

# R&D in the President's FY 2011 Budget

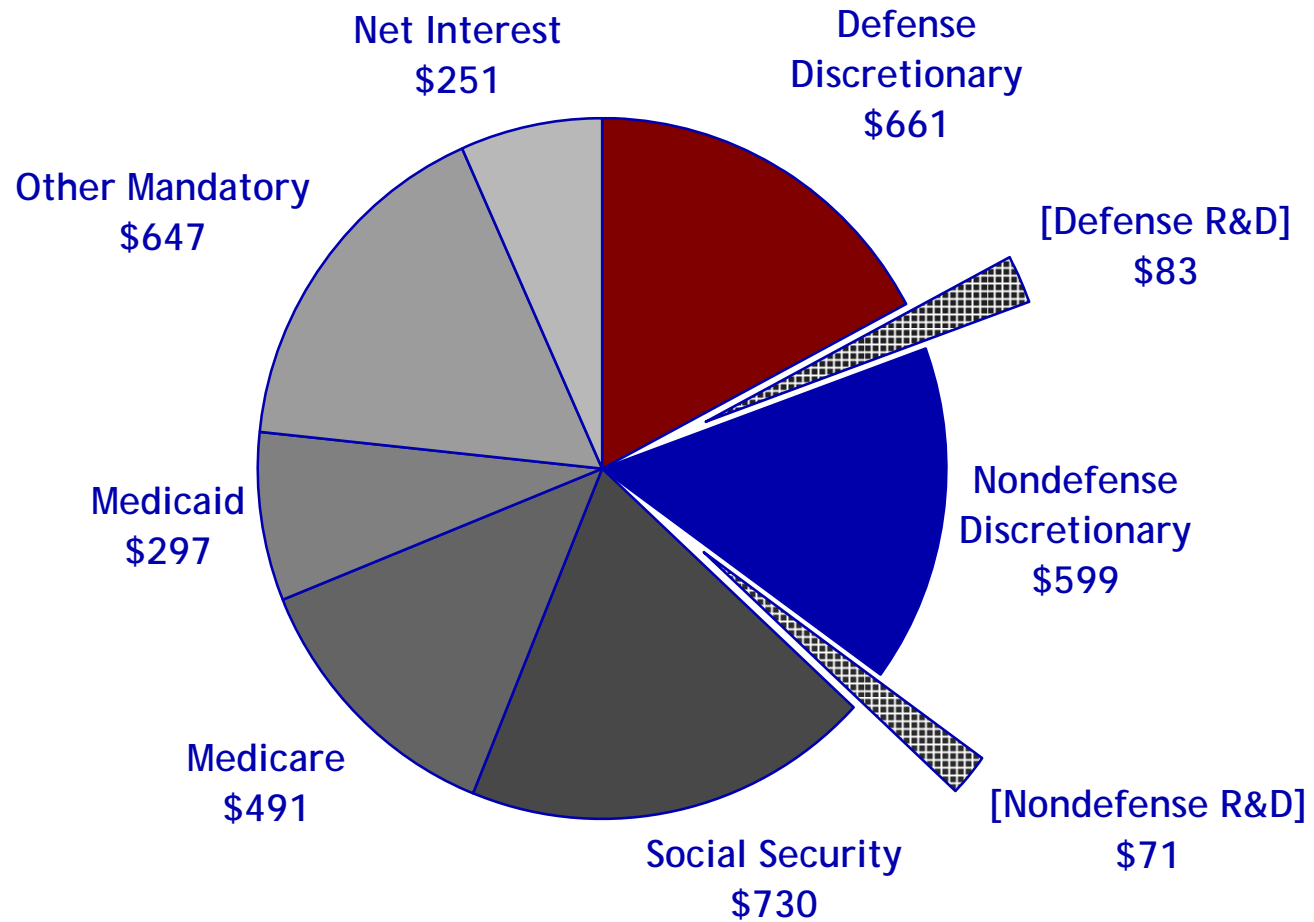
Patrick J Clemins  
June 30, 2010  
for COSEPP

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

# Composition of the Proposed FY 2011 Budget

## Total Outlays = \$3.8 trillion

outlays in billions of dollars



Source: *Budget of the United States Government FY 2011*.

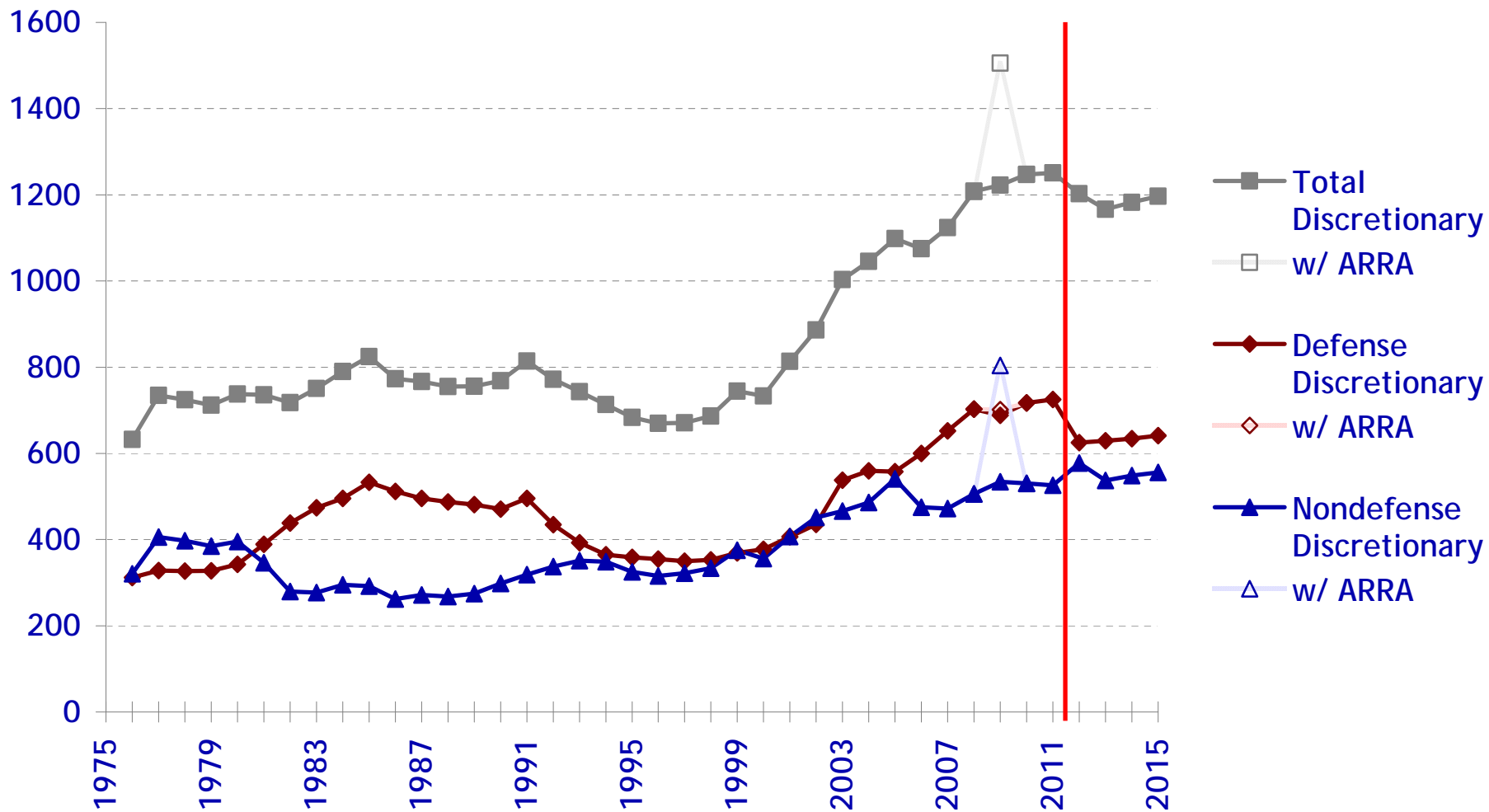
Projected unified deficit is \$1.3 trillion.

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# Trends in Discretionary Spending

budget authority in billions of constant FY 2010 dollars



Source: *Budget of the United States Government, FY 2011.*

FY 2010-2015 data are budget projections.

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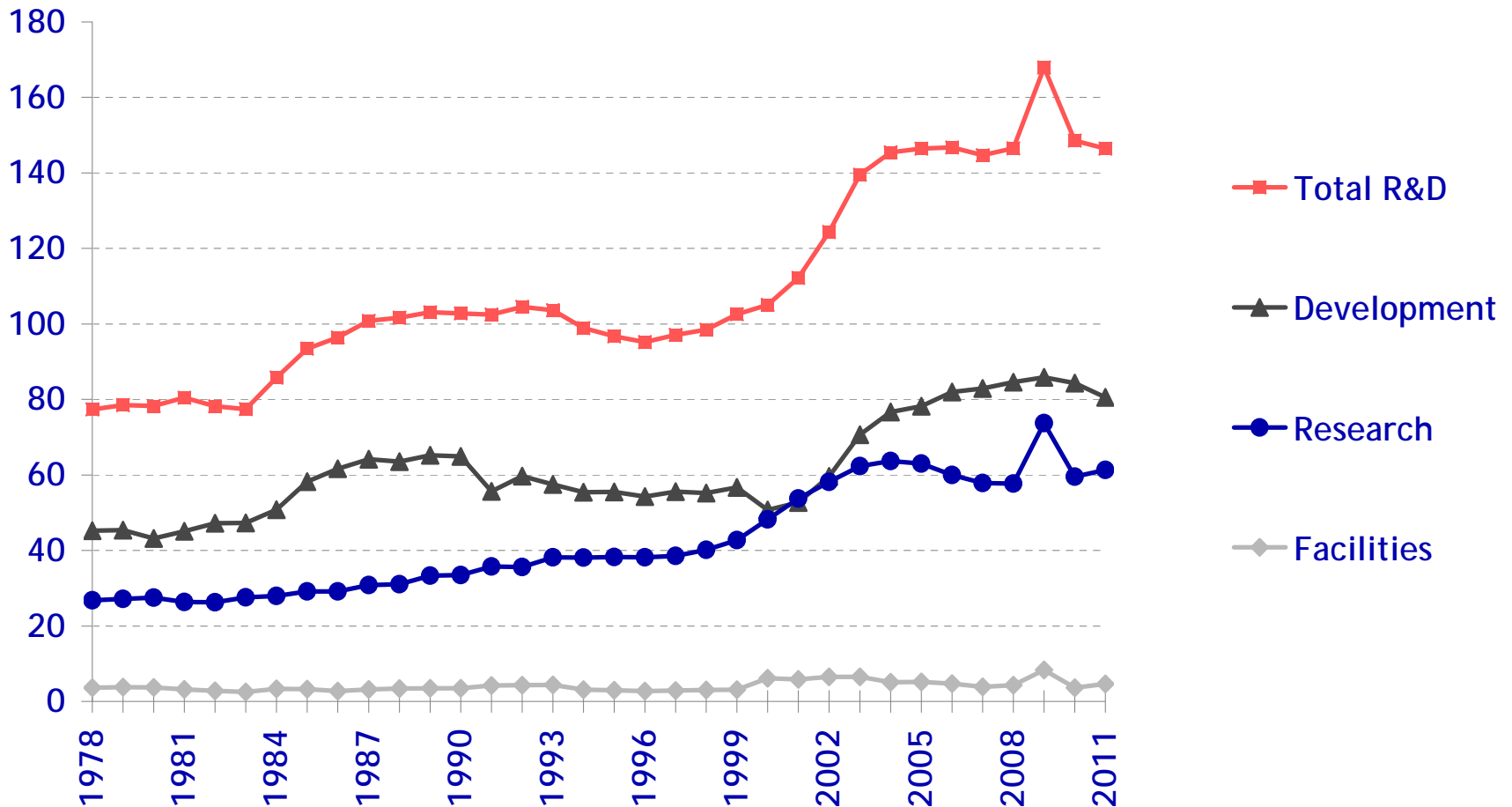


# The FY 2011 Federal R&D Investment

- Total R&D: \$148.1b, -0.3% from FY 2010
  - Basic Research: \$30.4b, +4.3%
  - Applied Research: \$31.6b, +2.1%
  - Development: \$81.5b, -2.9%
  - Equipment and Facilities: \$4.6b, +1.3%
- \$82.2b for defense R&D, -4.8%
- \$65.9b for non-defense R&D, +5.9%
- -1.4% in constant dollars from FY 2010
- +0.7% in constant dollars since FY 2004
  - Peak in FY 2009

# Trends in Federal R&D

in billions of constant FY 2010 dollars

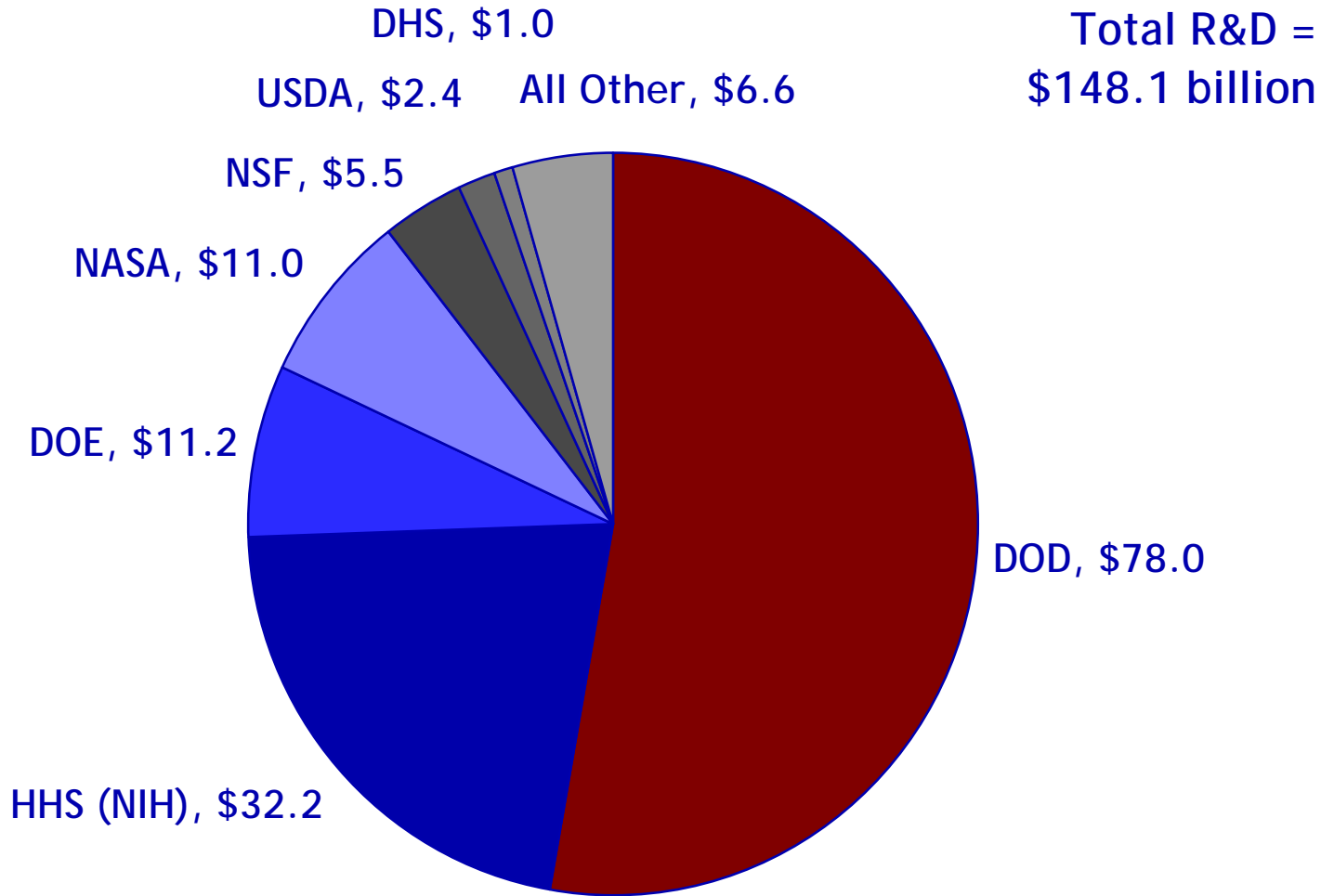


Source: AAAS analyses of R&D in annual AAAS R&D reports.  
FY 2011 figures are latest AAAS estimates of FY 2011 request.  
R&D includes conduct of R&D and R&D facilities.  
1976-1994 figures are NSF data on obligations in the Federal Funds survey.  
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# Total R&D by Agency, FY 2011

budget authority in billions of dollars



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

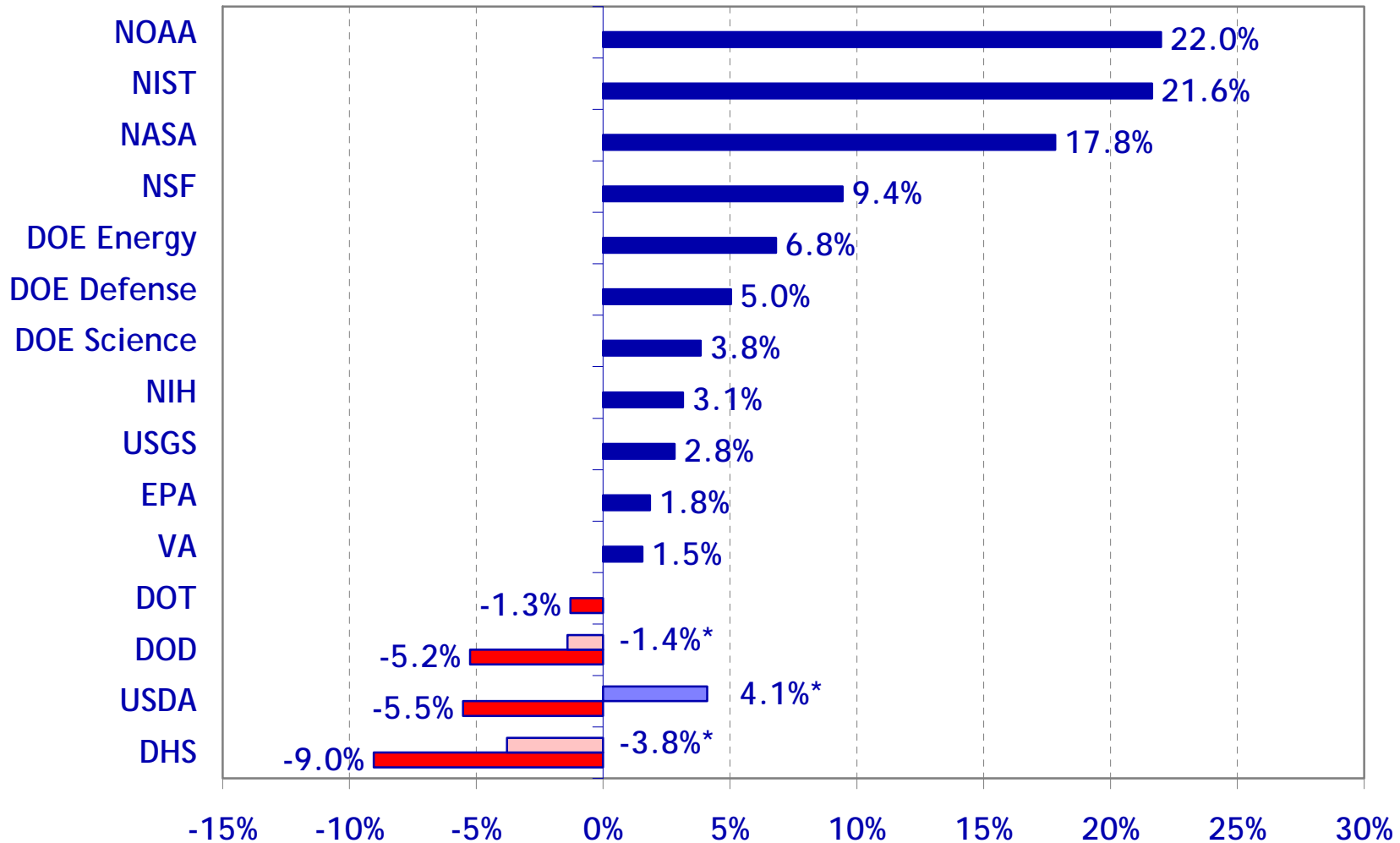
R&D includes conduct of R&D and R&D facilities.

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# R&D in the FY 2011 Budget Request

percent change from FY 2010



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

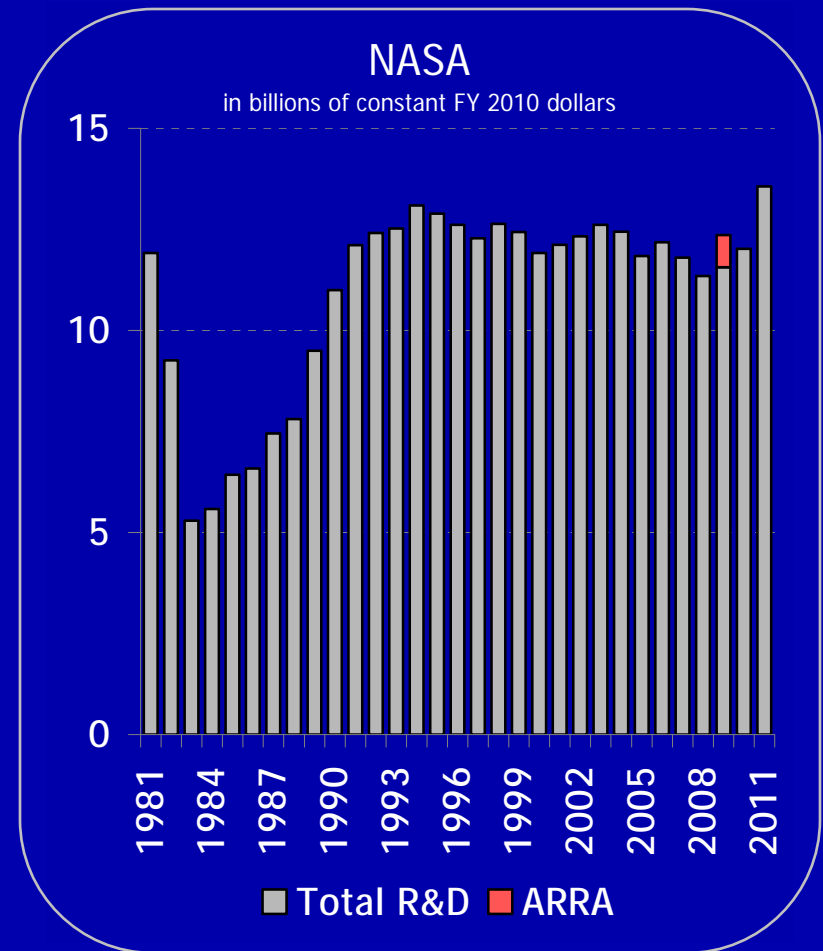
\* - Lighter colored bars indicate percent change with projected FY 2011 earmarks.

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# Funding Shifts: NASA

- Retire space shuttle and cancel Constellation Program
- Frees \$6.5b over 2 yrs
- Near-earth orbit through private industry
  - +\$6.1b over 5 yrs
- Heavy Lift and Propulsion
  - +\$559m
- International Space Station
  - +\$905m to \$3.2b over 4 yrs



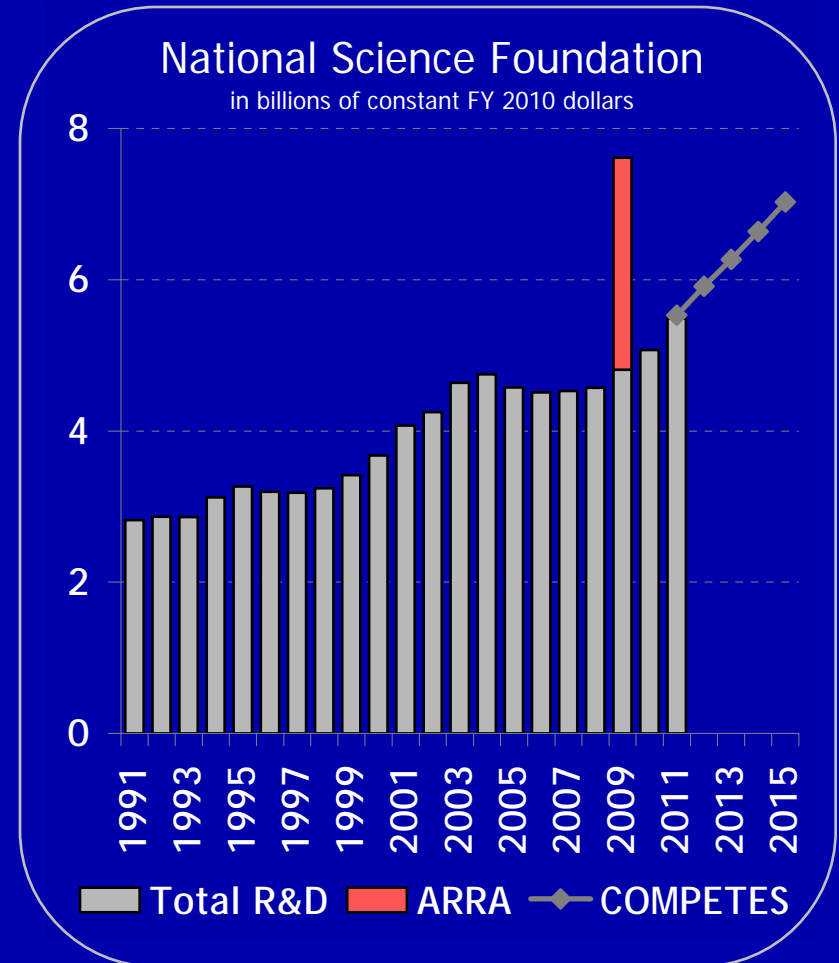


# NASA Update

- Congressional Concerns
  - U.S. space leadership
  - Reliance on industry/Russia for near-earth orbit
  - Jobs
- Administration Response - Kennedy Space Center - April 15
  - Use Orion technology for Space Station rescue vehicle
  - Heavy lift and propulsion: \$3b over next few years
    - Final design by 2015
  - Job assistance: \$40m
- Sen. Nelson (D-FL) letter to Sen. Mikulski (D-MD) - June 14
  - International Space Station through 2020; one additional shuttle mission
  - Commercial cargo capability and crew services
  - International effort for beyond-Earth orbit; Heavy-lift and crew exploration vehicles
- President's National Space Policy Report - June 28

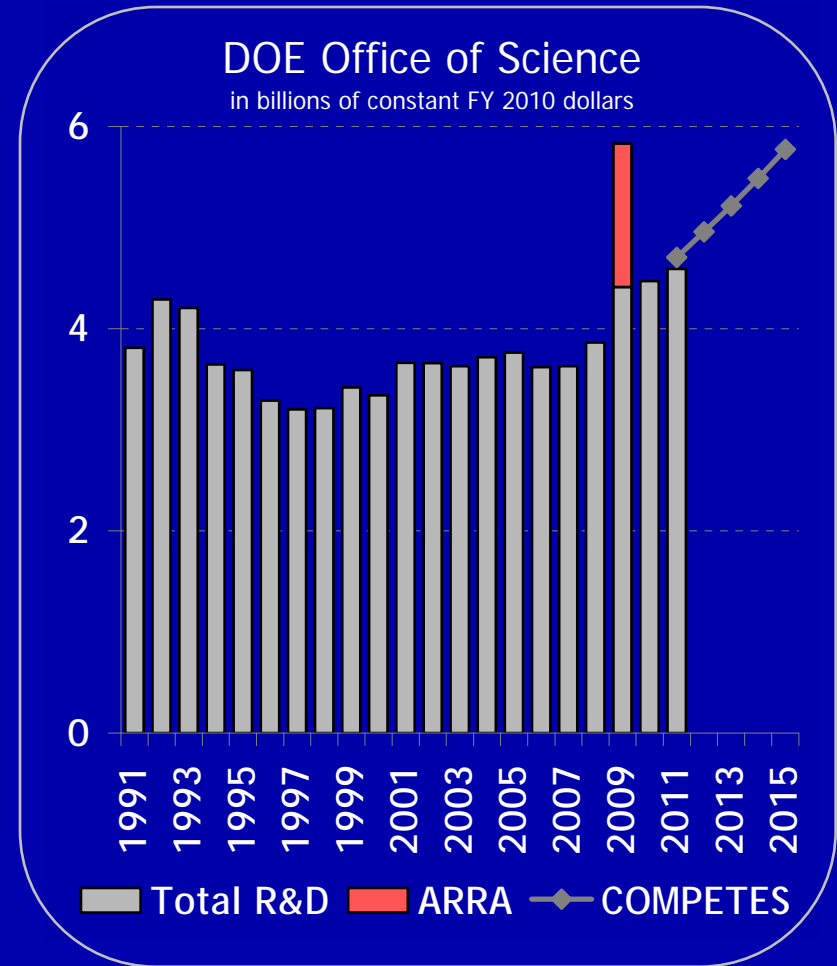
# Funding Doubling for Basic Research

- National Science Foundation
  - Total Budget: +8.0% to \$7.4b
  - R&D: +9.4% to \$5.5b
  - National Innovation Strategy
    - Next-Generation Information and Communications Technology
    - Innovation-Based Entrepreneurship
  - Workforce Development
  - Broadening Participation



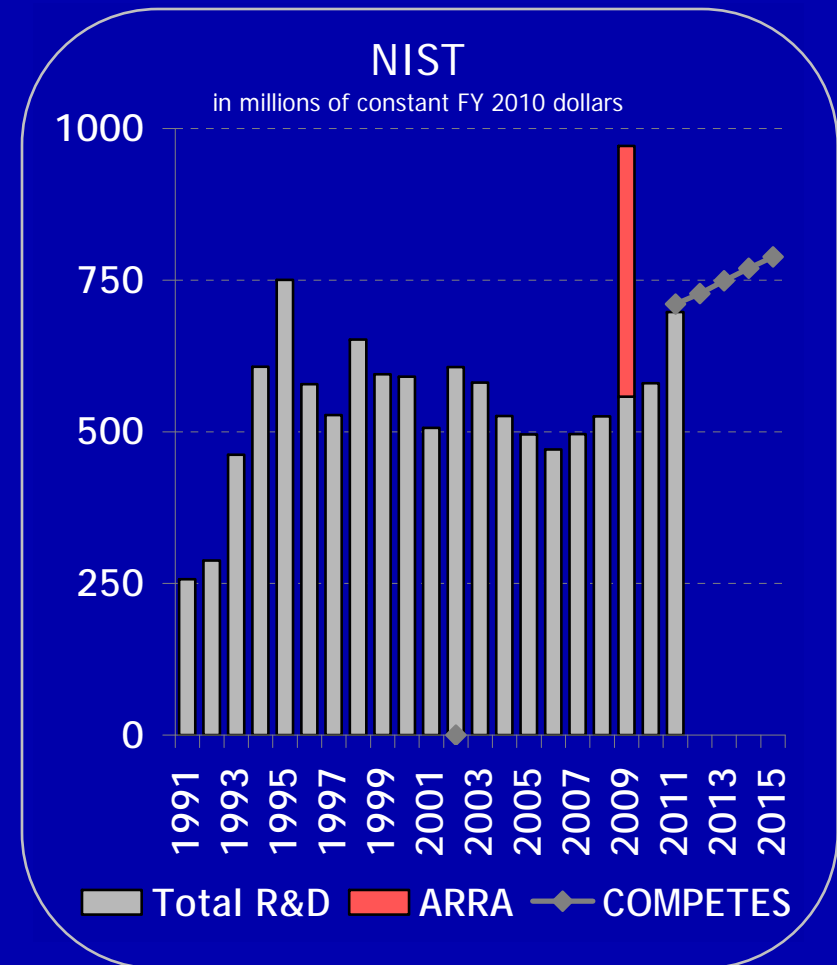
# Funding Doubling for Basic Research

- DOE Office of Science
  - Total Budget: +4.4% to \$5.1b
  - R&D: +3.8% to \$4.6b
  - New Energy Innovation Hub
    - Batteries and Energy Storage
  - Energy Frontier Research Centers (EFRCs)
  - Advanced Computing
  - Scientific User Facilities
  - Education and Workforce Development



# Funding Doubling for Basic Research

- National Institute of Standards and Technology
  - Total Budget: +7.3% to \$919 million
  - NIST Labs (STRS)
    - +13.5% to \$585 million
  - R&D
    - +21.7% to \$706 million
  - Competitive Manufacturing and Construction in a Clean-Energy Economy
    - +\$34.6 million

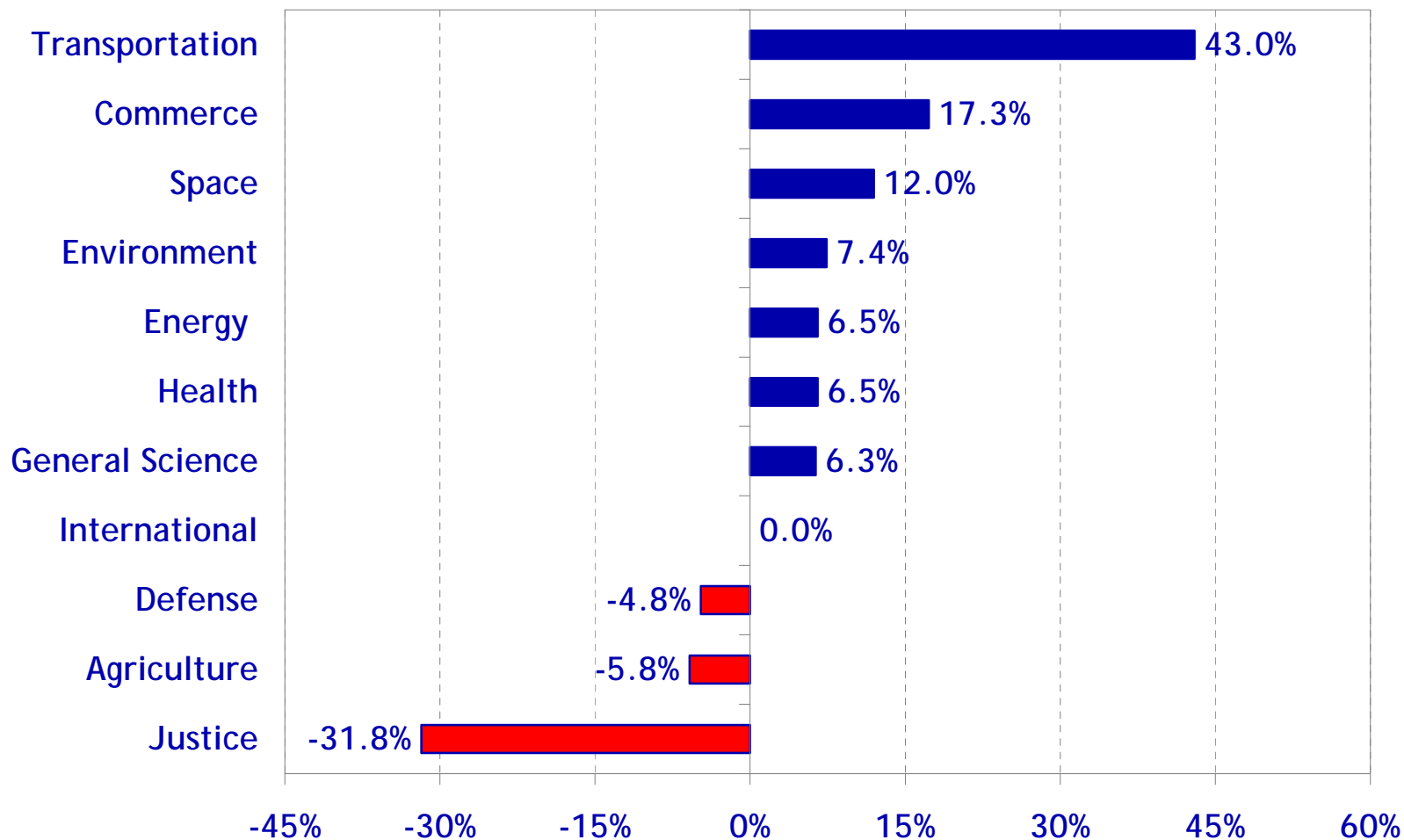


# R&D Investment Priorities

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

# FY 2011 R&D Budget Request by Function

percent change from FY 2010



Source: OMB and agency budget data.  
Environment includes natural resources R&D  
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# STEM Education

- \$3.7b, +\$32m from FY 2010
- K-12 Education
  - Dept of Ed: \$450m, NASA: \$63m, NSF: \$41m
- RE-ENERGYSE (Undergraduate)
  - NSF: \$19m, DOE: \$55m
- Undergraduate Diversity
  - NSF: +14% to \$103m
- Graduate Fellowships
  - NSF: +16% to \$158m, NIH: +5% to \$824m, EPA: +55% to \$17m  
DOD: +4% to \$40m, DOE: +\$10m to \$15m

## Next Steps

- The Senate Budget Committee has approved a budget resolution.
  - The House leadership is planning on releasing a budget enforcement resolution this week.
- Five House Appropriation subcommittee markups this week. Homeland Security appropriations marked up last week.
- FY 2012: OMB Memos: 5% reduction; list low-impact programs



## For More Information...

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

The FY 2012 AAAS Forum on  
Science and Technology Policy  
is May 5-6, 2011  
in Washington, DC

### AAAS REPORT XXXV Research & Development FY 2011

Intersociety Working Group



