President Trump's FY 2019 budget request proposes cuts to many federal science agencies
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President Donald Trump released his $4.4 trillion budget proposal for fiscal year (FY) 2019 on February 12 prioritizing defense, border security, infrastructure, and the opioid crisis, while proposing significant cuts to many domestic programs, including science agencies.

The President’s FY 2019 Budget was released along with a last-minute addendum outlining additional spending priorities, developed after Congress passed the Bipartisan Budget Act of 2018 on February 9 to raise the defense and non-defense discretionary spending caps for FY 2018 and 2019. The addendum effectively rolled back some of the initially proposed cuts to a few science agencies, such as the Department of Energy’s (DOE) Office of Science and the National Science Foundation (NSF). However, even with the addendum additions, the President’s budget request for non-defense discretionary spending remained $57 billion below the caps agreed upon by Congress. White House Budget Director Mick Mulvaney explained that “the Administration does not believe these non-defense spending levels comport with its vision for the proper role and size of the Federal Government.” Many of the proposed changes are a reprise of last year's spending plan from the White House, which congressional appropriators had largely rejected in developing their individual spending bills for FY 2018. Congress is currently finalizing the FY 2018 budget process with a deadline of March 23, while also considering priorities for crafting FY 2019 appropriations bills.

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**Interior, Environment, and Related Agencies**

**Environmental Protection Agency (EPA):**
EPA was initially slated for a 34 percent cut compared to FY 2017, but the addendum directed an additional $724 million in spending for the agency, bringing the total EPA request to $6.15 billion, a 25.5 percent cut, for FY 2019. The addendum provided an additional $327 million to the Hazardous Substance Superfund account to advance the cleanup and reuse of contaminated sites on the National Priorities List, and an additional $397 million for the Clean Water and Drinking Water State Revolving Funds to largely support investment in wastewater and storm water infrastructure. According to EPA’s Budget in Brief, thirty-nine programs would be eliminated along with reductions to many other programs across the board, such as the Chesapeake Bay and Great Lakes Geographic Programs which would be cut by 90 percent. The Clean Air and Global Climate Change accounts would be abolished to create two new accounts: Core Mission and Rule of Law and Process. The budget also outlines plans to reshape the EPA workforce, reducing the number of full-time employees from an estimated 15,408 in FY 2018 to 12,250 in FY 2019.

**U.S. Geological Survey (USGS):**
The President’s FY 2019 budget request for the Department of the Interior proposes drastic reductions to the majority of functions within the USGS. These proposed cuts would severely impact most fundamental activities conducted by the agency, as well as funding for state geological surveys and other nongovernmental partners. The proposed cuts would reduce direct staffing levels by 25 percent, or 1,029 direct full-time equivalents (FTE).

The FY 2019 budget request for the USGS includes a total of $859.7 million – a 20 percent decrease from FY 2017 enacted levels. This includes $117.3 million – roughly an 18.5 percent cut – for the Natural Hazards Mission Area that provides early-warnings alerts and supports efforts to reduce societal risks to hazards. The proposal would entirely eliminate the Environmental Health Mission Area, which studies contaminants and toxic substances on water and the environment, transferring only $200 million for Harmful Algal Bloom work to the National Water Quality Program in the Water Mission Area. Under the Core Science Systems Mission Area, the National Cooperative Geologic Mapping Program would be cut by about $2 million, or 8 percent, from FY 2017 enacted levels. The proposal also includes a cut of almost 50 percent to the USGS Libraries, which have already experienced reductions in 2017.

The President’s FY 2019 budget emphasizes science supporting energy and mineral independence and security, and provides an increase of $11 million, or 15 percent, for the USGS Energy and Minerals Mission Area at $84.1 million, above FY 2017 enacted levels. Specifically, the budget proposes a new initiative called the Three Dimensional mapping and Economic Empowerment Program (3DEEP) to improve the topographic, geological, and geophysical mapping of the United States pursuant to President Trump’s executive order on critical minerals. The budget proposal also supports efforts to launch Landsat 9 by investing $75.5 million in the National Land Imaging program, including funding for resources needed to develop the Landsat 9 ground and flight systems.

Other Interior Agencies:
The President’s request would cut the Bureau of Land Management (BLM) by nearly 24 percent and the National Parks Service (NPS) by about 7 percent compared to the amounts provided in FY 2017. The NPS would have received steeper cuts from the original request, but the addendum provided additional spending for the management, operation, and maintenance of park areas and facilities. The budget request for the Bureau of Safety and Environmental Enforcement (BSEE) is $199.9 million, a 28 percent increase from FY 2017 enacted levels, and the Bureau of Ocean Energy Management (BOEM) request is a 9 percent increase from FY 2017 at $179.3 million.

The FY 2019 Interior budget request also provides $18 million to help initiate the Department of the Interior’s internal reorganization plan.

Commercial, Justice, Science, and Related Agencies

National Science Foundation (NSF):
While the President’s original budget proposal would have cut NSF funding by $2.2 billion or 29.5 percent compared to its FY 2017 budget, the addendum in the FY 2019 request restored flat funding for NSF at $7.47 billion. The request increases the Research and Related Activities account by $145 million compared to FY 2017, but decreases Major Research Equipment and Facilities Construction by $120 million or 56 percent and decreases Agency Operations and Award Management by $25 million or 7 percent. The request provides $853 million for the Directorate for Geosciences (GEO), an increase of $27 million or 3.3 percent compared to FY 2017. Within GEO, the proposal would cut Atmospheric & Geospace Sciences and Earth Sciences while providing increases to Ocean sciences and Polar Programs. The budget supports investment in NSF’s 10 Big Ideas for innovative science, including a new initiative, “Navigating the New Arctic,” requested at $30 million, and $104 million for construction of the multiyear Antarctic Infrastructure Modernization for Science (AIMS) with an estimated total project cost of $355 million to be funded through the Research and Related Activities account. Funding for many other GEO facilities would be slightly reduced.

National Oceanic and Atmospheric Administration (NOAA):
The President's budget outlined $4.56 billion total funding for NOAA, posing a $1 billion or 20 percent decrease compared to FY 2017 levels. Within the agency, thirty-four programs face proposed reductions and thirty-one programs are slated for termination, including many of the same programs that were zeroed out in the FY 2018 request, such as Coastal Management Grants, the National Estuarine Research Reserve System, the National Sea Grant College Program, and the Office of Education, and many climate, weather, and air research programs. In its Congressional Justification, NOAA said that the FY 2019 budget prioritizes core functions, including development of its new polar orbiting satellites to aid in weather forecasting, but the proposal consolidates the Polar Follow On into the Joint Polar Satellite System resulting in cuts to their combined budget of $238 million. The justification also outlines the elimination of 355 jobs at the National Weather Service (NWS), including 248 forecasters, even though a 2017 Government Accountability Office report indicated that the NWS should be working harder to fill vacancies and reduce a hiring backlog.

**National Aeronautics and Space Administration (NASA):**

NASA would receive a 1.3 percent increase of $240 million from FY 2017, providing for a total budget of $19.9 billion, after the addendum added $300 million to the agency’s original FY 2019 budget request, mostly for exploration activities. The agency’s budget overview states that it would redirect Office of Education funding to new initiatives supporting NASA’s core mission of exploration. The budget proposal would cut funding for NASA’s Earth Science research program by approximately 6 percent, resulting in the termination of five of its Earth Science missions: PACE, OCO-3, RBI, DSCOVR Earth-viewing instruments, and CLARREO Pathfinder. The budget also proposes ending funding for the international space station (ISS) by 2025 and increasing reliance on commercially-operated satellites, in addition to renaming and restructuring of the NASA mission areas: Space Technology to Exploration Research and Technology, Exploration to Deep Space Exploration Systems, and Space Operations to LEO and Space Operations.

**Energy and Water, and Related Agencies**

**Department of Energy (DOE):**

The FY 2019 budget request for DOE is $30.6 billion, providing essentially flat funding compared to FY 2017. The original budget would have cut DOE’s Office of Science by 22 percent, but the addendum restored $1.2 billion for fundamental scientific research resulting in flat funding for the Office of Science at $5.4 billion. Within the Office of Science, the budget request includes a slight reduction at $1.85 billion for the Basic Energy Sciences program, and a $112 million or 18 percent cut to Biological and Environmental Research. The Advanced Research Project Agency-Energy (ARPA-E) is zeroed out and posed for termination similar to the FY 2018 budget request.

The FY 2019 request provides $2.5 billion for the DOE’s Energy programs. This includes $696 million for Energy Efficiency and Renewable Energy, which is a $1.3 billion or 66.7 percent decrease from FY 2017. It includes $502 million for Fossil Energy Research and Development (R&D). The budget request also proposes creating a separate account for Cybersecurity, Energy Security, and Emergency Response (CESER) that would be funded at $96 million to support the Administration’s commitment to protecting energy infrastructure security.

**Sources:** American Association for the Advancement of Science, Department of Energy, Department of the Interior, Environmental Protection Agency, Government Accountability Office, National Aeronautics and Space Administration, National Science Foundation, National Oceanic and Atmospheric Administration, U.S. Geological Survey, White House