R&D in the FY 2017 Budget

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For the American Society for Engineering Education (ASEE) Engineering Research Council
AAAS R&D Budget and Policy Program
http://www.aaas.org/program/rd-budget-and-policy-program
Federal Spending Since FY 2010
Percent change from FY10 levels, constant dollars

*Includes EERE, OE, Fossil, Nuclear; excludes ARPA-E (regular appropriations began in FY 2011).
Based on AAAS analyses of historical OMB, agency, and appropriations data and the President's FY 2017 request. © 2016 AAAS
**Composition of the Proposed FY 2017 Budget**

**Total Outlays = $4.1 trillion**

*outlays in billions of dollars*

- Net Interest: $303
- Defense Discretionary*: $529
  - [Defense R&D]*: $79
- Nondefense Discretionary*: $557
  - [Nondefense R&D]*: $68
- Social Security: $967
- Medicare: $598
- Medicaid: $386
- Other Mandatory: $656
- Other Outlays: $656

*Approximately $4 billion for R&D is classified as mandatory spending. Figures are estimates.

Total R&D by Agency, FY 2017

budget authority in billions of dollars, including new mandatory

- DOD, $73.2
- HHS (NIH), $32.7
- DOE, $17.4
- NASA, $12.0
- NSF, $6.5
- USDA, $2.9
- Commerce, $1.9
- All Other, $6.2

Total R&D = $152.9 billion

Source: OMB R&D data, agency budget justifications, and other agency documents and data. R&D includes conduct of R&D and R&D facilities. © 2016 AAAS
Current Estimates of Total R&D in FY17 Budget
percent change from FY16, nominal dollars, including new mandatory proposals

Based on AAAS analyses of OMB, OSTP and agency budget data. © AAAS
NEW Mandatory Funding in FY 2017

- $4.2 billion for R&D, all nondefense

- Select agency funding (including non-R&D):
  - $2.0 billion for NIST
  - $1.825 billion for NIH
  - $1.6 million for DOE clean technology and science programs
  - $763 million for NASA
  - $400 million for NSF
  - $325 million for USDA
  - $300 million for EPA
Current Estimates of Total R&D in FY17 Budget

percent change from FY16, nominal dollars, including new mandatory proposals

Based on AAAS analyses of OMB, OSTP and agency budget data. © AAAS
Current Estimates of Total R&D in FY17 Budget

percent change from FY16, nominal dollars, excluding new mandatory proposals

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Base Budget R&D by Agency, FY 2017

budget authority in billions of dollars, excluding new mandatory proposals in FY 2017

DOD, $73.2
HHS (NIH), $30.9
DOE, $16.6
NASA, $11.3
NSF, $6.2
USDA, $2.6
Commerce, $1.9
All Other, $6.0

Total base budget R&D = $148.8 billion

Source: OMB R&D data, agency budget justifications, and other agency documents and data. R&D includes conduct of R&D and R&D facilities. © 2016 AAAS
### FY17 R&D in the Base Budget by Function

**percent change from FY 2016, nominal dollars**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Energy Programs</td>
<td>19.8%</td>
</tr>
<tr>
<td>Defense Activities</td>
<td>4.0%</td>
</tr>
<tr>
<td>Environment Agencies</td>
<td>3.2%</td>
</tr>
<tr>
<td>General Science (NSF, DOE SC)</td>
<td>2.3%</td>
</tr>
<tr>
<td>Justice (DHS)</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Transportation</td>
<td>-1.9%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Health (NIH)</td>
<td>-2.6%</td>
</tr>
<tr>
<td>Commerce (NIST)</td>
<td>-2.7%</td>
</tr>
<tr>
<td>Space</td>
<td>-9.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.4%</td>
</tr>
</tbody>
</table>
Trends in Federal R&D
As a percent of GDP

Source: AAAS analyses of historical budget and agency data and the FY 2017 request. GDP figures from OMB. R&D includes conduct and facilities. © AAAS
Agency Highlights: NIH

- $33.1 billion program level (+$825 million, +2.6%)
  - OR
- $31.3 billion program level (-$1 billion, -3.1%)
- Of the $1.825 billion in mandatory spending:
  - $825 million for cancer research, BRAIN Initiative, Precision Medicine
  - Remaining $1 billion to keep all other ICs flat
- 17.5% success rate in FY17

Agency Highlights: DOE

- **SC**: $5.7 billion (+6.1%)
  - OR
- **$5.6 billion (+4.2%)**
  - Advanced computing; BER; BES all with moderate boosts
  - Domestic fusion energy research cut again (-15.5%)
    - While ITER boosted, again
- **Applied programs**: gains for EERE, ARPA-E, grid (20% or more for each)
  - 21st Century Clean Transportation Plan
  - Fossil cut, Nuclear flat

![DOE Office of Science Budgets](chart.png)

*Source: Historical DOE budget data and FY17 request. © 2016 AAAS*
Agency Highlights: NSF

- $8.0 billion (+6.7%)
  - OR
- $7.6 billion (+1.3%)
- Base budgets for most directorates roughly flat
  - ENG: boosts for SBIR, ERCs
  - BIO, MPS: infrastructure v. research?
- New research vessels
Agency Highlights: NASA

- NASA: $19 billion (-1.3%)
- OR
- $18.3 billion (-5.3%)
- Mandatory spending ($763 million) directed to Science, Aeronautics, Space Technology, Exploration
- Familiar contours:
  - Priorities include Earth Science, Space Technology; also Heliophysics
  - Asteroid Retrieval Mission
  - Cuts for Planetary Science (Europa Mission), Exploration (SLS and Orion), Astrophysics

*Other* includes support, construction, OIG, and education programs. © 2016 AAAS
Other Notes

- DOD S&T: Basic research cut by 9.0%; DARPA +3.7%
- USDA: small changes at ARS; AFRI discretionary +7.1%, with an additional $325 million mandatory
- NIST, NOAA Research Office, USGS all increased to varying degrees
- Zika supplemental: $1.8 billion for CDC, NIH, others
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Federal Spending Since FY 2010
Percent change from FY10 levels, constant dollars, excluding new mandatory proposals in FY 2017

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R&D as a Share of GDP by Funder

Source: National Science Foundation, National Patterns of R&D Resources series. © 2015 AAAS
Research as a Share of GDP by Funder

Source: National Science Foundation, *National Patterns of R&D Resources* series. © 2015 AAAS
Trends in Federal R&D, FY 1976-2017
in billions of constant FY 2016 dollars, excluding mandatory proposals in FY 2017

Source: AAAS analyses of historical budget and agency data and the FY 2017 request. R&D includes conduct and facilities. © AAAS | Feb. 2016
For more info...

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http://www.aaas.org/program/rd-budget-and-policy-program