,387	2,172	1,967	877	1,261	66	515	30,927	25	58	1,101	634	0	na
2015	136,090	72,560	290	10,068	10,875	3,153	2,161	1,989	809	1,363	55	491	30,331	71	55	1,178	639	0	na
2016	147,813	79,828	288	10,042	12,789	3,473	2,294	2,030	887	1,326	65	474	32,365	21	105	1,222	605	0	na
2017 <sup>d</sup>	124,710	57,055	289	9,947	10,134	3,519	2,378	2,090	901	1,444	71	478	34,255	21	74	1,346	707	0	na
2018 preliminary <sup>e</sup>	128,107	60,775	322	10,050	9,713	3,483	2,389	1,994	953	1,439	70	463	34,379	19	63	1,338	656	0	na
2019 proposed <sup>f</sup>	120,638	65,329	117	9,982	10,109	2,008	1,691	1,762	745	1,308	65	550	25,014	17	105	1,345	490	0	na
Basic research <sup>h</sup>																			
1978	3,665	320	*	962	412	157	207	197	9	70	8	57	1,246	0	2	9	10	0	na
1979	4,108	365	0	1,026	440	172	131	222	10	75	8	59	1,579	0	1	10	10	*	na
1980	4,716	552	0	1,152	482	200	136	246	15	79	8	61	1,761	0	1	14	9	*	na
1981	5,107	610	12	1,256	445	220	131	281	17	89	5	66	1,951	0	3	15	5	3	na
1982	5,305	696	10	1,296	434	260	139	295	17	102	7	78	1,953	0	0	13	4	2	na
1983	6,247	788	10	1,439	501	320	156	326	19	117	6	70	2,475	0	0	14	4	3	na
1984	7,072	845	3	1,606	646	365	192	353	20	125	5	77	2,813	0	0	15	5	3	na
1985	7,810	856	4	1,779	498	428	206	406	23	255	6	86	3,243	0	0	15	4	4	na
1986	8,193	960	5	1,795	737	456	204	390	26	184	6	83	3,324	0	0	15	5	5	na
1987	9,021	900	3	1,942	843	511	206	397	26	231	4	78	3,851	0	0	17	8	4	na
1988	9,553	905	3	2,061	944	571	210	428	28	197	7	83	4,087	0	0	17	8	5	na
1989	10,648	965	3	2,265	1,099	703	331	433	29	287	3	92	4,413	0	0	16	7	3	na
1990	11,288	964	4	2,306	1,389	761	336	456	31	242	3	106	4,661	0	0	16	9	3	na
1991	12,405	1,188	6	2,526	1,479	878	389	486	39	246	10	115	5,021	0	0	16	6	0	na
1992	12,973	1,147	6	2,532	1,499	921	383	528	35	266	11	118	5,506	0	0	16	5	0	na
1993	13,440	1,323	8	2,553	1,588	917	376	553	34	238	10	121	5,700	0	0	16	5	0	na
1994	13,552	1,174	6	2,542	1,796	921	224	567	38	220	9	145	5,889	0	0	16	5	0	na
1995	13,772	1,181	0	2,622	1,614	930	187	565	35	389	3	153	6,068	0	0	16	9	0	na
1996	14,442	1,165	2	2,662	1,685	1,182	147	547	37	456	0	140	6,395	0	0	13	12	0	na

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1997	14,961	1,090	2	2,753	1,653	1,288	153	548	34	420	0	142	6,852	0	0	14	13	0	na
1998	15,523	1,067	1	4,121	1,610	34	145	571	35	411	0	133	7,356	0	0	23	16	0	na
1999	17,433	1,110	0	4,464	1,667	36	142	602	41	358	0	99	8,634	0	0	263	18	0	na
2000	19,470	1,184	42	4,722	1,616	36	146	651	39	542	0	107	10,099	0	0	266	20	0	na
2001	21,376	1,303	50	5,187	1,695	40	215	749	50	17	0	112	11,642	0	0	289	27	0	na
2002	23,848	1,404	53	5,561	1,912	45	471	762	56	17	0	115	12,957	0	0	465	30	0	na
2003	25,323	1,409	18	5,907	2,206	40	185	824	53	23	1	125	14,162	0	0	327	42	0	na
2004	26,529	1,380	18	6,198	2,473	32	201	780	46	20	0	125	14,850	0	0	347	58	0	na
2005	27,678	1,508	18	6,238	2,486	31	195	789	53	65	0	130	15,826	0	0	297	42	0	na
2006	27,336	1,490	18	6,406	2,299	8	195	805	66	0	0	131	15,532	0	0	318	68	0	na
2007	28,166	1,533	18	6,887	2,318	7	260	821	92	2	0	149	15,637	0	0	335	106	0	na
2008	28,740	1,631	18	7,260	2,183	16	210	790	98	0	0	146	15,909	0	0	354	125	0	na
2009 <sup>c</sup>	36,400	1,772	18	10,727	932	28	219	799	152	0	0	155	21,108	0	0	375	115	0	na
Non-ARRA	28,161	1,769	18	7,913	900	28	219	799	112	0	0	145	15,767	0	0	375	115	0	na
ARRA	8,240	3	0	2,814	32	0	0	0	40	0	0	10	5,341	0	0	0	0	0	na
2010	29,614	1,849	0	8,578	1,109	57	223	881	131	0	0	174	16,125	0	0	413	74	0	na
2011	29,888	1,940	0	8,738	1,199	47	218	823	154	0	0	207	16,002	0	0	438	122	0	na
2012	31,846	2,066	0	8,491	3,181	57	135	847	163	0	0	206	16,196	0	0	470	33	0	na
2013	30,202	1,950	0	8,147	2,950	17	120	762	192	0	0	208	15,317	0	0	476	63	0	na
2014	32,086	2,167	0	8,739	3,320	16	252	790	213	0	0	227	15,853	0	0	451	58	0	na
2015	31,821	2,213	1	9,308	3,210	55	254	793	214	0	0	217	15,014	0	0	484	58	0	na
2016	32,821	2,335	1	9,282	3,578	51	257	829	235	0	0	244	15,565	0	0	386	58	0	na
2017 <sup>d</sup>	34,061	2,304	0	9,168	3,606	21	268	903	234	0	0	258	16,701	0	0	538	59	0	na
2018 preliminary <sup>e</sup>	34,393	2,336	0	9,277	3,713	34	240	853	232	0	0	248	16,859	0	0	538	63	0	na
2019 proposed <sup>f</sup>	30,040	2,380	0	9,220	4,300	33	190	772	197	0	0	253	12,114	0	0	540	41	0	na

\* = amount less than \$500,000. na = not applicable. NA = not available; data were not collected for all budget functions in all years.

TABLE 23

**Federal funding for R&D, R&D plant, and basic research, by budget function: FYs 1955–2019**

(Millions of dollars)

ARRA = American Recovery and Reinvestment Act of 2009.

<sup>a</sup> Other includes amounts not explicitly tallied in one of the separately identified categories.

<sup>b</sup> Data on budget authority for R&D plant were not tabulated before FY 2000.

<sup>c</sup> Total for FY 2009 is the sum of non-ARRA and ARRA funds.

<sup>d</sup> The application of a new *experimental development* definition is shown starting in FY 2017. The previous years' numbers reflect use of the former Development definition.

<sup>e</sup> The FY 2018 data are official estimates reflecting continuing resolution funding for FY 2018 and not the enacted omnibus spending bill for that year (Consolidated Appropriations Act, 2018, signed 23 March 2018). Most federal agencies did not prepare R&D estimates for FY 2018 based on the final spending figures in the omnibus.

<sup>f</sup> Along with the regular budget request, the Administration issued an addendum adding \$75 billion to the total of nondefense spending in FY 2019, distributed among several agencies (but not all for increased R&D spending). The additional sums for R&D are reflected in some of the data above.

<sup>g</sup> Data for 1955–77 are obligations; data for 1978–2017 are budget authority.

<sup>h</sup> Not all basic research funded by the federal government falls into the General science and basic research (251) category. Federal funding for basic research arises in other functional categories—such as National defense or Health—and is included in the category funding totals there.

Note(s)

Detail may not add to total because of rounding. In FY 2007, the Department of Homeland Security (DHS) changed its R&D portfolio to reclassify funding in National defense and most Administration of justice as General science and basic research; in FY 2013, this was reclassified back to Administration of justice. In FY 2004, DHS changed its R&D portfolio to reclassify funding in General science and basic research and in Agriculture as Administration of justice. In FY 2000, the National Aeronautics and Space Administration (NASA) transferred funding for the International Space Station program from R&D to R&D plant; the change is reflected in the budget authority for Space flight, research, and supporting activities. In both FY 2009 and FY 2012, NASA revised the classification of its R&D and non-R&D funding. In FY 2000, the National Institutes of Health in the Department of Health and Human Services classified all of its previous development activities as basic research or applied research, with a resulting increase in Health basic research. In FY 1998, many Department of Energy programs were reclassified from Energy to General science and basic research. In FY 1998, the Department of Veterans Affairs began reporting medical care support funds as a part of its total research budgetary resources; the change is reflected in the budget authority for Veterans benefits and services. The proposed FY 2017 budget includes multiple mandatory components totaling \$4.2 billion. These components affect several categories: Health; General science and basic research; Space flight, research, and supporting activities; Energy; Agriculture; and Transportation.

Source(s)

Data from FYs 1955–94 are from agencies' submissions to the Office of Management and Budget (OMB), Circular No. A-11, exhibit 44A, "Research and development activities," and from supplemental data obtained from agencies' budget offices. Data from FYs 1995–2017 are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.