FY 2017 Research and Development Budget Request

Updated: February 22, 2016

Overview

The President's 2017 Budget provides $152.3 billion for Research and Development (R&D) in Fiscal Year (FY) 2017. This is a 4.2 percent or $6.2 billion increase over FY 2016. However, of the $152.3 billion requested, $148 billion is discretionary and $4 billion is new mandatory funding. This mandatory spending makes up most of the spending increase for R&D from FY 2016 to FY 2017.

Mandatory spending requires new legislation and a pay-for that makes the spending deficit neutral. In the current political climate, it is unlikely we will see an increase in mandatory R&D funding, which leaves us to look at the President's discretionary funding request as the more likely baseline number. This means the President's budget request is only a $2.2 billion increase in the base R&D budget, or 1.5 percent, falling below inflation.

In Millions	DOD (RDT&E)	NIH	DOE (R&D)	NASA	NSF	NIST	EPA (S&T)
FY2015 Enacted	$64,088	$30,311	$ 8768	$ 18010	$ 7344	$ 864	$ 728
FY2016 Enacted	$69,970	$32,331	$ 9531	$ 19285	$ 7463	$ 949	$ 734
FY2017 Request	**$71,766**	**$33,136**	**$10,926**	**$19,025**	**$7,964**	**$1,000**	**$754**

Research and Development Funding by Agency

Department of Defense (DOD)

The President's budget proposes an overall 2.6% increase for DOD Research, Development, Testing & Evaluation (RDT&E), but again proposes large cuts for the DOD's basic research activities – 9.0% averaged across the service branches and 4.1% for the core 6.1, 6.2., and 6.3 research accounts. DARPA would see a 3.7% increase to 2.9 billion.

Department of Defense (Dollars in Millions)	FY15 Final	FY16 Final	FY17 Request	FY16-17 Change
RDT&E Total	**64,088.0**	**69,968.5**	**71,765.9**	**2.6%**
Defense S&T Total	**12,252.0**	**13,036.6**	**12,500.7**	**-4.1%**
6.1 *Basic Research*	2,227.7	2,309.2	2,101.8	-9.0%
6.2 *Applied Research*	4,522.8	4,996.2	4,815.4	-3.6%
6.3 *Advanced Technology Development*	5,102.3	5,731.2	5,583.5	-2.6%
DARPA Total	**2,759.3**	**2,796.7**	**2,899.0**	**3.7%**
6.1 *Basic Research*	381.4	389.7	420.1	7.8%
6.2 *Applied Research*	1,136.8	1,163.4	1,246.3	7.1%
6.3 *Advanced Technology Development*	1,241.1	1,243.7	1,232.6	-0.9%

Army S&T Total	**2,501.09**	**2,689.3**	**2,266.6**	**-15.7%**
6.1 *Basic Research*	447.9	469.1	428.9	-8.6%
University & Industry Research Centers	*105.8*	*104.3*	*94.3*	*-9.6%*
University Research Initiative	*79.1*	*72.6*	*69.2*	*-4.7%*
6.2 *Applied Research*	964.1	1,092.9	907.6	-17.0%
6.3 *Advanced Technology Development*	1,089.1	1,127.3	930.1	-17.5%
Navy S&T Total	**2,155.9**	**2,334.0**	**2,141.1**	**-8.3%**
6.1 *Basic Research*	634.4	671.9	543.0	-19.2%
University Research Initiative	*129.3*	*146.2*	*101.7*	*-30.4%*
6.2 *Applied Research*	855.9	965.9	861.2	-10.8%
6.3 *Advanced Technology Development*	625.6	696.2	737.0	5.9%
Air Force S&T Total	**2,235.4.7**	**2,480.8**	**2,486.0**	**0.2%**
6.1 *Basic Research*	538.6	530.3	500.0	-5.7%
University Research Initiative	*142.8*	*141.8*	*145.0*	*2.3%*
6.2 *Applied Research*	1,060.4	1,240.1	1,260.2	1.6%
6.3 *Advanced Technology Development*	606.4	710.4	725.8	2.2%

National Institutes of Health (NIH)

The budget proposal would give NIH $33.1 billion, a 2.6% raise over 2016. The money would include $680 million for Vice President Biden's cancer moonshot; $100 million more for the Precision Medicine Initiative's 1-million person cohort study, for a total of $230 million; and $45 million in added funds for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative. Altogteher, in FY 2017, NIH will receive nearly $825 million (2.6%) more in federal funding than it did in FY 2016. However, the budget request includes $1.8 billion in a new category of mandatory spending, something unlikely to be acted on by Congress. Counting out mandatory spending, NIH would see a nearly $1.0 billion cut.

National Institute of Biomedical Imaging and Bioengineering *(Dollars in Millions)*	**FY15 Final**	**FY16 Final**	**FY17 Request**	**FY16-17 Change**
NIBIB Total	**330.2**	**346.8**	**343.5**	**-1.0%**
Extramural Research	295.9	310.0	309.3	-0.2%
Applied Sci & Tech	*147.4*	*155.0*	*153.0*	*-1.3%*
Discovery Sci & Tech	*95.9*	*106.5*	*103.4*	*-2.9%*
Research Training	*9.9*	*10.2*	*10.2*	*0.0%*
R&D Contracts	*23*	*18.3*	*26.5*	*44.8%*
Bridging the Sciences	*19.7*	*19.9*	*20.0*	*1.0%*
Research Project Grants	*212.4*	*228.0*	*219.2*	*-3.9%*
SBIR/STTR	*9.6*	*10.0*	*11.2*	*11.0%*
Intramural Research	12.3	12.8	13.1	2.0%
Research Mgmt & Support	20.0	20.7	21.1	2.0%

Department of Energy (DOE)

DOE's sees a very healthy 14.6% overall increase for its R&D activities in the FY 2017 budget request. The Administration seeks to double clean energy R&D funding in five years, with most funding managed within the DOE. The big winners include the Office of Energy Efficiency and Renewable Energy, which would receive 2.9 billion, a 40.0% increase, and ARPA-E, which would see a 71% increase should it get its $500 million request. DOE's Office of Science – the home of DOE's basic research activities - would receive $5.7 billion, a 6.0% increase. DOE's total budget would increase 9.8% to $32.5 billion.

Department of Energy *(Dollars in Millions)*	FY15 Final	FY16 Final	FY17 Request	FY16-17 Change
DOE Total R&D	**8,768.0**	**9,531.2**	**10,926.5**	**14.64%**
Office of Science R&D	5,132.8	5,347.0	5,672.0	6.08%
Adv Sci Comp Res	*541.0*	*621.0*	*663.1*	*6.8%*
Basic Energy Sciences	*1,733.2*	*1,849.0*	*1,936.7*	*4.7%*
Bio and Env Research	*592.0*	*609.0*	*661.9*	*8.7%*
Fusion Energy Sciences	*467.5*	*438.0*	*398.1*	*-9.1%*
High-Energy Physics	*766.0*	*795.0*	*817.9*	*2.9%*
Nuclear Physics	*595.5*	*617.1*	*635.6*	*3.0%*
Energy Efficiency and Renewable Energy (EERE)	1,840.8	2,069.1	2,898.4	40.1%
Electricity Delivery and Energy Reliability	143.9	206.0	262.3	27.3%
Nuclear Energy	821.8	986.1	993.8	0.8%
Fossil Energy	548.8	632.0	600.0	-5.1%
ARPA-E	279.9	291.0	500.0	71.8%

National Aeronautics and Space Administration (NASA)

$19.0 billion for NASA, a 1.4% increase. While much of NASA's research budget is flat-fund, the request includes $790 million, a 23% increase, for Aeronautics Research programs. NASA's Exploration activities face deep cuts under the President's request – 17.2% below FY 2016.

NASA Total *(Dollars in Millions)*	FY15 Final	FY16 Final	FY17 Request	FY16-17 Change
NASA Total	**18,010.2**	**19,285**	**19,025.1**	**-1.4%**
Science	5,243.0	5,589.4	5,600.5	0.2%
Aeronautics Total	642.0	640.0	790.4	23.5%
Aviation Safety	154.0	-	159.4	-
Advanced Air Vehicles Program	-	-	299.0	-
Integrated Aviation Systems Program	-	-	210.0	-
Transformative Aeronautics Concepts Program	-	-	122.0	-
Space Technology	600.3	686.5	826.7	20.4%
Exploration	3542.7	4030.0	3336.9	-17.2%
R&D	331.2	350.0	477.3	36.4%
*Exploration Systems Development***	3211.5	3680.0	2859.6	-22.3%
Space Operations	4625.5	5029.2	5075.8	0.9%
Support	839.0	-	88.74	-
Space Transportation	2,245.0	-	2,757.7	-
Education	119.0	115.0	100.1	-13.0%
Construction	446.1	388.9	419.8	8.0%

National Science Foundation (NSF)

The request calls for $8.0 billion for NSF, an increase of $500 million or 6.7% over FY 2016. Research and Related Activities would receive $6.4 billion, an increase 6.5%. The request includes $176 million for advanced manufacturing that leverages both disciplinary and topical mechanisms to advance knowledge for the production of novel products through processes that depend on the coordination of information, automation, computation, networking, or other emerging scientific capabilities.

National Science Foundation *(Dollars in Millions)*	FY15 Final	FY16 Final	FY17 Request	FY16-17 Change
NSF Total	**7,344.0**	**7,463.5**	**7,964.0**	6.71%
RRA	6,041.6	6,033.7	6,425.5	6.49%
Edu & HR	866.3	880.0	952.9	8.28%
Equipment and Facilities	144.8	200.3	193.1	-3.59%

The FY17 NSF budget also requests funding for the following cross-government and cross-agency Initiatives:

- Clean Energy Economy: $512 million
- Understanding the Brain: $142 million
- Increase Resilience to Disasters: $43 million
- Sustaining the Food, Energy, and Water System: $62 million
- Cutting-Edge Manufacturing: $176
- Commercialization of University Research: $30 million
- Capabilities and Infrastructure for Research and Education: $139 million
- Improving Undergraduate STEM Education: $109 million
- NSF Research Traineeships: $59 million
- Graduate Research Fellowships: $332 million

National Institute of Standards and Technology (NIST)

The request would increase NIST's budget to $1.0 billion, a 5.3% increase. The budget again requests additional funding to expand the National Network for Manufacturing Innovation (NNMI) institutes:

NNMI Discretionary Spending

In total, the President's Budget includes discretionary funding for five new institutes:

- $42 million for two new Commerce-led NNMIs, and $5 million for coordination efforts.
- $84 million for six DOE-led NNMIs, which includes $70 million for the five existing DOE institutes and $14 million for one new Clean Energy Manufacturing Innovation Institute.
- $137 million for six DOD-led NNMIs, which includes funding for two new institutes.

NNMI Mandatory Spending

The Budget also includes a mandatory spending proposal of $1.9 billion to complete the remaining 27 institutes and create a national network of 45 manufacturing institutes over the next ten years.

National Institute of Standards and Technology *(Dollars in Millions)*	FY15 Final	FY16 Final	FY17 Request	FY16-17 Change
NIST Total	**863.9**	**964.0**	**1014.519**	5.2%
STRS	675.5	690.0	730.5	5.9%
ITS	138.1	155.0	189.0	22.0%
MEP	131.2	130.0	142.0	9.2%
NNMI	-	25.0	47.0	88.0%
CRF	50.3	119.0	95.0	-20.2%
Laboratory Programs	-	621.5	640.5	3.1%

Environmental Protection Agency

EPA's Science & Technology elements would increase by $20 million to $754 million, a 2.0% increase. Water programs as well as Air, Climate, and Energy research programs remain a priority, with each receiving over 10.0% overall increases. EPA's overall budget would increase 1.2% to $8.2 billion.

Environmental Protection Agency *(Dollars in Millions)*	FY15 Final	FY16 Final	FY17 Request	FY16-17 Change
Total EPA S&T	**728.5**	**734.6**	**754.1**	**2.7%**
Research: Air, Climate, and Energy	84.4	91.9	101.1	10.0%
Research: Water and Resources	102.2	107.4	106.2	-1.1%
Research: Sustainable Communities	138.3	139.9	134.3	-4.0%
Research: Chemical Safety and Sustainability	130.1	126.9	134.2	5.8%
Water: Human Health Protection	3,487.4	3,519.0	3,923.0	11.5%
Water: Quality Research Grants	4,119.0	14,100.0	0.0	-
Clean Air and Climate	131	116.5	128.1	10.0%
Indoor Air and Radiation	6410.9	5997	7510	25.2%
Homeland Security	38.3	37.1	37.2	0.3%