



## Federal budget authority for R&D tops \$203 billion in FY 2024 proposed budget

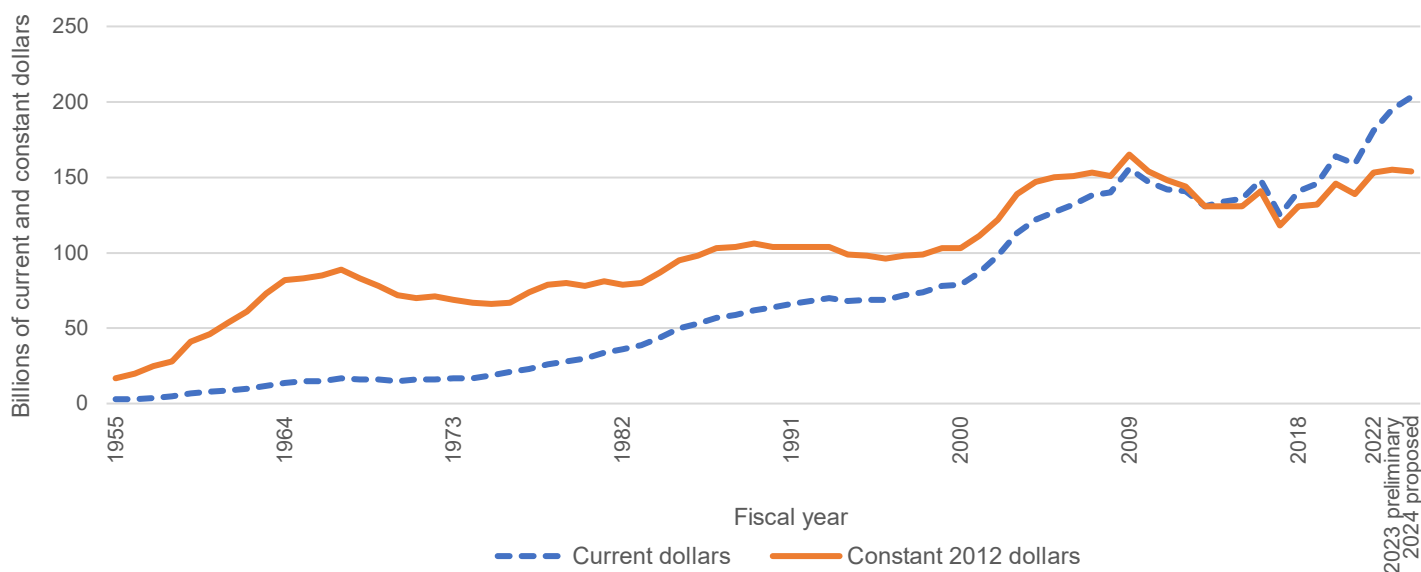
The federal research and development (R&D) funding data presented here are provided in terms of *budget authority*. Budget authority is the imposition of a ceiling on obligations and outlays within the federal government, as obligations and outlays flow from budget authority. Budget authority is the primary source of legal authorization to enter 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 functional category that represents major purposes or national needs.

FY 2022 data are the *actual* budget authorities received by federal agencies for R&D that year. The data for FY 2023 are *preliminary* and are agency estimates based on final congressional appropriations for the fiscal year. The data for FY 2024 are the funding levels *proposed* by the president’s *Budget of the United States Government, Fiscal Year 2024*. At the time of this report, the funding levels for FY 2024 remain the subject of ongoing legislation by Congress.

R&D is defined as creative and systematic work undertaken to increase the stock of knowledge—including knowledge of people, culture, and society—and to devise new applications using available knowledge.

The final FY 2022 budget authority for R&D totaled \$181 billion, whereas the FY 2023 preliminary and FY 2024 proposed budget authorities rose to all-time highs of \$195 billion and \$203 billion in current dollars, respectively. However, when adjusted for inflation, the budget authority for R&D in FY 2022 (using FY 2012 constant dollars) was \$153 billion, followed by \$155 billion in FY 2023 (preliminary) and \$154 billion in FY 2024 (proposed), lower than the adjusted FY 2009 peak (\$165 billion), which included American Recovery and Reinvestment Act funds.

Figure 1. Federal Funding for R&D, by budget authority: FYs 1955–2024



Note(s): FY 2009 includes funding from the American Recovery and Reinvestment Act. 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. Agencies in several functions received emergency COVID-19–related funding for R&D or R&D plant in FYs 2020–22.

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 1995–2023 are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.

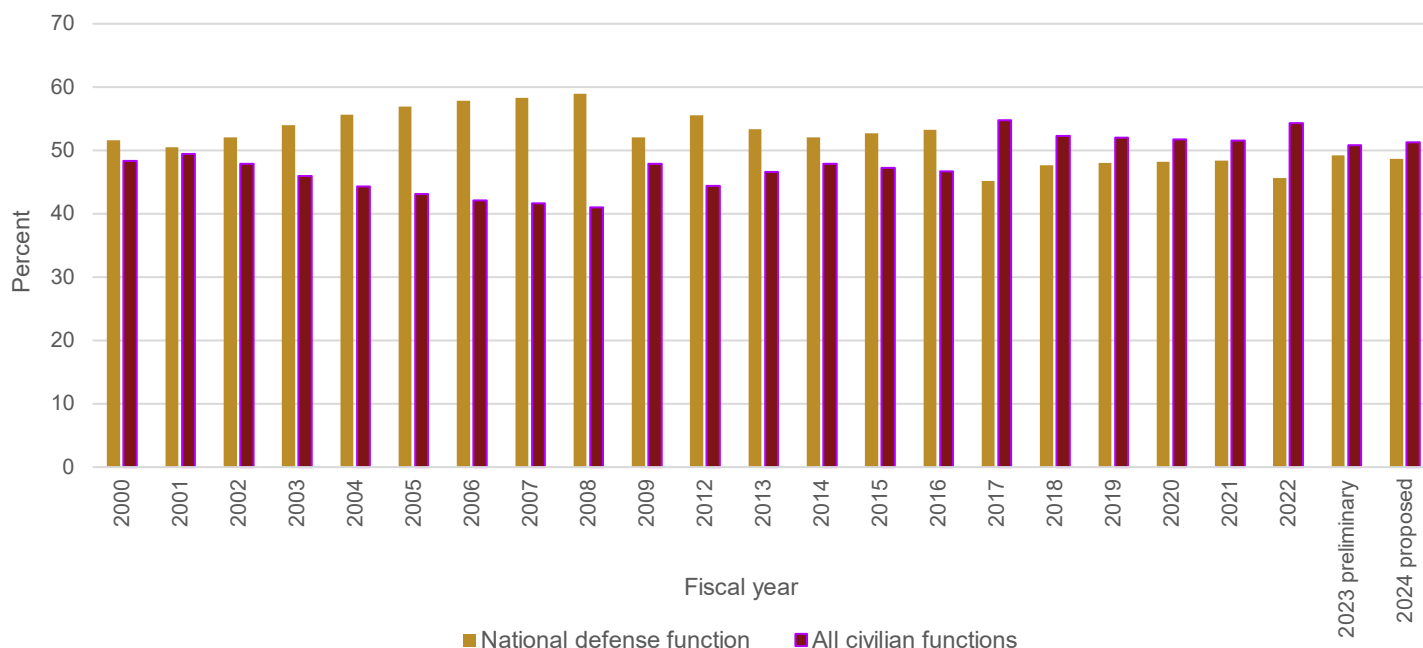
### Federal budget authority for R&D and R&D plant continues to be higher for civilian functions than for the national defense function

The federal budget is an itemized plan for U.S. public expenditures. It must be approved by Congress and signed by the president to authorize and appropriate the money that finances all federal activity. As part of the annual budget process, the federal government designates funds for R&D to help foster knowledge and innovation within the nation. This funding is classified into 20 functional categories. This funding encourages both technological progress and economic growth across the United States.

The president’s budget proposal, and congressional budget resolutions, classify federal budget activities into functional categories that represent major purposes or national needs, such as agriculture, energy, national defense, and transportation, for both R&D and R&D plant. 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. It also includes the acquisition, design, or production of major movable equipment, such as mass spectrometers, research vessels, and other movable major instruments used in R&D activities.

The national defense function accounted for 45.7% of the total R&D and R&D plant budget authority in FY 2022, whereas the sum of all civilian functions was 54.3%. For the FY 2023 preliminary budget authority, the percent distribution for national defense increased to 49.2%, whereas all civilian functions fell to 50.8%. The proposed FY 2024 distribution of budget authority for R&D and R&D plant for national defense and for all civilian functions was 48.7% and 51.3%, respectively.

**Figure 2. Federal budget authority for R&D and R&D plant, by national defense and civilian functions: FYs 2000–24**



Note(s): FY 2009 includes funding from the American Recovery and Reinvestment Act. 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. Agencies in several functions received emergency COVID-19–related funding for R&D or R&D plant in FYs 2020–22.

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, FY 2024.

## Federal R&D Funding, by Budget Function: FYs 2022–24

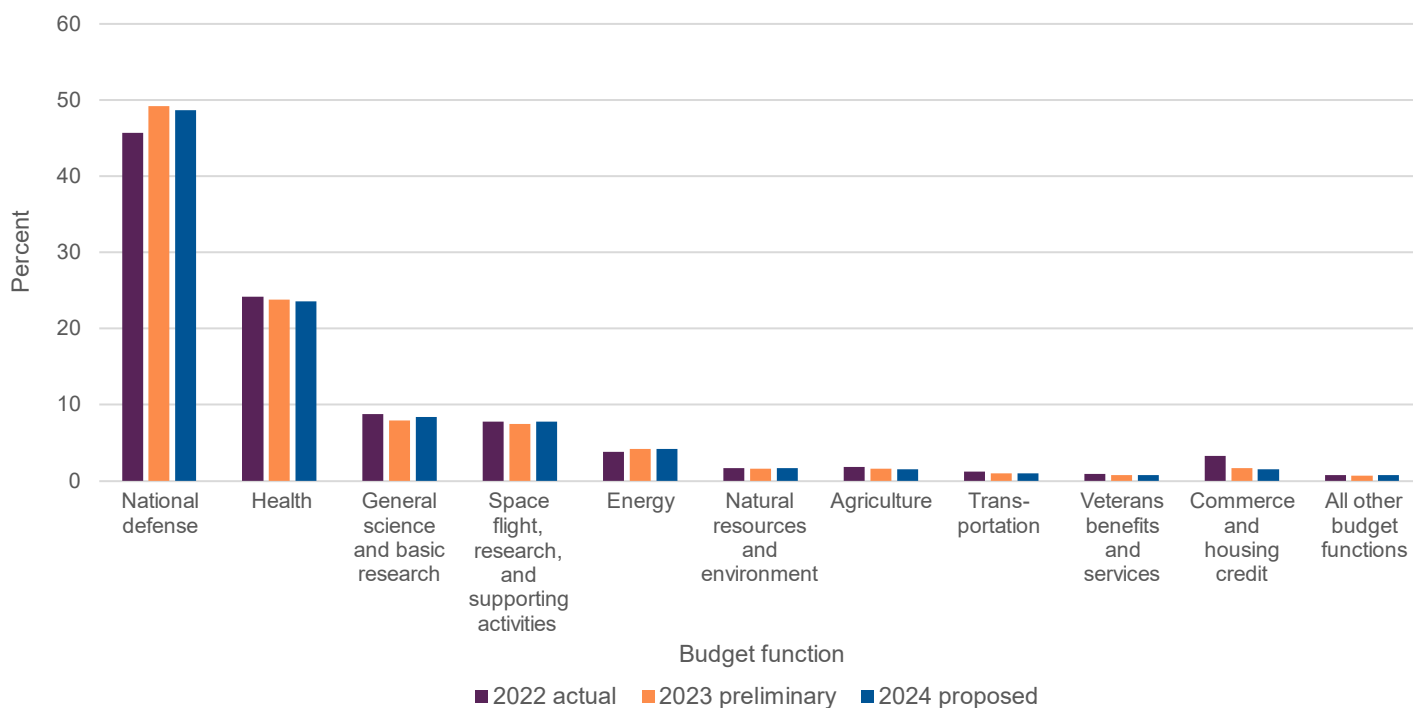
### Distribution of total R&D and R&D plant, by budget function: FYs 2022–24

National defense is the single largest functional category for R&D and R&D plant. Among civilian functions, health is the largest category and includes activities from the Department of Health and Human Services and the Consumer Product Safety Commission. In FY 2022, the health function constituted 24.2% of the total R&D and R&D plant budget authority. Although the amount of budget authority for health R&D and R&D plant, along with many other civilian functions, increased in FY 2023 (to \$48 billion and nearly \$50 billion in the FY 2024 president’s proposed budget), the distribution of the health function declined from 24.2% in FY 2022 to 23.8% in FY 2023 (preliminary) and to 23.6% in the FY 2024 (proposed), as the federal-wide budget authority for R&D and R&D plant increased.

The general science and basic research function is the second-largest civilian function and includes R&D and R&D plant activities from the Department of Energy and the National Science Foundation. In FY 2022, general science accounted for 8.8% of the total R&D and R&D plant budget authority. However, its share in the preliminary FY 2023 and the proposed FY 2024 budget authority were 7.9% and 8.4%, respectively. For the same period, the energy function increased its percentage share of the total R&D and R&D plant budget authority from 3.8% in FY 2022 to 4.2% in both the FY 2023 preliminary levels and the FY 2024 proposed amounts.

Budget functions are not necessarily restricted to specific agencies’ missions. For example, the Department of Energy has activities and missions that fulfill not only the energy function but also the national defense and general science and basic research functions. Similarly, a function may include activities from multiple agencies. The national defense function includes activities from the Department of Defense, the Department of Energy, the Department of Homeland Security, and the Department of Justice.

**Figure 3. Distribution of federal budget authority for R&D and R&D plant as a percentage of total budget authority for R&D and R&D plant, by budget function: FYs 2022–24**



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, FY 2024.

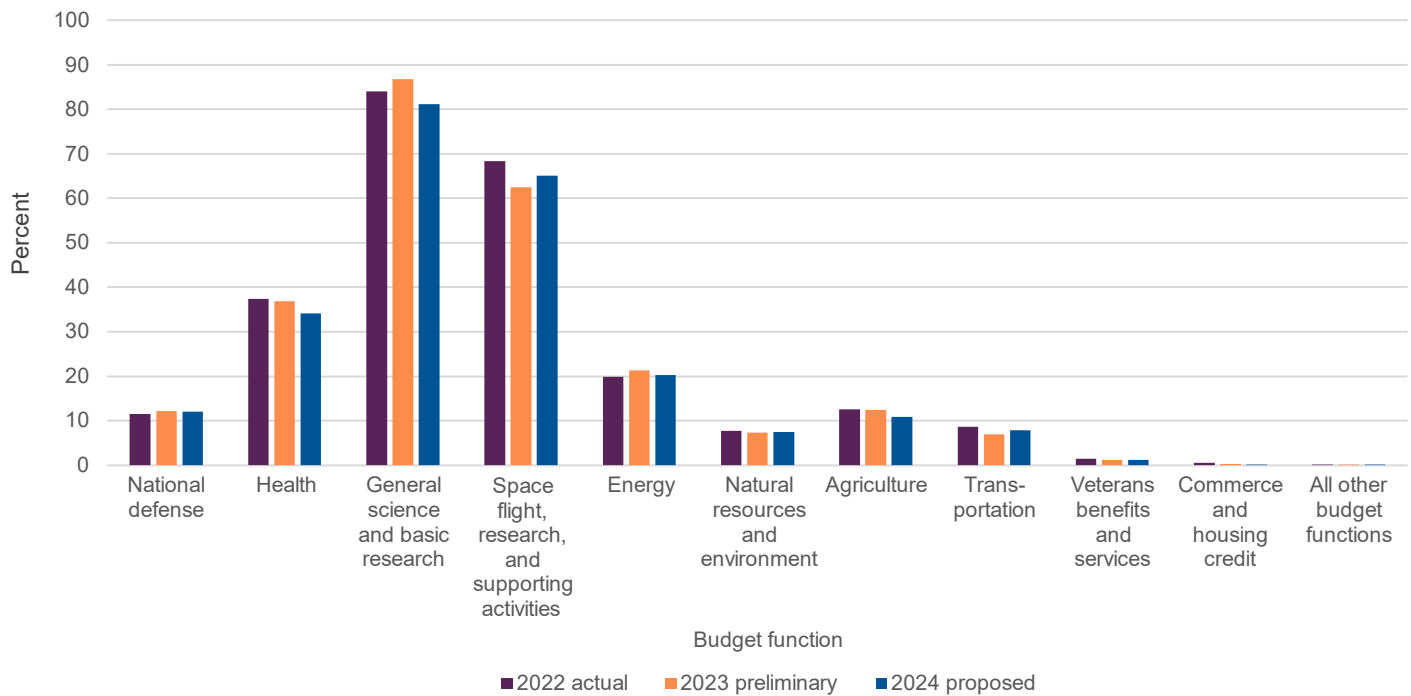
## Federal R&D Funding, by Budget Function: FYs 2022–24

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

Although national defense is the single largest function across all functions for R&D and R&D plant, within the total national defense budget authority, the defense R&D and R&D plant is relatively minor. For example, although national defense accounted for 45.7% of the total R&D and R&D plant budget authority in FY 2022, the R&D and R&D plant as percentage of the total national defense budget authority in FY 2022 was 11.5%. In the FY 2023 preliminary estimates and in the president’s proposed FY 2024 budget, R&D and R&D plant for national defense accounted for 12.2% and 12.1% of total defense-wide budget authority, respectively.

R&D and R&D plant as a percentage of total budget authority for general science and basic research, on the other hand, is a much larger share of the total budget authority for general science and basic research, because this function includes budget authority for the National Science Foundation and the Department of Energy’s Office of Science, both of which have substantial portions of their budgets directed toward funding R&D and R&D plant. In FY 2022, 84.0% of the total budget authority for general science and basic research was for R&D and R&D plant. In the FY 2023 preliminary estimates and in the FY 2024 proposed budget authority, the percentage share was 86.8% and 81.2%, respectively.

**Figure 4. Distribution of federal budget authority for R&D and R&D plant as a percent of total budget authority, by budget function: FYs 2022–24**



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, FY 2024.