

Federal R&D Funding by Budget Function: Fiscal Years 2010–12

Detailed Statistical Tables | NSF 12-322 | August 2012

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General Notes

This report contains information on the budget authority (see "Definitions" below) of U.S. federal agencies to fund the research and development and R&D plant components of their programs in FY 2012 and the two preceding fiscal years. The figures for FY 2012 are the administration's proposed funding levels, based on the President's *Budget of the United States Government, Fiscal Year 2012*, agency documents, and Office of Management and Budget (OMB) data through October 2011. These figures are the basis for the subsequent legislative activity in the Congress on the federal government's annual budget.

The figures for FY 2011 are preliminary, reflecting agency estimates of the final appropriations for the year. Data reported here as proposed or preliminary will be revised in subsequent editions of this report to reflect later congressional appropriation actions and agency program-funding decisions.

The data for FY 2010 are actual budget authority received by the federal agencies for R&D that year.

Several concluding tables provide aggregate data on actual federal budget authority for R&D by broad function for FY 2009 and earlier years. (R&D funds appropriated through the American Recovery and Reinvestment Act (ARRA) of 2009 are part of budget authority for FY 2009 and are documented in the previous edition of this report. The ARRA funding figures listed in the earlier edition are unchanged at the time of this report.)

The R&D data in this report are classified into 16 functional categories. With one exception (see "Budget Functions," below), these are the same federal budget function categories in the *Budget of the United States Government, Fiscal Year 2012*, prepared by OMB. No R&D was appropriated or authorized for general government (function 800) for FY 2010–12, as was the case in the last report. In previous years, small amounts of R&D were authorized for this budget function.

Definitions

Research, Development, and R&D Plant

In this report, R&D refers to basic research, applied research, and development activities in the sciences 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 defined as 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 defined as systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.

Development is defined as 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 a few noted exceptions, are provided in terms of budget authority. Budget authority is used because it is the initial budget parameter 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

All activities covered by the federal budget, including R&D, are classified into 20 broad functional categories. The federal budget total comprises funding for these 20 functions. Four federal budget functions—Social Security (function 650), net interest (function 900), allowances (function 920), and undistributed offsetting receipts (function 950)—have never reported R&D components. Consequently, they are not discussed in this report, except where R&D is described as a proportion of total federal budget authority.

An agency's programs typically are distributed across functions, and each function often includes programs from multiple agencies (see appendix A). All funding is assigned to a single function, that is, there is no overlap among functions or among the various agency programs within those functions. Nonetheless, in a few cases, components of a major national effort may be funded through multiple functions, such as the past human genome activities, which were funded under the health and general science categories.

Notably, each specific R&D activity is assigned to only one function area, consistent with the official codes used in budget documents, even though the R&D activity may address several functional concerns. For example, except for those of the U.S. Army Corps of Engineers, all R&D activities sponsored by the Department of Defense (DOD) are classified as defense, even though some activities have secondary objectives, such as space or health. Moreover, only R&D activities funded by the Department of Health and Human Services, the Department of Labor, and the Consumer Product Safety Commission are classified in the health function category. Yet some R&D funding from at least three additional agencies—the Departments of Defense, Energy, and Veterans Affairs—has a major health component.

The functional categories and definitions used in this report generally are the same as those used in the federal budget. The one exception is R&D activities categorized as general science, space, and technology—which are reported together as function 250 in the federal budget, but are separate categories here. Subfunction 251 contains R&D activities for general science and basic research; subfunction 252 contains R&D activities for space research and technology. (Not all federally sponsored basic research is categorized in subfunction 251—some basic research is included in 10 of the other 19 functional categories. Also, not all research categorized in subfunction 251 is basic research; some is applied research.)

Appendix A lists the name and function code of the 16 individual R&D functions funded by federal agencies.

Data Sources

The overall federal budget does not include a separately identified R&D budget. Furthermore, most appropriations for R&D are not labeled as such, except in certain program areas such as defense, energy, health, and environment. Consequently, most funds for R&D are not line items in agency budget submissions but are included within general program funding. To determine funding for federal R&D, OMB requires agencies with annual R&D funding greater than \$10 million to submit data on their R&D programs as part of their annual budget submissions. Specifically, the agencies provide data on funding levels for basic research, applied research, development, R&D facilities, and capital equipment for R&D, reported in accordance with OMB Circular A-11, MAX Schedule C, "Research and Development Activities."

The data in this report represent agencies' best estimates of proposed and actual federal funding for R&D collected during the period between February and October 2011. These 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. Also included in this report is R&D information that became available from individual agencies after the administration's budget was prepared and publicly released in the *Budget of the United States Government, Fiscal Year 2012*. This information consists of budget justification documents that agencies submit to Congress and supplemental, program-specific information obtained from agency budget and program staff through October 2011. Therefore, budget numbers for individual activities, programs, or agencies may differ slightly from those published in the President's budget or in agency budget documents.

The FY 2011 data reflect agency estimates of final 2011 appropriations based on agency documents and OMB data through October 2011. The FY 2010 data are actual budget authority received by the federal agencies for R&D that year—and are again based on agency documents and OMB data through October 2011.

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	Administration of justice (750)
8	R&D and R&D plant
9	R&D
	Agriculture (350)
10	R&D and R&D plant
11	R&D
	Commerce and housing credit (370)
12	R&D and R&D plant
13	R&D
	Community and regional development (450)
14	R&D
	Education, training, employment, and social services (500)
15	R&D and R&D plant
16	R&D
	Energy (270)
17	R&D and R&D plant
18	R&D
	General science and basic research (251)
19	R&D and R&D plant
20	R&D
	Health (550)
21	R&D and R&D plant
22	R&D
	National Institutes of Health
23	R&D and R&D plant
24	R&D
	Income security (600)
25	R&D
	International affairs (150)
26	R&D

	Medicare (570)
27	R&D
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28	R&D and R&D plant
29	R&D
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31	R&D and R&D plant
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TABLE 1. Federal research and development and R&D plant budget authority, by budget function: FY 2010–12

2012 rank	Budget function	Millions of dollars			% change	
		2010 actual	2011 preliminary	2012 proposed	2010–11	2011–12
	All functions conducting R&D	148,962	143,376	148,160	-3.8	3.3
1	National defense	86,789	82,111	82,308	-5.4	0.2
2	Health	31,693	31,283	32,408	-1.3	3.6
3	General science and basic research	10,509	10,508	12,066	0.0	14.8
4	Space research and technology	8,232	8,407	8,412	2.1	0.1
5	Energy	2,570	2,219	3,654	-13.6	64.6
6	Natural resources and environment	2,430	2,327	2,443	-4.2	5.0
7	Agriculture	2,206	1,750	1,987	-20.7	13.5
8	Transportation	1,517	1,459	1,711	-3.8	17.3
9	Veterans benefits and services	1,034	1,162	1,018	12.4	-12.4
10	Commerce and housing credit	668	635	994	-5.0	56.7
11	Education, training, employment, and social services	581	575	707	-1.0	22.9
12	International affairs	194	196	196	0.8	0.2
13	Administration of justice	318	76	82	-76.1	8.1
14	Income security	77	78	67	1.1	-13.9
15	Community and regional development	109	48	66	-56.1	37.8
16	Medicare	36	543	41	1,408.3	-92.4

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

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

TABLE 2. Federal research and development budget authority, by budget function: FY 2010–12

2012 rank	Budget function	Millions of dollars			% change	
		2010 actual	2011 preliminary	2012 proposed	2010–11	2011–12
	All functions conducting R&D	146,596	141,399	145,420	-3.5	2.8
1	National defense	86,517	81,790	81,938	-5.5	0.2
2	Health	31,488	31,138	32,195	-1.1	3.4
3	General science and basic research	9,280	9,327	10,556	0.5	13.2
4	Space research and technology	8,232	8,398	8,258	2.0	-1.7
5	Energy	2,455	2,134	3,618	-13.1	69.5
6	Natural resources and environment	2,237	2,144	2,262	-4.2	5.5
7	Agriculture	2,043	1,891	1,898	-7.5	0.4
8	Transportation	1,496	1,440	1,683	-3.8	16.9
9	Veterans benefits and services	1,034	1,162	1,018	12.4	-12.4
10	Commerce and housing credit	550	521	879	-5.3	68.7
11	Education, training, employment, and social services	535	517	666	-3.3	28.8
12	International affairs	194	196	196	0.8	0.2
13	Administration of justice	313	73	79	-76.7	8.4
14	Income security	77	78	67	1.1	-13.9
15	Community and regional development	109	48	66	-56.1	37.8
16	Medicare	36	543	41	1,408.3	-92.4

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

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

TABLE 3. Distribution of total federal research and development and R&D plant budget authority, by budget function: FY 2010–12
(Percent distribution)

2012 rank	Budget function	2010 actual	2011 preliminary	2012 proposed
	All functions conducting R&D	100.0	100.0	100.0
1	National defense	58.3	57.3	55.6
2	Health	21.3	21.8	21.9
3	General science and basic research	7.1	7.3	8.1
4	Space research and technology	5.5	5.9	5.7
5	Energy	1.7	1.5	2.5
6	Natural resources and environment	1.6	1.6	1.6
7	Agriculture	1.5	1.2	1.3
8	Transportation	1.0	1.0	1.2
9	Veterans benefits and services	0.7	0.8	0.7
10	Commerce and housing credit	0.4	0.4	0.7
11	Education, training, employment, and social services	0.4	0.4	0.5
12	International affairs	0.1	0.1	0.1
13	Administration of justice	0.2	0.1	0.1
14	Income security	0.1	0.1	*
15	Community and regional development	0.1	*	*
16	Medicare	*	0.4	*

* = less than 0.05%.

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

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

TABLE 4. Distribution of total federal research and development budget authority, by budget function: FY 2010–12
(Percent distribution)

2012 rank	Budget function	2010 actual	2011 preliminary	2012 proposed
	All functions conducting R&D	100.0	100.0	100.0
1	National defense	59.0	57.8	56.3
2	Health	21.5	22.0	22.1
3	General science and basic research	6.3	6.6	7.3
4	Space research and technology	5.6	5.9	5.7
5	Energy	1.7	1.5	2.5
6	Natural resources and environment	1.5	1.5	1.6
7	Agriculture	1.4	1.3	1.3
8	Transportation	1.0	1.0	1.2
9	Veterans benefits and services	0.7	0.8	0.7
10	Commerce and housing credit	0.4	0.4	0.6
11	Education, training, employment, and social services	0.4	0.4	0.5
12	International affairs	0.1	0.1	0.1
13	Administration of justice	0.2	0.1	0.1
14	Income security	0.1	0.1	*
15	Community and regional development	0.1	*	*
16	Medicare	*	0.4	*

* = less than 0.05%.

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

SOURCES: Agencies' submissions to 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 basic research, by budget function: FY 2010–12

2012 rank	Budget function	Millions of dollars			% change	
		2010 actual	2011 preliminary	2012 proposed	2010–11	2011–12
	All functions conducting R&D	29,614	29,594	31,229	-0.1	5.5
3	National defense	1,849	1,989	2,118	7.6	6.5
1	Health	16,125	15,997	16,506	-0.8	3.2
2	General science and basic research	8,578	8,536	9,388	-0.5	10.0
4	Space research and technology	1,109	1,199	1,317	8.1	9.8
10	Energy	57	48	58	-16.4	21.7
7	Natural resources and environment	223	220	236	-1.7	7.6
5	Agriculture	881	825	831	-6.4	0.7
12	Transportation	0	0	0	-	-
6	Veterans benefits and services	413	454	392	10.0	-13.7
9	Commerce and housing credit	131	128	174	-2.2	35.8
8	Education, training, employment, and social services	174	173	180	-0.5	3.9
12	International affairs	0	0	0	-	-
11	Administration of justice	74	26	29	-64.9	11.8
12	Income security	0	0	0	-	-
12	Community and regional development	0	0	0	-	-
12	Medicare	0	0	0	-	-

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. Budget functions ordered as shown in table 2, federal research and development budget authority.

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

TABLE 6. Federal research and development and R&D plant budget authority as percentage of total budget authority, by budget function: FY 2010–12

2012 rank	Budget function	2010 actual	2011 preliminary	2012 proposed
	All functions conducting R&D	6.8	6.4	6.6
5	National defense	12.0	11.1	11.7
7	Health	7.8	8.3	8.8
2	General science and basic research	83.8	78.7	83.0
3	Space research and technology	45.2	47.4	46.3
4	Energy	33.2	14.0	28.1
8	Natural resources and environment	6.1	6.0	6.5
6	Agriculture	11.1	7.0	11.6
9	Transportation	1.5	1.6	1.2
10	Veterans benefits and services	0.8	0.9	0.8
1	Commerce and housing credit ^a	*	*	99.1
11	Education, training, employment, and social services	0.6	0.7	0.7
13	International affairs	0.3	0.3	0.3
14	Administration of justice	0.1	0.1	0.1
15	Income security	*	*	*
12	Community and regional development	0.5	0.3	0.4
16	Medicare	*	0.1	*

* = less than 0.05%.

^a Commerce and housing credit budget function has a greatly deflated total budget authority for FY 2010 through FY 2012 due to loan repayments and is negative for FY 2010 and FY 2011.

NOTES: Total budget authority includes discretionary and mandatory budget authority, less offsets. Budget functions ordered as shown in table 1, federal research and development and R&D plant budget authority.

SOURCES: Agencies' submissions to Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2012* (Washington, DC: U.S. Government Printing Office, 2011).

TABLE 7. Federal research and development budget authority as percentage of total budget authority, by budget function: FY 2010–12

2012 rank	Budget function	2010 actual	2011 preliminary	2012 proposed
	All functions conducting R&D	6.7	6.3	6.5
5	National defense	12.0	11.1	11.7
7	Health	7.8	8.2	8.7
2	General science and basic research	74.2	69.8	72.6
3	Space research and technology	45.2	47.3	45.5
4	Energy	31.8	13.5	27.8
8	Natural resources and environment	5.6	5.6	6.0
6	Agriculture	10.3	7.5	11.1
9	Transportation	1.5	1.5	1.2
10	Veterans benefits and services	0.8	0.9	0.8
1	Commerce and housing credit ^a	*	*	87.6
11	Education, training, employment, and social services	0.6	0.6	0.7
13	International affairs	0.3	0.3	0.3
14	Administration of justice	0.1	0.1	0.1
15	Income security	*	*	*
12	Community and regional development	0.5	0.3	0.4
16	Medicare	*	0.1	*

* = less than 0.05%.

^a Commerce and housing credit budget function has a greatly deflated total budget authority for FY 2010 through FY 2012 due to loan repayments and is negative for FY 2010 and FY 2011.

NOTES: Total budget authority includes discretionary and mandatory budget authority, less offsets. Budget functions ordered as shown in table 2, federal research and development budget authority.

SOURCES: Agencies' submissions to Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2012* (Washington, DC: U.S. Government Printing Office, 2011).

TABLE 8. Federal research and development and R&D plant budget authority for administration of justice (750): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	318	76	82	8.1
Department of Homeland Security ^a (751)	272	3	3	0.0
Department of Justice	46	73	79	8.4
Federal Prison System (753)	11	11	11	0.2
Office of Justice Programs (754)	35	62	68	9.9

^a Much of the administration of justice (751) R&D at Department of Homeland Security (DHS) has been conducted under the Domestic Nuclear Detection Office's (DNDO) Transformational Research and Development program. FY 2011 and FY 2012 budget requests proposed a transfer of this program to the Science and Technology Directorate of DHS and thus, to general science (251) budget function. This proposed change is reflected in FY 2011 and FY 2012 figures.

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

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

TABLE 9. Federal research and development budget authority for administration of justice (750): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	313	73	79	8.4
Department of Homeland Security ^a (751)	267	0	0	-
Department of Justice	46	73	79	8.4
Federal Prison System (753)	11	11	11	0.2
Office of Justice Programs (754)	35	62	68	9.9

^a Much of the administration of justice (751) R&D at Department of Homeland Security (DHS) has been conducted under the Domestic Nuclear Detection Office's (DNDO) Transformational Research and Development program. FY 2011 and FY 2012 budget requests proposed a transfer of this program to the Science and Technology Directorate of DHS and thus, to general science (251) budget function. This proposed change is reflected in FY 2011 and FY 2012 figures.

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

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

TABLE 10. Federal research and development and R&D plant budget authority for agriculture (350): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	2,206	1,750	1,987	13.5
Agricultural research and services (352)				
Department of Agriculture (USDA)	2,206	1,750	1,987	13.5
Agricultural Marketing Service	2	3	3	0.2
Agricultural Research Service ^a	1,266	922	1,156	25.4
Animal and Plant Health Inspection Service	30	30	27	-9.2
Economic Research Service	82	81	86	5.7
Federal Grain Inspection Service	6	6	6	4.2
Foreign Agricultural Service	1	1	1	0.2
National Agricultural Statistics Service	7	7	7	3.4
National Institute of Food and Agriculture (NIFA)	812	701	701	0.0

^a The Agricultural Research Service's FY 2011 preliminary figures include \$230 million in prior-year rescissions.

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

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

TABLE 11. Federal research and development budget authority for agriculture (350): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	2,043	1,891	1,898	0.4
Agricultural research and services (352)				
Department of Agriculture (USDA)	2,043	1,891	1,898	0.4
Agricultural Marketing Service	2	3	3	0.2
Agricultural Research Service	1,103	1,062	1,067	0.5
Animal and Plant Health Inspection Service	30	30	27	-9.2
Economic Research Service	82	81	86	5.7
Federal Grain Inspection Service	6	6	6	4.2
Foreign Agricultural Service	1	1	1	0.2
National Agricultural Statistics Service	7	7	7	3.4
National Institute of Food and Agriculture (NIFA)	812	701	701	0.0

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

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

TABLE 12. Federal research and development and R&D plant budget authority for commerce and housing credit (370): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	668	635	994	56.7
Other advancement of commerce (376)	668	635	994	56.7
Department of Commerce (DOC)	661	631	994	57.6
Bureau of the Census	57	49	114	135.0
National Institute of Standards and Technology	588	573	874	52.5
Construction of Research Facilities	80	80	85	5.9
Industrial Technology Services				
Technology Innovation Program	54	45	61	35.2
Public Safety Innovation Fund	0	0	100	-
Scientific and Technical Research and Services	454	448	629	40.3
National Oceanic and Atmospheric Administration	9	1	0	-100.0
National Marine Fisheries Service	9	1	0	-100.0
National Telecommunications and Information Administration	7	8	6	-25.0
Telecommunications Development Fund	7	4	0	-100.0

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

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

TABLE 13. Federal research and development budget authority for commerce and housing credit (370): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	550	521	879	68.7
Other advancement of commerce (376)	550	521	879	68.7
Department of Commerce (DOC)	550	521	879	68.7
Bureau of the Census	57	49	114	135.0
National Institute of Standards and Technology	477	463	759	63.8
Industrial Technology Services				
Technology Innovation Program	54	45	61	35.2
Public Safety Innovation Fund	0	0	100	-
Scientific and Technical Research and Services	423	419	598	42.9
National Oceanic and Atmospheric Administration	9	1	0	-100.0
National Marine Fisheries Service	9	1	0	-100.0
National Telecommunications and Information Administration	7	8	6	-25.0
Telecommunications Development Fund	0	0	0	-

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

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

TABLE 14. Federal research and development budget authority for community and regional development (450): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	109	48	66	37.8
Department of Housing and Urban Development (451)	100	48	57	19.0
Department of Agriculture (452)	9	0	9	-
Rural Business-Cooperative Service	9	0	9	-

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

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

TABLE 15. Federal research and development and R&D plant budget authority for education, training, employment, and social services (500): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	581	575	707	22.9
Research and general education aids (501, 502, 503)	491	486	616	26.8
Department of Education programs	278	260	404	55.2
Smithsonian Institution programs	213	226	212	-6.0
Social services (506)	90	89	91	2.1
Administration for Children and Families (DHHS)	15	15	15	0.2
Rehabilitation services (ED)	75	74	76	2.5

DHHS = Department of Health and Human Services; ED = Department of Education.

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

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

TABLE 16. Federal research and development budget authority for education, training, employment, and social services (500): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	535	517	666	28.8
Research and general education aids (501, 502, 503)	445	428	575	34.3
Department of Education programs	278	260	404	55.2
Smithsonian Institution programs	167	168	171	2.0
Social services (506)	90	89	91	2.1
Administration for Children and Families (DHHS)	15	15	15	0.2
Rehabilitation services (ED)	75	74	76	2.5

DHHS = Department of Health and Human Services; ED = Department of Education.

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

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

TABLE 17. Federal research and development and R&D plant budget authority for energy (270): FY 2010–12

(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	2,570	2,219	3,654	64.6
Department of Energy (271)	2,443	2,088	3,518	68.5
Energy programs	2,443	1,915	2,898	51.4
Energy efficiency and renewable energy	1,163	813	1,850	127.4
Electricity delivery and energy reliability	122	113	194	72.1
Fossil energy	531	397	326	-17.8
Nuclear energy	627	592	528	-10.8
ARPA-E	0	173	620	258.6
Nuclear Regulatory Commission (276)	81	84	78	-7.0
Tennessee Valley Authority (271)	18	18	18	0.2
U.S. Department of Agriculture (271)				
National Institute of Food and Agriculture-Biomass R&D	28	30	40	33.3

ARPA-E = Advanced Research Projects Agency-Energy.

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

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

TABLE 18. Federal research and development budget authority for energy (270): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	2,455	2,134	3,618	69.5
Department of Energy (271)	2,328	2,002	3,482	73.9
Energy programs	2,328	1,829	2,862	56.4
Energy efficiency and renewable energy	1,098	766	1,831	139.0
Electricity delivery and energy reliability	122	113	194	72.1
Fossil energy	511	379	309	-18.5
Nuclear energy	597	571	528	-7.6
ARPA-E	0	173	620	258.6
Nuclear Regulatory Commission (276)	81	84	78	-7.0
Tennessee Valley Authority (271)	18	18	18	0.2
U.S. Department of Agriculture (271)				
National Institute of Food and Agriculture-Biomass R&D	28	30	40	33.3

ARPA-E = Advanced Research Projects Agency-Energy.

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

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

TABLE 19. Federal research and development and R&D plant budget authority for general science and basic research (251): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	10,509	10,508	12,066	14.8
Department of Energy (DOE)				
Office of Science	4,528	4,454	4,940	10.9
Department of Homeland Security (DHS)	589	682	1,029	51.0
National Science Foundation (NSF)	5,392	5,372	6,097	13.5
Arctic Research Commission	2	2	2	1.3
Biological Sciences	715	712	794	11.7
Computer and Information Science and Engineering	619	635	728	14.7
Education and Human Resources	873	861	911	5.8
Engineering	776	763	908	19.1
Geosciences	892	885	979	10.7
Integrative Activities	275	260	336	29.2
International Science and Engineering	48	49	58	18.3
Major Research Equipment and Facilities	117	117	225	91.9
Mathematical and Physical Sciences	1,368	1,308	1,433	9.5
Office of Cyberinfrastructure	215	210	236	12.4
Social, Behavioral, and Economic Sciences	255	247	301	21.8
U.S. Polar Research Programs	506	493	477	-3.2
Budget authority adjustment ^a	-1,267	-1,170	-1,292	10.5

^a Budget authority adjustment subtracts costs for research facilities, major equipment support, and other non-R&D from total NSF budget authority.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. Not all federally sponsored basic research is categorized in subfunction 251.

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

TABLE 20. Federal research and development budget authority for general science and basic research (251): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	9,280	9,327	10,556	13.2
Department of Energy (DOE)				
Office of Science	3,908	3,842	4,142	7.8
Department of Homeland Security (DHS)	439	562	751	33.5
National Science Foundation (NSF)	4,933	4,923	5,663	15.0
Arctic Research Commission	2	2	2	1.3
Biological Sciences	715	712	794	11.7
Computer and Information Science and Engineering	619	635	728	14.7
Education and Human Resources	873	861	911	5.8
Engineering	776	763	908	19.1
Geosciences	892	885	979	10.7
Integrative Activities	275	260	336	29.2
International Science and Engineering	48	49	58	18.3
Mathematical and Physical Sciences	1,368	1,308	1,433	9.5
Office of Cyberinfrastructure	215	210	236	12.4
Social, Behavioral, and Economic Sciences	255	247	301	21.8
U.S. Polar Research Programs	506	493	477	-3.2
Budget authority adjustment ^a	-1,609	-1,502	-1,502	0.0

^a Budget authority adjustment subtracts costs for research facilities, major equipment support, and other non-R&D from total NSF budget authority.

NOTES: Detail may not add to total because of rounding. Percentage change calculated on unrounded data. Not all federally sponsored basic research is categorized in subfunction 251.

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

TABLE 21. Federal research and development and R&D plant budget authority for health (550): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	31,693	31,283	32,408	3.6
Consumer and occupational health and safety (554)	252	199	152	-23.8
Consumer Product Safety Commission	0	2	2	0.2
Food and Drug Administration (DHHS)	248	193	146	-24.5
Occupational Safety and Health Administration (DOL)	4	4	4	0.2
Health care services and health research and training (551, 552)	31,441	31,083	32,256	3.8
Department of Health and Human Services	31,431	31,043	32,136	3.5
Agency for Healthcare Research and Quality	420	393	387	-1.5
Centers for Disease Control and Prevention	363	320	362	13.2
Departmental Management (other)	147	157	177	13.0
Health Resources and Services Administration	12	12	12	0.2
National Institutes of Health	30,489	30,162	31,198	3.4
Patient-Centered Outcomes Research Trust Fund ^a	10	40	120	200.6

DHHS = Department of Health and Human Services; DOL = Department of Labor.

^a Established by the Patient Protection and Affordable Care Act (P.L.111-148) to prioritize and fund comparative effectiveness research. Funds are managed by the private, non-profit 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 22. Federal research and development budget authority for health (550): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	31,488	31,138	32,195	3.4
Consumer and occupational health and safety (554)	215	173	135	-21.8
Consumer Product Safety Commission	0	2	2	0.2
Food and Drug Administration (DHHS)	211	167	129	-22.6
Occupational Safety and Health Administration (DOL)	4	4	4	0.2
Health care services and health research and training (551, 552)	31,273	30,965	32,060	3.5
Department of Health and Human Services	31,263	30,925	31,940	3.3
Agency for Healthcare Research and Quality	420	393	387	-1.5
Centers for Disease Control and Prevention	363	320	362	13.2
Departmental Management (other)	147	157	177	13.0
Health Resources and Services Administration	12	12	12	0.2
National Institutes of Health	30,321	30,044	31,002	3.2
Patient-Centered Outcomes Research Trust Fund ^a	10	40	120	200.6

DHHS = Department of Health and Human Services; DOL = Department of Labor.

^a Established by the Patient Protection and Affordable Care Act (P.L.111-148) to prioritize and fund comparative effectiveness research. Funds are managed by the private, non-profit 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 23. Federal research and development and R&D plant budget authority for the National Institutes of Health, in FY 2012 rank order: FY 2010–12 (Millions of dollars)

Organization/program	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	30,489	30,162	31,198	3.0
National Cancer Institute	5,028	4,987	5,122	3.0
National Institute of Allergy and Infectious Diseases	4,757	4,717	4,852	3.0
National Heart, Lung, and Blood Institute	2,992	2,968	3,043	3.0
National Institute of Diabetes and Digestive and Kidney Diseases	1,959	1,941	1,988	2.0
National Institute of General Medical Sciences	1,845	1,829	1,893	3.0
National Institute of Neurological Disorders and Stroke	1,603	1,591	1,632	3.0
National Institute of Mental Health	1,447	1,430	1,468	3.0
National Institute of Child Health and Human Development	1,290	1,280	1,314	3.0
National Center for Research Resources	1,259	1,250	1,290	3.0
Office of the Director	1,165	1,155	1,286	11.0
National Institute on Aging	1,084	1,074	1,102	3.0
National Institute on Drug Abuse	1,040	1,024	1,053	3.0
National Institute of Environmental Health Sciences ^a	754	742	761	3.0
National Eye Institute	695	690	709	3.0
National Institute of Arthritis and Musculoskeletal and Skin Diseases	522	518	530	2.0
National Human Genome Research Institute	515	502	515	3.0
National Institute on Alcohol Abuse and Alcoholism	449	446	456	2.0
National Institute on Deafness and Other Communication Disorders	404	401	411	3.0
National Institute of Dental and Craniofacial Research	396	392	402	2.0
National Library of Medicine	340	337	387	15.0
National Institute of Biomedical Imaging and Bioengineering	304	302	310	3.0
National Center for Minority Health and Health Disparities	211	210	215	2.0
National Institute of Nursing Research	135	134	137	2.0
Buildings and Facilities	124	123	126	3.0
National Center for Complementary and Alternative Medicine	100	50	126	153.0
John E. Fogarty International Center	70	69	71	3.0

^a 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 24. Federal research and development budget authority for the National Institutes of Health, in FY 2012 rank order: FY 2010–12
(Millions of dollars)

Organization/program	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	30,321	30,044	31,002	3.2
National Cancer Institute	5,020	4,979	5,114	2.7
National Institute of Allergy and Infectious Diseases	4,757	4,717	4,852	2.8
National Heart, Lung, and Blood Institute	2,992	2,968	3,043	2.5
National Institute of Diabetes and Digestive and Kidney Diseases	1,899	1,880	1,925	2.4
National Institute of General Medical Sciences	1,845	1,829	1,893	3.5
National Institute of Neurological Disorders and Stroke	1,603	1,591	1,632	2.6
National Institute of Mental Health	1,447	1,430	1,468	2.7
National Institute of Child Health and Human Development	1,290	1,280	1,314	2.6
National Center for Research Resources	1,259	1,250	1,290	3.2
Office of the Director	1,165	1,155	1,286	11.4
National Institute on Aging	1,084	1,074	1,102	2.6
National Institute on Drug Abuse	1,040	1,024	1,053	2.8
National Institute of Environmental Health Sciences ^a	754	742	761	2.5
National Eye Institute	695	690	709	2.6
National Institute of Arthritis and Musculoskeletal and Skin Diseases	522	518	530	2.5
National Human Genome Research Institute	515	502	515	2.6
National Institute on Alcohol Abuse and Alcoholism	449	446	456	2.3
National Institute on Deafness and Other Communication Disorders	404	401	411	2.6
National Institute of Dental and Craniofacial Research	396	392	402	2.5
National Library of Medicine	340	337	387	15.0
National Institute of Biomedical Imaging and Bioengineering	304	302	310	2.6
National Center for Minority Health and Health Disparities	211	210	215	2.3
National Institute of Nursing Research	135	134	137	2.4
National Center for Complementary and Alternative Medicine	124	123	126	2.5
John E. Fogarty International Center	70	69	71	2.7

^a 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 25. Federal research and development budget authority for income security (600): FY 2010–12

(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	77	78	67	-13.9
Department of Health and Human Services (609)	28	29	29	0.2
Administration for Children and Families	28	29	29	0.2
Social Security Administration (609)	49	49	38	-22.3

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

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

TABLE 26. Federal research and development budget authority for international affairs (150): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	194	196	196	0.2
Agency for International Development (151)	120	120	120	0.2
Department of State (151)	73	75	75	0.2
International Security Assistance (152)	1	1	1	0.2

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

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

TABLE 27. Federal research and development budget authority for Medicare (570): FY 2010–12

(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	36	543	41	-92.4
Department of Health and Human Services (DHHS) (571)	36	543	41	-92.4
Centers for Medicare and Medicaid Services ^a	36	543	41	-92.4

^a The Centers for Medicare and Medicaid Services received \$508 million in mandatory funds for research and development from the Patient Protection and Affordable Care Act (P.L.111-148).

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

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

TABLE 28. Federal research and development and R&D plant budget authority for national defense (050): FY 2010–12

(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	86,789	82,111	82,308	0.2
Department of Defense (DOD), military (051)	82,902	77,987	77,753	-0.3
Research, Development, Test, and Evaluation (RDT&E)	80,232	75,540	75,822	0.4
Defense Agencies	20,598	21,010	20,048	-4.6
Defense Advanced Research Projects Agency	2,986	2,932	2,985	1.8
Missile Defense Agency	6,871	7,440	6,577	-11.6
Other defense agencies	10,742	10,638	10,486	-1.4
Department of the Air Force	27,947	26,803	27,880	4.0
Department of the Army	11,562	9,691	9,692	0.0
Department of the Navy	19,938	17,841	18,010	0.9
Operational Test and Evaluation	187	195	191	-1.9
Other military funding ^a	2,670	2,447	1,931	-21.1
Department of Energy, atomic energy defense activities (053)	3,854	4,091	4,522	10.5
Environmental Restoration and Waste Management	68	97	109	12.7
Naval Reactors Development	909	924	1,110	20.1
Nonproliferation	311	274	365	33.3
Weapons Activities	2,564	2,794	2,936	5.1
Other Defense Activities	2	2	2	7.5
Department of Justice, Federal Bureau of Investigation (054)	33	33	33	0.2

^a This item includes appropriate personnel costs in direct support of conduct of R&D, other appropriations funding certain DOD 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 29. Federal research and development budget authority for national defense (050): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	86,517	81,790	81,938	0.2
Department of Defense (DOD), military (051)	82,833	77,887	77,649	-0.3
Research, Development, Test, and Evaluation (RDT&E)	80,232	75,540	75,822	0.4
Defense Agencies	20,598	21,010	20,048	-4.6
Defense Advanced Research Projects Agency	2,986	2,932	2,985	1.8
Missile Defense Agency	6,871	7,440	6,577	-11.6
Other defense agencies	10,742	10,638	10,486	-1.4
Department of the Air Force	27,947	26,803	27,880	4.0
Department of the Army	11,562	9,691	9,692	0.0
Department of the Navy	19,938	17,841	18,010	0.9
Operational Test and Evaluation	187	195	191	-1.9
Other military funding ^a	2,601	2,347	1,827	-22.1
Department of Energy, atomic energy defense activities (053)	3,651	3,870	4,256	10.0
Environmental Restoration and Waste Management	68	97	109	12.7
Naval Reactors Development	866	861	1,035	20.2
Nonproliferation	311	274	365	33.3
Weapons Activities	2,404	2,637	2,745	4.1
Other Defense Activities	2	2	2	7.5
Department of Justice, Federal Bureau of Investigation (054)	33	33	33	0.2

^a This item includes appropriate personnel costs in direct support of conduct of R&D, other appropriations funding certain DOD 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 30. Total obligational authority for Department of Defense research, development, test, and evaluation budget, by DOD budget activity: FY 2010–12
(Millions of dollars)

Budget activity ^a	Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
	RDT&E total budget authority	80,232	75,540	75,822	0.4
	RDT&E total obligational authority ^b	80,655	75,540	75,822	0.4
1	Basic research	1,815	1,947	2,078	6.7
	Defense Agencies	377	487	545	12.0
	Department of the Air Force	474	500	519	3.7
	Department of the Army	420	403	437	8.3
	Department of the Navy	544	556	577	3.8
2	Applied research	4,984	4,497	4,787	6.5
	Defense Agencies	1,728	1,733	1,952	12.7
	Department of the Air Force	1,207	1,198	1,182	-1.4
	Department of the Army	1,322	847	869	2.6
	Department of the Navy	728	719	784	9.1
3	Advanced technology development	6,507	5,998	5,481	-8.6
	Defense Agencies	3,539	3,504	3,271	-6.7
	Department of the Air Force	761	689	585	-15.0
	Department of the Army	1,366	916	977	6.6
	Department of the Navy	841	889	648	-27.1
4	Advanced component development and prototypes	14,469	14,334	13,728	-4.2
	Defense Agencies	7,098	7,790	6,808	-12.6
	Department of the Air Force	2,108	1,866	1,684	-9.7
	Department of the Army	982	866	753	-13.1
	Department of the Navy	4,280	3,812	4,483	17.6
5	System development and demonstration	16,779	14,263	15,675	9.9
	Defense Agencies	802	894	918	2.7
	Department of the Air Force	3,826	2,652	4,080	53.8
	Department of the Army	4,285	4,043	4,191	3.7
	Department of the Navy	7,866	6,674	6,487	-2.8
6	RDT&E management support	6,098	4,576	4,193	-8.4
	Defense Agencies	1,594	1,277	971	-24.0
	Department of the Air Force	1,455	1,084	1,114	2.8
	Department of the Army	1,488	1,166	1,057	-9.3
	Department of the Navy	1,373	854	859	0.6
	Operational test and evaluation	188	195	191	-1.9
7	Operational system development	30,003	29,926	29,878	-0.2
	Defense Agencies	5,753	5,325	5,582	4.8
	Department of the Air Force	18,087	18,814	18,715	-0.5
	Department of the Army	1,848	1,450	1,408	-2.9
	Department of the Navy	4,316	4,337	4,172	-3.8
	Adjustment for RDT&E budget authority ^b	-423	0	0	-

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 sum of new budget authority, unobligated budget authority from previous years, and other authorized credits. Adjustment converts TOA to budget authority by subtracting unobligated budget from 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 Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2012* (Washington, DC: U.S. Government Printing Office, 2011).

TABLE 31. Federal research and development and R&D plant budget authority for natural resources and environment (300): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	2,430	2,327	2,443	5.0
Conservation and land management (302)	436	397	406	2.2
Department of the Interior ^a	68	70	70	-0.1
U.S. Department of Agriculture	368	327	336	2.7
Forest Service	368	327	346	5.8
Natural Resources Conservation Service	0	0	-10	-
Pollution control and abatement (304)	599	584	586	0.3
Environmental Protection Agency	597	582	584	0.3
Leaking Underground Storage Tanks	0	0	0	-
Oil Spill Response Research	1	1	1	-14.3
Science and Technology	569	554	560	1.0
Superfund	27	27	23	-13.8
U.S. Coast Guard (DHS)	2	2	2	0.0
Recreational resources (303)	34	34	38	12.3
National Park Service (DOI)	34	34	38	12.3
Water resources (301)	24	25	23	-9.3
Army Corps of Engineers (DOD)	11	11	11	0.2
Bureau of Reclamation (DOI)	13	14	12	-16.5
Other natural resources (306)	1,337	1,287	1,390	8.0
National Oceanic and Atmospheric Administration (DOC)	676	647	736	13.9
National Climate Service	0	0	247	-
National Environ Satellite, Data, and Information Service	26	28	28	-2.1
National Marine Fisheries Service	45	53	84	59.4
National Ocean Service	72	72	91	27.1
National Weather Service	41	19	34	84.3
Office of Oceanic and Atmospheric Research	406	397	175	-55.9
Office of Marine and Aviation Operations	86	79	78	-1.3
U.S. Geological Survey (DOI) ^b	661	640	654	2.1
Administration and Enterprise Information	1	1	1	-11.1
Climate and Land Use Change	107	108	95	-11.9
Core Science Systems	58	51	79	56.4
Ecosystems	166	161	166	3.5
Energy, Minerals, and Environmental Health	101	99	89	-10.9
Facilities	0	0	0	-
National Land Imaging	0	0	5	-
Natural Hazards	112	110	109	-0.7
Water Resources	117	111	110	-0.8

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 and Reclamation, and Minerals Management Service.

^b U.S. Geological Survey reorganized their divisions for FY 2012.

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

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

TABLE 32. Federal research and development budget authority for natural resources and environment (300): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	2,237	2,144	2,262	5.5
Conservation and land management (302)	407	373	393	5.4
Department of the Interior ^a	66	66	68	2.4
U.S. Department of Agriculture	341	307	325	6.0
Forest Service	341	307	325	6.0
Natural Resources Conservation Service	0	0	0	-
Pollution control and abatement (304)	594	579	581	0.3
Environmental Protection Agency	592	577	579	0.3
Leaking Underground Storage Tanks	0	0	0	-
Oil Spill Response Research	1	1	1	-14.3
Science and Technology	564	549	555	1.1
Superfund	27	27	23	-14.2
U.S. Coast Guard (DHS)	2	2	2	0.0
Recreational resources (303)	34	34	38	12.3
National Park Service (DOI)	34	34	38	12.3
Water resources (301)	24	25	23	-9.3
Army Corps of Engineers (DOD)	11	11	11	0.2
Bureau of Reclamation (DOI)	13	14	12	-16.5
Other natural resources (306)	1,178	1,133	1,227	8.4
National Oceanic and Atmospheric Administration (DOC)	517	493	574	16.4
National Climate Service	0	0	203	-
National Environ Satellite, Data, and Information Service	26	28	28	-2.1
National Marine Fisheries Service	45	53	84	59.4
National Ocean Service	72	72	90	25.7
National Weather Service	41	19	33	78.9
Office of Oceanic and Atmospheric Research	332	322	137	-57.6
Office of Marine and Aviation Operations	0	0	0	-
U.S. Geological Survey (DOI) ^b	661	640	654	2.1
Administration and Enterprise Information	1	1	1	-11.1
Climate and Land Use Change	107	108	95	-11.9
Core Science Systems	58	51	79	56.4
Ecosystems	166	161	166	3.5
Energy, Minerals, and Environmental Health	101	99	89	-10.9
Facilities	0	0	0	-
National Land Imaging	0	0	5	-
Natural Hazards	112	110	109	-0.7
Water Resources	117	111	110	-0.8

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 and Reclamation, and Minerals Management Service.

^b U.S. Geological Survey reorganized their divisions for FY 2012.

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

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

TABLE 33. Federal research and development and R&D plant budget authority for space research and technology (252): FY 2010–12
(Millions of dollars)

Agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	8,232	8,407	8,412	0.1
National Aeronautics and Space Administration (NASA) ^a				
Cross-agency Support	90	172	0	-100.0
Innovative Partnerships	90	172	0	-100.0
Exploration	3,478	2,854	2,588	-9.3
Advanced Capabilities	341	286	0	-100.0
Commercial Spaceflight	0	0	0	-
Constellation Systems	3,137	2,568	0	-100.0
Exploration Research and Development	0	0	281	-
Human Exploration Capabilities	0	0	2,306	-
Science	2,979	3,401	3,255	-4.3
Astrophysics	660	753	312	-58.5
Earth Science	910	1,184	1,184	-0.1
Heliophysics	370	420	392	-6.8
James Webb Space Telescope ^b	0	0	516	-
Planetary Science	1,041	1,044	852	-18.4
Space Operations	1,685	1,981	1,706	-13.9
21st Century Launch Complex	0	152	0	-100.0
International Space Station	1,685	1,828	1,706	-6.7
Space Technology	0	0	863	-

^a NASA adjusted their R&D reporting in FY 2011 to more closely match survey data reported to National Science Foundation. All years are adjusted for comparability.

^b NASA separated the funding for James Webb Space Telescope from Astrophysics in FY 2012.

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

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

TABLE 34. Federal research and development budget authority for space research and technology (252): FY 2010–12
(Millions of dollars)

Agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	8,232	8,398	8,258	-1.7
National Aeronautics and Space Administration (NASA) ^a				
Cross-agency Support	90	172	0	-100.0
Innovative Partnerships	90	172	0	-100.0
Exploration	3,478	2,844	2,588	-9.0
Advanced Capabilities	341	286	0	-100.0
Commercial Spaceflight	0	0	0	-
Constellation Systems	3,137	2,559	0	-100.0
Exploration Research and Development	0	0	281	-
Human Exploration Capabilities	0	0	2,306	-
Science	2,979	3,401	3,254	-4.3
Astrophysics	660	753	312	-58.5
Earth Science	910	1,184	1,184	-0.1
Heliophysics	370	420	391	-7.1
James Webb Space Telescope ^b	0	0	516	-
Planetary Science	1,041	1,044	852	-18.4
Space Operations	1,685	1,981	1,554	-21.5
21st Century Launch Complex	0	152	0	-100.0
International Space Station	1,685	1,828	1,554	-15.0
Space Technology	0	0	863	-

^a NASA adjusted their R&D reporting in FY 2011 to more closely match survey data reported to National Science Foundation. All years are adjusted for comparability.

^b NASA separated the funding for James Webb Space Telescope from Astrophysics in FY 2012.

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

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

TABLE 35. Federal research and development and R&D plant budget authority for transportation (400): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	1,517	1,459	1,711	17.3
Air transportation (402)	832	816	893	9.5
Federal Aviation Administration (DOT)	412	374	416	11.4
National Aeronautics and Space Administration	420	442	477	7.9
Aeronautics Research	420	442	477	7.9
Ground transportation (401) (DOT)	627	593	771	30.1
Federal Highway Administration	453	453	548	20.9
Federal Motor Carrier Safety Administration	7	7	7	5.1
Federal Railroad Administration	72	39	95	144.3
Federal Transit Administration	25	23	31	37.1
National Highway Traffic Safety Administration	71	71	89	26.3
Water transportation (403)	24	25	20	-20.6
U.S. Coast Guard (DHS)	24	25	20	-20.6
Other transportation (407) ^a (DOT)	34	26	27	4.4

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

^a Includes Office of the Secretary, Pipeline and Hazardous Materials Safety Administration, and Research and Innovative Technology Administration.

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

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

TABLE 36. Federal research and development budget authority for transportation (400): FY 2010–12
(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	1,496	1,440	1,683	16.9
Air transportation (402)	814	799	868	8.7
Federal Aviation Administration (DOT)	394	357	391	9.7
National Aeronautics and Space Administration	420	442	477	
Aeronautics Research	420	442	477	7.9
Ground transportation (401) (DOT)	625	590	768	30.2
Federal Highway Administration	453	453	548	20.9
Federal Motor Carrier Safety Administration	7	7	7	5.1
Federal Railroad Administration	69	37	93	152.3
Federal Transit Administration	25	23	31	37.1
National Highway Traffic Safety Administration	71	71	89	26.3
Water transportation (403)	24	25	20	-20.6
U.S. Coast Guard (DHS)	24	25	20	-20.6
Other transportation (407) ^a (DOT)	34	26	27	4.4

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

^a Includes Office of the Secretary, Pipeline and Hazardous Materials Safety Administration, and Research and Innovative Technology Administration.

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

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

TABLE 37. Federal research and development budget authority for veterans benefits and services (700): FY 2010–12

(Millions of dollars)

Funding category and agency	2010 actual	2011 preliminary	2012 proposed	2011–12 (% change)
Total	1,034	1,162	1,018	-12.4
Department of Veterans Affairs				
Medical and Prosthetic Research (703)	1,034	1,162	1,018	-12.4

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

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

TABLE 38. Federal research and development obligations, all R&D budget authority, and budget authority for basic research, by budget function: FY 1955–2012

(Millions of dollars)

Federal R&D obligations and budget authority	All functions	Administration of justice	Agriculture	Commerce and housing credit	Community and regional development	Education, training, employment, and social services	Energy	General government	General science and basic research	Health	Income security	International affairs	Medicare	National defense	Natural resources and environment	Space research and technology	Transportation	Veterans benefits and services	Other ^a
All R&D obligations																			
1955	2,533	NA	NA	NA	NA	NA	NA	NA	NA	67	NA	NA	NA	2,151	NA	NA	NA	NA	315
1956	2,988	NA	NA	NA	NA	NA	NA	NA	NA	83	NA	NA	NA	2,535	NA	NA	NA	NA	370
1957	3,932	NA	NA	NA	NA	NA	NA	NA	NA	140	NA	NA	NA	3,327	NA	NA	NA	NA	465
1958	4,570	NA	NA	NA	NA	NA	NA	NA	NA	177	NA	NA	NA	3,801	NA	NA	NA	NA	592
1959	6,694	NA	NA	NA	NA	NA	NA	NA	NA	233	NA	NA	NA	5,556	NA	NA	NA	NA	904
1960	7,552	NA	NA	NA	NA	NA	NA	NA	NA	305	NA	NA	NA	6,107	NA	NA	NA	NA	1,140
1961	9,059	NA	125	NA	NA	NA	373	NA	137	405	NA	NA	NA	7,005	73	777	55	NA	108
1962	10,290	NA	136	NA	NA	NA	448	NA	187	551	NA	NA	NA	7,238	108	1,413	101	NA	107
1963	12,495	NA	146	NA	NA	NA	515	NA	246	626	NA	NA	NA	7,764	120	2,812	142	NA	125
1964	14,225	NA	165	NA	NA	NA	571	NA	277	728	NA	NA	NA	7,829	134	4,241	122	NA	160
1965	14,614	NA	195	NA	NA	NA	585	NA	304	792	NA	NA	NA	7,342	159	4,887	147	NA	203
1966	15,320	NA	201	NA	NA	NA	575	NA	377	900	NA	NA	NA	7,536	189	4,976	251	NA	315
1967	16,529	*	218	43	37	154	600	3	409	915	48	18	NA	8,566	320	4,778	380	41	na
1968	15,921	1	217	48	44	166	657	5	437	1,021	50	17	NA	8,275	331	4,304	304	45	na
1969	15,641	5	221	54	32	169	597	5	433	1,088	78	26	NA	8,356	323	3,799	404	50	na
1970	15,339	9	238	79	47	164	574	6	452	1,084	136	32	NA	7,981	340	3,606	535	59	na
1971	15,543	10	259	90	65	215	556	7	513	1,288	145	32	NA	8,110	416	3,048	728	63	na
1972	16,496	23	294	50	66	235	574	8	625	1,547	106	29	NA	8,902	479	2,932	558	69	na
1973	16,800	33	308	50	78	290	630	7	658	1,585	106	28	NA	9,002	554	2,824	572	74	na
1974	17,410	35	313	51	82	236	759	9	749	2,069	71	24	NA	9,016	516	2,702	693	85	na
1975	19,039	44	342	65	93	239	1,363	12	813	2,170	72	29	NA	9,679	624	2,764	635	95	na
1976	20,780	35	383	69	109	255	1,649	12	858	2,351	48	42	NA	10,430	683	3,130	631	98	na
1977	23,450	30	457	71	101	230	2,562	13	974	2,629	55	66	NA	11,864	753	2,832	708	107	na
All R&D authority																			
1978	25,976	44	501	77	92	345	3,134	20	1,050	2,968	67	57	NA	12,899	904	2,939	768	111	na
1979	28,208	47	552	93	127	354	3,461	23	1,119	3,401	57	117	NA	13,791	1,010	3,136	798	123	na
1980	29,739	45	585	101	119	468	3,603	22	1,233	3,694	47	125	NA	14,946	999	2,738	887	126	na
1981	33,735	34	659	106	104	298	3,501	22	1,340	3,871	43	160	NA	18,413	1,061	3,111	869	143	na
1982	36,115	31	693	104	63	228	3,012	10	1,359	3,869	32	165	NA	22,070	965	2,584	791	139	na

TABLE 38. Federal research and development obligations, all R&D budget authority, and budget authority for basic research, by budget function: FY 1955–2012

(Millions of dollars)

Federal R&D obligations and budget authority	All functions	Administration of justice	Agriculture	Commerce and housing credit	Community and regional development	Education, training, employment, and social services	Energy	General government	General science and basic research	Health	Income security	International affairs	Medicare	National defense	Natural resources and environment	Space research and technology	Transportation	Veterans benefits and services	Other ^a
1983	38,768	37	745	107	44	189	2,578	6	1,502	4,298	32	177	NA	24,936	952	2,134	876	157	na
1984	44,214	24	762	110	46	200	2,581	8	1,676	4,779	26	192	NA	29,287	963	2,300	1,040	218	na
1985	49,887	47	836	114	50	220	2,389	17	1,862	5,418	21	210	NA	33,698	1,059	2,725	1,030	193	na
1986	53,249	41	815	111	88	248	2,286	14	1,873	5,565	14	211	NA	36,926	1,062	2,894	917	183	na
1987	57,069	49	822	110	99	267	2,053	17	2,042	6,556	25	223	NA	39,152	1,133	3,398	908	215	na
1988	59,106	51	882	122	108	285	2,126	17	2,160	7,076	23	224	NA	40,099	1,160	3,683	896	195	na
1989	62,115	45	907	128	74	347	2,419	15	2,373	7,773	27	279	NA	40,642	1,255	4,555	1,064	212	na
1990	63,781	44	950	140	67	374	2,726	17	2,410	8,308	33	375	NA	39,925	1,386	5,765	1,045	216	na
1991	65,898	51	1,052	178	88	433	2,953	4	2,635	9,226	30	378	NA	39,328	1,582	6,511	1,231	219	na
1992	68,398	51	1,155	192	127	365	3,099	4	2,659	10,055	37	371	NA	40,083	1,688	6,744	1,523	245	na
1993	69,884	49	1,152	220	57	348	2,677	*	2,691	10,280	36	382	NA	41,249	1,802	6,988	1,703	250	na
1994	68,331	46	1,193	380	68	373	2,873	0	2,712	10,993	45	254	NA	37,764	2,062	7,414	1,888	265	na
1995	68,791	59	1,194	525	70	369	2,844	1	2,794	11,407	43	287	NA	37,204	1,988	7,916	1,833	257	na
1996	69,049	56	1,176	432	50	331	2,521	2	2,846	11,867	16	252	NA	37,801	1,802	7,844	1,795	259	na
1997	71,653	59	1,203	409	48	373	2,372	2	2,944	12,670	9	190	NA	39,591	1,886	7,844	1,785	267	na
1998	73,569	72	1,249	398	42	444	948	2	4,360	13,576	18	163	NA	39,823	1,855	8,198	1,833	587	na
1999	77,637	88	1,288	432	59	403	1,131	3	4,690	15,553	38	190	NA	41,306	1,842	8,245	1,725	644	na
2000	78,664	73	1,426	406	46	418	996	6	4,977	17,869	25	200	NA	42,580	1,999	5,363	1,636	645	na
2001	86,756	88	1,657	429	54	411	1,314	3	5,468	20,758	30	252	NA	45,713	2,096	6,126	1,640	719	na
2002	97,624	91	1,606	467	50	411	1,327	3	5,753	23,560	37	279	NA	53,016	2,160	6,270	1,838	756	na
2003	112,544	299	1,708	463	48	430	1,403	0	6,129	26,517	38	269	NA	63,048	2,151	7,355	1,869	817	na
2004	121,867	684	1,750	454	47	459	1,343	0	6,466	28,251	47	264	NA	69,593	2,168	7,612	1,863	866	na
2005	126,601	758	1,820	423	45	470	1,296	0	6,570	28,824	35	255	NA	74,047	2,168	7,300	1,847	742	na
2006	131,624	1,008	1,869	390	55	495	1,195	0	6,691	28,797	27	255	NA	78,037	2,120	8,204	1,711	769	na
2007	138,087	369	1,857	428	49	536	1,893	0	7,809	29,461	27	246	NA	82,272	1,936	9,024	1,361	819	na
2008	140,113	355	1,864	450	50	497	1,896	0	8,234	29,063	27	255	NA	84,713	2,106	8,323	1,394	886	na
2009 ^b	156,009	335	1,935	618	62	479	3,318	0	11,840	40,389	63	255	30	85,166	2,245	6,891	1,440	943	na
Non-ARRA	140,903	335	1,935	507	62	469	2,014	0	8,885	30,827	63	255	30	84,866	2,171	6,205	1,336	943	na
ARRA	15,106	0	0	111	0	10	1,304	0	2,955	9,562	0	0	0	300	74	686	104	0	na
2010	146,596	313	2,043	550	109	535	2,455	0	9,280	31,488	77	194	36	86,517	2,237	8,232	1,496	1,034	na
2011 preliminary	141,399	73	1,891	521	48	517	2,134	0	9,327	31,138	78	196	543	81,790	2,144	8,398	1,440	1,162	na
2012 proposed	145,420	79	1,898	879	66	666	3,618	0	10,556	32,195	67	196	41	81,938	2,262	8,258	1,683	1,018	na

TABLE 38. Federal research and development obligations, all R&D budget authority, and budget authority for basic research, by budget function: FY 1955–2012

(Millions of dollars)

Federal R&D obligations and budget authority	All functions	Administration of justice	Agriculture	Commerce and housing credit	Community and regional development	Education, training, employment, and social services	Energy	General government	General science and basic research	Health	Income security	International affairs	Medicare	National defense	Natural resources and environment	Space research and technology	Transportation	Veterans benefits and services	Other ^a
Authority for basic research																			
1978	3,665	10	197	9	8	57	157	0	962	1,246	2	*	0	320	207	412	70	9	na
1979	4,108	10	222	10	8	59	172	*	1,026	1,579	1	0	0	365	131	440	75	10	na
1980	4,716	9	246	15	8	61	200	*	1,152	1,761	1	0	0	552	136	482	79	14	na
1981	5,107	5	281	17	5	66	220	3	1,256	1,951	3	12	0	610	131	445	89	15	na
1982	5,305	4	295	17	7	78	260	2	1,296	1,953	0	10	0	696	139	434	102	13	na
1983	6,247	4	326	19	6	70	320	3	1,439	2,475	0	10	0	788	156	501	117	14	na
1984	7,072	5	353	20	5	77	365	3	1,606	2,813	0	3	0	845	192	646	125	15	na
1985	7,810	4	406	23	6	86	428	4	1,779	3,243	0	4	0	856	206	498	255	15	na
1986	8,193	5	390	26	6	83	456	5	1,795	3,324	0	5	0	960	204	737	184	15	na
1987	9,021	8	397	26	4	78	511	4	1,942	3,851	0	3	0	900	206	843	231	17	na
1988	9,553	8	428	28	7	83	571	5	2,061	4,087	0	3	0	905	210	944	197	17	na
1989	10,648	7	433	29	3	92	703	3	2,265	4,413	0	3	0	965	331	1,099	287	16	na
1990	11,288	9	456	31	3	106	761	3	2,306	4,661	0	4	0	964	336	1,389	242	16	na
1991	12,405	6	486	39	10	115	878	0	2,526	5,021	0	6	0	1,188	389	1,479	246	16	na
1992	12,973	5	528	35	11	118	921	0	2,532	5,506	0	6	0	1,147	383	1,499	266	16	na
1993	13,440	5	553	34	10	121	917	0	2,553	5,700	0	8	0	1,323	376	1,588	238	16	na
1994	13,552	5	567	38	9	145	921	0	2,542	5,889	0	6	0	1,174	224	1,796	220	16	na
1995	13,772	9	565	35	3	153	930	0	2,622	6,068	0	0	0	1,181	187	1,614	389	16	na
1996	14,442	12	547	37	0	140	1,182	0	2,662	6,395	0	2	0	1,165	147	1,685	456	13	na
1997	14,961	13	548	34	0	142	1,288	0	2,753	6,852	0	2	0	1,090	153	1,653	420	14	na
1998	15,523	16	571	35	0	133	34	0	4,121	7,356	0	1	0	1,067	145	1,610	411	23	na
1999	17,433	18	602	41	0	99	36	0	4,464	8,634	0	0	0	1,110	142	1,667	358	263	na
2000	19,470	20	651	39	0	107	36	0	4,722	10,099	0	42	0	1,184	146	1,616	542	266	na
2001	21,376	27	749	50	0	112	40	0	5,187	11,642	0	50	0	1,303	215	1,695	17	289	na
2002	23,848	30	762	56	0	115	45	0	5,561	12,957	0	53	0	1,404	471	1,912	17	465	na
2003	25,323	42	824	53	1	125	40	0	5,907	14,162	0	18	0	1,409	185	2,206	23	327	na
2004	26,529	58	780	46	0	125	32	0	6,198	14,850	0	18	0	1,380	201	2,473	20	347	na
2005	27,678	42	789	53	0	130	31	0	6,238	15,826	0	18	0	1,508	195	2,486	65	297	na
2006	27,336	68	805	66	0	131	8	0	6,406	15,532	0	18	0	1,490	195	2,299	0	318	na
2007	28,166	106	821	92	0	149	7	0	6,887	15,637	0	18	0	1,533	260	2,318	2	335	na
2008	28,740	125	790	98	0	146	16	0	7,260	15,909	0	18	0	1,631	210	2,183	0	354	na

TABLE 38. Federal research and development obligations, all R&D budget authority, and budget authority for basic research, by budget function: FY 1955–2012
(Millions of dollars)

Federal R&D obligations and budget authority	All functions	Administration of justice	Agriculture	Commerce and housing credit	Community and regional development	Education, training, employment, and social services	Energy	General government	General science and basic research	Health	Income security	International affairs	Medicare	National defense	Natural resources and environment	Space research and technology	Transportation	Veterans benefits and services	Other ^a
2009 ^b	36,400	115	799	152	0	155	28	0	10,727	21,108	0	18	0	1,772	219	932	0	375	na
Non-ARRA	28,161	115	799	112	0	145	28	0	7,913	15,767	0	18	0	1,769	219	900	0	375	na
ARRA	8,240	0	0	40	0	10	0	0	2,814	5,341	0	0	0	3	0	32	0	0	na
2010	29,614	74	881	131	0	174	57	0	8,578	16,125	0	0	0	1,849	223	1,109	0	413	na
2011 preliminary	29,594	26	825	128	0	173	48	0	8,536	15,997	0	0	0	1,989	220	1,199	0	454	na
2012 proposed	31,229	29	831	174	0	180	58	0	9,388	16,506	0	0	0	2,118	236	1,317	0	392	na

* = 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 Includes amounts for all functions for which data were not explicitly collected.

^b For total FY 2009, sum FY 2009 non-ARRA and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

NOTES: Detail may not add to total because of rounding. In FY 2009 the National Aeronautics and Space Administration (NASA) adjusted their R&D reporting to more closely match survey data reported to the National Science Foundation. In FY 2007 the Department of Homeland Security (DHS) changed its R&D portfolio to reclassify funding in defense and most administration of justice as general science and basic research. In FY 2004 the Department of Homeland Security (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 transferred funding for space station program from R&D to R&D plant; this change reflected in budget authority for space research and technology. In FY 2000 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 Department of Veterans Affairs began reporting medical care support funds as part of its total research budgetary resources; this change reflected in budget authority for veteran benefits and services.

SOURCES: 1955–94 data are from agencies' submissions to Office of Management and Budget (OMB), Circular No. A-11, Exhibit 44A, "Research and Development Activities," and supplemental data obtained from agencies' budget offices. 1995–2012 data are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 39. Federal research and development obligations and budget authority for national defense and civilian functions: FY 1955–2012

Fiscal year	Millions of dollars			% 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 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

TABLE 39. Federal research and development obligations and budget authority for national defense and civilian functions: FY 1955–2012

Fiscal year	Millions of dollars			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
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
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 preliminary	141,399	81,790	59,609	100.0	57.8	42.2
2012 proposed	145,420	81,938	63,482	100.0	56.3	43.7

^a For total FY 2009, sum FY 2009 non-ARRA and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

NOTES: National defense function includes Department of Defense military activities, Department of Energy atomic energy defense program, and defense-related R&D of Department of Homeland Security. Civilian functions include all other federally funded R&D activities.

SOURCES: 1955–94 data are from agencies' submissions to Office of Management and Budget (OMB), Circular No. A-11, Exhibit 44A, "Research and Development Activities," and supplemental data obtained from agencies' budget offices. 1995–2012 data are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.

Appendix A. Agency and Budget Function Crosswalk

APPENDIX A. Agency and budget function crosswalk

Agency	Budget function															
	Administration of justice (750)	Agriculture (350)	Commerce and housing credit (370)	Community and regional development (450)	Education, training, employment, and social services (500)	Energy (270)	General science and basic research (251)	Health (550)	Income security (600)	International affairs (150)	Medicare (570)	National defense (050)	Natural resources and environment (300)	Space research and technology (252)	Transportation (400)	Veterans benefits and services (700)
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 Labor								●								
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								●								
Telecommunications Development Fund			●													
Tennessee Valley Authority						●										

● = R&D function funded by specified agency.

SOURCES: Agencies' submissions to 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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