



National Center for Science and
Engineering Statistics

Federal R&D Funding, by Budget Function: Fiscal Years 2022–24

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General Notes

This report provides data on the budget authority conferred to U.S. federal agencies to fund the research and development (R&D) and R&D plant components of their programs in FYs 2022–24. *Budget authority* is the primary source of legal authorization to enter into obligations that 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.

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Federal budget authority for R&D and R&D plant, by budget function, ordered by FY 2022 R&D and R&D plant total: FYs 2022–24

(Millions of dollars and percent change)

Budget function	2022 actual ^a	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	186,765	202,043	209,854	8.2	3.9
National defense	85,299	99,395	102,280	16.5	2.9
Health	45,244	47,994	49,503	6.1	3.1
General science and basic research	16,390	15,880	17,710	-3.1	11.5
Space flight, research, and supporting activities	14,553	15,240	16,314	4.7	7.0
Energy	7,114	8,443	8,764	18.7	3.8
Commerce and housing credit	6,090	3,460	3,132	-43.2	-9.5
Natural resources and environment	3,155	3,322	3,626	5.3	9.2
Agriculture	3,295	3,207	3,216	-2.7	0.3
Transportation	2,314	1,986	2,178	-14.2	9.7
Veterans benefits and services	1,588	1,622	1,644	2.1	1.4
Education, training, employment, and social services	719	687	690	-4.5	0.4
Administration of justice	714	521	521	-27.0	0.0
International affairs	173	168	168	-2.9	0.0
Income security	90	90	100	0.0	11.1
Medicare	20	20	0	0.0	-100.0
Community and regional development	8	8	8	0.0	0.0
R&D	180,196	195,135	203,180	8.3	4.1
National defense	83,857	97,765	100,400	16.6	2.7
Health	44,943	47,572	49,111	5.8	3.2
General science and basic research	13,246	13,819	15,449	4.3	11.8
Space flight, research, and supporting activities	14,453	15,132	16,274	4.7	7.5
Energy	6,340	6,696	7,669	5.6	14.5
Commerce and housing credit	5,976	3,293	2,827	-44.9	-14.2
Natural resources and environment	2,848	2,996	3,305	5.2	10.3
Agriculture	3,000	2,893	2,990	-3.6	3.4
Transportation	2,274	1,940	2,136	-14.7	10.1
Veterans benefits and services	1,588	1,622	1,644	2.1	1.4
Education, training, employment, and social services	679	654	657	-3.7	0.5
Administration of justice	701	466	442	-33.5	-5.2
International affairs	173	168	168	-2.9	0.0
Income security	90	90	100	0.0	11.1
Medicare	20	20	0	0.0	-100.0
Community and regional development	8	8	8	0.0	0.0
R&D plant	6,570	6,908	6,674	5.1	-3.4
National defense	1,442	1,630	1,880	13.0	15.3
Health	301	422	392	40.2	-7.1
General science and basic research	3,143	2,061	2,262	-34.4	9.7
Space flight, research, and supporting activities	100	108	40	8.0	-63.0
Energy	774	1,747	1,095	125.7	-37.3
Commerce and housing credit	114	167	305	46.5	82.6
Natural resources and environment	307	325	320	5.8	-1.5
Agriculture	295	314	226	6.4	-28.0
Transportation	40	46	42	15.0	-8.7
Veterans benefits and services	0	0	0	-	-
Education, training, employment, and social services	40	33	33	-17.5	0.0
Administration of justice	13	55	79	323.1	43.6
International affairs	0	0	0	-	-

TABLE 1

Federal budget authority for R&D and R&D plant, by budget function, ordered by FY 2022 R&D and R&D plant total: FYs 2022–24

(Millions of dollars and percent change)

Budget function	2022 actual ^a	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
Income security	0	0	0	-	-
Medicare	0	0	0	-	-
Community and regional development	0	0	0	-	-

^a Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FY 2022. This funding may be included in this table's data; agency reporting is not clear in all cases.

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 2

Distribution of federal budget authority for R&D and R&D plant, by budget function: FYs 2022–24

(Percent distribution)

Budget function	2022 actual ^a	2023 preliminary	2024 proposed
R&D and R&D plant	100.0	100.0	100.0
National defense	45.7	49.2	48.7
Health	24.2	23.8	23.6
General science and basic research	8.8	7.9	8.4
Space flight, research, and supporting activities	7.8	7.5	7.8
Energy	3.8	4.2	4.2
Natural resources and environment	1.7	1.6	1.7
Agriculture	1.8	1.6	1.5
Transportation	1.2	1.0	1.0
Veterans benefits and services	0.9	0.8	0.8
Commerce and housing credit	3.3	1.7	1.5
Education, training, employment, and social services	0.4	0.3	0.3
Administration of justice	0.4	0.3	0.2
International affairs	0.1	0.1	0.1
Community and regional development	*	*	*
Income security	*	*	*
Medicare	*	*	0.0
R&D	100.0	100.0	100.0
National defense	46.5	50.1	49.4
Health	24.9	24.4	24.2
General science and basic research	7.4	7.1	7.6
Space flight, research, and supporting activities	8.0	7.8	8.0
Energy	3.5	3.4	3.8
Natural resources and environment	1.6	1.5	1.6
Agriculture	1.7	1.5	1.5
Transportation	1.3	1.0	1.1
Veterans benefits and services	0.9	0.8	0.8
Commerce and housing credit	3.3	1.7	1.4
Education, training, employment, and social services	0.4	0.3	0.3
Administration of justice	0.4	0.2	0.2
International affairs	0.1	0.1	0.1
Community and regional development	*	*	*
Income security	*	*	*
Medicare	*	*	0.0
R&D plant	100.0	100.0	100.0
General science and basic research	21.9	23.6	28.2
National defense	4.6	6.1	5.9
Natural resources and environment	47.8	29.8	33.9
Agriculture	1.5	1.6	0.6
Health	11.8	25.3	16.4
Energy	4.7	4.7	4.8
Commerce and housing credit	4.5	4.5	3.4
Space flight, research, and supporting activities	0.6	0.7	0.6
Transportation	0.0	0.0	0.0
Education, training, employment, and social services	1.7	2.4	4.6
Veterans benefits and services	0.6	0.5	0.5
Administration of justice	0.2	0.8	1.2
International affairs	0.0	0.0	0.0
Income security	0.0	0.0	0.0
Community and regional development	0.0	0.0	0.0
Medicare	0.0	0.0	0.0

* = value less than 0.05%.

^a Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FY 2022. This funding may be included in this table's data; agency reporting is not clear in all cases.

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 3

Federal budget authority for R&D and R&D plant as a percentage of total budget authority, by budget function: FYs 2022–24

(Percent share)

Budget function	2022 actual ^a	2023 preliminary	2024 proposed
All functions conducting R&D	4.2	4.0	4.0
National defense	11.5	12.2	12.1
Health	37.4	36.8	34.1
Space flight, research, and supporting activities	68.3	62.5	65.1
General science and basic research	84.0	86.8	81.2
Energy	19.9	21.3	20.3
Natural resources and environment	7.7	7.3	7.4
Agriculture	12.6	12.4	10.8
Transportation	8.6	6.9	7.8
Veterans benefits and services	1.4	1.2	1.2
Commerce and housing credit	0.5	0.3	0.2
Education, training, employment, and social services	1.0	0.9	0.8
Administration of justice	2.0	1.4	1.3
International affairs	0.3	0.3	0.2
Community and regional development	0.1	0.1	0.1
Income security	*	*	*
Medicare	*	*	0.0

* = value less than 0.05%.

^a Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FY 2022. This funding may be included in this table's data; agency reporting is not clear in all cases.

Note(s):

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Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 4

Federal budget authority for basic research, by budget function: FYs 2022–24

(Millions of dollars and percent change)

Budget function	2022 actual ^a	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
All functions conducting R&D	45,222	47,089	48,266	4.1	2.5
National defense	2,653	2,919	2,480	10.0	-15.0
Health	21,844	22,961	22,959	5.1	*
Space flight, research, and supporting activities	5,718	5,627	5,820	-1.6	3.4
General science and basic research	11,962	12,535	13,877	4.8	10.7
Energy	170	208	193	22.4	-7.2
Natural resources and environment	149	141	128	-5.9	-8.9
Agriculture	1,417	1,357	1,369	-4.2	0.9
Transportation	0	0	0	-	-
Veterans benefits and services	619	648	701	4.7	8.2
Commerce and housing credit	270	282	309	4.4	9.6
Education, training, employment, and social services	324	342	368	5.6	7.6
Administration of justice	88	68	60	-22.7	-11.8
International affairs	7	2	2	-71.4	0.0
Income security	0	0	0	-	-
Community and regional development	0	0	0	-	-
Medicare	0	0	0	-	-

* = value less than 0.05%.

^a Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FY 2022. This funding may be included in this table's data; agency reporting is not clear in all cases.

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 5

Federal budget authority for National defense (050) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	85,299	99,395	102,280	16.5	2.9
Department of Defense, military (051)	78,794	92,319	95,077	17.2	3.0
R&D within RDT&E accounts	75,730	91,243	93,861	20.5	2.9
Defense agencies	21,464	24,046	24,078	12.0	0.1
Defense Advanced Research Projects Agency	3,868	4,061	4,388	5.0	8.1
Missile Defense Agency	7,266	8,293	8,721	14.1	5.2
Other defense agencies	10,330	11,692	10,968	13.2	-6.2
Department of the Air Force	18,446	21,194	22,736	14.9	7.3
Space Force	5,948	10,032	11,589	68.7	15.5
Department of the Army	13,136	15,767	14,586	20.0	-7.5
Department of the Navy	16,460	19,758	20,540	20.0	4.0
Operational Test and Evaluation	277	446	331	61.3	-25.7
Other military funding ^a	3,064	1,076	1,216	-64.9	13.0
Atomic energy defense activities (053)	6,493	7,067	7,199	8.8	1.9
Department of Energy	6,493	7,067	7,199	8.8	1.9
Defense environmental cleanup	33	43	33	30.3	-23.3
Naval reactors development	1,382	1,418	1,207	2.6	-14.9
Nonproliferation	517	545	533	5.4	-2.2
Weapons activities	4,561	5,061	5,426	11.0	7.2
Defense-related activities (054)	12	9	4	-25.0	-55.6
Department of Justice, Federal Bureau of Investigation	2	2	2	0.0	0.0
Department of Homeland Security, Cybersecurity and Infrastructure Security Agency	10	7	2	-30.0	-71.4
R&D	83,857	97,765	100,400	16.6	2.7
Department of Defense, military (051)	78,774	92,319	94,825	17.2	2.7
R&D within RDT&E accounts	75,730	91,243	93,861	20.5	2.9
Defense agencies	21,464	24,046	24,078	12.0	0.1
Defense Advanced Research Projects Agency	3,868	4,061	4,388	5.0	8.1
Missile Defense Agency	7,266	8,293	8,721	14.1	5.2
Other defense agencies	10,330	11,692	10,968	13.2	-6.2
Department of the Air Force	18,446	21,194	22,736	14.9	7.3
Space Force	5,948	10,032	11,589	68.7	15.5
Department of the Army	13,136	15,767	14,586	20.0	-7.5
Department of the Navy	16,460	19,758	20,540	20.0	4.0
Operational Test and Evaluation	277	446	331	61.3	-25.7
Other military funding ^a	3,044	1,076	964	-64.7	-10.4
Atomic energy defense activities (053)	5,071	5,437	5,571	7.2	2.5
Department of Energy	5,071	5,437	5,571	7.2	2.5
Defense environmental cleanup	33	43	33	30.3	-23.3
Naval reactors development	807	841	952	4.2	13.2
Nonproliferation	487	514	501	5.5	-2.5
Weapons activities	3,744	4,039	4,085	7.9	1.1
Defense-related activities (054)	12	9	4	-25.0	-55.6
Department of Justice, Federal Bureau of Investigation	2	2	2	0.0	0.0
Department of Homeland Security, Cybersecurity and Infrastructure Security Agency	10	7	2	-30.0	-71.4

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

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

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 6

Department of Defense, total obligational authority for research, development, test, and evaluation, by DOD budget activity: FYs 2022–24

(Millions of dollars and percent change)

Funding category and agency	Budget activity	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
RDT&E total budget authority	--	118,705	139,656	118,741	17.6	-15.0
R&D budget authority within RDT&E accounts ^a	--	75,730	91,243	93,861	20.5	2.9
RDT&E total obligational authority ^b	--	118,705	139,656	118,741	17.6	-15.0
Basic research		2,653	2,919	2,480	10.0	-15.0
Defense agencies		876	927	761	5.8	-17.9
Department of the Air Force		505	612	584	21.2	-4.6
Space Force		0	55	0	-	-100.0
Department of the Army		590	635	497	7.7	-21.7
Department of the Navy	1	681	689	637	1.1	-7.5
Applied research		6,800	7,801	6,018	14.7	-22.9
Defense agencies		2,155	2,386	2,403	10.7	0.7
Department of the Air Force		1,591	1,744	1,433	9.7	-17.8
Space Force		290	360	206	24.2	-42.8
Department of the Army		1,521	1,823	948	19.8	-48.0
Department of the Navy	2	1,243	1,487	1,026	19.6	-31.0
Advanced technology development		8,949	11,706	9,327	30.8	-20.3
Defense agencies		4,697	6,153	5,381	31.0	-12.5
Department of the Air Force		918	1,096	891	19.4	-18.7
Space Force		227	615	583	170.3	-5.3
Department of the Army		2,145	2,533	1,456	18.1	-42.5
Department of the Navy	3	960	1,309	1,017	36.3	-22.4
Advanced component development and prototypes		32,052	35,606	40,330	11.1	13.3
Defense agencies		10,593	11,089	12,087	4.7	9.0
Department of the Air Force		9,427	8,361	9,859	-11.3	17.9
Space Force		1,568	2,970	4,229	89.4	42.4
Department of the Army		3,799	4,637	4,420	22.0	-4.7
Department of the Navy	4	6,664	8,549	9,734	28.3	13.9
System development and demonstration		14,429	23,303	26,538	61.5	13.9
Defense agencies		641	978	1,446	52.5	47.8
Department of the Air Force		2,176	6,075	6,482	179.1	6.7
Space Force		3,125	5,459	6,008	74.7	10.1
Department of the Army		3,178	4,318	5,639	35.9	30.6
Department of the Navy	5	5,308	6,473	6,962	21.9	7.6
RDT&E management support		10,847	9,908	9,168	-8.7	-7.5
Defense agencies		2,502	2,513	1,999	0.4	-20.5
Department of the Air Force		3,828	3,305	3,487	-13.7	5.5
Space Force		737	573	563	-22.2	-1.8
Department of the Army		1,902	1,821	1,625	-4.3	-10.8
Department of the Navy		1,603	1,251	1,164	-21.9	-7.0
Operational test and evaluation	6	277	446	331	61.3	-25.7
Operational system development		42,975	48,413	24,881	12.7	-48.6
Defense agencies		7,484	10,428	2,912	39.3	-72.1
Department of the Air Force		23,062	24,005	7,015	4.1	-70.8
Space Force		5,469	6,428	7,488	17.5	16.5
Department of the Army		1,417	1,289	1,106	-9.0	-14.2
Department of the Navy	7	5,544	6,262	6,359	13.0	1.5

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

^a Totals for development spending across all years do not include DOD Budget Activity 7 (BA-7) (Operational Systems Development) due to implementation of the narrowed definition of development described by the Office of Management and Budget (OMB) in its Circular A-11 of July 2016. These BA-7 funds support development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year.

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

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 7

Federal budget authority for International affairs (150) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	173	168	168	-2.9	0.0
International development and humanitarian assistance (151)	173	168	168	-2.9	0.0
Agency for International Development	153	153	153	0.0	0.0
Department of State	7	2	2	-71.4	0.0
International Security Assistance (152)	13	13	13	0.0	0.0
Economic Support Fund	13	13	13	0.0	0.0
R&D	173	168	168	-2.9	0.0
International development and humanitarian assistance (151)	173	168	168	-2.9	0.0
Agency for International Development (151)	153	153	153	0.0	0.0
Department of State	7	2	2	-71.4	0.0
International Security Assistance (152)	13	13	13	0.0	0.0
Economic Support Fund	13	13	13	0.0	0.0

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 8

Federal budget authority for General science and basic research (251) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	16,390	15,880	17,710	-3.1	11.5
Department of Energy	9,062	7,902	8,404	-12.8	6.4
Office of Science	9,062	7,902	8,404	-12.8	6.4
National Science Foundation	7,328	7,978	9,306	8.9	16.6
Arctic Research Commission	0	0	0	na	na
Biological Sciences	841	785	891	-6.6	13.5
CHIPS for America Workforce & Education R&D	0	18	17	na	-5.6
Computer and Information Science and Engineering	960	963	1,074	0.3	11.6
STEM Education ^a	508	599	718	18.0	19.8
Engineering	771	741	889	-3.9	19.9
Geosciences	1,008	979	1,133	-2.9	15.8
Integrative Activities	388	501	592	29.1	18.2
International Science and Engineering	37	64	65	72.8	2.7
Major Research Equipment and Facilities and Construction	191	187	305	-1.8	62.7
Mathematical and Physical Sciences	1,635	1,545	1,683	-5.5	8.9
Polar Programs	389	501	520	28.9	3.8
Social, Behavioral and Economic Sciences	224	287	331	28.1	15.1
Technology, Innovation, and Partnerships	376	807	1,087	114.7	34.7
R&D	13,246	13,819	15,449	4.3	11.8
Department of Energy	6,448	6,397	6,821	-0.8	6.6
Office of Science	6,448	6,397	6,821	-0.8	6.6
National Science Foundation	6,798	7,422	8,628	9.2	16.2
Arctic Research Commission	0	0	0	na	na
Biological Sciences	772	745	851	-3.5	14.2
CHIPS for America Workforce & Education R&D	0	18	17	na	-5.6
Computer and Information Science and Engineering	944	913	1,026	-3.2	12.3
STEM Education ^a	508	599	718	18.0	19.8
Engineering	770	703	849	-8.6	20.7
Geosciences	991	929	1,082	-6.3	16.5
Integrative Activities	243	476	566	95.6	18.9
International Science and Engineering	37	60	62	63.9	3.4
Major Research Equipment and Facilities Construction	0	0	0	na	na
Mathematical and Physical Sciences	1,573	1,466	1,607	-6.8	9.6
Polar Programs	361	476	497	31.8	4.4
Social, Behavioral and Economic Sciences	224	272	316	21.5	15.9
Technology, Innovation, and Partnerships	376	765	1,038	103.7	35.6

na = not applicable.

^a Education and Human Resource (EHR) was renamed to STEM Education in the 2023 Presidential Budget Request.**Note(s):**

2022 actual amounts include supplemental appropriations from the American Rescue Plan and Extending Government Funding and Delivering Emergency Assistance Act. 2023 preliminary subaccount amounts were estimated using 2023 Current Plan estimates. 2024 preliminary subaccount amounts were estimated based on the FY 2024 Congressional Request. Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

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

TABLE 9

Federal budget authority for Space flight, research, and supporting activities (252) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	14,553	15,240	16,314	4.7	7.0
National Aeronautics and Space Administration	14,553	15,240	16,314	4.7	7.0
Safety, security, and mission services	3,021	3,129	3,369	3.6	7.7
Deep Space Exploration Systems	1,555	1,805	2,045	16.1	13.3
Science	7,541	7,742	8,205	2.7	6.0
LEO (low earth orbit) and space flight operations	1,262	1,286	1,302	1.9	1.2
Space technology ^a	1,074	1,170	1,353	8.9	15.6
Construction, environmental compliance, and restoration	100	108	40	8.0	-63.0
R&D	14,453	15,132	16,274	4.7	7.5
National Aeronautics and Space Administration	14,453	15,132	16,274	4.7	7.5
Safety, security, and mission services	3,021	3,129	3,369	3.6	7.7
Deep Space Exploration Systems	1,555	1,805	2,045	16.1	13.3
Science	7,541	7,742	8,205	2.7	6.0
LEO (low earth orbit) and space flight operations	1,262	1,286	1,302	1.9	1.2
Space technology	1,074	1,170	1,353	8.9	15.6
Construction, environmental compliance, and restoration	0	0	0	-	-

^a Exploration technology was renamed to space technology in the 2022 Presidential Budget Request.

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 10

Federal budget authority for Energy (270) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	7,114	8,443	8,764	18.7	3.8
Energy supply (271)	7,030	8,361	8,690	18.9	3.9
Department of Energy	7,002	8,267	8,602	18.1	4.1
Energy programs	6,193	7,578	7,733	22.4	2.0
Energy efficiency and renewable energy	2,756	4,204	4,354	52.5	3.6
Fossil energy and carbon management ^a	1,907	1,593	1,615	-16.5	1.4
Nuclear energy	1,282	1,495	1,468	16.6	-1.8
Electricity delivery	183	165	190	-9.8	15.2
Cybersecurity, Energy Security, and Emergency Response	65	121	106	86.0	-12.2
Advanced Research Projects Agency-Energy (ARPA-E)	450	470	650	4.4	38.3
Clean Energy Demonstration	357	217	217	-39.2	0.0
Bonneville Power Administration Fund	2	2	2	0.0	0.0
Tennessee Valley Authority	28	94	88	235.7	-6.4
Energy information, policy, regulation (276)	84	82	74	-2.4	-9.8
Nuclear Regulatory Commission	84	82	74	-2.4	-9.8
R&D	6,340	6,696	7,669	5.6	14.5
Energy supply (271)	6,256	6,614	7,595	5.7	14.8
Department of Energy	6,228	6,520	7,507	4.7	15.1
Energy programs	5,419	5,831	6,638	7.6	13.8
Energy efficiency and renewable energy	2,301	2,517	3,314	9.4	31.7
Fossil energy and carbon management ^a	1,682	1,540	1,560	-8.4	1.3
Nuclear energy	1,238	1,488	1,468	20.2	-1.3
Electricity delivery	133	165	190	24.1	15.2
Cybersecurity, Energy Security, and Emergency Response	65	121	106	86.0	-12.2
Advanced Research Projects Agency-Energy (ARPA-E)	450	470	650	4.4	38.3
Clean Energy Demonstration	357	217	217	-39.2	0.0
Bonneville Power Administration Fund	2	2	2	0.0	0.0
Tennessee Valley Authority	28	94	88	235.7	-6.4
Energy information, policy, regulation (276)	84	82	74	-2.4	-9.8
Nuclear Regulatory Commission	84	82	74	-2.4	-9.8

^a Fossil energy has been renamed to Fossil energy and carbon management in the 2023 Presidential Budget Request.

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 11

Federal budget authority for Natural resources and environment (300) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	3,155	3,322	3,626	5.3	9.2
Conservation and land management (302)	634	601	667	-5.2	11.0
Department of the Interior	178	192	212	7.9	10.4
Department of Agriculture	456	409	455	-10.3	11.2
Forest Service	456	409	455	-10.3	11.2
Pollution control and abatement (304)	535	576	622	7.7	8.0
Environmental Protection Agency	527	568	614	7.8	8.1
Oil spill response research	1	1	1	0.0	0.0
Science and technology	496	537	583	8.3	8.6
Superfund	30	30	30	0.0	0.0
Department of Homeland Security	8	8	8	0.0	0.0
Coast Guard	8	8	8	0.0	0.0
Recreational resources (303)	28	29	32	3.6	10.3
Department of the Interior	28	29	32	3.6	10.3
National Park Service	28	29	32	3.6	10.3
Water resources (301)	33	36	20	9.1	-44.4
Department of Defense	33	36	20	9.1	-44.4
Army Corps of Engineers	33	36	20	9.1	-44.4
Department of Interior	111	146	147	31.5	0.7
Bureau of Reclamation	111	146	147	31.5	0.7
Other natural resources (306)	1,925	2,080	2,285	8.0	9.9
Department of Commerce	1,187	1,277	1,267	7.5	-0.7
National Oceanic and Atmospheric Administration	1,187	1,277	1,267	7.5	-0.7
Mission Support / Spectrum	33	0	0	-100.0	-
National Environmental Satellite, Data, and Information Service	42	71	74	70.6	4.2
National Marine Fisheries Service	77	71	73	-7.5	2.0
National Ocean Service	108	127	121	17.8	-5.0
National Weather Service	21	37	37	72.7	1.7
Office of Oceanic and Atmospheric Research	628	730	726	16.2	-0.6
Office of Marine and Aviation Operations	278	240	236	-13.8	-1.5
Department of the Interior	737	803	1,017	8.9	26.7
Geological Survey	737	803	1,017	8.9	26.7
Core science systems	96	104	163	8.7	56.2
Ecosystems	277	306	394	10.6	28.7
Energy, minerals, and environmental health	83	90	130	9.5	43.9
Natural hazards	135	145	169	7.6	16.5
Water resources	147	157	161	6.7	2.6
R&D	2,848	2,996	3,305	5.2	10.3
Conservation and land management (302)	625	594	661	-5.0	11.3
Department of the Interior	176	190	210	8.0	10.5
Department of Agriculture	449	404	451	-10.0	11.6
Forest Service	449	404	451	-10.0	11.6
Pollution control and abatement (304)	535	576	622	7.7	8.0
Environmental Protection Agency	527	568	614	7.8	8.1
Oil spill response research	1	1	1	0.0	0.0
Science and technology	496	537	583	8.3	8.6
Superfund	30	30	30	0.0	0.0
Department of Homeland Security	8	8	8	0.0	0.0
Coast Guard	8	8	8	0.0	0.0

TABLE 11

Federal budget authority for Natural resources and environment (300) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
Recreational resources (303)	28	29	32	3.6	10.3
Department of the Interior	28	29	32	3.6	10.3
National Park Service	28	29	32	3.6	10.3
Water resources (301)	33	36	20	9.1	-44.4
Department of Defense	33	36	20	9.1	-44.4
Army Corps of Engineers	33	36	20	9.1	-44.4
Department of the Interior	111	146	147	31.5	0.7
Bureau of Reclamation	111	146	147	31.5	0.7
Other natural resources (306)	1,627	1,761	1,970	8.3	11.9
Department of Commerce	889	958	953	7.8	-0.6
National Oceanic and Atmospheric Administration	889	958	953	7.8	-0.6
Mission Support / Spectrum	33	0	0	-100.0	-
National Environmental Satellite, Data, and Information Service	42	71	74	70.6	4.2
National Marine Fisheries Service	77	71	73	-7.5	2.0
National Ocean Service	108	127	121	17.8	-5.0
National Weather Service	21	37	37	79.3	1.7
Office of Oceanic and Atmospheric Research	572	615	611	7.4	-0.6
Office of Marine and Aviation Operations	36	37	37	2.4	-1.5
Department of the Interior	737	803	1,017	8.9	26.7
Geological Survey	737	803	1,017	8.9	26.7
Core science systems	96	104	163	8.7	56.2
Ecosystems	277	306	394	10.6	28.7
Energy, minerals, and environmental health	83	90	130	9.5	43.9
Natural hazards	135	145	169	7.6	16.5
Water resources	147	157	161	6.7	2.6

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 12

Federal budget authority for Agriculture (350) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	3,295	3,207	3,216	-2.7	0.3
Agricultural research and services (352)	3,295	3,207	3,216	-2.7	0.3
Department of Agriculture	3,295	3,207	3,216	-2.7	0.3
Agricultural Research Service	1,798	1,892	1,994	5.2	5.4
Animal and Plant Health Inspection Service	45	49	49	8.9	0.0
Economic Research Service	88	93	98	5.7	5.4
National Agricultural Statistics Service	11	11	11	0.0	0.0
National Institute of Food and Agriculture	1,353	1,162	1,064	-14.1	-8.4
R&D	3,000	2,893	2,990	-3.6	3.4
Agricultural research and services (352)	3,000	2,893	2,990	-3.6	3.4
Department of Agriculture	3,000	2,893	2,990	-3.6	3.4
Agricultural Research Service	1,503	1,578	1,768	5.0	12.0
Animal and Plant Health Inspection Service	45	49	49	8.9	0.0
Economic Research Service	88	93	98	5.7	5.4
National Agricultural Statistics Service	11	11	11	0.0	0.0
National Institute of Food and Agriculture	1,353	1,162	1,064	-14.1	-8.4

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 13

Federal budget authority for Commerce and housing credit (370) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	6,090	3,460	3,132	-43.2	-9.5
Postal Service (372)	14	14	13	0.0	-7.1
Postal Service Fund	14	14	13	0.0	-7.1
Other advancement of commerce (376)	6,076	3,446	3,119	-43.3	-9.5
Department of Commerce	6,076	3,446	3,119	-43.3	-9.5
Census Bureau	224	328	465	46.4	41.8
National Institute of Standards and Technology	5,761	2,997	2,554	-48.0	-14.8
Construction of research facilities	80	130	262	62.5	101.5
Industrial technology services	4,524	1,891	1,329	-58.2	-29.7
Scientific and technical research and services	1,157	976	963	-15.6	-1.3
National Oceanic and Atmospheric Administration	77	71	73	-7.5	2.0
National Marine Fisheries Service	77	71	73	-7.5	2.0
National Telecommunications and Information Administration	14	50	27	257.1	-46.0
R&D	5,976	3,293	2,827	-44.9	-14.2
Postal Service (372)	14	14	13	0.0	-7.1
Postal Service Fund	14	14	13	0.0	-7.1
Other advancement of commerce (376)	5,962	3,279	2,814	-45.0	-14.2
Department of Commerce	5,962	3,279	2,814	-45.0	-14.2
Census Bureau	224	328	465	46.4	41.8
National Institute of Standards and Technology	5,647	2,830	2,255	-49.9	-20.3
Construction of research facilities	0	0	0	-	-
Industrial technology services	4,524	1,891	1,329	-58.2	-29.7
Scientific and technical research and services	1,123	939	926	-16.4	-1.4
National Oceanic and Atmospheric Administration	77	71	73	-7.5	2.0
National Marine Fisheries Service	77	71	73	-7.5	2.0
National Telecommunications and Information Administration	14	50	21	257.1	-58.0

Note(s):

The Small Business Administration no longer performs R&D and has been removed. Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 14

Federal budget authority for Transportation (400) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	2,314	1,986	2,178	-14.2	9.7
Air transportation (402)	1,527	1,298	1,342	-15.0	3.4
Department of Transportation	771	493	480	-36.1	-2.6
Federal Aviation Administration	771	493	480	-36.1	-2.6
National Aeronautics and Space Administration	720	771	833	7.1	8.0
Aeronautics research	720	771	833	7.1	8.0
Department of Homeland Security	36	34	29	-5.6	-14.7
Transportation Security Administration	36	34	29	-5.6	-14.7
Ground transportation (401)	594	573	699	-3.5	22.0
Department of Transportation	594	573	699	-3.5	22.0
Federal Highway Administration	476	460	519	-3.4	12.8
Federal Motor Carrier Safety Administration	14	14	38	0.0	171.4
Federal Railroad Administration	48	50	65	4.2	30.0
Federal Transit Administration	38	30	58	-21.1	93.3
National Highway Traffic Safety Administration	18	19	19	5.6	0.0
Water transportation (403)	1	1	1	0.0	0.0
Department of Homeland Security	1	1	1	0.0	0.0
Coast Guard	1	1	1	0.0	0.0
Other transportation (407)	192	114	136	-40.8	19.7
Department of Transportation	192	114	136	-40.8	19.7
R&D	2,274	1,940	2,136	-14.7	10.1
Air transportation (402)	1,494	1,261	1,310	-15.6	3.9
Department of Transportation	738	456	448	-38.2	-1.8
Federal Aviation Administration	738	456	448	-38.2	-1.8
National Aeronautics and Space Administration	720	771	833	7.1	8.0
Aeronautics research	720	771	833	7.1	8.0
Department of Homeland Security	36	34	29	-5.6	-14.7
Transportation Security Administration	36	34	29	-5.6	-14.7
Ground transportation (401)	587	564	689	-3.9	22.2
Department of Transportation	587	564	689	-3.9	22.2
Federal Highway Administration	472	456	515	-3.4	12.9
Federal Motor Carrier Safety Administration	14	14	38	0.0	171.4
Federal Railroad Administration	45	45	59	0.0	31.1
Federal Transit Administration	38	30	58	-21.1	93.3
National Highway Traffic Safety Administration	18	19	19	5.6	0.0
Water transportation (403)	1	1	1	0.0	0.0
Department of Transportation	1	1	1	0.0	0.0
Coast Guard	1	1	1	0.0	0.0
Other transportation (407)	192	114	136	-40.8	19.7
Department of Transportation	192	114	136	-40.8	19.7

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 15

Federal budget authority for Community and regional development (450) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	8	8	8	0.0	0.0
Community Development (451)	0	0	0	-	-
Area and Regional Development (452)	8	8	8	0.0	0.0
Department of the Interior	5	5	5	0.0	0.0
Bureau of Indian Affairs and Bureau of Indian Education	5	5	5	0.0	0.0
Appalachian Regional Commission	3	3	3	0.0	0.0
R&D	8	8	8	0.0	0.0
Community Development (451)	0	0	0	-	-
Area and Regional Development (452)	8	8	8	0.0	0.0
Department of the Interior	5	5	5	0.0	0.0
Bureau of Indian Affairs and Bureau of Indian Education	5	5	5	0.0	0.0
Appalachian Regional Commission	3	3	3	0.0	0.0

Note(s):

The Department of Urban Housing and Development's work no longer meets the definition of R&D and has been removed. Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 16

Federal budget authority for Education, training, employment, and social services (500) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	719	687	690	-4.5	0.4
Elementary, secondary, and vocational education (501); higher education (502); research and general education aids (503)	719	687	690	-4.5	0.4
Department of Education programs	389	346	326	-11.1	-5.8
Smithsonian Institution programs	330	341	364	3.3	6.7
R&D	679	654	657	-3.7	0.5
Elementary, secondary, and vocational education (501); higher education (502); research and general education aids (503)	679	654	657	-3.7	0.5
Department of Education programs	389	346	326	-11.1	-5.8
Smithsonian Institution programs	290	308	331	6.2	7.5

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 17

Federal budget authority for Health (550) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	45,244	47,994	49,503	6.1	3.1
Consumer and occupational health and safety (554)	583	507	507	-13.0	0.0
Consumer Product Safety Commission	1	1	1	0.0	0.0
Department of Health and Human Services	582	506	506	-13.1	0.0
Food and Drug Administration	582	506	506	-13.1	0.0
Health care services and health research and training (551, 552)	44,661	47,487	48,996	6.3	3.2
Department of Health and Human Services	44,661	47,487	48,996	6.3	3.2
Agency for Healthcare Research and Quality	367	391	473	6.5	21.0
Centers for Disease Control and Prevention	428	412	498	-3.7	20.9
Departmental management (other)	18	18	18	0.0	0.0
Health Resources and Services Administration	31	31	31	0.0	0.0
National Institutes of Health	43,817	46,635	47,976	6.4	2.9
R&D	44,943	47,572	49,111	5.8	3.2
Consumer and occupational health and safety (554)	562	465	465	-17.3	0.0
Consumer Product Safety Commission	1	1	1	0.0	0.0
Department of Health and Human Services	561	464	464	-17.3	0.0
Food and Drug Administration	561	464	464	-17.3	0.0
Health care services and health research and training (551, 552)	44,381	47,107	48,646	6.1	3.3
Department of Health and Human Services	44,381	47,107	48,646	6.1	3.3
Agency for Healthcare Research and Quality	367	391	473	6.5	21.0
Centers for Disease Control and Prevention	428	412	498	-3.7	20.9
Departmental management (other)	18	18	18	0.0	0.0
Health Resources and Services Administration	31	31	31	0.0	0.0
National Institutes of Health	43,537	46,255	47,626	6.2	3.0

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 18

National Institutes of Health, federal budget authority for R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Organization and program, by FY 2021 rank order	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	43,817	46,635	47,976	6.4	2.9
National Cancer Institute	6,784	7,177	7,658	5.8	6.7
National Institute of Allergy and Infectious Diseases	6,212	6,446	6,445	3.8	*
National Institute on Aging	4,155	4,332	4,331	4.3	*
National Heart, Lung, and Blood Institute	3,675	3,842	3,841	4.6	*
National Institute of Neurological Disorders and Stroke	2,560	2,758	2,772	7.7	0.5
National Institute of Diabetes and Digestive and Kidney Diseases	2,130	2,223	2,222	4.4	*
National Institute of Mental Health	2,161	2,279	2,476	5.4	8.7
Office of the Director	2,093	2,320	2,388	10.9	2.9
National Institute of General Medical Sciences	1,722	1,762	1,215	2.3	-31.0
National Institute of Child Health and Human Development	1,633	1,693	1,692	3.7	*
National Institute on Drug Abuse	1,559	1,624	1,623	4.2	*
National Center for Advancing Translational Sciences	848	885	884	4.3	-0.1
National Eye Institute	847	878	878	3.7	*
National Institute of Environmental Health Sciences	813	882	906	8.5	2.7
National Institute of Arthritis and Musculoskeletal and Skin Diseases	634	660	659	4.2	-0.1
National Human Genome Research Institute	620	643	643	3.7	*
National Institute on Alcohol Abuse and Alcoholism	555	576	576	3.8	*
National Institute on Deafness and Other Communication Disorders	495	513	515	3.7	0.3
National Institute of Dental and Craniofacial Research	485	503	503	3.8	0.0
National Library of Medicine	475	492	492	3.7	*
National Institute on Minority Health and Health Disparities	456	521	521	14.2	0.0
National Institute of Biomedical Imaging and Bioengineering	386	402	401	4.2	-0.3
National Institute of Nursing Research	171	188	188	9.6	-0.1
National Center for Complementary and Integrative Health	148	159	157	7.4	-1.1
John E. Fogarty International Center	65	72	71	10.6	-2.0
Advanced Research Projects Agency-Health ^a	1,000	1,500	2,500	50.0	66.7
Other ^b	887	955	1,067	7.7	11.8
Buildings and facilities	250	350	350	40.0	0.0
R&D	43,537	46,255	47,626	6.2	3.0
National Cancer Institute	6,754	7,147	7,658	5.8	7.1
National Institute of Allergy and Infectious Diseases	6,212	6,446	6,445	3.8	*
National Institute on Aging	4,155	4,332	4,331	4.3	*
National Heart, Lung, and Blood Institute	3,675	3,842	3,841	4.6	*
National Institute of Neurological Disorders and Stroke	2,560	2,758	2,772	7.7	0.5
Office of the Director	2,130	2,223	2,222	4.4	*
National Institute of Diabetes and Digestive and Kidney Diseases	2,161	2,279	2,476	5.4	8.7
National Institute of Mental Health	2,093	2,320	2,388	10.9	2.9
National Institute of General Medical Sciences	1,722	1,762	1,215	2.3	-31.0
National Institute of Child Health and Human Development	1,633	1,693	1,692	3.7	*
National Institute on Drug Abuse	1,559	1,624	1,623	4.2	*
National Institute of Environmental Health Sciences	848	885	884	4.3	-0.1
National Center for Advancing Translational Sciences	847	878	878	3.7	*

TABLE 18

National Institutes of Health, federal budget authority for R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Organization and program, by FY 2021 rank order	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
National Eye Institute	813	882	906	8.5	2.7
National Institute of Arthritis and Musculoskeletal and Skin Diseases	634	660	659	4.2	-0.1
National Human Genome Research Institute	620	643	643	3.7	*
National Institute on Alcohol Abuse and Alcoholism	555	576	576	3.8	*
National Institute on Deafness and Other Communication Disorders	495	513	515	3.7	0.3
National Institute of Dental and Craniofacial Research	485	503	503	3.8	0.0
National Library of Medicine	475	492	492	3.7	*
National Institute of Biomedical Imaging and Bioengineering	456	521	521	14.2	0.0
National Institute on Minority Health and Health Disparities	386	402	401	4.2	-0.3
National Institute of Nursing Research	171	188	188	9.6	-0.1
National Center for Complementary and Integrative Health	148	159	157	7.4	-1.1
John E. Fogarty International Center	65	72	71	10.6	-2.0
Advanced Research Projects Agency-Health ^a	1,000	1,500	2,500	50.0	66.7
Other ^b	887	955	1,067	7.7	11.8
Buildings and facilities	0	0	0	-	-

* = value less than 0.05%.

^a Advanced Research Projects Agency-Health is an independent new agency created by the Congress (P.L. 117-103) in mid-March 2022. The agency will be recognized as part of the National Institutes of Health budget but will report to the secretary of Health and Human Services.

^b Other includes Type One Diabetes, the Common Fund, and the Superfund.

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 19

Federal budget authority for Medicare (570) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	20	20	0	0.0	-100.0
Medicare (571)	20	20	0	0.0	-100.0
Department of Health and Human Services	20	20	0	0.0	-100.0
Centers for Medicare and Medicaid Services	20	20	0	0.0	-100.0
R&D	20	20	0	0.0	-100.0
Medicare (571)	20	20	0	0.0	-100.0
Department of Health and Human Services	20	20	0	0.0	-100.0
Centers for Medicare and Medicaid Services	20	20	0	0.0	-100.0

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 20

Federal budget authority for Income security (600) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	90	90	100	0.0	11.1
Other income security (609)	90	90	100	0.0	125.0
Department of Health and Human Services	4	4	9	0.0	125.0
Administration for Children and Families	4	4	9	0.0	125.0
Social Security Administration	86	86	91	0.0	5.8
R&D	90	90	100	0.0	11.1
Other income security (609)	90	90	100	0.0	125.0
Department of Health and Human Services	4	4	9	0.0	125.0
Administration for Children and Families	4	4	9	0.0	125.0
Social Security Administration	86	86	91	0.0	5.8

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 21

Federal budget authority for Veterans benefits and services (700) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	1,588	1,622	1,644	2.1	1.4
Hospital and medical care for veterans (703)	1,588	1,622	1,644	2.1	1.4
Department of Veterans Affairs	1,588	1,622	1,644	2.1	1.4
Medical and prosthetic research	882	916	938	3.9	2.4
Medical services	706	706	706	0.0	0.0
R&D	1,588	1,622	1,644	2.1	1.4
Hospital and medical care for veterans (703)	1,588	1,622	1,644	2.1	1.4
Department of Veterans Affairs	1,588	1,622	1,644	2.1	1.4
Medical and prosthetic research	882	916	938	3.9	2.4
Medical services	706	706	706	0.0	0.0

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 22

Federal budget authority for Administration of justice (750) R&D and R&D plant: FYs 2022–24

(Millions of dollars and percent change)

Budget function and agency	2022 actual	2023 preliminary	2024 proposed	2022–23 (% change)	2023–24 (% change)
R&D and R&D plant	714	521	521	-27.0	0.0
Federal law enforcement activities (751)	709	516	516	-27.2	0.0
Department of Homeland Security	709	516	516	-27.2	0.0
Federal correctional activities (753)	5	5	5	0.0	0.0
Department of Justice	5	5	5	0.0	0.0
Federal Prison System	5	5	5	0.0	0.0
Criminal justice assistance (754)	0	0	0	-	-
R&D	701	466	442	-33.5	-5.2
Federal law enforcement activities (751)	696	461	437	-33.8	-5.2
Department of Homeland Security	696	461	437	-33.8	-5.2
Federal correctional activities (753)	5	5	5	0.0	0.0
Department of Justice	5	5	5	0.0	0.0
Federal Prison System	5	5	5	0.0	0.0
Criminal justice assistance (754)	0	0	0	-	-

Note(s):

Detail may not add to total because of rounding. Percent change is calculated on unrounded data.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 23

Federal funding for basic research, by budget function: FYs 1978–2024

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other ^a
1978	3,665	320	*	962	412	157	207	197	9	70	8	57	1,246	0	2	9	10	0	na
1979	4,108	365	0	1,026	440	172	131	222	10	75	8	59	1,579	0	1	10	10	*	na
1980	4,716	552	0	1,152	482	200	136	246	15	79	8	61	1,761	0	1	14	9	*	na
1981	5,107	610	12	1,256	445	220	131	281	17	89	5	66	1,951	0	3	15	5	3	na
1982	5,305	696	10	1,296	434	260	139	295	17	102	7	78	1,953	0	0	13	4	2	na
1983	6,247	788	10	1,439	501	320	156	326	19	117	6	70	2,475	0	0	14	4	3	na
1984	7,072	845	3	1,606	646	365	192	353	20	125	5	77	2,813	0	0	15	5	3	na
1985	7,810	856	4	1,779	498	428	206	406	23	255	6	86	3,243	0	0	15	4	4	na
1986	8,193	960	5	1,795	737	456	204	390	26	184	6	83	3,324	0	0	15	5	5	na
1987	9,021	900	3	1,942	843	511	206	397	26	231	4	78	3,851	0	0	17	8	4	na
1988	9,553	905	3	2,061	944	571	210	428	28	197	7	83	4,087	0	0	17	8	5	na
1989	10,648	965	3	2,265	1,099	703	331	433	29	287	3	92	4,413	0	0	16	7	3	na
1990	11,288	964	4	2,306	1,389	761	336	456	31	242	3	106	4,661	0	0	16	9	3	na
1991	12,405	1,188	6	2,526	1,479	878	389	486	39	246	10	115	5,021	0	0	16	6	0	na
1992	12,973	1,147	6	2,532	1,499	921	383	528	35	266	11	118	5,506	0	0	16	5	0	na
1993	13,440	1,323	8	2,553	1,588	917	376	553	34	238	10	121	5,700	0	0	16	5	0	na
1994	13,552	1,174	6	2,542	1,796	921	224	567	38	220	9	145	5,889	0	0	16	5	0	na
1995	13,772	1,181	0	2,622	1,614	930	187	565	35	389	3	153	6,068	0	0	16	9	0	na
1996	14,442	1,165	2	2,662	1,685	1,182	147	547	37	456	0	140	6,395	0	0	13	12	0	na
1997	14,961	1,090	2	2,753	1,653	1,288	153	548	34	420	0	142	6,852	0	0	14	13	0	na
1998	15,523	1,067	1	4,121	1,610	34	145	571	35	411	0	133	7,356	0	0	23	16	0	na
1999	17,433	1,110	0	4,464	1,667	36	142	602	41	358	0	99	8,634	0	0	263	18	0	na
2000	19,470	1,184	42	4,722	1,616	36	146	651	39	542	0	107	10,099	0	0	266	20	0	na
2001	21,376	1,303	50	5,187	1,695	40	215	749	50	17	0	112	11,642	0	0	289	27	0	na
2002	23,848	1,404	53	5,561	1,912	45	471	762	56	17	0	115	12,957	0	0	465	30	0	na
2003	25,323	1,409	18	5,907	2,206	40	185	824	53	23	1	125	14,162	0	0	327	42	0	na
2004	26,529	1,380	18	6,198	2,473	32	201	780	46	20	0	125	14,850	0	0	347	58	0	na
2005	27,678	1,508	18	6,238	2,486	31	195	789	53	65	0	130	15,826	0	0	297	42	0	na
2006	27,336	1,490	18	6,406	2,299	8	195	805	66	0	0	131	15,532	0	0	318	68	0	na
2007	28,166	1,533	18	6,887	2,318	7	260	821	92	2	0	149	15,637	0	0	335	106	0	na
2008	28,740	1,631	18	7,260	2,183	16	210	790	98	0	0	146	15,909	0	0	354	125	0	na
2009 ^b	36,400	1,772	18	10,727	932	28	219	799	152	0	0	155	21,108	0	0	375	115	0	na
Non-ARRA	28,161	1,769	18	7,913	900	28	219	799	112	0	0	145	15,767	0	0	375	115	0	na
ARRA	8,240	3	0	2,814	32	0	0	0	40	0	0	10	5,341	0	0	0	0	0	na
2010	29,614	1,849	0	8,578	1,109	57	223	881	131	0	0	174	16,125	0	0	413	74	0	na
2011	29,888	1,940	0	8,738	1,199	47	218	823	154	0	0	207	16,002	0	0	438	122	0	na
2012	31,846	2,066	0	8,491	3,181	57	135	847	163	0	0	206	16,196	0	0	470	33	0	na
2013	30,202	1,950	0	8,147	2,950	17	120	762	192	0	0	208	15,317	0	0	476	63	0	na
2014	32,086	2,167	0	8,739	3,320	16	252	790	213	0	0	227	15,853	0	0	451	58	0	na
2015	31,821	2,213	1	9,308	3,210	55	254	793	214	0	0	217	15,014	0	0	484	58	0	na
2016	32,821	2,335	1	9,282	3,578	51	257	829	235	0	0	244	15,565	0	0	386	58	0	na

TABLE 23

Federal funding for basic research, by budget function: FYs 1978–2024

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other ^a
2017	34,061	2,304	0	9,168	3,606	21	268	903	234	0	0	258	16,701	0	0	538	59	0	na
2018	36,208	2,381	0	9,932	3,281	50	255	909	222	0	1	335	18,255	0	0	530	57	0	na
2019	39,352	2,613	0	10,177	4,948	49	330	965	233	0	2	329	19,056	0	0	600	52	0	na
2020 ^c	44,331	2,686	0	10,782	6,655	51	117	1,028	241	16	2	348	21,826	0	0	523	57	0	na
2021 ^c	42,883	2,698	4	11,423	5,162	19	118	1,163	260	16	0	340	21,051	0	0	566	63	0	na
2022 ^c	45,222	2,653	7	11,962	5,718	170	149	1,417	270	0	0	324	21,844	0	0	619	88	0	na
2023 preliminary	47,089	2,919	2	12,535	5,627	208	141	1,357	282	0	0	342	22,961	0	0	648	68	0	na
2024 proposed	48,266	2,480	2	13,877	5,820	193	128	1,369	309	0	0	368	22,959	0	0	701	60	0	na

* = amount less than \$500,000. na = not applicable.

ARRA = American Recovery and Reinvestment Act of 2009.

^a Other includes amounts not explicitly tallied in one of the separately identified categories.^b Total for FY 2009 is the sum of non-ARRA and ARRA funds.^c Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FYs 2020–22. This funding may be included in this table's data; agency reporting is not clear in all cases.**Note(s):**

Not all basic research funded by the federal government falls into the General science and basic research (251) category. Federal funding for basic research arises in other functional categories—such as National defense or Health—and is included in the category funding totals there. Detail may not add to total because of rounding. In FY 2007, the Department of Homeland Security (DHS) changed its R&D portfolio to reclassify funding in National defense and most Administration of justice as General science and basic research; in FY 2013, this was reclassified back to Administration of justice. In FY 2004, DHS changed its R&D portfolio to reclassify funding in General science and basic research and in Agriculture as Administration of justice. In FY 2000, the National Aeronautics and Space Administration (NASA) transferred funding for the International Space Station program from R&D to R&D plant; the change is reflected in the budget authority for Space flight, research, and supporting activities. In FYs 2009 and 2012, NASA revised the classification of its R&D and non-R&D funding. In FY 2000, the National Institutes of Health in the Department of Health and Human Services classified all of its previous development activities as basic research or applied research, with a resulting increase in Health basic research. In FY 1998, many Department of Energy programs were reclassified from Energy to General science and basic research. In FY 1998, the Department of Veterans Affairs began reporting medical care support funds as a part of its total research budgetary resources; the change is reflected in the budget authority for Veterans benefits and services.

Source(s):

Data from FYs 1955–94 are from agencies' submissions to OMB, Circular A-11, exhibit 44A, "Research and development activities," and from supplemental data obtained from agencies' budget offices. Data from FYs 1995–2024 are from agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 24

Federal funding for R&D and R&D plant, by budget function: FYs 1955–2024

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other ^a
R&D and R&D plant ^b																			
2000	83,581	43,161	200	5,593	8,437	1,000	2,082	1,561	530	1,664	46	429	18,121	NA	25	645	73	14	na
2001	91,505	46,202	252	6,353	8,951	1,320	2,138	1,826	468	1,654	54	424	21,023	NA	30	719	88	3	na
2002	103,057	53,731	279	6,605	9,227	1,332	2,175	1,909	549	1,889	50	426	23,998	NA	37	756	91	3	na
2003	118,065	63,708	269	6,999	9,677	1,412	2,198	2,042	534	1,888	48	444	27,677	NA	38	817	316	0	na
2004	126,270	70,344	264	7,352	9,746	1,369	2,244	1,910	499	1,881	47	469	28,480	NA	47	866	752	0	na
2005	131,259	74,641	255	7,477	9,656	1,324	2,245	2,094	475	1,866	45	495	29,129	NA	35	742	779	0	na
2006	136,019	78,737	255	7,539	10,401	1,244	2,219	2,118	461	1,730	55	523	28,932	NA	27	769	1,008	0	na
2007	141,890	82,658	246	8,712	10,988	1,922	2,096	1,950	516	1,380	49	577	29,581	NA	27	820	369	0	na
2008	144,391	85,129	255	9,007	10,672	2,076	2,202	1,997	560	1,413	50	549	29,212	NA	27	886	355	0	na
2009 ^c	164,292	85,642	255	14,128	9,060	3,794	2,615	2,249	1,051	1,461	62	553	42,051	30	63	943	335	0	na
Non-ARRA	145,553	85,342	255	9,941	8,374	2,234	2,371	2,073	641	1,357	62	543	30,989	30	63	943	335	0	na
ARRA	18,739	300	0	4,187	686	1,560	244	176	410	104	0	10	11,062	0	0	0	0	0	na
2010	148,962	86,789	194	10,509	8,232	2,570	2,430	2,206	668	1,517	109	581	31,693	36	77	1,034	318	0	na
2011	144,379	83,226	196	10,581	8,658	2,265	2,314	1,768	650	1,420	83	636	30,990	180	68	1,160	184	0	na
2012	143,737	79,875	269	10,536	10,801	2,231	2,300	2,005	698	1,511	58	640	31,411	80	18	1,160	143	1	na
2013	132,477	70,781	350	9,620	10,476	2,289	2,169	1,818	795	1,359	54	572	30,200	72	26	1,164	730	0	na
2014	136,159	70,992	410	10,524	11,228	2,407	2,328	2,077	957	1,278	66	542	31,099	25	58	1,101	1,067	0	na
2015	138,544	72,950	290	11,088	10,928	3,173	2,358	2,149	889	1,389	55	527	30,495	71	55	1,178	949	0	na
2016	150,393	80,202	288	11,328	12,811	3,492	2,471	2,350	1,033	1,361	65	505	32,526	21	105	1,222	613	0	na
2017 ^d	127,306	57,530	289	11,289	10,187	3,544	2,533	2,302	1,036	1,479	71	505	34,393	21	74	1,346	707	0	na
2018	144,460	68,916	238	12,559	10,552	4,233	2,662	2,346	1,184	1,594	144	614	37,316	20	106	1,286	690	0	na
2019	149,971	72,027	235	13,165	10,133	4,473	2,845	2,719	920	1,621	165	587	38,998	20	102	1,370	590	0	na
2020 ^e	169,901	81,874	226	13,659	14,206	4,539	2,879	2,674	1,008	1,712	97	581	44,431	20	106	1,366	522	0	na
2021 ^e	161,676	78,368	230	14,150	11,566	4,512	3,637	2,800	1,069	1,720	104	588	41,090	20	91	1,436	453	0	na
2022	186,765	85,299	173	16,390	14,553	7,114	3,155	3,295	6,090	2,314	8	719	45,244	20	90	1,588	714	0	na

TABLE 24
Federal funding for R&D and R&D plant, by budget function: FYs 1955–2024

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other ^a
2023 preliminary	202,043	99,395	168	15,880	15,240	8,443	3,322	3,207	3,460	1,986	8	687	47,994	20	90	1,622	521	0	na
2024 proposed	209,854	102,280	168	17,710	16,314	8,764	3,626	3,216	3,132	2,178	8	690	49,503	0	100	1,644	521	0	na
R&D																			
1955	2,533	2,151	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	67	NA	NA	NA	NA	NA	315
1956	2,988	2,535	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83	NA	NA	NA	NA	NA	370
1957	3,932	3,327	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	465
1958	4,570	3,801	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	177	NA	NA	NA	NA	NA	592
1959	6,694	5,556	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	233	NA	NA	NA	NA	NA	904
1960	7,552	6,107	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	305	NA	NA	NA	NA	NA	1,140
1961	9,059	7,005	NA	137	777	373	73	125	NA	55	NA	NA	405	NA	NA	NA	NA	NA	108
1962	10,290	7,238	NA	187	1,413	448	108	136	NA	101	NA	NA	551	NA	NA	NA	NA	NA	107
1963	12,495	7,764	NA	246	2,812	515	120	146	NA	142	NA	NA	626	NA	NA	NA	NA	NA	125
1964	14,225	7,829	NA	277	4,241	571	134	165	NA	122	NA	NA	728	NA	NA	NA	NA	NA	160
1965	14,614	7,342	NA	304	4,887	585	159	195	NA	147	NA	NA	792	NA	NA	NA	NA	NA	203
1966	15,320	7,536	NA	377	4,976	575	189	201	NA	251	NA	NA	900	NA	NA	NA	NA	NA	315
1967	16,529	8,566	18	409	4,778	600	320	218	43	380	37	154	915	NA	48	41	*	3	na
1968	15,921	8,275	17	437	4,304	657	331	217	48	304	44	166	1,021	NA	50	45	1	5	na
1969	15,641	8,356	26	433	3,799	597	323	221	54	404	32	169	1,088	NA	78	50	5	5	na
1970	15,339	7,981	32	452	3,606	574	340	238	79	535	47	164	1,084	NA	136	59	9	6	na
1971	15,543	8,110	32	513	3,048	556	416	259	90	728	65	215	1,288	NA	145	63	10	7	na
1972	16,496	8,902	29	625	2,932	574	479	294	50	558	66	235	1,547	NA	106	69	23	8	na
1973	16,800	9,002	28	658	2,824	630	554	308	50	572	78	290	1,585	NA	106	74	33	7	na
1974	17,410	9,016	24	749	2,702	759	516	313	51	693	82	236	2,069	NA	71	85	35	9	na
1975	19,039	9,679	29	813	2,764	1,363	624	342	65	635	93	239	2,170	NA	72	95	44	12	na
1976	20,780	10,430	42	858	3,130	1,649	683	383	69	631	109	255	2,351	NA	48	98	35	12	na
1977	23,450	11,864	66	974	2,832	2,562	753	457	71	708	101	230	2,629	NA	55	107	30	13	na
1978	25,976	12,899	57	1,050	2,939	3,134	904	501	77	768	92	345	2,968	NA	67	111	44	20	na

TABLE 24

Federal funding for R&D and R&D plant, by budget function: FYs 1955–2024

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other ^a
1979	28,208	13,791	117	1,119	3,136	3,461	1,010	552	93	798	127	354	3,401	NA	57	123	47	23	na
1980	29,739	14,946	125	1,233	2,738	3,603	999	585	101	887	119	468	3,694	NA	47	126	45	22	na
1981	33,735	18,413	160	1,340	3,111	3,501	1,061	659	106	869	104	298	3,871	NA	43	143	34	22	na
1982	36,115	22,070	165	1,359	2,584	3,012	965	693	104	791	63	228	3,869	NA	32	139	31	10	na
1983	38,768	24,936	177	1,502	2,134	2,578	952	745	107	876	44	189	4,298	NA	32	157	37	6	na
1984	44,214	29,287	192	1,676	2,300	2,581	963	762	110	1,040	46	200	4,779	NA	26	218	24	8	na
1985	49,887	33,698	210	1,862	2,725	2,389	1,059	836	114	1,030	50	220	5,418	NA	21	193	47	17	na
1986	53,249	36,926	211	1,873	2,894	2,286	1,062	815	111	917	88	248	5,565	NA	14	183	41	14	na
1987	57,069	39,152	223	2,042	3,398	2,053	1,133	822	110	908	99	267	6,556	NA	25	215	49	17	na
1988	59,106	40,099	224	2,160	3,683	2,126	1,160	882	122	896	108	285	7,076	NA	23	195	51	17	na
1989	62,115	40,642	279	2,373	4,555	2,419	1,255	907	128	1,064	74	347	7,773	NA	27	212	45	15	na
1990	63,781	39,925	375	2,410	5,765	2,726	1,386	950	140	1,045	67	374	8,308	NA	33	216	44	17	na
1991	65,898	39,328	378	2,635	6,511	2,953	1,582	1,052	178	1,231	88	433	9,226	NA	30	219	51	4	na
1992	68,398	40,083	371	2,659	6,744	3,099	1,688	1,155	192	1,523	127	365	10,055	NA	37	245	51	4	na
1993	69,884	41,249	382	2,691	6,988	2,677	1,802	1,152	220	1,703	57	348	10,280	NA	36	250	49	*	na
1994	68,331	37,764	254	2,712	7,414	2,873	2,062	1,193	380	1,888	68	373	10,993	NA	45	265	46	0	na
1995	68,791	37,204	287	2,794	7,916	2,844	1,988	1,194	525	1,833	70	369	11,407	NA	43	257	59	1	na
1996	69,049	37,801	252	2,846	7,844	2,521	1,802	1,176	432	1,795	50	331	11,867	NA	16	259	56	2	na
1997	71,653	39,591	190	2,944	7,844	2,372	1,886	1,203	409	1,785	48	373	12,670	NA	9	267	59	2	na
1998	73,569	39,823	163	4,360	8,198	948	1,855	1,249	398	1,833	42	444	13,576	NA	18	587	72	2	na
1999	77,637	41,306	190	4,690	8,245	1,131	1,842	1,288	432	1,725	59	403	15,553	NA	38	644	88	3	na
2000	78,664	42,580	200	4,977	5,363	996	1,999	1,426	406	1,636	46	418	17,869	NA	25	645	73	6	na
2001	86,756	45,713	252	5,468	6,126	1,314	2,096	1,657	429	1,640	54	411	20,758	NA	30	719	88	3	na
2002	97,624	53,016	279	5,753	6,270	1,327	2,160	1,606	467	1,838	50	411	23,560	NA	37	756	91	3	na
2003	112,544	63,048	269	6,129	7,355	1,403	2,151	1,708	463	1,869	48	430	26,517	NA	38	817	299	0	na
2004	121,867	69,593	264	6,466	7,612	1,343	2,168	1,750	454	1,863	47	459	28,251	NA	47	866	684	0	na
2005	126,601	74,047	255	6,570	7,300	1,296	2,168	1,820	423	1,847	45	470	28,824	NA	35	742	758	0	na

TABLE 24

Federal funding for R&D and R&D plant, by budget function: FYs 1955–2024

(Millions of dollars)

Fiscal year	Total for all budget functions	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)	General government (800)	Other ^a
2006	131,624	78,037	255	6,691	8,204	1,195	2,120	1,869	390	1,711	55	495	28,797	NA	27	769	1,008	0	na
2007	138,087	82,272	246	7,809	9,024	1,893	1,936	1,857	428	1,361	49	536	29,461	NA	27	819	369	0	na
2008	140,113	84,713	255	8,234	8,323	1,896	2,106	1,864	450	1,394	50	497	29,063	NA	27	886	355	0	na
2009 ^c	156,009	85,166	255	11,840	6,891	3,318	2,245	1,935	618	1,440	62	479	40,389	30	63	943	335	0	na
Non-ARRA	140,903	84,866	255	8,885	6,205	2,014	2,171	1,935	507	1,336	62	469	30,827	30	63	943	335	0	na
ARRA	15,106	300	0	2,955	686	1,304	74	0	111	104	0	10	9,562	0	0	0	0	0	na
2010	146,596	86,517	194	9,280	8,232	2,455	2,237	2,043	550	1,496	109	535	31,488	36	77	1,034	313	0	na
2011	142,457	82,972	196	9,483	8,398	2,233	2,171	1,916	548	1,420	83	578	30,903	180	68	1,160	172	0	na
2012	141,450	79,559	269	9,304	10,661	2,197	2,147	1,920	607	1,486	58	597	31,243	80	18	1,160	143	1	na
2013	130,861	70,620	350	8,802	10,476	2,269	2,020	1,753	719	1,337	54	536	30,044	72	26	1,164	618	0	na
2014	133,547	70,611	410	9,482	11,055	2,387	2,172	1,967	877	1,261	66	515	30,927	25	58	1,101	634	0	na
2015	136,090	72,560	290	10,068	10,875	3,153	2,161	1,989	809	1,363	55	491	30,331	71	55	1,178	639	0	na
2016	147,813	79,828	288	10,042	12,789	3,473	2,294	2,030	887	1,326	65	474	32,365	21	105	1,222	605	0	na
2017 ^d	124,710	57,055	289	9,947	10,134	3,519	2,378	2,090	901	1,444	71	478	34,255	21	74	1,346	707	0	na
2018	140,701	68,325	238	10,692	10,455	4,212	2,383	2,074	840	1,551	144	534	37,151	20	106	1,286	690	0	na
2019	145,615	71,396	235	10,961	10,016	4,433	2,486	2,205	783	1,582	165	517	38,755	20	102	1,370	590	0	na
2020 ^e	163,875	79,389	226	11,620	14,158	4,391	2,653	2,332	858	1,674	97	527	43,936	20	106	1,366	522	0	na
2021 ^e	158,550	77,219	230	12,118	11,512	4,381	3,395	2,514	946	1,685	104	554	40,877	20	91	1,436	475	0	na
2022 ^e	180,196	83,857	173	13,246	14,453	6,340	2,848	3,000	5,976	2,274	8	679	44,943	20	90	1,588	701	0	na
2023 preliminary	195,135	97,765	168	13,819	15,132	6,696	2,996	2,893	3,293	1,940	8	654	47,572	20	90	1,622	466	0	na
2024 proposed	203,180	100,400	168	15,449	16,274	7,669	3,305	2,990	2,827	2,136	8	657	49,111	0	100	1,644	442	0	na

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

ARRA = American Recovery and Reinvestment Act of 2009.

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

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

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

^d The data for FY 2017 and onward reflect application of the narrowed definition of *development* described by the Office of Management and Budget (OMB) in its Circular A-11 of July 2016. The previous years' numbers reflect use of the former *development* definition.

^e Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FYs 2020–22. This funding may be included in this table's data; agency reporting is not clear in all cases.

Note(s):

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

Source(s):

Data from FYs 1995–2024 are from agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 25

Federal funding for R&D and R&D plant for National defense and Civilian functions: FYs 1955–2024

(Millions of dollars and percent distribution)

Fiscal year	\$millions			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
R&D obligations						
1955	2,533	2,151	382	100.0	84.9	15.1
1956	2,988	2,535	453	100.0	84.8	15.2
1957	3,932	3,327	605	100.0	84.6	15.4
1958	4,570	3,801	769	100.0	83.2	16.8
1959	6,694	5,556	1,138	100.0	83.0	17.0
1960	7,552	6,107	1,445	100.0	80.9	19.1
1961	9,059	7,005	2,054	100.0	77.3	22.7
1962	10,290	7,238	3,052	100.0	70.3	29.7
1963	12,495	7,764	4,731	100.0	62.1	37.9
1964	14,225	7,829	6,396	100.0	55.0	45.0
1965	14,614	7,342	7,272	100.0	50.2	49.8
1966	15,320	7,536	7,784	100.0	49.2	50.8
1967	16,529	8,566	7,963	100.0	51.8	48.2
1968	15,921	8,275	7,646	100.0	52.0	48.0
1969	15,641	8,356	7,285	100.0	53.4	46.6
1970	15,339	7,981	7,358	100.0	52.0	48.0
1971	15,543	8,110	7,433	100.0	52.2	47.8
1972	16,496	8,902	7,594	100.0	54.0	46.0
1973	16,800	9,002	7,798	100.0	53.6	46.4
1974	17,410	9,016	8,394	100.0	51.8	48.2
1975	19,039	9,679	9,360	100.0	50.8	49.2
1976	20,780	10,430	10,350	100.0	50.2	49.8
1977	23,450	11,864	11,586	100.0	50.6	49.4
R&D budget authority						
1978	25,976	12,899	13,077	100.0	49.7	50.3
1979	28,208	13,791	14,417	100.0	48.9	51.1
1980	29,739	14,946	14,793	100.0	50.3	49.7
1981	33,735	18,413	15,322	100.0	54.6	45.4
1982	36,115	22,070	14,045	100.0	61.1	38.9
1983	38,768	24,936	13,832	100.0	64.3	35.7
1984	44,214	29,287	14,927	100.0	66.2	33.8
1985	49,887	33,698	16,189	100.0	67.5	32.5
1986	53,249	36,926	16,323	100.0	69.3	30.7
1987	57,069	39,152	17,917	100.0	68.6	31.4
1988	59,106	40,099	19,007	100.0	67.8	32.2
1989	62,115	40,642	21,473	100.0	65.5	34.5
1990	63,781	39,925	23,856	100.0	62.6	37.4
1991	65,898	39,328	26,570	100.0	59.7	40.3
1992	68,398	40,083	28,315	100.0	58.6	41.4
1993	69,884	41,249	28,635	100.0	59.0	41.0
1994	68,331	37,764	30,566	100.0	55.3	44.7
1995	68,791	37,204	31,587	100.0	54.1	45.9
1996	69,049	37,801	31,248	100.0	54.7	45.3
1997	71,653	39,591	32,062	100.0	55.3	44.7
1998	73,569	39,823	33,746	100.0	54.1	45.9
1999	77,637	41,306	36,332	100.0	53.2	46.8
R&D and R&D plant budget authority						
2000	83,581	43,161	40,420	100.0	51.6	48.4
2001	91,505	46,202	45,303	100.0	50.5	49.5

TABLE 25

Federal funding for R&D and R&D plant for National defense and Civilian functions: FYs 1955–2024

(Millions of dollars and percent distribution)

Fiscal year	\$millions			% distribution		
	Total	National defense	Civilian functions	Total	National defense	Civilian functions
2002	103,057	53,731	49,326	100.0	52.1	47.9
2003	118,065	63,708	54,357	100.0	54.0	46.0
2004	126,270	70,344	55,926	100.0	55.7	44.3
2005	131,259	74,641	56,618	100.0	56.9	43.1
2006	136,019	78,737	57,282	100.0	57.9	42.1
2007	141,890	82,658	59,232	100.0	58.3	41.7
2008	144,391	85,129	59,262	100.0	59.0	41.0
2009 ^a	164,292	85,642	78,650	100.0	52.1	47.9
Non-ARRA	145,553	85,342	60,211	100.0	58.6	41.4
ARRA	18,739	300	18,439	100.0	1.6	98.4
2010	148,962	86,789	62,173	100.0	58.3	41.7
2011	144,379	83,226	61,153	100.0	57.6	42.4
2012	143,737	79,875	63,862	100.0	55.6	44.4
2013	132,477	70,781	61,696	100.0	53.4	46.6
2014	136,159	70,992	65,167	100.0	52.1	47.9
2015	138,544	72,950	65,594	100.0	52.7	47.3
2016	150,393	80,202	70,191	100.0	53.3	46.7
2017 ^b	127,306	57,530	69,776	100.0	45.2	54.8
2018	144,459	68,916	75,543	100.0	47.7	52.3
2019	149,971	72,027	77,944	100.0	48.0	52.0
2020 ^c	169,901	81,874	88,027	100.0	48.2	51.8
2021 ^c	161,885	78,368	83,517	100.0	48.4	51.6
2022 ^c	186,765	85,299	101,466	100.0	45.7	54.3
2023 preliminary	202,043	99,395	102,648	100.0	49.2	50.8
2024 proposed	209,854	102,280	107,574	100.0	48.7	51.3

ARRA = American Recovery and Reinvestment Act of 2009.

^a The total for FY 2009 is the sum of non-ARRA and ARRA funds.^b The application of a narrowed *development* definition (by the Office of Management and Budget [OMB]) is shown starting in FY 2017. The previous years' numbers reflect use of the former *development* definition.^c Agencies in several functions received emergency COVID-19 pandemic-related funding for R&D or R&D plant in FYs 2020–22. This funding may be included in this table's data; agency reporting is not clear in all cases.**Note(s):**

The National defense function includes Department of Defense military activities and Department of Energy atomic energy defense programs; some years also include defense-related R&D in the Department of Homeland Security and the Department of Justice. Civilian functions include all other federally funded R&D activities.

Source(s):Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

TABLE 26

Federal funding for R&D plus capital R&D, by GBARD socioeconomic objectives: FYs 2000–24

(Millions of dollars)

Fiscal year	Note: R&D funds	Note: Capital R&D funds	Total for all socioeconomic categories	1. Exploration and exploitation of the Earth	2. Environment	3. Exploration and exploitation of space	4. Transport, telecommunication, and other infrastructures	5. Energy	6. Industrial production and technology	7. Health	8. Agriculture	9. Education	10. Culture, recreation, religion, and mass media	11. Political and social systems, structures, and processes	12. General advancement of knowledge: R&D financed from GUF ^a	13. General advancement of knowledge: R&D financed from sources other than GUF	14. Defense
2000	67,764	4,917	72,681	868	537	8,437	1,710	1,031	530	18,766	2,155	NA	NA	NA	0	5,593	32,261
2001	73,789	4,749	78,538	896	574	8,951	1,708	1,320	468	21,741	2,452	NA	NA	NA	0	6,353	33,235
2002	83,232	5,433	88,665	997	592	9,227	1,939	1,332	549	24,754	2,494	NA	NA	NA	0	6,605	39,339
2003	93,246	5,521	98,767	989	567	9,677	1,917	1,403	463	27,335	2,303	NA	NA	NA	0	6,129	46,949
2004	101,843	4,403	106,246	1,027	662	9,746	1,948	1,370	479	29,346	2,466	NA	NA	NA	0	7,352	50,320
2005	106,674	4,658	111,332	1,053	641	9,656	1,918	1,324	468	29,871	2,646	NA	NA	NA	0	7,477	54,714
2006	110,047	4,395	114,442	1,045	622	10,401	1,787	1,244	459	29,702	2,670	NA	NA	NA	0	7,539	57,160
2007	113,888	3,803	117,691	965	738	10,988	1,436	1,922	487	31,080	2,325	449	19	769	0	8,712	57,802
2008	112,432	4,278	116,710	1,300	548	10,672	1,475	2,076	518	31,054	2,332	428	19	756	0	9,007	56,493
2009	128,316	8,283	136,599	1,677	565	9,060	1,536	3,794	963	43,926	2,629	464	25	754	0	14,128	57,046
2010	117,016	2,366	119,382	867	599	8,232	1,640	2,570	1,105	34,206	2,628	491	34	468	0	10,776	55,765
2011	111,464	1,922	113,386	1,315	584	8,658	1,518	2,265	532	33,536	2,211	546	27	585	0	10,581	51,027
2012	114,509	2,287	116,796	1,325	569	10,801	1,591	2,231	557	33,924	2,386	565	26	562	0	10,536	51,662
2013	107,992	1,616	109,608	1,282	540	10,476	1,439	2,289	596	32,454	2,160	486	25	1,283	0	9,620	46,894
2014	109,890	2,612	112,502	1,403	545	11,228	1,364	2,407	655	33,451	2,442	469	27	1,867	0	10,524	46,109
2015	112,766	2,454	115,220	1,444	528	10,928	1,479	3,173	669	33,443	2,540	525	27	1,436	0	11,088	47,927
2016	123,514	2,579	126,093	1,565	520	12,811	1,451	3,492	762	35,891	2,738	505	27	1,219	0	11,328	53,782
2017	124,709	2,597	127,306	1,653	505	10,187	1,586	3,544	750	37,862	2,668	505	27	1,289	0	11,289	55,441
2018	140,700	3,759	144,459	1,688	537	10,552	1,861	4,233	973	40,660	2,698	614	26	564	0	12,559	67,494
2019	145,615	4,356	149,971	1,799	521	10,133	1,895	4,473	763	42,568	3,086	587	27	593	0	13,165	70,361
2020	163,875	6,026	169,901	1,778	556	14,206	1,926	4,539	821	48,055	3,061	581	28	596	0	13,659	80,095
2021	157,611	4,274	161,885	2,519	574	11,566	1,911	4,529	952	44,941	3,222	588	28	521	0	14,150	76,384
2022	180,196	6,570	186,765	2,482	581	14,553	2,496	7,114	5,761	49,486	3,905	719	28	484	0	16,390	83,342
2023 preliminary	195,135	6,908	202,043	2,609	632	15,240	2,239	8,443	2,997	50,285	3,758	687	29	583	0	15,880	99,223
2024 proposed	203,180	6,674	209,854	2,879	668	16,314	2,387	8,764	2,554	51,664	3,816	719	32	730	0	17,710	102,255

NA = not available.

GBARD = government budget allocations for R&D; GUF = general university funds.

^a Unlike many other countries, the United States does not support R&D by higher education institutions through large block grants to cover administrative, teaching, and research costs. Accordingly, the data entries for the United States in this column are always zero.

Note(s):

Detail may not add to total because of rounding. The data in this table reflect an estimated adjustment to the previously published 2000–16 time series totals (in [table 23](#) through [table 25](#)) applying the narrowed definition of *development* described by the Office of Management and Budget in its Circular A-11 of July 2016. The 14 socioeconomic objectives categories listed are those identified by the European Union in the 2007 edition of its *Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets* (NABS). The NABS categories are the basis of the GBARD indicators that the Organisation for Economic Co-operation and Development reports for member countries and selected others in its twice-yearly *Main Science and Technology Indicators* reports. U.S. data for objectives 9, 10, and 11 are not reported for 2000–06 because the NABS category revisions of 2007 and equivalent data for these earlier years were not available. The lack of availability of details for these objectives is the main reason that the sum of the reported details for 2000–06 do not add to the "R&D plus capital R&D" totals.

Source(s):

National Center for Science and Engineering Statistics, reclassification (2023) according to NABS category definitions of R&D funding from agencies' submissions to OMB per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

Technical Notes

Overview

All activities covered by the federal budget, including R&D, are classified into 20 broad functional categories (see section “[Budget Functions and Classifying R&D](#)”). R&D activities currently are in 16 of the 20 categories.

The tables in this report provide R&D budget authority for FYs 2022–24 by agency and major programs for each of the categories in which R&D is present. Several concluding tables also show budget authority data for R&D in FY 2021 and earlier years.

Budget authority is the primary source of legal authorization to enter into obligations that result in outlays. The data for FY 2022 are the *actual* budget authorities received by federal agencies for R&D activities that year. These numbers update the preliminary data for FY 2022 published in the previous edition (FYs 2021–23) of this report series.

The data for FY 2023 are *preliminary*. These preliminary numbers are normally agency estimates based on final congressional appropriations for the fiscal year. However, considerable delay arose in the Congress and with the administration in completing the final spending legislation for FY 2023, which had already formally started on 1 October 2022. Initial FY 2023 funding for the government came in the form of three continuing resolutions extending 1 October to 30 December. The final funding levels were passed as a consolidated spending bill on 29 December 2022: the Consolidated Appropriations Act, 2023 (H.R. 2617; Public Law 117-328).

The data for FY 2024 are the funding levels *proposed* by the president’s *Budget of the United States Government, Fiscal Year 2024* (released 9 March 2023). At the time of this report, the funding levels for FY 2024 remain the subject of ongoing legislation by Congress.

The data throughout this report reflect agency documents and other Office of Management and Budget (OMB) data available through October 2023. Data reported here as *preliminary* or *proposed* will be revised in subsequent editions of this report series to reflect the eventual congressional appropriation actions and agency program funding decisions.

In general, the agencies’ estimates of funding for R&D in FYs 2022 and 2023 that stem from the CHIPS and Science Act (H.R. 4346) and the Inflation Reduction Act (H.R. 5376) are not independently documented and cannot be separated from the appropriations totals. Additionally, Congressionally Funded Projects (known in the Senate as Congressionally Directed Spending and in the House as Community Project Funding) were reintroduced in FY 2022 and contributed to substantial increases in R&D for some agencies—notably National Institute of Standards and Technology ([table 13](#)).

Congress took a number of legislative steps from March 2020 through March 2021 to provide added appropriations in response to the COVID-19 pandemic, some of which increased funding for related R&D. Included here are the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (H.R. 6074, 6 March 2020); the Families First Coronavirus Response Act (H.R. 6201, 18 March 2020); the Coronavirus Aid, Relief, and Economic Security Act (H.R. 748, 27 March 2020); and the Paycheck Protection Program and Health Care Enhancement Act (H.R. 266, 24 April 2020). Additional funding for R&D related to COVID-19 was also provided by the Consolidated Appropriations Act, 2021 (H.R. 133, 27 December 2020) and by the American Rescue Plan Act of 2021 (H.R. 1319, 10 March 2021). In general, agency reporting on funding for R&D in FYs 2020–22 stemming from COVID-19 pandemic appropriations was uneven and incomplete. Notes accompanying many of the tables indicate the extent to which funding from these supplementary appropriations are recognized in the reported data.

Table 26 of this report reclassifies the budget function data in this report's earlier tables according to the 14 socioeconomic objective categories identified by the European Union's NABS classification (*Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets*, 2007 edition). NABS is used by the Organisation for Economic Co-operation and Development (OECD) in reporting Government Budget Allocations for R&D (GBARD) indicators. The GBARD indicators are widely recognized around the world as a basis for comparing countries' priorities for government R&D funding.

Definitions

Research, Development, and R&D Plant

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

Research and experimental development is creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of people, culture, and society—and to devise new applications using available knowledge.

R&D includes administrative expenses, such as the operating costs of research facilities and equipment and other overhead costs. It also includes funds for the purchase of minor equipment—such as personal computers, standard microscopes, and simple spectrometers.

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts. Basic research may include activities with broad or general applications in mind, such as the study of how plant genomes change, but should exclude research directed toward a specific application or requirement, such as the optimization of the genome of a specific crop species.

Applied research is original investigation undertaken in order to acquire new knowledge. Applied research is, however, directed primarily toward a specific, practical aim or objective.

Experimental development is creative and systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products or processes or improving existing products or processes. Like research, experimental development will result in gaining additional knowledge.

Experimental development activities include (1) the production of materials, devices, and systems or methods, including the design, construction, and testing of experimental prototypes; and (2) technology demonstrations, where a system or component is being demonstrated at scale for the first time and it is realistic to expect additional refinements to the design (feedback R&D) following the demonstration.

Before the publication of OMB's revised guidance in Circular A-11 of July 2016, a more expansive definition of "development" was the basis for agency R&D reporting. The present guidance now identifies several specific exclusions. Experimental development does *not* include (1) *user demonstrations*, where the cost and benefits of a system are being validated for a specific use case (e.g., low-rate initial production activities); or (2) *preproduction development*, which is defined as nonexperimental work on a product or system before it goes into full production, including activities such as tooling and development of production facilities. For example, activities and programs that are categorized as "Operational Systems Development" in the Department of Defense's Research, Development, Test, and Evaluation (RDT&E) budget activity structure are no longer included as R&D. Activities and programs of that type generally are now reported as investments in other major non-R&D equipment.

R&D plant includes facilities and major equipment necessary for the execution of an R&D program. It includes the purchase, construction, manufacture, rehabilitation, or major improvement of physical assets such as land, major fixed equipment, and supporting infrastructure like a sewer line or housing at a remote location. It also includes the acquisition, design, or production of major movable equipment, such as mass spectrometers, research vessels, DNA sequencers, and other movable major instruments for use in R&D activities.

The data in this report exclude (1) all non-R&D activities performed within budget functions that conduct R&D and (2) all functions in which no R&D is conducted. [Table 6](#) is an exception, however; it continues to report RDT&E totals that previously would have been classified as R&D. In part, this table provides a gauge of the impact of the narrowed definition of development (as detailed earlier) on defense R&D totals.

Budget Authority, Obligations, and Outlays

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

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

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

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

Budget Functions and Classifying R&D

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

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

Small amounts of R&D had been reported in the General government (800) category up through FY 2002 but turned to zero thereafter. A small amount of R&D was again reported in FY 2012 but has been zero throughout the FY 2021–23 period covered in this report.

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

Overall, this report's tables separately cover 16 functional categories: 14 at the broad functional category level and 2 at the subcategory level (viz., General science and basic research (251) and Space flight, research, and supporting activities (252)).

Each R&D activity is assigned to only one functional category—which is consistent with the official codes used in budget documents, even though the R&D activity may address the objectives of several functions. For example, all R&D activities sponsored by the Department of Defense (except for those of the U.S. Army Corps of Engineers) are classified as National defense (050), even though some of these have secondary objectives, such as Space flight, research, and supporting activities (252) or Health (550). Nonetheless, an agency’s overall R&D effort can involve multiple activities spread across several functional categories, which means that a functional category can show the presence of several agencies.

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

Table A-1 maps the mix of agency funding of R&D activities in FYs 2022–24 across the budget function categories.

Data Sources

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

To provide information on federal R&D funding, OMB requires all agencies with R&D funding levels greater than \$10 million annually to submit data on their R&D programs as part of their annual budget submissions. Such agencies are requested to provide data on their funding levels for basic research, applied research, experimental development, R&D facilities, and capital equipment for R&D, in accordance with OMB’s Circular A-11, Section 84, “Character Classification (Schedule C)” at <https://www.whitehouse.gov/wp-content/uploads/2018/06/s84.pdf>.

The data in this report were collected from May through October 2023 and represent the agencies’ official estimates of actual and proposed federal funding for R&D over FYs 2022–24. The data are based primarily on information provided to OMB by 25 agencies, which account for about 99% of all federally sponsored R&D activities. (OMB has routinely tracked the R&D budget authority for these 25 agencies; other agencies with negligible levels of R&D budget authority are excluded, and some agencies may not have responded to OMB’s data call within the data collection period.) The data reflect R&D funding information that became available from individual agencies after the administration’s FY 2024 budget proposal, *Budget of the United States Government, Fiscal Year 2024*, was prepared and transmitted to Congress on 9 March 2023. 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 2023. Accordingly, the budget numbers reported for individual activities, programs, or agencies may differ somewhat from those published in the president’s budget or in agency budget documents.

Technical Tables

Table	Title
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A-1	Agency and budget function crosswalk, federal R&D funding, by budget function: FYs 2022–24
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TABLE A-1

Agency and budget function crosswalk, federal R&D funding, by budget function: FYs 2022–24

(Crosswalk)

Agency	Budget function															
	National defense (050)	International affairs (150)	General science and basic research (251)	Space flight, research, and supporting activities (252)	Energy (270)	Natural resources and environment (300)	Agriculture (350)	Commerce and housing credit (370)	Transportation (400)	Community and regional development (450)	Education, training, employment, and social services (500)	Health (550)	Medicare (570)	Income security (600)	Veterans benefits and services (700)	Administration of justice (750)
Agency for International Development		X														
Appalachian Regional Commission										X						
Army Corps of Engineers (civil)						X										
Consumer Product Safety Commission												X				
Department of Agriculture						X	X									
Department of Commerce						X		X								
Department of Defense (military)	X															
Department of Education											X					
Department of Energy	X		X		X											
Department of Health and Human Services												X	X	X		
Department of Homeland Security	X					X			X							X
Department of the Interior						X				X						
Department of Justice	X															X
Department of State		X														
Department of Transportation									X							
Department of Veterans Affairs															X	
Environmental Protection Agency						X										
National Aeronautics and Space Administration				X					X							
National Science Foundation			X													
Nuclear Regulatory Commission					X											
Postal Service								X								
Smithsonian Institution										X						
Social Security Administration														X		
Tennessee Valley Authority					X											

X = R&D function funded by specified agency.

Source(s):

Agencies' submissions to the Office of Management and Budget (OMB) per MAX Schedule C, agencies' budget justification documents, supplemental data obtained from agencies' budget offices, and Executive Office of the President, OMB, *Budget of the United States Government, Fiscal Year 2024*.

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