



Federal R&D Funding, by Budget Function: Fiscal Years 2015–17

Detailed Statistical Tables | NSF 17-305 | December 2016 |

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General Notes

This report contains data on the budget authority provided to U.S. federal agencies to fund the research and development and R&D plant components of their programs in FYs 2015–17. *Budget authority* is the primary source of legal authorization to enter into obligations that will result in outlays. It is most commonly granted in the form of appropriations by the congressional committees assigned to determine the budget for each function.

The data tables in this report are a statistical supplement to the recent InfoBrief authored by the National Center for Science and Engineering Statistics (NCSES) (<https://www.nsf.gov/statistics/2017/nsf17304>), and the technical notes in this report cover the main features of the new R&D budget authority data.

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TABLE 1. Federal budget authority for R&D and R&D plant, by budget function, ordered by FY 2015 R&D and R&D plant total: FYs 2015–17
(Millions of dollars)

Budget function	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	138,544	148,999	153,920	7.5	3.3
National defense	72,950	78,669	80,480	7.8	2.3
Health	30,495	32,353	33,206	6.1	2.6
General science and basic research	11,088	11,422	12,152	3.0	6.4
Space flight, research, and supporting activities	10,928	12,811	12,227	17.2	-4.6
Energy	3,173	3,455	4,789	8.9	38.6
Natural resources and environment	2,358	2,599	2,682	10.2	3.2
Agriculture	2,149	2,356	2,628	9.6	11.5
Transportation	1,389	1,404	1,770	1.1	26.0
Veterans benefits and services	1,178	1,220	1,252	3.6	2.6
Administration of justice	949	615	608	-35.2	-1.1
Commerce and housing credit	889	1,133	1,104	27.5	-2.6
Education, training, employment, and social services	527	494	520	-6.3	5.3
International affairs	290	315	327	8.6	3.8
Medicare	71	21	0	-70.4	-100.0
Community and regional development	55	65	103	18.2	58.5
Income security	55	66	72	20.0	9.1
R&D	136,090	146,425	151,268	7.6	3.3
National defense	72,560	78,362	79,998	8.0	2.1
Health	30,331	32,182	32,992	6.1	2.5
General science and basic research	10,068	10,198	10,898	1.3	6.9
Space flight, research, and supporting activities	10,875	12,789	12,189	17.6	-4.7
Energy	3,153	3,436	4,745	9.0	38.1
Natural resources and environment	2,161	2,340	2,470	8.3	5.6
Agriculture	1,989	2,008	2,412	1.0	20.1
Transportation	1,363	1,369	1,735	0.4	26.7
Veterans benefits and services	1,178	1,220	1,252	3.6	2.6
Administration of justice	639	607	608	-5.0	0.2
Commerce and housing credit	809	984	979	21.7	-0.5
Education, training, employment, and social services	491	462	487	-5.9	5.4
International affairs	290	315	327	8.6	3.8
Medicare	71	21	0	-70.4	-100.0
Community and regional development	55	65	103	18.2	58.5
Income security	55	66	72	20.0	9.1
R&D plant	2,454	2,574	2,651	4.9	3.0
National defense	390	307	482	-21.4	57.2
Health	164	172	214	4.9	24.4
General science and basic research	1,020	1,224	1,254	20.1	2.4
Space flight, research, and supporting activities	52	22	37	-58.4	71.1
Energy	19	19	44	0.0	128.5
Natural resources and environment	197	258	211	31.2	-18.2
Agriculture	160	348	216	117.6	-38.1
Transportation	25	35	35	39.6	-0.1
Veterans benefits and services	0	0	0	-	-
Administration of justice	310	8	0	-97.4	-100.0
Commerce and housing credit	80	149	125	86.1	-16.2
Education, training, employment, and social services	36	32	33	-11.1	3.1
International affairs	0	0	0	-	-
Medicare	0	0	0	-	-
Community and regional development	0	0	0	-	-
Income security	0	0	0	-	-

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. In contrast to previous editions of this report, there is no budget authority for R&D reported for the Government (800) category in the fiscal years covered by this report. Accordingly, this category is not included in the above table this year. The proposed FY 2017 budget includes multiple mandatory components totalling \$4.2 billion. These components effect several categories: health; general science and basic research; space flight, research, and supporting activities; energy; agriculture; and transportation.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 2. Distribution of federal budget authority for R&D and R&D plant, by budget function: FYs 2015–17
(Percent distribution)

Budget function	2015 actual	2016 preliminary	2017 proposed
R&D and R&D plant	100.0	100.0	100.0
National defense	52.7	52.8	52.3
Health	22.0	21.7	21.6
General science and basic research	8.0	7.7	7.9
Space flight, research, and supporting activities	7.9	8.6	7.9
Energy	2.3	2.3	3.1
Natural resources and environment	1.7	1.7	1.7
Agriculture	1.6	1.6	1.7
Transportation	1.0	0.9	1.1
Veterans benefits and services	0.9	0.8	0.8
Administration of justice	0.7	0.4	0.4
Commerce and housing credit	0.6	0.8	0.7
Education, training, employment, and social services	0.4	0.3	0.3
International affairs	0.2	0.2	0.2
Medicare	0.1	*	0
Community and regional development	*	*	0.1
Income security	*	*	*
R&D	100.0	100.0	100.0
National defense	53.3	53.5	52.9
Health	22.3	22.0	21.8
General science and basic research	7.4	7.0	7.2
Space flight, research, and supporting activities	8.0	8.7	8.1
Energy	2.3	2.3	3.1
Natural resources and environment	1.6	1.6	1.6
Agriculture	1.5	1.4	1.6
Transportation	1.0	0.9	1.1
Veterans benefits and services	0.9	0.8	0.8
Administration of justice	0.5	0.4	0.4
Commerce and housing credit	0.6	0.7	0.6
Education, training, employment, and social services	0.4	0.3	0.3
International affairs	0.2	0.2	0.2
Medicare	0.1	*	0
Community and regional development	*	*	0.1
Income security	*	*	*
R&D plant	100.0	100.0	100.0
National defense	15.9	11.9	18.2
Health	6.7	6.7	8.1
General science and basic research	41.6	47.6	47.3
Space flight, research, and supporting activities	2.1	0.8	1.4
Energy	0.8	0.8	1.7
Natural resources and environment	8.0	10.0	8.0
Agriculture	6.5	13.5	8.1
Transportation	1.0	1.4	1.3
Veterans benefits and services	0	0	0
Administration of justice	12.6	0.3	0
Commerce and housing credit	3.3	5.8	4.7
Education, training, employment, and social services	1.5	1.2	1.2
International affairs	0	0	0

TABLE 2. Distribution of federal budget authority for R&D and R&D plant, by budget function: FYs 2015–17
(Percent distribution)

Budget function	2015 actual	2016 preliminary	2017 proposed
Medicare	0	0	0
Community and regional development	0	0	0
Income security	0	0	0

* = value less than 0.05%.

NOTES: Detail may not add to total because of rounding. Budget functions are ordered as under the table 1 stub entry for "R&D and R&D plant." In contrast to previous editions of this report, there is no budget authority for R&D reported for the Government (800) category in the fiscal years covered by this report. Accordingly, this category is not included in the above table this year.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 3. Federal budget authority for R&D and R&D plant as percentage of total budget authority, by budget function: FYs 2015–17

Budget function	2015 actual	2016 preliminary	2017 proposed
All functions conducting R&D	5.0	5.2	5.1
National defense	12.2	12.8	13.0
Health	6.1	6.2	5.8
General science and basic research	88.3	88.9	88.9
Space flight, research, and supporting activities	62.4	68.3	64.9
Energy	49.6	42.6	53.4
Natural resources and environment	6.6	6.3	6.4
Agriculture	12.7	7.1	10.3
Transportation	1.6	1.6	1.6
Veterans benefits and services	0.7	0.7	0.7
Administration of justice	1.6	1.1	1.0
Commerce and housing credit ^a	-40.6	35.8	51.8
Education, training, employment, and social services	0.4	0.4	0.4
International affairs	0.5	0.5	0.6
Medicare	*	*	0
Community and regional development	0.3	0.4	0.3
Income security	*	*	*

* = value less than 0.05%.

^a Total budget authority in the Commerce and housing credit function is a negative number (i.e., less than zero) in FY 2015, due primarily to large offsetting collections and receipts leading to negative balances in the subfunctions for federal mortgage and credit programs and government-sponsored enterprise (e.g., Fannie Mae or Freddie Mac) purchase programs. This makes this function's R&D and R&D plant as percentages of total budget authority difficult to interpret. For perspective, R&D and R&D plant as a share of discretionary authority excluding these negative subfunctions is 20.4% for FY 2015, 23.5% for FY 2016, and 21.6% for FY 2017.

NOTES: Total budget authority includes discretionary and mandatory budget authority, less offsets. Budget functions are ordered as under the table 1 stub entries for "R&D and R&D plant." In contrast to previous editions of this report, there is no budget authority for R&D reported for the Government (800) category in the fiscal years covered by this report. Accordingly, this category is not included in the above table this year.

SOURCES: Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2017*, U.S. Government Printing Office (2016).

TABLE 4. Federal budget authority for basic research, by budget function: FYs 2015–17

Budget function	Millions of dollars			% change	
	2015 actual	2016 preliminary	2017 proposed	2015–16	2016–17
All functions conducting R&D	31,821	33,453	34,452	5.1	3.0
National defense	2,213	2,309	2,102	4.3	-9.0
Health	15,014	15,964	16,314	6.3	2.2
Space flight, research, and supporting activities	3,210	3,578	3,600	11.5	0.6
General science and basic research	9,308	9,446	10,085	1.5	6.8
Energy	55	49	30	-10.2	-38.8
Natural resources and environment	254	270	256	6.1	-5.1
Agriculture	793	813	970	2.5	19.3
Transportation	0	0	0	-	-
Veterans benefits and services	484	505	542	4.3	7.3
Administration of justice	58	58	57	0.0	-1.7
Commerce and housing credit	214	223	239	4.3	7.1
Education, training, employment, and social services	217	236	253	8.8	7.2
International affairs	1	1	4	0.0	300.0
Community and regional development	0	0	0	-	-
Income security	0	0	0	-	-
Medicare	0	0	0	-	-

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. Budget functions are ordered as under the table 1 stub entries for "R&D and R&D plant." In contrast to previous editions of this report, there is no budget authority for R&D reported for the Government (800) category in the fiscal years covered by this report. Accordingly, this category is not included in the above table this year.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 5. Federal budget authority for National defense (050) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	72,950	78,669	80,480	7.8	2.3
Department of Defense, military (051)	66,740	72,931	73,381	9.3	0.6
RDT&E	64,088	69,968	71,766	9.2	2.6
Defense agencies	17,448	18,859	18,471	8.1	-2.1
Defense Advanced Research Projects Agency	2,916	2,868	2,973	-1.6	3.7
Missile Defense Agency	5,648	6,215	5,893	10.0	-5.2
Other defense agencies	8,884	9,775	9,605	10.0	-1.7
Department of the Air Force	23,620	25,212	28,145	6.7	11.6
Department of the Army	6,744	7,564	7,616	12.2	0.7
Department of the Navy	16,067	18,147	17,355	12.9	-4.4
Operational Test and Evaluation	209	187	179	-10.2	-4.5
Other military funding ^a	2,652	2,962	1,615	11.7	-45.5
Department of Energy, atomic energy defense activities (053)	6,197	5,726	7,082	-7.6	23.7
Defense environmental cleanup	14	23	33	68.4	44.7
Naval reactors development	1,239	1,375	1,420	11.1	3.2
Nonproliferation	283	276	272	-2.5	-1.5
Weapons activities	4,662	4,051	5,357	-13.1	32.2
Department of Justice, Federal Bureau of Investigation (054)	13	13	13	0.0	0.0
Department of Homeland Security, National Protection and Programs Directorate (054)	na	na	4	-	-
R&D	72,560	78,362	79,998	8.0	2.1
Department of Defense, military (051)	66,624	72,918	73,190	9.4	0.4
RDT&E	64,088	69,968	71,766	9.2	2.6
Defense agencies	17,448	18,859	18,471	8.1	-2.1
Defense Advanced Research Projects Agency	2,916	2,868	2,973	-1.6	3.7
Missile Defense Agency	5,648	6,215	5,893	10.0	-5.2
Other defense agencies	8,884	9,775	9,605	10.0	-1.7
Department of the Air Force	23,620	25,212	28,145	6.7	11.6
Department of the Army	6,744	7,564	7,616	12.2	0.7
Department of the Navy	16,067	18,147	17,355	12.9	-4.4
Operational Test and Evaluation	209	187	179	-10.2	-4.5
Other military funding ^a	2,536	2,949	1,424	16.3	-51.7
Department of Energy, atomic energy defense activities (053)	5,923	5,432	6,791	-8.3	25.0
Defense environmental cleanup	14	23	33	68.4	44.7
Naval reactors development	1,081	1,208	1,235	11.7	2.3
Nonproliferation	283	276	272	-2.5	-1.5
Weapons activities	4,546	3,925	5,251	-13.6	33.8
Department of Justice, Federal Bureau of Investigation (054)	13	13	13	0.0	0.0
Department of Homeland Security, National Protection and Programs Directorate (054)	na	na	4	-	-

na = not applicable.

RDT&E = research, development, test, and evaluation.

^a This item includes appropriate personnel costs in direct support of conduct of R&D, other appropriations funding certain Department of Defense programs, and medical research funded outside RDT&E accounts.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 6. Department of Defense, total obligational authority for research, development, test, and evaluation, by DOD budget activity: FYs 2015–17
(Millions of dollars)

Budget activity ^a	Funding category and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
	RDT&E total budget authority	63,872	69,275	72,128	8.5	4.1
	RDT&E total obligational authority ^b	64,088	69,968	71,766	9.2	2.6
1	Basic research	2,213	2,309	2,102	4.3	-9.0
	Defense agencies	593	638	630	7.7	-1.3
	Department of the Air Force	539	530	500	-1.5	-5.7
	Department of the Army	448	469	429	4.7	-8.6
	Department of the Navy	634	672	543	5.9	-19.2
2	Applied research	4,578	4,996	4,815	9.1	-3.6
	Defense agencies	1,668	1,697	1,787	1.8	5.3
	Department of the Air Force	1,090	1,240	1,260	13.7	1.6
	Department of the Army	964	1,093	908	13.4	-17.0
	Department of the Navy	856	966	861	12.9	-10.8
3	Advanced technology development	5,233	5,731	5,584	9.5	-2.6
	Defense agencies	2,911	3,197	3,191	9.8	-0.2
	Department of the Air Force	606	710	726	17.2	2.2
	Department of the Army	1,089	1,127	930	3.5	-17.5
	Department of the Navy	626	696	737	11.3	5.9
4	Advanced component development and prototypes	12,252	14,290	15,032	16.6	5.2
	Defense agencies	6,234	7,199	6,920	15.5	-3.9
	Department of the Air Force	1,363	1,561	2,848	14.6	82.4
	Department of the Army	298	508	560	70.1	10.3
	Department of the Navy	4,357	5,022	4,705	15.3	-6.3
5	System development and demonstration	10,853	12,789	13,079	17.8	2.3
	Defense agencies	612	521	628	-14.8	20.5
	Department of the Air Force	3,517	3,908	4,076	11.1	4.3
	Department of the Army	1,605	2,085	2,349	29.9	12.7
	Department of the Navy	5,120	6,275	6,026	22.6	-4.0
6	RDT&E management support	5,419	4,417	4,312	-18.5	-2.4
	Defense agencies	1,271	1,056	898	-16.9	-15.0
	Department of the Air Force	1,495	1,185	1,246	-20.8	5.1
	Department of the Army	1,166	1,071	1,136	-8.2	6.1
	Department of the Navy	1,278	918	854	-28.2	-7.0
	Operational test and evaluation	209	187	179	-10.2	-4.5
7	Operational system development	23,539	25,435	26,842	8.1	5.5
	Defense agencies	4,159	4,549	4,419	9.4	-2.9
	Department of the Air Force	15,010	16,077	17,490	7.1	8.8
	Department of the Army	1,174	1,211	1,304	3.2	7.7
	Department of the Navy	3,196	3,598	3,629	12.6	0.9
	Adjustment for RDT&E budget authority ^b	-216	-693	362	na	na

na = not applicable.

DOD = Department of Defense; RDT&E = research, development, test, and evaluation.

^a RDT&E budget activity codes are broad categories reflecting different types of RDT&E efforts, as specified in DOD Financial Management Regulation.

^b Detailed budget information on DOD RDT&E activities is available only in total obligational authority (TOA), which is the sum of new budget authority, unobligated budget authority from previous years, and other authorized credits. The adjustment converts TOA to budget authority by subtracting unobligated budget authority from previous years and other authorized credits from TOA.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2017*, U.S. Government Printing Office (2016).

TABLE 7. Federal budget authority for International affairs (150) R&D and R&D plant: FYs 2015–17

(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	290	315	327	8.6	3.8
Agency for International Development (151)	236	261	273	10.6	4.6
Department of State (151)	40	40	40	0.0	0.0
International Security Assistance (152)	14	14	14	0.0	0.0
R&D	290	315	327	8.6	3.8
Agency for International Development (151)	236	261	273	10.6	4.6
Department of State (151)	40	40	40	0.0	0.0
International Security Assistance (152)	14	14	14	0.0	0.0

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 8. Federal budget authority for General science and basic research (251) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	11,088	11,422	12,152	3.0	6.4
Department of Energy					
Office of Science ^a	5,099	5,305	5,623	4.1	6.0
National Science Foundation ^{b,c}	5,990	6,117	6,530	2.1	6.8
Arctic Research Commission	1	1	1	1.4	0.0
Biological Sciences	736	744	791	1.1	6.2
Computer and Information Science and Engineering	933	936	995	0.3	6.3
Education and Human Resources	886	880	953	-0.7	8.3
Engineering	924	916	1,003	-0.8	9.4
Geosciences	1,319	1,319	1,399	0.0	6.1
Integrative Activities	427	447	460	4.6	2.9
International Science and Engineering	48	49	52	1.3	6.0
Major Research Equipment and Facilities	145	200	193	38.4	-3.6
Mathematical and Physical Sciences	1,376	1,349	1,436	-2.0	6.5
Social, Behavioral and Economic Sciences	276	272	289	-1.4	6.1
Budget authority adjustment ^d	-1,083	-997	-1,042	-7.9	4.5
R&D	10,068	10,198	10,898	1.3	6.9
Department of Energy					
Office of Science ^a	4,399	4,505	4,827	2.4	7.2
National Science Foundation ^{b,e}	5,670	5,692	6,071	0.4	6.6
Arctic Research Commission	1	1	1	1.4	0.0
Biological Sciences	736	744	791	1.1	6.2
Computer and Information Science and Engineering	933	936	995	0.3	6.3
Education and Human Resources	886	880	953	-0.7	8.3
Engineering	924	916	1,003	-0.8	9.4
Geosciences	1,319	1,319	1,399	0.0	6.1
Integrative Activities	427	447	460	4.6	2.9
International Science and Engineering	48	49	52	1.3	6.0
Major Research Equipment and Facilities	0	0	0	-	-
Mathematical and Physical Sciences	1,376	1,349	1,436	-2.0	6.5
Social, Behavioral and Economic Sciences	276	272	289	-1.4	6.1
Budget authority adjustment ^f	-1,258	-1,221	-1,308	-2.9	7.1

^a The proposed FY 2017 budget includes a mandatory funding component: \$100 million for Office of Science R&D.

^b Total National Science Foundation (NSF) budget shown here includes only R&D and R&D plant; however, subaccount budgets (Arctic Research Commission, Biological Sciences, etc.) include some non-R&D and non-R&D plant funding.

^c The proposed FY 2017 budget includes mandatory funding components: \$363 million for NSF R&D and \$7 million for NSF R&D plant.

^d Budget authority adjustment subtracts non-R&D and non-R&D plant spending (such as support and overhead) from subaccount budgets.

^e Total NSF budget shown here includes funding for only R&D; however, subaccount budgets (Arctic Research Commission, Biological Sciences, etc.) include some non-R&D funding.

^f Budget authority adjustment subtracts non-R&D spending (such as support, overhead, and R&D plant) from subaccount budgets.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 9. Federal budget authority for Space flight, research, and supporting activities (252) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	10,928	12,811	12,227	17.2	-4.6
National Aeronautics and Space Administration ^a					
Safety, security, and mission services ^b	267	272	265	1.7	-2.4
Exploration	3,967	3,600	2,907	-9.3	-19.2
Exploration R&D	309	356	477	15.1	34.3
Exploration systems development	2,854	3,244	2,430	13.7	-25.1
Commercial space flight ^c	804	na	na	-	-
Science	4,691	5,532	5,561	17.9	0.5
Astrophysics	639	724	756	13.2	4.5
Earth science	1,532	1,926	2,032	25.7	5.5
Heliophysics	589	649	699	10.1	7.7
James Webb Space Telescope	579	620	569	7.0	-8.2
Planetary science	1,351	1,613	1,504	19.4	-6.8
Space operations	1,421	2,700	2,630	90.0	-2.6
International Space Station	1,415	1,436	1,431	1.5	-0.4
Space flight and support	6	12	14	113.0	16.4
Space transportation ^c	na	1,251	1,185	-	-5.3
Space technology	530	686	827	29.6	20.4
Construction, environmental compliance, and remediation	52	22	37	-58.4	71.1
R&D	10,875	12,789	12,189	17.6	-4.7
National Aeronautics and Space Administration ^a					
Safety, security, and mission services ^b	267	272	265	1.7	-2.4
Exploration	3,967	3,600	2,907	-9.3	-19.2
Exploration R&D	309	356	477	15.1	34.3
Exploration systems development	2,854	3,244	2,430	13.7	-25.1
Commercial space flight ^c	804	na	na	-	-
Science	4,691	5,532	5,561	17.9	0.5
Astrophysics	639	724	756	13.2	4.5
Earth science	1,532	1,926	2,032	25.7	5.5
Heliophysics	589	649	699	10.1	7.7
James Webb Space Telescope	579	620	569	7.0	-8.2
Planetary science	1,351	1,613	1,504	19.4	-6.8
Space operations	1,421	2,700	2,630	90.0	-2.6
International Space Station	1,415	1,436	1,431	1.5	-0.4
Space flight and support	6	12	14	113.0	16.4
Space transportation ^c	na	1,251	1,185	-	-5.3
Space technology	530	686	827	29.6	20.4
Construction, environmental compliance, and remediation	0	0	0	-	-

na = not applicable.

^a The proposed FY 2017 budget includes mandatory funding components: \$582 million for R&D in the Science, Exploration, and Space Technology National Aeronautics and Space Administration accounts.

^b Cross-agency support was renamed to Safety, security, and mission services beginning in FY 2016.

^c Congress moved Commercial space flight from the Exploration account heading to the Space operations account heading and renamed it Space transportation beginning in FY 2016.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 10. Federal budget authority for Energy (270) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	3,173	3,455	4,789	8.9	38.6
Department of Energy (271)	3,089	3,356	4,679	8.7	39.4
Energy programs	2,796	3,048	4,162	9.0	36.5
Energy efficiency and renewable energy ^a	1,332	1,410	2,612	5.9	85.3
Electricity delivery and energy reliability	111	140	158	25.1	13.3
Fossil energy	540	621	590	15.2	-5.0
Nuclear energy	813	877	802	8.0	-8.6
Advanced Research Projects Agency-Energy (ARPA-E) ^a	280	291	500	3.9	71.8
Bonneville Power Administration Fund	13	17	17	30.8	0.0
Nuclear Regulatory Commission (276)	69	86	90	24.6	4.7
Tennessee Valley Authority (271)	12	10	17	-16.7	70.0
Department of Agriculture (271)					
National Institute of Food and Agriculture: Biomass R&D ^b	3	3	3	0.0	0.0
R&D	3,153	3,436	4,745	9.0	38.1
Department of Energy (271)	3,069	3,337	4,635	8.7	38.9
Energy programs	2,776	3,029	4,118	9.1	36.0
Energy efficiency and renewable energy ^a	1,328	1,406	2,608	5.9	85.5
Electricity delivery and energy reliability	111	140	158	25.1	13.3
Fossil energy	524	606	549	15.6	-9.3
Nuclear energy	813	877	802	8.0	-8.6
Advanced Research Projects Agency-Energy (ARPA-E) ^a	280	291	500	3.9	71.8
Bonneville Power Administration Fund	13	17	17	30.8	0.0
Nuclear Regulatory Commission (276)	69	86	90	24.6	4.7
Tennessee Valley Authority (271)	12	10	17	-16.7	70.0
Department of Agriculture (271)					
National Institute of Food and Agriculture: Biomass R&D ^b	3	3	3	0.0	0.0

^a The proposed FY 2017 budget includes mandatory funding components: \$500 million for Energy efficiency and renewable energy R&D and \$150 million for ARPA-E R&D.

^b The Biomass R&D program is a mandatory program authorized in the 2014 farm bill.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 11. Federal budget authority for Natural resources and environment (300) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	2,358	2,599	2,682	10.2	3.2
Conservation and land management (302)	455	494	461	8.6	-6.7
Department of the Interior ^a	153	179	169	17.0	-5.6
Department of Agriculture	302	315	292	4.3	-7.3
Forest Service	302	315	292	4.3	-7.3
Pollution control and abatement (304)	523	515	514	-1.4	-0.3
Environmental Protection Agency	521	513	512	-1.4	-0.3
Oil spill response research	1	1	1	0.0	0.0
Science and technology	501	494	496	-1.5	0.4
Superfund	19	19	16	0.0	-18.0
U.S. Coast Guard (DHS)	2	2	2	0.0	0.0
Recreational resources (303)	27	27	29	0.0	7.4
National Park Service (DOI)	27	27	29	0.0	7.4
Water resources (301)	22	96	103	336.4	7.3
Army Corps of Engineers (DOD)	9	9	11	0.0	22.2
Bureau of Reclamation (DOI)	13	87	92	569.2	5.7
Other natural resources (306)	1,332	1,466	1,575	10.1	7.4
National Oceanic and Atmospheric Administration (DOC)	666	790	794	18.7	0.4
National Environmental Satellite, Data, and Information Service	24	26	33	8.8	28.5
National Marine Fisheries Service	63	56	59	-11.1	5.2
National Ocean Service	71	74	79	4.4	6.7
National Weather Service	17	26	23	52.8	-11.9
Office of Oceanic and Atmospheric Research	412	441	483	7.3	9.3
Office of Marine and Aviation Operations	80	167	117	109.2	-29.8
Geological Survey (DOI)	666	676	781	1.6	15.5
Administration and enterprise information	*	*	*	0.0	13.3
Climate and land use change	100	102	165	1.7	62.3
Core science systems	83	86	90	3.1	5.1
Ecosystems	157	158	174	0.6	10.1
Energy, minerals, and environmental health	92	95	99	2.4	5.3
Natural hazards	111	113	121	1.7	7.1
Water resources	122	123	131	0.8	6.7
R&D	2,161	2,340	2,470	8.3	5.6
Conservation and land management (302)	409	483	450	18.1	-6.8
Department of the Interior ^a	117	177	167	51.3	-5.6
Department of Agriculture	292	306	283	4.8	-7.5
Forest Service	292	306	283	4.8	-7.5
Pollution control and abatement (304)	518	512	512	-1.1	-0.2
Environmental Protection Agency	516	510	510	-1.1	-0.2
Oil spill response research	1	1	1	0.0	0.0
Science and technology	496	491	493	-1.2	0.5
Superfund	19	19	15	0.5	-18.1
U.S. Coast Guard (DHS)	2	2	2	0.0	0.0
Recreational resources (303)	27	27	29	0.0	7.4
National Park Service (DOI)	27	27	29	0.0	7.4
Water resources (301)	24	98	103	308.3	5.1
Army Corps of Engineers (DOD)	11	11	11	0.0	0.0
Bureau of Reclamation (DOI)	13	87	92	569.2	5.7
Other natural resources (306)	1,183	1,220	1,377	3.1	12.8
National Oceanic and Atmospheric Administration (DOC)	518	544	596	5.1	9.5
National Environmental Satellite, Data, and Information Service	24	26	33	8.8	28.5
National Marine Fisheries Service	63	56	59	-11.1	5.2
National Ocean Service	71	74	79	4.4	6.7
National Weather Service	13	22	21	68.8	-5.1
Office of Oceanic and Atmospheric Research	347	366	404	5.5	10.3
Office of Marine and Aviation Operations	0	0	0	-	-

TABLE 11. Federal budget authority for Natural resources and environment (300) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
Geological Survey (DOI)	666	676	781	1.6	15.5
Administration and enterprise information	0.4	0.4	0.5	0.0	13.3
Climate and land use change	100	102	165	1.7	62.3
Core science systems	83	86	90	3.1	5.1
Ecosystems	157	158	174	0.6	10.1
Energy, minerals, and environmental health	92	95	99	2.4	5.3
Natural hazards	111	113	121	1.7	7.1
Water resources	122	123	131	0.8	6.7

* = value less than \$0.5 million.

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOI = Department of the Interior.

^a Includes Bureau of Land Management, Office of Surface Mining Reclamation and Enforcement, Fish and Wildlife Service, Bureau of Ocean Energy Management, Bureau of Safety and Environmental Enforcement, and Wildland Fire Management.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 12. Federal budget authority for Agriculture (350) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	2,149	2,356	2,628	9.6	11.5
Agricultural research and services (352)					
Department of Agriculture	2,149	2,356	2,628	9.6	11.5
Agricultural Research Service	1,208	1,386	1,286	14.7	-7.3
Animal and Plant Health Inspection Service	40	40	40	0.0	0.0
Economic Research Service	85	85	91	0.0	6.9
Foreign Agricultural Service	1	1	1	0.0	0.0
National Agricultural Statistics Service	9	9	9	0.0	0.0
National Institute of Food and Agriculture ^a	806	835	1,201	3.6	43.8
R&D	1,989	2,008	2,412	1.0	20.1
Agricultural research and services (352)					
Department of Agriculture	1,989	2,008	2,412	1.0	20.1
Agricultural Research Service	1,048	1,038	1,070	-1.0	3.1
Animal and Plant Health Inspection Service	40	40	40	0.0	0.0
Economic Research Service	85	85	91	0.0	6.9
Foreign Agricultural Service	1	1	1	0.0	0.0
National Agricultural Statistics Service	9	9	9	0.0	0.0
National Institute of Food and Agriculture ^a	806	835	1,201	3.6	43.8

^a The proposed FY 2017 budget includes a mandatory funding component: \$325 million for the National Institute of Food and Agriculture R&D.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 13. Federal budget authority for Commerce and housing credit (370) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	889	1,133	1,104	27.5	-2.6
Other advancement of commerce (376)					
Department of Commerce	861	1,114	1,085	29.4	-2.6
Bureau of the Census	154	313	247	103.2	-21.1
National Institute of Standards and Technology	669	773	806	15.6	4.3
Construction of research facilities	50	119	95	136.6	-20.2
Industrial technology services	3	22	44	633.3	100.0
Scientific and technical research and services	616	632	667	2.7	5.5
National Oceanic and Atmospheric Administration	26	15	16	-42.3	6.7
National Marine Fisheries Service	26	15	16	-42.3	6.7
National Telecommunications and Information Administration	12	13	16	8.3	23.1
U.S. Postal Service	28	19	19	-32.1	0.0
R&D	809	984	979	21.7	-0.5
Other advancement of commerce (376)					
Department of Commerce	781	965	960	23.6	-0.5
Bureau of the Census	154	313	247	103.2	-21.1
National Institute of Standards and Technology	589	624	681	6.0	9.1
Construction of research facilities	0	0	0	-	-
Industrial technology services	3	22	44	633.3	100.0
Scientific and technical research and services	586	602	637	2.8	5.8
National Oceanic and Atmospheric Administration	26	15	16	-42.3	6.7
National Marine Fisheries Service	26	15	16	-42.3	6.7
National Telecommunications and Information Administration	12	13	16	8.3	23.1
U.S. Postal Service	28	19	19	-32.1	0.0

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submission to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 14. Federal budget authority for Transportation (400) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	1,389	1,404	1,770	1.1	26.0
Air transportation (402)	810	887	1,099	9.5	23.8
Federal Aviation Administration (DOT)	325	425	414	30.7	-2.7
National Aeronautics and Space Administration					
Aeronautics research ^a	485	462	680	-4.7	47.2
Transportation Security Administration (DHS)	na	na	5	-	-
Ground transportation (401) (DOT)	529	463	607	-12.3	30.9
Federal Highway Administration	365	322	330	-11.6	2.3
Federal Motor Carrier Safety Administration	9	10	11	11.1	8.8
Federal Railroad Administration	43	43	58	0.0	34.9
Federal Transit Administration	33	0	0	-100.0	-
National Highway Traffic Safety Administration ^b	79	88	208	11.4	136.4
Water transportation (403)	17	18	18	5.9	0.0
U.S. Coast Guard (DHS)	17	18	18	5.9	0.0
Other transportation (407) (DOT) ^c	33	35	46	8.5	30.5
R&D	1,363	1,369	1,735	0.4	26.7
Air transportation (402)	785	855	1,067	8.9	24.7
Federal Aviation Administration (DOT)	300	393	381	31.0	-3.0
National Aeronautics and Space Administration					
Aeronautics research ^a	485	462	680	-4.7	47.2
Transportation Security Administration (DHS)	na	na	5	-	-
Ground transportation (401) (DOT)	529	460	604	-12.9	31.1
Federal Highway Administration	365	322	330	-11.6	2.3
Federal Motor Carrier Safety Administration	9	10	11	11.1	8.8
Federal Railroad Administration	43	40	55	-7.0	37.5
Federal Transit Administration	33	0	0	-100.0	-
National Highway Traffic Safety Administration ^b	79	88	208	11.4	136.4
Water transportation (403)	17	18	18	5.9	0.0
U.S. Coast Guard (DHS)	17	18	18	5.9	0.0
Other transportation (407) (DOT) ^c	33	35	46	8.5	30.5

na = not applicable.

DHS = Department of Homeland Security; DOT = Department of Transportation.

^a The proposed FY 2017 budget includes a mandatory funding component: \$156 million for National Aeronautics and Space Administration Aeronautics R&D.

^b The proposed FY 2017 budget includes a mandatory funding component: \$200 million for National Highway Traffic Safety Administration R&D.

^c Includes the Office of the Secretary of DOT and the Pipeline and Hazardous Materials Safety Administration.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 15. Federal budget authority for Community and regional development (450) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	55	65	103	18.2	58.5
Department of Housing and Urban Development (451)	50	60	98	20.0	63.3
Department of the Interior (452)	5	5	5	0.0	0.0
Bureau of Indian Affairs and Bureau of Indian Education	5	5	5	0.0	0.0
R&D	55	65	103	18.2	58.5
Department of Housing and Urban Development (451)	50	60	98	20.0	63.3
Department of the Interior (452)	5	5	5	0.0	0.0
Bureau of Indian Affairs and Bureau of Indian Education	5	5	5	0.0	0.0

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submission to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 16. Federal budget authority for Education, training, employment, and social services (500) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	527	494	520	-6.3	5.3
Research and general education aids (501, 502, 503)	525	492	518	-6.3	5.3
Department of Education programs	279	242	248	-13.3	2.5
Smithsonian Institution programs	246	250	270	1.6	8.0
Social services (506)	2	2	2	0.0	0.0
Administration for Children and Families (HHS)	2	2	2	0.0	0.0
R&D	491	462	487	-5.9	5.4
Research and general education aids (501, 502, 503)	489	460	485	-5.9	5.4
Department of Education programs	279	242	248	-13.3	2.5
Smithsonian Institution programs	210	218	237	3.8	8.7
Social services (506)	2	2	2	0.0	0.0
Administration for Children and Families (HHS)	2	2	2	0.0	0.0

HHS = Department of Health and Human Services.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. In prior years, the Department of Education also reported R&D spending in a Rehabilitation services account under the Social services subfunction (506). In last year's official reporting cycle, FY 2015 R&D spending in this account was reported as \$73 million. In this year's more recent cycle, the FY 2015 R&D figure has been revised to zero, and no other R&D is reported in FY 2016 or FY 2017 in that account.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 17. Federal budget authority for Health (550) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	30,495	32,353	33,206	6.1	2.6
Consumer and occupational health and safety (554)	404	404	414	0.0	2.5
Consumer Product Safety Commission	2	2	4	0.0	100.0
Food and Drug Administration (HHS)	402	402	410	0.0	2.0
Health care services and health research and training (551, 552)	30,091	31,949	32,792	6.2	2.6
Department of Health and Human Services	29,695	31,477	32,262	6.0	2.5
Agency for Healthcare Research and Quality	379	349	378	-7.9	8.3
Centers for Disease Control and Prevention	489	398	398	-18.6	0.0
Departmental management (other)	55	90	98	63.6	8.9
Health Resources and Services Administration	22	22	22	0.0	0.0
National Institutes of Health ^a	28,750	30,618	31,366	6.5	2.4
Patient-Centered Outcomes Research Trust Fund ^b	396	472	530	19.2	12.3
R&D	30,331	32,182	32,992	6.1	2.5
Consumer and occupational health and safety (554)	377	377	379	0.0	0.5
Consumer Product Safety Commission	2	2	4	0.0	100.0
Food and Drug Administration (HHS)	375	375	375	0.0	0.0
Health care services and health research and training (551, 552)	29,954	31,805	32,613	6.2	2.5
Department of Health and Human Services	29,558	31,333	32,083	6.0	2.4
Agency for Healthcare Research and Quality	379	349	378	-7.9	8.3
Centers for Disease Control and Prevention	489	398	398	-18.6	0.0
Departmental management (other)	55	90	98	63.6	8.9
Health Resources and Services Administration	22	22	22	0.0	0.0
National Institutes of Health ^a	28,613	30,474	31,187	6.5	2.3
Patient-Centered Outcomes Research Trust Fund ^b	396	472	530	19.2	12.3

HHS = Department of Health and Human Services.

^a The proposed FY 2017 budget includes mandatory funding components: \$1.763 billion for National Institutes of Health (NIH) R&D and \$11 million for NIH R&D plant.

^b Established by the Patient Protection and Affordable Care Act (P.L. 111-148) to prioritize and fund comparative effectiveness research. Funds are partially managed by the private, nonprofit Patient-Centered Outcomes Research Institute.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 18. National Institutes of Health, federal budget authority for R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Organization and program (by FY 2014 rank order)	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant ^a	28,750	30,618	31,366	6.5	2.4
National Cancer Institute	4,883	5,142	5,819	5.3	13.2
National Institute of Allergy and Infectious Diseases	4,358	4,653	4,652	6.8	0.0
National Heart, Lung, and Blood Institute	2,900	3,005	3,005	3.6	0.0
National Institute of General Medical Sciences	1,456	1,508	1,439	3.5	-4.5
National Institute of Diabetes and Digestive and Kidney Diseases	1,839	1,904	1,903	3.5	0.0
National Institute of Neurological Disorders and Stroke	1,573	1,666	1,666	5.9	0.0
Office of the Director	1,357	1,513	1,655	11.5	9.4
National Institute of Mental Health	1,396	1,477	1,477	5.9	0.0
National Institute of Child Health and Human Development	1,254	1,304	1,304	4.0	0.0
National Institute on Aging	1,173	1,566	1,566	33.5	0.0
National Institute on Drug Abuse	992	1,026	1,026	3.4	0.0
National Institute of Environmental Health Sciences ^b	724	750	750	3.5	0.0
National Eye Institute	665	696	696	4.6	0.0
National Center for Advancing Translation Sciences	618	670	670	8.2	0.1
National Institute of Arthritis and Musculoskeletal and Skin Diseases	506	526	525	3.9	0.0
National Human Genome Research Institute	491	502	503	2.2	0.2
National Institute on Alcohol Abuse and Alcoholism	434	453	453	4.5	-0.1
National Institute on Deafness and Other Communication Disorders	392	409	409	4.3	0.0
National Institute of Dental and Craniofacial Research	385	400	400	3.9	0.0
National Library of Medicine	337	396	396	17.3	0.0
National Institute of Biomedical Imaging and Bioengineering	297	313	312	5.1	-0.1
National Institute on Minority Health and Health Disparities	271	281	281	3.6	0.0
National Institute of Nursing Research	130	135	135	3.5	0.0
National Center for Complementary and Alternative Medicine	120	125	125	4.7	0.0
John E. Fogarty International Center	68	70	70	3.7	0.0
Buildings and facilities	129	129	129	0.0	0.0
R&D ^a	28,613	30,474	31,187	6.5	2.3
National Cancer Institute	4,875	5,126	5,769	5.2	12.5
National Institute of Allergy and Infectious Diseases	4,358	4,653	4,652	6.8	0.0
National Heart, Lung, and Blood Institute	2,900	3,005	3,005	3.6	0.0
National Institute of General Medical Sciences	1,456	1,508	1,439	3.5	-4.5
National Institute of Diabetes and Digestive and Kidney Diseases	1,839	1,904	1,903	3.5	0.0
National Institute of Neurological Disorders and Stroke	1,573	1,666	1,666	5.9	0.0
Office of the Director	1,357	1,513	1,655	11.5	9.4
National Institute of Mental Health	1,396	1,477	1,477	5.9	0.0
National Institute of Child Health and Human Development	1,254	1,304	1,304	4.0	0.0
National Institute on Aging	1,173	1,566	1,566	33.5	0.0
National Institute on Drug Abuse	992	1,026	1,026	3.4	0.0
National Institute of Environmental Health Sciences ^b	724	750	750	3.5	0.0
National Eye Institute	665	696	696	4.6	0.0
National Center for Advancing Translation Sciences	618	670	670	8.2	0.1
National Institute of Arthritis and Musculoskeletal and Skin Diseases	506	526	525	3.9	0.0
National Human Genome Research Institute	491	502	503	2.2	0.2
National Institute on Alcohol Abuse and Alcoholism	434	453	453	4.5	-0.1
National Institute on Deafness and Other Communication Disorders	392	409	409	4.3	0.0
National Institute of Dental and Craniofacial Research	385	400	400	3.9	0.0
National Library of Medicine	337	396	396	17.3	0.0
National Institute of Biomedical Imaging and Bioengineering	297	313	312	5.1	-0.1
National Institute on Minority Health and Health Disparities	271	281	281	3.6	0.0
National Institute of Nursing Research	130	135	135	3.5	0.0

TABLE 18. National Institutes of Health, federal budget authority for R&D and R&D plant: FYs 2015–17

(Millions of dollars)

Organization and program (by FY 2014 rank order)	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
National Center for Complementary and Alternative Medicine	120	125	125	4.7	0.0
John E. Fogarty International Center	68	70	70	3.7	0.0
Buildings and facilities	0	0	0	-	-

^a The proposed FY 2017 budget includes mandatory funding components: \$1.763 billion for National Institutes of Health (NIH) R&D and \$11 million for NIH R&D plant. Detail not available by NIH institute/center.

^b Includes funding from Superfund-related transfers and appropriations.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. Institute totals exclude non-R&D components of institute budgets.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 19. Federal budget authority for Medicare (570) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	71	21	0	-70.4	-100.0
Department of Health and Human Services (571)					
Centers for Medicare and Medicaid Services	71	21	0	-70.4	-100.0
R&D	71	21	0	-70.4	-100.0
Department of Health and Human Services (571)					
Centers for Medicare and Medicaid Services	71	21	0	-70.4	-100.0

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 20. Federal budget authority for Income security (600) R&D and R&D plant: FYs 2015–17

(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	55	66	72	20.0	9.1
Department of Health and Human Services (609)					
Administration for Children and Families	7	15	14	114.3	-6.7
Social Security Administration (609)	48	51	58	6.3	13.7
R&D	55	66	72	20.0	9.1
Department of Health and Human Services (609)					
Administration for Children and Families	7	15	14	114.3	-6.7
Social Security Administration (609)	48	51	58	6.3	13.7

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 21. Federal budget authority for Veterans benefits and services (700) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	1,178	1,220	1,252	3.6	2.6
Department of Veterans Affairs					
Medical and prosthetic research (703)	589	631	663	7.1	5.1
Medical services (703)	589	589	589	0.0	0.0
R&D	1,178	1,220	1,252	3.6	2.6
Department of Veterans Affairs					
Medical and prosthetic research (703)	589	631	663	7.1	5.1
Medical services (703)	589	589	589	0.0	0.0

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. Data include administration and operating expenses related to Department of Veterans Affairs research.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 22. Federal budget authority for Administration of justice (750) R&D and R&D plant: FYs 2015–17
(Millions of dollars)

Budget function and agency	2015 actual	2016 preliminary	2017 proposed	2015–16 (% change)	2016–17 (% change)
R&D and R&D plant	949	615	608	-35.2	-1.1
Department of Homeland Security (751)	900	559	556	-37.9	-0.5
Department of Justice	49	56	52	14.3	-7.1
Federal Prison System (753)	6	11	11	83.3	0.0
Office of Justice Programs (754)	43	45	41	4.7	-8.9
R&D	639	607	608	-5.0	0.2
Department of Homeland Security (751)	585	551	556	-5.8	0.9
Department of Justice	54	56	52	3.7	-7.1
Federal Prison System (753)	11	11	11	0.0	0.0
Office of Justice Programs (754)	43	45	41	4.7	-8.9

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 23. Federal funding for R&D, R&D plant, and basic research, by budget function: FYs 1955–2017
(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 ^a
R&D and R&D plant^b																			
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 ^c	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 preliminary	148,999	78,669	315	11,422	12,811	3,455	2,599	2,356	1,133	1,404	65	494	32,353	21	66	1,220	615	0	na
2017 proposed	153,920	80,480	327	12,152	12,227	4,789	2,682	2,628	1,104	1,770	103	520	33,206	0	72	1,252	608	0	na
R&D^d																			
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
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

TABLE 23. Federal funding for R&D, R&D plant, and basic research, by budget function: FYs 1955–2017
(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 ^a
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
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

TABLE 23. Federal funding for R&D, R&D plant, and basic research, by budget function: FYs 1955–2017
(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 ^a
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 ^c	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
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 preliminary	146,425	78,362	315	10,198	12,789	3,436	2,340	2,008	984	1,369	65	462	32,182	21	66	1,220	607	0	na
2017 proposed	151,268	79,998	327	10,898	12,189	4,745	2,470	2,412	979	1,735	103	487	32,992	0	72	1,252	608	0	na
Basic research ^e																			
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

TABLE 23. Federal funding for R&D, R&D plant, and basic research, by budget function: FYs 1955–2017
(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 ^a
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
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 ^c	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

TABLE 23. Federal funding for R&D, R&D plant, and basic research, by budget function: FYs 1955–2017
(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 ^a
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 preliminary	33,453	2,309	1	9,446	3,578	49	270	813	223	0	0	236	15,964	0	0	505	58	0	na
2017 proposed	34,452	2,102	4	10,085	3,600	30	256	970	239	0	0	253	16,314	0	0	542	57	0	na

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

ARRA = American Recovery and Reinvestment Act of 2009.

^a Other includes amounts not explicitly tallied in one of the separately identified categories.

^b Data on budget authority for R&D plant were not tabulated before FY 2000.

^c Total for FY 2009 is the sum of non-ARRA and ARRA funds.

^d Data for 1955–77 are obligations; data for 1978–2017 are budget authority.

^e 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.

NOTES: 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 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; change is reflected in budget authority for Veteran 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.

SOURCES: 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.

TABLE 24. Federal funding for R&D for national defense and civilian functions: FYs 1955–2017

Fiscal year	Current \$millions			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
R&D obligations						
1955	2,533	2,151	382	100.0	84.9	15.1
1956	2,988	2,535	453	100.0	84.8	15.2
1957	3,932	3,327	605	100.0	84.6	15.4
1958	4,570	3,801	769	100.0	83.2	16.8
1959	6,694	5,556	1,138	100.0	83.0	17.0
1960	7,552	6,107	1,445	100.0	80.9	19.1
1961	9,059	7,005	2,054	100.0	77.3	22.7
1962	10,290	7,238	3,052	100.0	70.3	29.7
1963	12,495	7,764	4,731	100.0	62.1	37.9
1964	14,225	7,829	6,396	100.0	55.0	45.0
1965	14,614	7,342	7,272	100.0	50.2	49.8
1966	15,320	7,536	7,784	100.0	49.2	50.8
1967	16,529	8,566	7,963	100.0	51.8	48.2
1968	15,921	8,275	7,646	100.0	52.0	48.0
1969	15,641	8,356	7,285	100.0	53.4	46.6
1970	15,339	7,981	7,358	100.0	52.0	48.0
1971	15,543	8,110	7,433	100.0	52.2	47.8
1972	16,496	8,902	7,594	100.0	54.0	46.0
1973	16,800	9,002	7,798	100.0	53.6	46.4
1974	17,410	9,016	8,394	100.0	51.8	48.2
1975	19,039	9,679	9,360	100.0	50.8	49.2
1976	20,780	10,430	10,350	100.0	50.2	49.8
1977	23,450	11,864	11,586	100.0	50.6	49.4
R&D budget authority						
1978	25,976	12,899	13,077	100.0	49.7	50.3
1979	28,208	13,791	14,417	100.0	48.9	51.1
1980	29,739	14,946	14,793	100.0	50.3	49.7
1981	33,735	18,413	15,322	100.0	54.6	45.4
1982	36,115	22,070	14,045	100.0	61.1	38.9
1983	38,768	24,936	13,832	100.0	64.3	35.7
1984	44,214	29,287	14,927	100.0	66.2	33.8
1985	49,887	33,698	16,189	100.0	67.5	32.5
1986	53,249	36,926	16,323	100.0	69.3	30.7
1987	57,069	39,152	17,917	100.0	68.6	31.4
1988	59,106	40,099	19,007	100.0	67.8	32.2
1989	62,115	40,642	21,473	100.0	65.5	34.5
1990	63,781	39,925	23,856	100.0	62.6	37.4
1991	65,898	39,328	26,570	100.0	59.7	40.3
1992	68,398	40,083	28,315	100.0	58.6	41.4
1993	69,884	41,249	28,635	100.0	59.0	41.0
1994	68,331	37,764	30,566	100.0	55.3	44.7
1995	68,791	37,204	31,587	100.0	54.1	45.9
1996	69,049	37,801	31,248	100.0	54.7	45.3
1997	71,653	39,591	32,062	100.0	55.3	44.7
1998	73,569	39,823	33,746	100.0	54.1	45.9
1999	77,637	41,306	36,332	100.0	53.2	46.8
2000	78,664	42,580	36,084	100.0	54.1	45.9
2001	86,756	45,713	41,043	100.0	52.7	47.3
2002	97,624	53,016	44,608	100.0	54.3	45.7
2003	112,544	63,048	49,495	100.0	56.0	44.0
2004	121,867	69,593	52,274	100.0	57.1	42.9
2005	126,601	74,047	52,554	100.0	58.5	41.5
2006	131,624	78,037	53,586	100.0	59.3	40.7
2007	138,087	82,272	55,815	100.0	59.6	40.4
2008	140,113	84,713	55,400	100.0	60.5	39.5
2009 ^a	156,009	85,166	70,843	100.0	54.6	45.4

TABLE 24. Federal funding for R&D for national defense and civilian functions: FYs 1955–2017

Fiscal year	Current \$millions			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
Non-ARRA	140,903	84,866	56,037	100.0	60.2	39.8
ARRA	15,106	300	14,806	100.0	2.0	98.0
2010	146,596	86,517	60,079	100.0	59.0	41.0
2011	144,379	83,226	61,154	100.0	57.6	42.4
2012	141,450	79,559	61,891	100.0	56.2	43.8
2013	130,861	70,620	60,241	100.0	54.0	46.0
2014	133,547	70,611	62,937	100.0	52.9	47.1
2015	136,090	72,560	63,530	100.0	53.3	46.7
2016 preliminary	146,425	78,362	68,063	100.0	53.5	46.5
2017 proposed	151,268	79,998	71,270	100.0	52.9	47.1

ARRA = American Recovery and Reinvestment Act of 2009.

^a Total for FY 2009 is the sum of non-ARRA and ARRA funds.

NOTES: The National defense function includes Department of Defense military activities and Department of Energy atomic energy defense programs; some years also include defense-related R&D in the Department of Homeland Security and the Department of Justice. Civilian functions include all other federally funded R&D activities. The FY 2017 proposed budget includes several mandatory components totaling \$4.2 billion. These components affect only civilian functions.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

Appendix. Technical Notes

Overview

All activities covered by the federal budget, including R&D, are classified into 20 broad functional categories (see “Budget Functions and Classifying R&D”). Currently, R&D activities are present in 15 of the 20 categories.

The data tables in this report provide R&D budget authority detail by agency and major programs for each of the categories in which R&D is present. Several concluding tables also include budget authority figures for R&D in FY 2014 and earlier years.

The figures for FY 2015 are the actual budget authority received by federal agencies for R&D that year. Those for FY 2016 are preliminary, reflecting agency reporting and final appropriations outcomes. The FY 2017 figures are the administration’s proposed funding levels, based chiefly on the President’s *Budget of the United States Government, Fiscal Year 2017*, but they also reflect agency documents and other Office of Management and Budget (OMB) data available through July 2016. The proposed figures for FY 2017 are the basis for subsequent legislative activity in the Congress to enact the federal government’s annual budget.

Data reported here as “preliminary” or “proposed” will be revised in subsequent editions of this report to reflect the later congressional appropriation actions and agency program-funding decisions.

Definitions

Research, Development, and R&D Plant

In this report, R&D refers to basic research, applied research, and development activities in science and engineering.

Research is systematic study directed toward fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied, according to the objective of the sponsoring agency:

Basic research is systematic study directed toward fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.

Applied research is systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.

Development is systematic application of knowledge or understanding directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements. It excludes quality control, routine product testing, and production.

Funds for conducting R&D include those for personnel, program supervision, and administrative support directly associated with R&D activities. Expendable or movable equipment needed to conduct R&D—for example, microscopes or spectrometers—is also included.

R&D plant includes such R&D facilities as reactors, wind tunnels, or particle accelerators or the construction, repair, or alteration of such facilities.

The data exclude all non-R&D activities performed within budget functions that conduct R&D and all functions in which no R&D is conducted.

Budget Authority, Obligations, and Outlays

The federal R&D funding data presented here (with only a few noted exceptions) are provided in terms of budget authority. Budget authority is used because it is the initial budget stage for congressional action on the President's proposed budget. Budget authority imposes a ceiling on obligations and outlays; obligations and outlays flow from budget authority.

Budget authority is the primary source of legal authorization to enter into obligations that will result in outlays. Budget authority is most commonly granted in the form of appropriations by the congressional committees assigned to determine the budget for each function.

Obligations represent the amounts for orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when the funds were appropriated and when the future payment of money is required.

Outlays represent the amounts for checks issued and cash payments made during a given period, regardless of when the funds were appropriated or obligated.

Budget Functions and Classifying R&D

The federal budget total is the sum of funding across the 20 broad functional categories. These categories are National defense (function 050); International affairs (150); General science, space, and technology (250); Energy (270); Natural resources and environment (300); Agriculture (350); Commerce and housing credit (370); Transportation (400); Community and regional development (450); Education, training, employment, benefits and services (500); Health (550); Medicare (570); Income security (600); Social security (650); Veterans benefits and services (700); Administration of justice (750); General government (800); Net interest (900); Allowances (920); and Undistributed offsetting receipts (950).

R&D has never been reported in 4 of these 20 functions: Social security (650), Net interest (900), Allowances (920), and Undistributed offsetting receipts (950). As such, data on these categories are not present in this report, except indirectly, where R&D is described as a proportion of total federal budget authority.

Small amounts of R&D had been reported in the General government (800) category up through FY 2002 but turned to zero thereafter. A small amount of R&D was again reported in FY 2012 but has been zero throughout the FY 2015–17 period covered in this report.

To better highlight R&D areas of high interest, the data tables in this report split the General science, space, and technology (250) category into its two subfunctions: General science and basic research (251) and Space flight, research, and supporting activities (252).

Overall, this report's data tables separately cover 16 functional categories: 14 at the broad functional category level and 2 at the subcategory level.

Each specific R&D activity is assigned to only one functional category—consistent with the official codes used in budget documents, even though the R&D activity may address the objectives of several functions. For example, all R&D activities sponsored by the Department of Defense (except for those of the U.S. Army Corps of Engineers) are classified as National defense (050), even though some of these have secondary objectives, such as Space flight, research, and supporting activities (252) or Health (550).

Nonetheless, an agency’s overall R&D effort can involve multiple activities spread across several functional categories, which means that a functional category can show the presence of several agencies. For example, the federal funding for the past national project to map the human genome, which involved the activities of several agencies and a number of R&D programs, appeared in the categories of Health (550) and General science and basic research (251).

Finally, not all federally sponsored basic research is categorized in the General science and basic research (251) subfunction. Some basic research is included in many of the other functional categories. Also, not all of the R&D included in the 251 subfunction is basic research—some is applied research.

Table A-1 maps the mix of agency funding of R&D activities in FYs 2015–17 across the budget function categories.

Data Sources

The federal budget does not include a separately identified R&D account. Furthermore, most appropriations for R&D are not directly labeled as such (except in certain program areas, such as defense, energy, health, and environment). As such, most funds for R&D are not line items in agency budget submissions but are included instead as part of general program funding.

To provide information on federal R&D funding, OMB requires all agencies with R&D funding levels greater than \$10 million annually to submit data on their R&D programs as part of their annual budget submissions. Such agencies are requested to provide data on their funding levels for basic research, applied research, development, R&D facilities, and capital equipment for R&D, in accordance with OMB’s Circular No. A-11, MAX Schedule C, “Research and Development Activities” (See Section 84 in https://www.whitehouse.gov/sites/default/files/omb/assets/a11_current_year/a11_2015.pdf.)

The data in this report were collected between March and July 2016 and represent the agencies’ best estimates of actual and proposed federal funding for R&D over the FY 2015–17 period. The data are based primarily on information provided to OMB by 26 agencies and account for an estimated 99% of all federally sponsored R&D activities. The data reflect R&D funding information that became available from individual agencies after the administration’s budget was prepared and released after the February 2016 publication of the *Budget of the United States Government, Fiscal Year 2017*. This later information consists of budget justification documents that agencies submit to the Congress and supplemental, program-specific information obtained from agency budget and program staff, collected through July 2016. Accordingly, the budget numbers reported for individual activities, programs, or agencies may differ somewhat from those published in the President’s budget or in agency budget documents.

Technical Table

Table	Technical Table Title
A-1	Agency and budget function crosswalk, federal R&D funding, by budget function: FYs 2015–17

TABLE A-1. Agency and budget function crosswalk, federal R&D funding, by budget function: FYs 2015–17

Agency	Budget function															
	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)
Agency for International Development		●														
Army Corps of Engineers (civil)						●										
Consumer Product Safety Commission												●				
Department of Agriculture					●	●	●									
Department of Commerce						●	●									
Department of Defense (military)	●															
Department of Education											●					
Department of Energy	●		●		●											
Department of Health and Human Services											●	●	●	●		
Department of Homeland Security	●					●			●							●
Department of Housing and Urban Development										●						
Department of the Interior						●				●						
Department of Justice	●															●
Department of State		●														
Department of Transportation									●							
Department of Veterans Affairs															●	
Environmental Protection Agency						●										
International Security Assistance		●														
National Aeronautics and Space Administration				●					●							
National Science Foundation			●													
Nuclear Regulatory Commission					●											
Patient-Centered Outcomes Research Trust Fund												●				
Smithsonian Institution											●					
Social Security Administration														●		
Tennessee Valley Authority					●											
U.S. Postal Service								●								

●= R&D function funded by specified agency.

SOURCES: Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

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