The FY 2011 Federal R&D Investment

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AAAS R&D Budget and Policy Program
http://www.aaas.org/spp/rd

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The FY 2011 Budget

- $3.8 trillion total budget, $1.3 trillion unified deficit
- $1.4 trillion discretionary spending (0.5% increase)
  - $671 billion nondefense spending (3.4% decrease)
- Rescuing the Economy
- A Foundation for Economic Growth and Job Creation
  - Small business initiatives
  - Investing in science and basic research
- Restoring Responsibility
  - Three year non-security discretionary funding freeze
Trends in Discretionary Spending
outlays in billions of constant FY 2010 dollars

FY 2010-2015 data are budget projections.
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The FY 2011 Federal R&D Investment

- $147.7 billion, 0.2% increase from FY 2010
  - Basic Research – $31.3 billion, 4.3% increase
  - Applied Research – $30.3 billion, 6.9% increase
  - Development – $81.5 billion, 3.5% decrease
  - Equipment and Facilities – $4.6 billion, 0.6% decrease
- $81.7 billion for defense R&D, 3.9% decrease
- $66.0 billion for non-defense R&D, 5.8% increase
- 0.8% decrease in constant dollars from FY 2010
- 0.4% increase in constant dollars since FY 2004
Total R&D by Agency, FY 2011

budget authority in billions of dollars

- DOD, $77.5
- HHS (NIH), $32.2
- DOE, $11.2
- NASA, $11.0
- All Other, $6.7
- NSF, $5.5
- USDA, $2.4
- DHS, $1.0

Total R&D = $147.7 billion

Source: OMB R&D budget data, agency budget justifications, and other agency documents.
R&D includes conduct of R&D and R&D facilities.

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FY 2011 R&D Budget Request
Percent Change from FY 2010

- NIST: 21.7%
- NASA: 18.3%
- NOAA: 10.0%
- NSF: 8.3%
- DOE Energy: 6.8%
- DOE Defense: 5.0%
- EPA: 4.7%
- USGS: 4.3%
- DOE Science: 3.8%
- NIH: 3.1%
- VA: 1.5%
- DOT: 0.6%
- DOD: -4.4%
- USDA: -5.5%
- DHS: -9.0%

Source: OMB R&D budget data, agency budget justifications, and other agency documents.
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Funding Shifts

- Defense, −$3.3b
- Nondefense, +$3.6b
- Development, −$2.9b
- Research, +$3.2b
Funding Shifts

- NASA Constellation
  -$3.1b over 3 yrs to...
  - Near earth orbit through private industry
    +$6.1b over 5 yrs
  - Heavy Lift and Propulsion
    +$559m
  - International Space Station
    +$812m, 35.1% over 3 yrs
Funding Shifts

- Dept of Energy
  - Fossil, −$53m
  - Nuclear, −$122m
- EERE, +$35m
- Electric Grid, +$22m
- Office of Science, +$172m
- ARPA-E, +$273m
**Funding Doubling for Basic Research**

- National Science Foundation
  - 8.0% increase to $7.4 billion
  - R&D – 8.3% increase to $5.5 billion
NSF Engineering Directorate

- 11.0% increase to $826 million
  - Chem, Bioeng, Env & Trans (CBET) – $169 million (+7.8%)
  - Civil, Mech & Manuf Innov (CMMI) – $207 million (+9.8%)
  - Elect, Comm & Cyber Sys (ECCS) – $103 million (+9.6%)
  - Eng Education and Centers (EEC) – $138 million (+11.5%)
  - Ind Innov Partnerships (IIP) – $178 million (+16.9%)
    - SBIR/STTR – $143 million (+13.6%)
  - Emerging Frontiers in Res Innov (EFRI) – $31 million (+6.9%)
Funding Doubling for Basic Research

- DOE Office of Science
  - 4.6% increase to $5.1 billion
  - R&D – 3.8% increase to $4.6 billion
Funding Doubling for Basic Research

- National Institute of Standards and Technology
  - Total Budget
    - +7.3% to $919 million
  - R&D
    - +21.7% to $706 million
  - Tech Innovation Program
    - +14.3% to $80 million
  - Green Manufacturing
    - $10 million
  - Innov for Manufacturing
    - $10 million
R&D Investment Priorities

- New Industries and Jobs
  - Advanced materials and manufacturing methods
  - $6.1 billion over 5 years for commercial earth orbit
- Cleaner Energy
  - $155 million (6.8%) increase for DOE Energy R&D
- Healthier America
  - $956 million (3.1%) increase for National Institutes of Health
- Enhanced Security
  - DOD Basic Research – 6.7% increase to $2.0 billion
Department of Defense

- Basic Research
  - +9.2% to $2.0 billion
- Development
  - -5.0% to $71.0 billion
- DARPA
  - +3.7% to $3.1 billion
Federally Funded Engineering Research: FY 2008

obligations in millions of dollars

Total Engineering Research: $9.54 billion

- Applied Research Non-Academic
- Applied Research Academic
- Basic Research Non-Academic
- Basic Research Academic

Source: National Science Foundation, Federal Funds for Research and Development.
FY 2008 figures are preliminary.
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STEM Education

- $3.7 billion, +$32 million from FY 2010
- K-12 Education
  - $450m at Dept of Ed, $63m at NASA, $41m at NSF
- RE-ENERGYSE (Undergraduate)
  - $19 million for NSF, $55 million for DOE
- Undergraduate Diversity
  - +14% to $103m for NSF
- Graduate Fellowships
  - NSF: +16% to $158m, NIH: +5% to $824m
  - DOD: +4% to $40m, DOE: +$10m to $15m
Next Steps

- Congress currently holding budget briefings for agencies
- Congress will pass a budget resolution and determine 302(a) and (b)s
- Congress needs to pass 12 appropriation bills, ideally by Sept. 30, the end of FY 2010.
For More Information…

The AAAS R&D web site is http://www.aaas.org/spp/rd

The AAAS Forum on Science and Technology Policy is May 13–14, 2010 in Washington, DC