



## Federal R&D Funding by Budget Function: Fiscal Years 2009–11

Detailed Statistical Tables | NSF 10-323 | October 2010

**Erratum:** The row labels "National Center for Complementary and Alternative Medicine" and for "Buildings and Facilities" were reversed in table 22. Table 22 was replaced with a corrected version December 2010.

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### General Notes

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This annual report contains information on the budget authority (defined below) of U.S. federal agencies to fund the research and development and R&D plant components of their programs in FY 2011 and the two previous fiscal years. The figures for FY 2011 are the administration's proposed funding levels, based on the President's *Budget of the United States Government, Fiscal Year 2011*, agency documents, and Office of Management and Budget data through May 2010. These figures are the basis for subsequent congressional budgetary action.

The figures for FY 2010 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 2009 are actual budget authority received by the federal agencies for R&D that year. These figures do not, however, include estimates for R&D funds appropriated through the American Recovery and Reinvestment Act (ARRA). ARRA funds are presented in the data tables in a separate column. Although ARRA funds were appropriated in FY 2009, agencies have until the end of FY 2010 to obligate them. Some program-funding decisions are still being made; thus, the ARRA funding figures published here are preliminary.

Several concluding tables provide aggregate data on actual federal budget authority for R&D by broad function for FY 2008 and earlier years.

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 2011*, prepared by the Office of Management and Budget (OMB). This is the first report in the annual series in which R&D is reported for Medicare (function 570). No R&D was appropriated or authorized for general government (function 800) for FY 2009–11, 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.

This report excludes 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. In a few cases, components of a major national effort are funded through multiple functions, such as the human genome activities, which are 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 are the same as those used in the federal budget, with one exception. R&D activities categorized as general science, space, and technology (function 250) are reported in separate categories here. Subfunction 251 contains R&D activities for general science and basic research, and subfunction 252 contains R&D activities for space research and technology. However, not all federally sponsored basic research is categorized in subfunction 251; some basic research is included in 12 of the remaining 19 functional categories.

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 have a separately identified R&D budget, nor are most appropriations for R&D so labeled except in the case of 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 actual and proposed federal funding for R&D collected during the period between February and May 2010. 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 reported in the *Budget of the United States Government*. 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 May 2010.

The FY 2010 data reflect agency estimates of final 2010 appropriations based on agency documents and OMB data through May 2010. FY 2010 supplemental appropriations were included in this report; 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.

## Data Tables

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Table	<b>Federal budget authority</b>
	by budget function: FY 2009–11
1	R&D and R&D plant
2	R&D
3	% distribution, R&D and R&D plant
4	% distribution, R&D
5	basic research
6	R&D and R&D plant as % of total budget authority
7	R&D as % of total budget authority
	<b>Specific budget function: FY 2009–11</b>
	Administration of justice (750)
8	R&D
	Agriculture (350)
9	R&D and R&D plant
10	R&D
	Commerce and housing credit (370)
11	R&D and R&D plant
12	R&D
	Community and regional development (450)
13	R&D
	Education, training, employment, and social services (500)
14	R&D and R&D plant
15	R&D
	Energy (270)
16	R&D and R&D plant
17	R&D
	General science and basic research (251)
18	R&D and R&D plant
19	R&D
	Health (550)
20	R&D and R&D plant
21	R&D
	National Institutes of Health
22	R&D and R&D plant (corrected December 2010)
23	R&D
	Income security (600)
24	R&D
	International affairs (150)
25	R&D

- Medicare (570)
- 26 R&D
- National defense (050)
- 27 R&D and R&D plant
- 28 R&D
- 29 obligational authority for research, development, test, and evaluation
- Natural resources and environment (300)
- 30 R&D and R&D plant
- 31 R&D
- Space research and technology (252)
- 32 R&D and R&D plant
- 33 R&D
- Transportation (400)
- 34 R&D and R&D plant
- 35 R&D
- Veterans benefits and services (700)
- 36 R&D
- R&D obligations and budget authority: FY 1955–2011**
- 37 total and basic research, by budget function
- 38 total and national defense and civilian functions

TABLE 1. Federal research and development and R&D plant budget authority, by budget function: FY 2009–11

2011 rank	Budget function	2009 <sup>a</sup>		2010	2011	2009–10	2010–11
		Actual	ARRA	preliminary	proposed		
		\$millions				% change <sup>b</sup>	
	All functions conducting R&D	145,553	18,739	148,448	148,019	2.0	-0.3
1	National defense	85,342	300	86,352	82,228	1.2	-4.8
2	Health	30,989	11,062	31,101	32,067	0.4	3.1
3	General science and basic research	9,941	4,187	10,395	11,055	4.6	6.3
4	Space research and technology	8,374	686	8,889	9,911	6.2	11.5
5	Natural resources and environment	2,371	244	2,498	2,684	5.4	7.4
6	Energy	2,234	1,560	2,392	2,549	7.1	6.6
7	Transportation	1,357	104	1,448	2,071	6.7	43.1
8	Agriculture	2,073	176	2,189	2,054	5.6	-6.2
9	Veterans benefits and services	943	0	1,162	1,180	23.2	1.5
10	Commerce and housing credit	641	410	656	775	2.3	18.2
11	Education, training, employment, and social services	543	10	571	634	5.2	11.0
12	International affairs	255	0	255	255	0.0	0.0
13	Community and regional development	62	0	117	233	88.7	99.1
14	Administration of justice	335	0	313	203	-6.6	-35.1
15	Income security	63	0	77	77	22.2	0.0
16	Medicare	30	0	33	42	10.0	27.3

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Percentage change calculated on unrounded data; excludes ARRA funds.

NOTE: Detail may not add to total because of rounding.

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 2009–11

2011 rank	Budget function	2009 <sup>a</sup>		2010	2011	2009–10	2010–11
		Actual	ARRA	preliminary	proposed		
		\$millions				% change <sup>b</sup>	
	All functions conducting R&D	140,903	15,106	143,892	143,404	2.1	-0.3
1	National defense	84,866	300	86,082	81,969	1.4	-4.8
2	Health	30,827	9,562	30,976	31,917	0.5	3.0
3	General science and basic research	8,885	2,955	9,298	9,945	4.7	6.9
4	Space research and technology	6,205	686	6,622	7,364	6.7	11.2
5	Natural resources and environment	2,171	74	2,300	2,490	5.9	8.3
6	Energy	2,014	1,304	2,138	2,450	6.2	14.6
7	Transportation	1,336	104	1,427	2,046	6.8	43.5
8	Agriculture	1,935	0	2,025	2,036	4.7	0.5
9	Veterans benefits and services	943	0	1,162	1,180	23.2	1.5
10	Commerce and housing credit	507	111	542	621	6.9	14.5
11	Education, training, employment, and social services	469	10	525	576	11.9	9.7
12	International affairs	255	0	255	255	0.0	0.0
13	Community and regional development	62	0	117	233	88.7	99.1
14	Administration of justice	335	0	313	203	-6.6	-35.1
15	Income security	63	0	77	77	22.2	0.0
16	Medicare	30	0	33	42	10.0	27.3

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Percentage change calculated on unrounded data; excludes ARRA funds.

NOTE: Detail may not add to total because of rounding.

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 2009–11

(Percent distribution)

2011 rank	Budget function	2009		2010	2011
		Actual	ARRA	preliminary	proposed
	All functions conducting R&D	100.0	100.0	100.0	100.0
1	National defense	58.6	1.6	58.2	55.6
2	Health	21.3	59.0	21.0	21.7
3	General science and basic research	6.8	22.3	7.0	7.5
4	Space research and technology	5.8	3.7	6.0	6.7
5	Natural resources and environment	1.7	1.3	1.7	1.8
6	Energy	1.5	8.3	1.6	1.7
7	Transportation	0.9	0.6	1.0	1.4
8	Agriculture	1.4	0.9	1.5	1.4
9	Veterans benefits and services	0.7	0.0	0.8	0.8
10	Commerce and housing credit	0.4	2.2	0.4	0.5
11	Education, training, employment, and social services	0.4	0.1	0.4	0.5
12	International affairs	0.2	0.0	0.2	0.2
13	Community and regional development	*	0.0	0.1	0.2
14	Administration of justice	0.2	0.0	0.2	0.1
15	Income security	*	0.0	*	*
16	Medicare	*	0.0	*	*

\* = less than 0.05%.

ARRA = funds appropriated through the American Recovery and Reinvestment Act of 2009.

NOTE: Detail may not add to total because of rounding.

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 2009–11

(Percent distribution)

2011 rank	Budget function	2009		2010	2011
		Actual	ARRA	preliminary	proposed
	All functions conducting R&D	100.0	100.0	100.0	100.0
1	National defense	60.2	2.0	59.8	57.2
2	Health	21.9	63.3	21.6	22.3
3	General science and basic research	6.3	19.6	6.5	6.9
4	Space research and technology	4.4	4.5	4.6	5.1
5	Natural resources and environment	1.6	0.5	1.6	1.7
6	Energy	1.4	8.6	1.5	1.7
7	Transportation	1.0	0.7	1.0	1.4
8	Agriculture	1.4	0.0	1.4	1.4
9	Veterans benefits and services	0.7	0.0	0.8	0.8
10	Commerce and housing credit	0.3	0.7	0.4	0.4
11	Education, training, employment, and social services	0.4	0.1	0.4	0.4
12	International affairs	0.2	0.0	0.2	0.2
13	Community and regional development	*	0.0	0.1	0.2
14	Administration of justice	0.2	0.0	0.2	0.1
15	Income security	*	0.0	*	*
16	Medicare	*	0.0	*	*

\* = less than 0.05%.

ARRA = funds appropriated through the American Recovery and Reinvestment Act of 2009.

NOTE: Detail may not add to total because of rounding.

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 2009–11

rank	Budget function	2009 <sup>a</sup>		2010	2011	2009–10	2010–11
		Actual	ARRA	preliminary	proposed		
		\$millions				% change <sup>b</sup>	
	All functions conducting R&D	28,161	8,240	29,139	30,395	3.5	4.3
3	National defense	1,769	3	1,887	2,018	6.7	6.9
1	Health	15,767	5,341	16,093	16,573	2.1	3.0
2	General science and basic research	7,913	2,814	8,268	8,816	4.5	6.6
4	Space research and technology	900	32	884	905	-1.8	2.4
7	Natural resources and environment	219	0	237	237	7.9	0.2
11	Energy	28	0	49	39	75.0	-20.4
10	Transportation	0	0	0	72	-	-
5	Agriculture	799	0	876	897	9.6	2.4
6	Veterans benefits and services	375	0	464	470	23.6	1.3
9	Commerce and housing credit	112	40	121	150	8.0	23.2
8	Education, training, employment, and social services	145	10	168	185	15.9	10.1
12	International affairs	18	0	18	18	0.0	0.0
-	Community and regional development	0	0	0	0	-	-
13	Administration of justice	115	0	73	15	-36.5	-79.5
-	Income security	0	0	0	0	-	-
-	Medicare	0	0	0	0	-	-

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Percentage change calculated on unrounded data; excludes ARRA funds.

NOTES: Detail may not add to total because of rounding. Budget functions ordered as shown in table 2, federal R&D 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 2009–11

2011 rank	Budget function	2009 <sup>a</sup>		2010	2011
		Actual	ARRA	preliminary	proposed
	All functions conducting R&D	5.2	0.7	6.7	6.5
4	National defense	12.2	*	12.0	11.1
5	Health	8.3	3.0	8.1	8.4
1	General science and basic research	58.8	24.8	81.2	81.3
2	Space research and technology	46.2	3.8	48.8	55.5
7	Natural resources and environment	4.2	0.4	6.3	7.0
3	Energy	5.2	3.6	27.2	25.5
8	Transportation	1.1	0.1	1.6	2.3
6	Agriculture	8.6	0.7	8.6	8.3
10	Veterans benefits and services	1.0	0.0	0.9	1.0
16	Commerce and housing credit <sup>b</sup>	0.1	0.1	na	na
11	Education, training, employment, and social services	0.3	*	0.7	0.6
12	International affairs	0.4	0.0	0.4	0.4
9	Community and regional development	0.3	0.0	0.6	1.1
13	Administration of justice	0.6	0.0	0.6	0.4
15	Income security	*	0.0	*	*
14	Medicare	*	0.0	*	*

na = not applicable; \* = less than 0.05%.

<sup>a</sup> Percentages for FY 2009 actual R&D budget authority and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009) are both based on total FY 2009 budget authority, which includes ARRA funds.

<sup>b</sup> The Commerce and housing credit budget function has a negative budget authority 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 R&D 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 2011* (Washington, DC: U.S. Government Printing Office, 2010).

TABLE 7. Federal research and development budget authority as percentage of total budget authority, by budget function: FY 2009–11

2011 rank	Budget function	2009 <sup>a</sup>		2010	2011
		Actual	ARRA	preliminary	proposed
	All functions conducting R&D	5.0	0.5	6.5	6.3
4	National defense	12.2	*	11.9	11.1
5	Health	8.3	2.6	8.0	8.4
1	General science and basic research	52.6	17.5	72.6	73.2
2	Space research and technology	34.2	3.8	36.3	41.3
7	Natural resources and environment	3.8	0.1	5.8	6.5
3	Energy	4.7	3.1	24.3	24.5
8	Transportation	1.1	0.1	1.5	2.2
6	Agriculture	8.0	0.0	8.0	8.2
10	Veterans benefits and services	1.0	0.0	0.9	1.0
–	Commerce and housing credit <sup>b</sup>	0.1	*	na	na
11	Education, training, employment, and social services	0.3	*	0.6	0.5
12	International affairs	0.4	0.0	0.4	0.4
9	Community and regional development	0.3	0.0	0.6	1.1
13	Administration of justice	0.6	0.0	0.6	0.4
15	Income security	*	0.0	*	*
14	Medicare	*	0.0	*	*

na = not applicable; \* = less than 0.05%.

<sup>a</sup> Percentages for FY 2009 actual R&D budget authority and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009) are both based on total FY 2009 budget authority, which includes ARRA funds.

<sup>b</sup> The Commerce and housing credit budget function has a negative budget authority 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 R&D 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 2011* (Washington, DC: U.S. Government Printing Office, 2010).

TABLE 8. Federal research and development budget authority for administration of justice (750): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	335	0	313	203	-35.1
Department of Homeland Security (751)	274	0	267	158	-40.8
Department of Justice	61	0	46	45	-2.2
Federal Prison System (753)	11	0	11	11	0.0
Office of Justice Programs (754)	50	0	35	34	-2.9

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 and R&D plant budget authority for agriculture (350): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	2,073	176	2,189	2,054	-6.2
Agricultural research and services (352)					
U.S. Department of Agriculture (USDA)					
Agricultural Marketing Service	2	0	2	3	50.0
Agricultural Research Service	1,214	176	1,275	1,148	-10.0
Animal and Plant Health Inspection Service	30	0	30	30	0.0
Economic Research Service	80	0	81	87	7.4
Federal Grain Inspection Service	7	0	7	8	14.3
Foreign Agricultural Service	1	0	1	1	0.0
National Agricultural Statistics Service	7	0	7	7	0.0
National Institute of Food and Agriculture <sup>b</sup>					
Agriculture and Food Research Initiative <sup>c</sup>	201	0	262	429	63.7
McEntire-Stennis Cooperative Forestry	28	0	29	29	0.0
Payments to 1890 colleges and Tuskegee Institute	46	0	49	49	0.0
Payments under the Hatch Act	207	0	215	215	0.0
Special research grants	124	0	136	41	-69.9
Other research programs	126	0	95	7	-92.6

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Created by the Food, Conservation, and Energy Act of 2008 (P.L. 110-234) to replace the Cooperative State Research, Education, and Extension Service.

<sup>c</sup> Created by the Food, Conservation, and Energy Act of 2008 (P.L. 110-234) to replace the National Research Initiative.

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

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

TABLE 10. Federal research and development budget authority for agriculture (350): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	1,935	0	2,025	2,036	0.5
Agricultural research and services (352)					
U.S. Department of Agriculture (USDA)					
Agricultural Marketing Service	2	0	2	3	50.0
Agricultural Research Service	1,076	0	1,111	1,130	1.7
Animal and Plant Health Inspection Service	30	0	30	30	0.0
Economic Research Service	80	0	81	87	7.4
Federal Grain Inspection Service	7	0	7	8	14.3
Foreign Agricultural Service	1	0	1	1	0.0
National Agricultural Statistics Service	7	0	7	7	0.0
National Institute of Food and Agriculture <sup>b</sup>					
Agriculture and Food Research Initiative <sup>c</sup>	201	0	262	429	63.7
McEntire-Stennis Cooperative Forestry	28	0	29	29	0.0
Payments to 1890 colleges and Tuskegee Institute	46	0	49	49	0.0
Payments under the Hatch Act	207	0	215	215	0.0
Special research grants	124	0	136	41	-69.9
Other research programs	126	0	95	7	-92.6

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Created by the Food, Conservation, and Energy Act of 2008 (P.L. 110-234) to replace the Cooperative State Research, Education, and Extension Service.

<sup>c</sup> Created by the Food, Conservation, and Energy Act of 2008 (P.L. 110-234) to replace the National Research Initiative.

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

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

TABLE 11. Federal research and development and R&D plant budget authority for commerce and housing credit (370): FY 2009–11

(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	641	410	656	775	18.2
Other advancement of commerce (376)	641	410	656	775	18.2
Department of Commerce	635	410	652	775	18.9
Bureau of the Census	44	0	57	54	-5.3
National Institute of Standards and Technology	553	410	580	705	21.6
Construction of Research Facilities	98	180	80	125	56.0
Industrial Technology Services					
Technology Innovation Program	45	0	49	60	20.9
Scientific and Technical Research and Services	410	230	450	521	15.6
National Oceanic and Atmospheric Administration	31	0	8	8	0.0
National Marine Fisheries Service	31	0	8	8	0.0
National Telecommunications and Information Administration	7	0	7	8	14.3
Telecommunications Development Fund	6	0	4	0	-100.0

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 office.

TABLE 12. Federal research and development budget authority for commerce and housing credit (370): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	507	111	542	621	14.5
Other advancement of commerce (376)	507	111	542	621	14.5
Department of Commerce	507	111	542	621	14.5
Bureau of the Census	44	0	57	54	-5.3
National Institute of Standards and Technology	425	111	470	551	17.2
Industrial Technology Services					
Technology Innovation Program	45	0	49	60	20.9
Scientific and Technical Research and Services	380	111	420	491	16.7
National Oceanic and Atmospheric Administration	31	0	8	8	0.0
National Marine Fisheries Service	31	0	8	8	0.0
National Telecommunications and Information Administration	7	0	7	8	14.3
Telecommunications Development Fund	0	0	0	0	-

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 office.

TABLE 13. Federal research and development budget authority for community and regional development (450): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	62	0	117	233	99.1
Department of Housing and Urban Development (451)	58	0	108	221	104.6
U.S. Department of Agriculture (452)	4	0	9	12	33.3
Rural Business-Cooperative Service	4	0	9	12	33.3

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 14. Federal research and development and R&D plant budget authority for education, training, employment, and social services (500): FY 2009–11

(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	543	10	571	634	11.0
Research and general education aids (501, 502, 503)	454	10	480	539	12.3
Department of Education programs	238	0	272	303	11.4
Smithsonian Institution programs	216	10	208	236	13.5
Social services (506)	89	0	91	95	4.4
Administration for Children and Families (DHHS)	15	0	15	15	0.0
Rehabilitation services (ED)	74	0	76	80	5.3

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

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 budget authority for education, training, employment, and social services (500): FY 2009–11

(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	469	10	525	576	9.7
Research and general education aids (501, 502, 503)	380	10	434	481	10.8
Department of Education programs	238	0	272	303	11.4
Smithsonian Institution programs	142	10	162	178	9.9
Social services (506)	89	0	91	95	4.4
Administration for Children and Families (DHHS)	15	0	15	15	0.0
Rehabilitation services (ED)	74	0	76	80	5.3

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

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 and R&D plant budget authority for energy (270): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	2,234	1,560	2,392	2,549	6.6
Department of Energy (271)	2,095	1,560	2,266	2,421	6.8
Energy programs	2,095	1,175	2,266	2,148	-5.2
Energy efficiency and renewable energy	850	1,116	996	1,031	3.5
Electricity delivery and energy reliability	75	10	122	144	18.0
Fossil energy	540	49	511	458	-10.4
Nuclear energy	630	0	637	515	-19.2
ARPA-E	0	385	0	273	-
Nuclear Regulatory Commission (276)	101	0	81	78	-3.7
Tennessee Valley Authority (271)	18	0	17	20	17.6
U.S. Department of Agriculture (271)					
National Institute of Food and Agriculture-Biomass R&D	20	0	28	30	7.1

ARPA-E = Advanced Research Projects Agency-Energy.

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 budget authority for energy (270): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	2,014	1,304	2,138	2,450	14.6
Department of Energy (271)	1,875	1,304	2,012	2,322	15.4
Energy programs	1,875	919	2,012	2,049	1.8
Energy efficiency and renewable energy	774	860	933	972	4.2
Electricity delivery and energy reliability	75	10	122	144	18.0
Fossil energy	522	49	491	438	-10.8
Nuclear energy	504	0	466	495	6.2
ARPA-E	0	385	0	273	-
Nuclear Regulatory Commission (276)	101	0	81	78	-3.7
Tennessee Valley Authority (271)	18	0	17	20	17.6
U.S. Department of Agriculture (271)					
National Institute of Food and Agriculture-Biomass R&D	20	0	28	30	7.1

ARPA-E = Advanced Research Projects Agency-Energy.

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 and R&D plant budget authority for general science and basic research (251):  
FY 2009–11

(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	9,941	4,187	10,395	11,055	6.3
Department of Energy					
Office of Science	4,372	1,407	4,470	4,642	3.8
Department of Homeland Security	802	0	857	866	1.1
National Science Foundation (NSF)	4,767	2,780	5,068	5,547	9.4
Biological sciences	657	260	715	768	7.5
Computer and information science and engineering	575	235	619	685	10.6
Education and human resources	846	100	873	892	2.2
Engineering	665	265	744	826	11.0
Geosciences	809	347	890	955	7.4
Integrative activities	242	550	275	296	7.6
Major research equipment and facilities	170	400	117	165	40.8
Mathematical and physical sciences	1,244	490	1,352	1,410	4.3
Office of cyberinfrastructure	199	80	214	228	6.4
Social, behavioral, and economic sciences	241	85	255	269	5.3
U.S. polar research programs	474	174	451	528	17.0
Budget authority adjustment <sup>b</sup>	-1,351	-206	-1,436	-1,474	2.6

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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 19. Federal research and development budget authority for general science and basic research (251): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	8,885	2,955	9,298	9,945	6.9
Department of Energy					
Office of Science	3,766	710	3,822	3,975	4.0
Department of Homeland Security	802	0	857	866	1.1
National Science Foundation (NSF)	4,317	2,245	4,619	5,104	10.5
Biological sciences	657	260	715	768	7.5
Computer and information science and engineering	575	235	619	685	10.6
Education and human resources	846	100	873	892	2.2
Engineering	665	265	744	826	11.0
Geosciences	809	347	890	955	7.4
Integrative activities	242	550	275	296	7.6
Mathematical and physical sciences	1,244	490	1,352	1,410	4.3
Office of cyberinfrastructure	199	80	214	228	6.4
Social, behavioral, and economic sciences	241	85	255	269	5.3
U.S. polar research programs	474	174	451	528	17.0
Budget authority adjustment <sup>b</sup>	-1,632	-341	-1,768	-1,752	-0.9

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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 and R&D plant budget authority for health (550): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	30,989	11,062	31,101	32,067	3.1
Consumer and occupational health and safety (554)	199	0	142	152	7.0
Consumer Product Safety Commission	0	0	0	2	-
Food and Drug Administration (DHHS)	195	0	138	146	5.8
Occupational Safety and Health Administration (DOL)	4	0	4	4	0.0
Health care services and health research and training (551, 552)	30,790	11,062	30,959	31,915	3.1
Department of Health and Human Services					
Agency for Healthcare Research and Quality	393	700	0	0	-
Centers for Disease Control and Prevention	494	0	362	362	0.0
Departmental Management (other)	139	0	147	147	0.0
Health Resources and Services Administration	12	0	12	12	0.0
National Institutes of Health	29,752	10,362	30,438	31,394	3.1

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

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 21. Federal research and development budget authority for health (550): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	30,827	9,562	30,976	31,917	3.0
Consumer and occupational health and safety (554)	170	0	125	135	8.0
Consumer Product Safety Commission	0	0	0	2	-
Food and Drug Administration (DHHS)	166	0	121	129	6.6
Occupational Safety and Health Administration (DOL)	4	0	4	4	0.0
Health care services and health research and training (551, 552)	30,657	9,562	30,851	31,782	3.0
Department of Health and Human Services					
Agency for Healthcare Research and Quality	393	700	0	0	-
Centers for Disease Control and Prevention	494	0	362	362	0.0
Departmental management (other)	139	0	147	147	0.0
Health Resources and Services Administration	12	0	12	12	0.0
National Institutes of Health	29,619	8,862	30,330	31,261	3.1

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

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. 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 and R&D plant budget authority for the National Institutes of Health, in FY 2011 rank order: FY 2009–11 (corrected December 2010)

(Millions of dollars)

Organization/program	2009 <sup>a</sup>		2010	2011	2010–11 (% change)
	Actual	ARRA	preliminary	proposed	
Total	29,752	10,362	30,438	31,394	3.1
National Cancer Institute	4,894	1,255	5,029	5,186	3.1
National Institute of Allergy and Infectious Diseases	4,641	1,093	4,758	4,915	3.3
National Heart, Lung, and Blood Institute	2,914	763	2,996	3,084	2.9
National Institute of Diabetes and Digestive and Kidney Diseases	1,853	445	1,898	1,944	2.4
National Institute of General Medical Sciences	1,793	492	1,849	1,910	3.3
National Institute of Neurological Disorders and Stroke	1,558	403	1,603	1,646	2.7
National Institute of Mental Health	1,407	366	1,443	1,490	3.3
National Institute of Child Health and Human Development	1,255	327	1,291	1,328	2.9
National Center for Research Resources	1,218	1,610	1,262	1,300	3.0
Office of the Director	1,247	1,337	1,177	1,220	3.7
National Institute on Aging	1,054	273	1,085	1,116	2.8
National Institute on Drug Abuse	1,013	260	1,033	1,066	3.1
National Institute of Environmental Health Sciences <sup>b</sup>	727	187	749	768	2.5
National Eye Institute	677	174	697	713	2.4
National Institute of Arthritis and Musculoskeletal and Skin Diseases	508	132	523	538	3.0
National Human Genome Research Institute	499	127	508	525	3.4
National Institute on Alcohol Abuse and Alcoholism	437	114	450	461	2.6
National Institute on Deafness and Other Communication Disorders	393	103	405	414	2.4
National Institute of Dental and Craniofacial Research	385	102	396	405	2.3
National Library of Medicine	331	84	340	365	7.4
National Institute of Biomedical Imaging and Bioengineering	296	78	304	313	2.8
National Center for Minority Health and Health Disparities	206	52	212	219	3.5
National Institute of Nursing Research	132	36	135	139	3.0
National Center for Complementary and Alternative Medicine	121	32	124	127	2.4
Buildings and Facilities	126	500	100	126	25.6
John E. Fogarty International Center	68	17	70	73	4.4

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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: Departmental submission to Office of Management and Budget per MAX Schedule C and supplemental data obtained from National Institutes of Health budget office.

TABLE 23. Federal research and development budget authority for the National Institutes of Health, in FY 2011 rank order: FY 2009–11  
(Millions of dollars)

Organization/program	2009 <sup>a</sup>		2010	2011	2010–11 (% change)
	Actual	ARRA	preliminary	proposed	
Total	29,619	8,862	30,330	31,261	3.1
National Cancer Institute	4,886	1,255	5,021	5,179	3.1
National Institute of Allergy and Infectious Diseases	4,641	1,093	4,758	4,915	3.3
National Heart, Lung, and Blood Institute	2,914	763	2,996	3,084	2.9
National Institute of Diabetes and Digestive and Kidney Diseases	1,853	445	1,898	1,944	2.4
National Institute of General Medical Sciences	1,793	492	1,849	1,910	3.3
National Institute of Neurological Disorders and Stroke	1,558	403	1,603	1,646	2.7
National Institute of Mental Health	1,407	366	1,443	1,490	3.3
National Institute of Child Health and Human Development	1,255	327	1,291	1,328	2.9
National Center for Research Resources	1,218	610	1,262	1,300	3.0
Office of the Director	1,247	1,337	1,177	1,220	3.7
National Institute on Aging	1,054	273	1,085	1,116	2.8
National Institute on Drug Abuse	1,013	260	1,033	1,066	3.1
National Institute of Environmental Health Sciences <sup>b</sup>	727	187	749	768	2.5
National Eye Institute	677	174	697	713	2.4
National Institute of Arthritis and Musculoskeletal and Skin Diseases	508	132	523	538	3.0
National Human Genome Research Institute	499	127	508	525	3.4
National Institute on Alcohol Abuse and Alcoholism	437	114	450	461	2.6
National Institute on Deafness and Other Communication Disorders	393	103	405	414	2.4
National Institute of Dental and Craniofacial Research	385	102	396	405	2.3
National Library of Medicine	331	84	340	365	7.4
National Institute of Biomedical Imaging and Bioengineering	296	78	304	313	2.8
National Center for Minority Health and Health Disparities	206	52	212	219	3.5
National Institute of Nursing Research	132	36	135	139	3.0
National Center for Complementary and Alternative Medicine	121	32	124	127	2.4
John E. Fogarty International Center	68	17	70	73	4.4

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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: Departmental submission to Office of Management and Budget per MAX Schedule C and supplemental data obtained from National Institutes of Health budget office.

TABLE 24. Federal research and development budget authority for income security (600): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	63	0	77	77	0.0
Department of Health and Human Services (609)	28	0	28	34	21.4
Administration for Children and Families	28	0	28	34	21.4
Social Security Administration (609)	35	0	49	43	-12.2

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. Percentage change calculated on unrounded data.

SOURCES: Social Security Administration submission to Office of Management and Budget per MAX Schedule C.

TABLE 25. Federal research and development budget authority for international affairs (150): FY 2009–11

(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	255	0	255	255	0.0
Agency for International Development (151)	120	0	120	120	0.0
State Department (151)	103	0	103	103	0.0
International Security Assistance (152)	32	0	32	32	0.0

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. Percentage change calculated on unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget per MAX Schedule C.

TABLE 26. Federal research and development budget authority for medicare (570): FY 2009–11

(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	30	0	33	42	27.3
Department of Health and Human Services (DHHS) (571)					
Centers for Medicare and Medicaid Services	30	0	33	42	27.3

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. Percentage change calculated on unrounded data.

SOURCE: DHHS submissions to Office of Management and Budget per MAX Schedule C.

TABLE 27. Federal research and development and R&D plant budget authority for national defense (050): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010	2011	2010–11
	Actual	ARRA	preliminary	proposed	(% change)
Total	85,342	300	86,352	82,228	-4.8
Department of Defense (DOD), military (051)	81,484	300	82,371	78,048	-5.2
Research, development, test, and evaluation (RDT&E)	79,705	300	80,351	76,765	-4.5
Defense agencies	21,550	75	20,605	20,819	1.0
Defense Advanced Research Projects Agency	3,015	0	2,991	3,103	3.7
Missile Defense Agency	8,247	0	7,061	7,455	5.6
Other defense agencies	10,288	75	10,553	10,261	-2.8
Department of the Air Force	26,214	75	28,071	27,514	-2.0
Department of the Army	12,028	75	11,534	10,484	-9.1
Department of the Navy	19,728	75	19,953	17,754	-11.0
Operational test and evaluation	185	0	188	195	3.5
Other military funding <sup>b</sup>	1,779	0	2,020	1,283	-36.5
Department of Energy, atomic energy defense activities (053)	3,825	0	3,948	4,147	5.0
Environmental restoration and waste management	30	0	70	109	55.7
Naval reactors development	794	0	908	1,030	13.4
Nonproliferation	340	0	277	277	0.0
Weapons activities	2,658	0	2,691	2,729	1.4
Other defense activities	3	0	2	2	0.0
Department of Justice, Federal Bureau of Investigation (054)	33	0	33	33	0.0

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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 28. Federal research and development budget authority for national defense (050): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	84,866	300	86,082	81,969	-4.8
Department of Defense (DOD), military (051)	81,256	300	82,287	77,951	-5.3
Research, development, test, and evaluation (RDT&E)	79,705	300	80,351	76,765	-4.5
Defense agencies	21,550	75	20,605	20,819	1.0
Defense Advanced Research Projects Agency	3,015	0	2,991	3,103	3.7
Missile Defense Agency	8,247	0	7,061	7,455	5.6
Other defense agencies	10,288	75	10,553	10,261	-2.8
Department of the Air Force	26,214	75	28,071	27,514	-2.0
Department of the Army	12,028	75	11,534	10,484	-9.1
Department of the Navy	19,728	75	19,953	17,754	-11.0
Operational test and evaluation	185	0	188	195	3.5
Other military funding <sup>b</sup>	1,551	0	1,936	1,186	-38.7
Department of Energy, atomic energy defense activities (053)	3,577	0	3,762	3,985	5.9
Environmental restoration and waste management	30	0	70	109	55.7
Naval reactors development	739	0	838	960	14.6
Nonproliferation	327	0	277	277	0.0
Weapons activities	2,478	0	2,575	2,637	2.4
Other defense activities	3	0	2	2	0.0
Department of Justice, Federal Bureau of Investigation (054)	33	0	33	33	0.0

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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. Total obligational authority for Department of Defense research, development, test, and evaluation budget, by DOD budget activity: FY 2009–11

(Millions of dollars)

Budget activity <sup>a</sup>	Funding category and agency	2009 <sup>b</sup>		2010	2011	2010–11 (% change)
		Actual	ARRA	preliminary	proposed	
	RDT&E total budget authority	79,705	300	80,351	76,765	-4.5
	RDT&E total obligational authority <sup>c</sup>	80,351	300	80,624	76,765	-4.8
1	Basic research	1,756	3	1,874	1,999	6.7
	Defense agencies	362	0	410	535	30.6
	Department of the Air Force	446	3	483	500	3.7
	Department of the Army	422	0	432	407	-5.8
	Department of the Navy	525	0	549	556	1.3
2	Applied research	4,989	83	5,038	4,476	-11.2
	Defense agencies	1,799	2	1,761	1,774	0.8
	Department of the Air Force	1,190	46	1,221	1,181	-3.3
	Department of the Army	1,225	33	1,337	841	-37.1
	Department of the Navy	775	2	719	679	-5.6
3	Advanced technology development	6,320	105	6,544	5,359	-18.1
	Defense agencies	3,343	52	3,580	3,413	-4.7
	Department of the Air Force	718	14	759	509	-32.9
	Department of the Army	1,439	40	1,374	697	-49.3
	Department of the Navy	821	0	832	740	-11.1
4	Advanced component development and prototypes	14,859	81	14,485	13,952	-3.7
	Defense agencies	8,222	19	7,346	7,713	5.0
	Department of the Air Force	2,242	0	1,842	1,519	-17.5
	Department of the Army	1,010	0	932	804	-13.7
	Department of the Navy	3,384	61	4,365	3,915	-10.3
5	System development and demonstration	18,125	0	17,365	16,497	-5.0
	Defense agencies	792	0	857	1,029	20.1
	Department of the Air Force	3,995	0	3,845	3,579	-6.9
	Department of the Army	5,026	0	4,455	5,035	13.0
	Department of the Navy	8,312	0	8,209	6,853	-16.5
6	RDT&E management support	5,983	8	4,756	4,489	-5.6
	Defense agencies	1,493	2	1,309	1,213	-7.3
	Department of the Air Force	1,485	2	1,066	1,084	1.7
	Department of the Army	1,470	2	1,197	1,142	-4.5
	Department of the Navy	1,350	2	996	854	-14.2
	Operational test and evaluation	185	0	188	195	3.5
7	Operational system development	28,320	20	30,562	29,995	-1.9
	Defense agencies	5,652	0	5,497	5,141	-6.5
	Department of the Air Force	16,615	11	18,955	19,139	1.0
	Department of the Army	1,487	0	1,808	1,558	-13.9
	Department of the Navy	4,566	10	4,303	4,157	-3.4
	Adjustment for RDT&E budget authority <sup>c</sup>	-646	0	-273	0	-100.0

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

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

<sup>b</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>c</sup> 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 2011* (Washington, DC: U.S. Government Printing Office, 2010).

TABLE 30. Federal research and development and R&D plant budget authority for natural resources and environment (300): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	2,371	244	2,498	2,684	7.4
Conservation and land management (302)	384	0	415	403	-2.9
Department of the Interior <sup>b</sup>	44	0	50	51	2.0
Forest Service (USDA)	340	0	365	352	-3.6
Pollution control and abatement (304)	565	0	597	608	1.8
Environmental Protection Agency	563	0	595	606	1.9
Leaking Underground Storage Tanks	1	0	0	0	33.3
Oil Spill Response Research	1	0	1	1	0.0
Science and Technology	535	0	567	580	2.3
Superfund	26	0	27	25	-8.2
U.S. Coast Guard (DHS)	2	0	2	2	0.0
Recreational resources (303)	25	0	27	28	3.7
National Park Service (DOI)	25	0	27	28	3.7
Water resources (301)	29	0	29	25	-13.8
Army Corps of Engineers (DOD)	11	0	11	11	0.0
Bureau of Reclamation (DOI)	18	0	18	14	-22.2
Other natural resources (306)	1,368	244	1,430	1,620	13.3
National Oceanic and Atmospheric Administration (DOC)	754	170	770	941	22.2
National Environmental Satellite, Data, and Information Service	119	0	95	253	166.1
National Marine Fisheries Service	9	0	62	61	-1.6
National Ocean Service	74	0	68	81	18.6
National Weather Service	33	0	37	27	-26.0
Office of Oceanic and Atmospheric Research	406	170	412	430	4.5
Office of Marine and Aviation Operations	113	0	97	89	-7.8
U.S. Geological Survey (DOI)	615	74	661	679	2.8
Biological Research	185	0	205	201	-1.8
Enterprise Information	5	15	1	1	-9.4
Facilities	0	0	0	0	-
Geographic Research	42	0	47	54	13.8
Geologic Hazards, Resources, and Processes	216	45	222	227	2.3
Global Change	41	0	58	72	23.9
Water Resources Investigations	126	15	127	124	-2.6

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOI = Department of the Interior; USDA = U.S. Department of Agriculture.

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Includes Bureau of Land Management, Office of Surface Mining and Reclamation, and Minerals Management Service.

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 31. Federal research and development budget authority for natural resources and environment (300): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	2,171	74	2,300	2,490	8.3
Conservation and land management (302)	367	0	392	385	-1.8
Department of the Interior <sup>b</sup>	40	0	48	49	2.1
Forest Service (USDA)	327	0	344	336	-2.3
Pollution control and abatement (304)	565	0	597	608	1.8
Environmental Protection Agency	563	0	595	606	1.9
Leaking Underground Storage Tanks	1	0	0	0	33.3
Oil Spill Response Research	1	0	1	1	0.0
Science and Technology	535	0	567	580	2.3
Superfund	26	0	27	25	-8.2
U.S. Coast Guard (DHS)	2	0	2	2	0.0
Recreational resources (303)	25	0	27	28	3.7
National Park Service (DOI)	25	0	27	28	3.7
Water resources (301)	23	0	24	25	4.2
Army Corps of Engineers (DOD)	11	0	11	11	0.0
Bureau of Reclamation (DOI)	12	0	13	14	7.7
Other natural resources (306)	1,191	74	1,260	1,444	14.6
National Oceanic and Atmospheric Administration (DOC)	576	0	600	765	27.6
National Environmental Satellite, Data, and Information Service	119	0	95	243	156.1
National Marine Fisheries Service	9	0	62	61	-1.6
National Ocean Service	67	0	68	81	18.6
National Weather Service	33	0	37	27	-26.0
Office of Oceanic and Atmospheric Research	348	0	338	353	4.4
Office of Marine and Aviation Operations	0	0	0	0	-
U.S. Geological Survey (DOI)	615	74	661	679	2.8
Biological Research	185	0	205	201	-1.8
Enterprise Information	5	15	1	1	-9.4
Facilities	0	0	0	0	-
Geographic Research	42	0	47	54	13.8
Geologic Hazards, Resources, and Processes	216	45	222	227	2.3
Global Change	41	0	58	72	23.9
Water Resources Investigations	126	15	127	124	-2.6

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOI = Department of the Interior; USDA = U.S. Department of Agriculture.

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> Includes Bureau of Land Management, Office of Surface Mining and Reclamation, and Minerals Management Service.

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 and R&D plant budget authority for space research and technology (252): FY 2009–11  
(Millions of dollars)

Agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	8,374	686	8,889	9,911	11.5
National Aeronautics and Space Administration (NASA) <sup>b</sup>					
Cross-agency support					
Innovative partnerships	160	0	175	0	-100.0
Exploration	3,056	375	3,369	3,430	1.8
Advanced capabilities	383	0	402	0	-100.0
Commercial spaceflight	0	0	0	812	-
Constellation systems	2,674	375	2,967	1,067	-64.0
Exploration research and development	0	0	0	1,552	-
Science	3,097	311	3,078	3,573	16.1
Astrophysics	847	75	728	715	-1.8
Earth science	915	236	953	1,303	36.7
Heliophysics	395	0	410	455	11.0
Planetary science	942	0	988	1,099	11.2
Space Operations	2,061	0	2,267	2,908	28.3
21st Century Launch Complex	0	0	0	128	-
International space station	2,061	0	2,267	2,780	22.6

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> NASA adjusted their R&D reporting in FY 2011 to more closely match survey data reported to the National Science Foundation. All years are adjusted for comparability.

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

SOURCES: NASA submissions to Office of Management and Budget per MAX Schedule C, NASA budget justification documents, and supplemental data obtained from NASA budget office.

TABLE 33. Federal research and development budget authority for space research and technology (252): FY 2009–11  
(Millions of dollars)

Agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	6,205	686	6,622	7,364	11.2
National Aeronautics and Space Administration (NASA) <sup>b</sup>					
Cross-agency support					
Innovative partnerships	160	0	175	0	-100.0
Exploration	2,964	375	3,369	3,430	1.8
Advanced capabilities	383	0	402	0	-100.0
Commercial spaceflight	0	0	0	812	-
Constellation systems	2,582	375	2,967	1,067	-64.0
Exploration research and development	0	0	0	1,552	-
Science	3,081	311	3,078	3,573	16.1
Astrophysics	846	75	728	715	-1.8
Earth science	915	236	953	1,303	36.7
Heliophysics	379	0	410	455	11.0
Planetary science	942	0	988	1,099	11.2
Space Operations	0	0	0	361	-
21st Century Launch Complex	0	0	0	128	-
International space station	0	0	0	233	-

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> NASA adjusted their R&D reporting in FY 2011 to more closely match survey data reported to the National Science Foundation. All years are adjusted for comparability.

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

SOURCES: NASA submissions to Office of Management and Budget per MAX Schedule C, NASA budget justification documents, and supplemental data obtained from NASA budget office.

TABLE 34. Federal research and development and R&D plant budget authority for transportation (400): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	1,357	104	1,448	2,071	43.1
Air transportation (402)	745	104	810	1,433	77.0
Federal Aviation Administration (DOT)	331	0	375	358	-4.3
National Aeronautics and Space Administration	414	104	435	1,075	0.0
Aeronautics Research	414	104	435	503	15.6
Space Technology	0	0	0	572	-
Ground transportation (401) (DOT)	554	0	575	591	2.7
Federal Highway Administration	432	0	442	442	0.0
Federal Motor Carrier Safety Administration	7	0	7	6	-7.6
Federal Railroad Administration	37	0	42	45	7.7
Federal Transit Administration	15	0	14	33	131.1
National Highway Traffic Safety Administration	63	0	71	65	-8.5
Water transportation (403)	18	0	24	20	-16.7
U.S. Coast Guard (DHS)	18	0	24	20	-16.7
Other transportation (407) <sup>b</sup> (DOT)	40	0	39	27	-31.1

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

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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 35. Federal research and development budget authority for transportation (400): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	1,336	104	1,427	2,046	43.5
Air transportation (402)	727	104	791	1,412	78.5
Federal Aviation Administration (DOT)	313	0	356	337	-5.4
National Aeronautics and Space Administration	414	104	435	1,075	
Aeronautics Research	414	104	435	503	15.6
Space Technology	0	0	0	572	-
Ground transportation (401) (DOT)	552	0	573	588	2.6
Federal Highway Administration	432	0	442	442	0.0
Federal Motor Carrier Safety Administration	7	0	7	6	-7.6
Federal Railroad Administration	34	0	39	42	7.5
Federal Transit Administration	15	0	14	33	131.1
National Highway Traffic Safety Administration	63	0	71	65	-8.5
Water transportation (403)	18	0	24	20	-16.7
U.S. Coast Guard (DHS)	18	0	24	20	-16.7
Other transportation (407) <sup>b</sup> (DOT)	40	0	39	27	-31.1

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

<sup>a</sup> For total FY 2009, sum FY 2009 actual and FY 2009 ARRA (funds appropriated through the American Recovery and Reinvestment Act of 2009).

<sup>b</sup> 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 veterans benefits and services (700): FY 2009–11  
(Millions of dollars)

Funding category and agency	2009 <sup>a</sup>		2010 preliminary	2011 proposed	2010–11 (% change)
	Actual	ARRA			
Total	943	0	1,162	1,180	1.5
Department of Veterans Affairs					
Medical and prosthetic research (703)	943	0	1,162	1,180	1.5

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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. Percentage change calculated on unrounded data. Includes administration and operating expenses related to Department of Veterans Affairs research.

SOURCE: Department of Veterans Affairs submission to Office of Management and Budget per MAX Schedule C.

TABLE 37. Federal research and development obligations, budget authority, and budget authority for basic research, by budget function: FY 1955–2011

(Millions of dollars)

Federal R&D obligations and 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 <sup>a</sup>
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 37. Federal research and development obligations, budget authority, and budget authority for basic research, by budget function: FY 1955–2011

(Millions of dollars)

Federal R&D obligations and 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 <sup>a</sup>	
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 preliminary <sup>b</sup>																				
Actual	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 preliminary	143,892	313	2,025	542	117	525	2,138	0	9,298	30,976	77	255	33	86,082	2,300	6,622	1,427	1,162	na	
2011 proposed	143,404	203	2,036	621	233	576	2,450	0	9,945	31,917	77	255	42	81,969	2,490	7,364	2,046	1,180	na	

TABLE 37. Federal research and development obligations, budget authority, and budget authority for basic research, by budget function: FY 1955–2011

(Millions of dollars)

Federal R&D obligations and 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 <sup>a</sup>
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 37. Federal research and development obligations, budget authority, and budget authority for basic research, by budget function: FY 1955–2011

(Millions of dollars)

Federal R&D obligations and 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 <sup>a</sup>
2009 <sup>b</sup>																			
Actual	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 preliminary	29,139	73	876	121	0	168	49	0	8,268	16,093	0	18	0	1,887	237	884	0	464	na
2011 proposed	30,395	15	897	150	0	185	39	0	8,816	16,573	0	18	0	2,018	237	905	72	470	na

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

<sup>a</sup> Includes amounts for all functions for which data were not explicitly collected.

<sup>b</sup> For total FY 2009, sum FY 2009 actual 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. 1995–2011 data are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.

TABLE 38. Federal research and development obligations and budget authority for national defense and civilian functions: FY 1955–2011

Fiscal year	Current \$millions			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
<b>R&amp;D obligations</b>						
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
<b>R&amp;D authority</b>						
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

TABLE 38. Federal research and development obligations and budget authority for national defense and civilian functions: FY 1955–2011

Fiscal year	Current \$millions			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
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 <sup>a</sup>						
Actual	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 preliminary	143,892	86,082	57,810	100.0	59.8	40.2
2011 proposed	143,404	81,969	61,434	100.0	57.2	42.8

<sup>a</sup> For total FY 2009, sum FY 2009 actual 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: Agencies' submissions to Office of Management and Budget per MAX Schedule C, agencies' 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)												●				
Department of Agriculture		●		●		●						●				
Department of Commerce			●									●				
Consumer Product Safety Commission							●									
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						●										
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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