

# Update on the R&D Enterprise

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October 15, 2010

for the AAAS Board of Directors

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

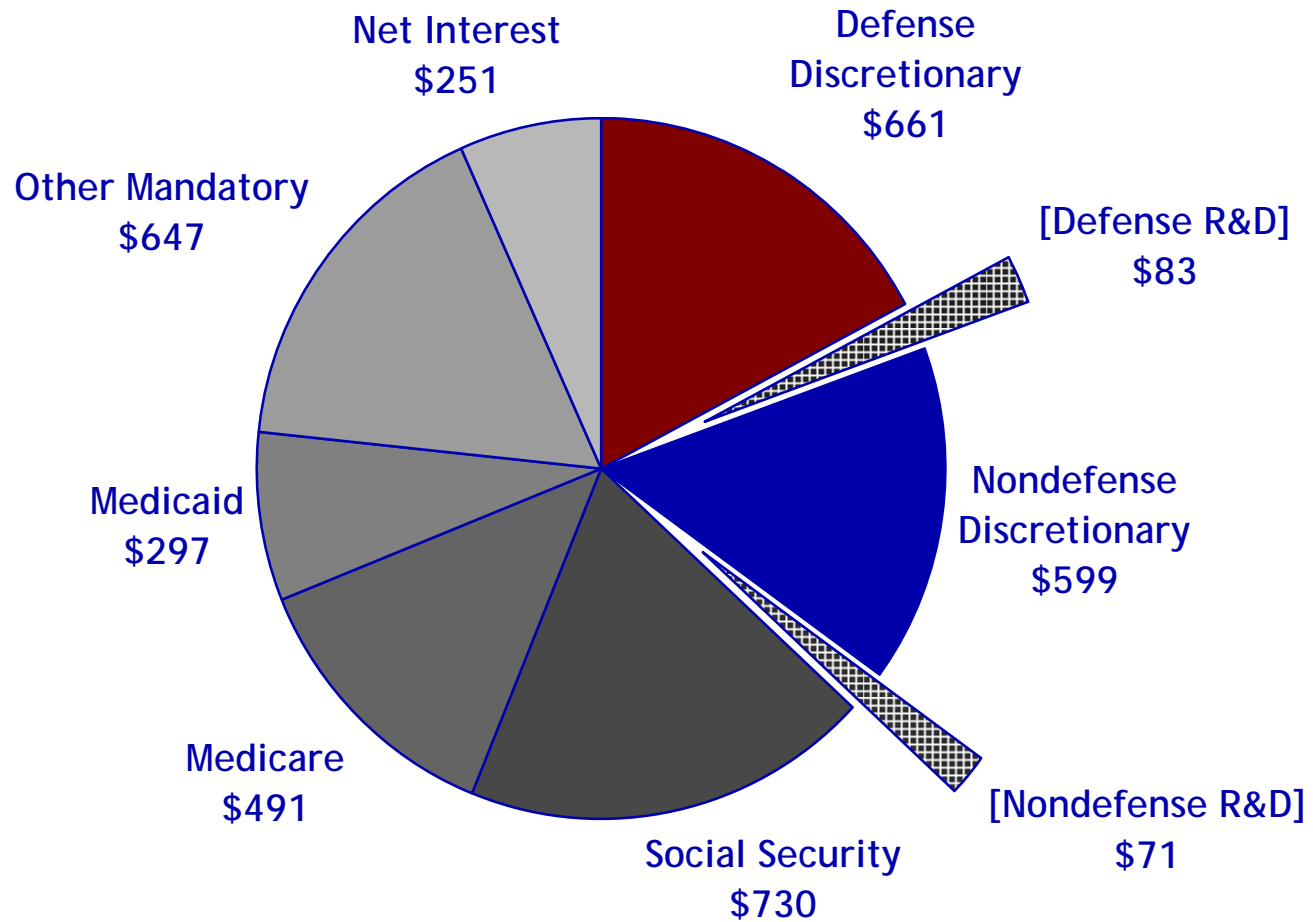
# The FY 2011 Federal Budget

- \$3.8t total budget, \$1.3t unified deficit
- \$1.3t discretionary budget (+0.3%)
  - \$532b nondefense budget (+1.4%)
- 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

# 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*.

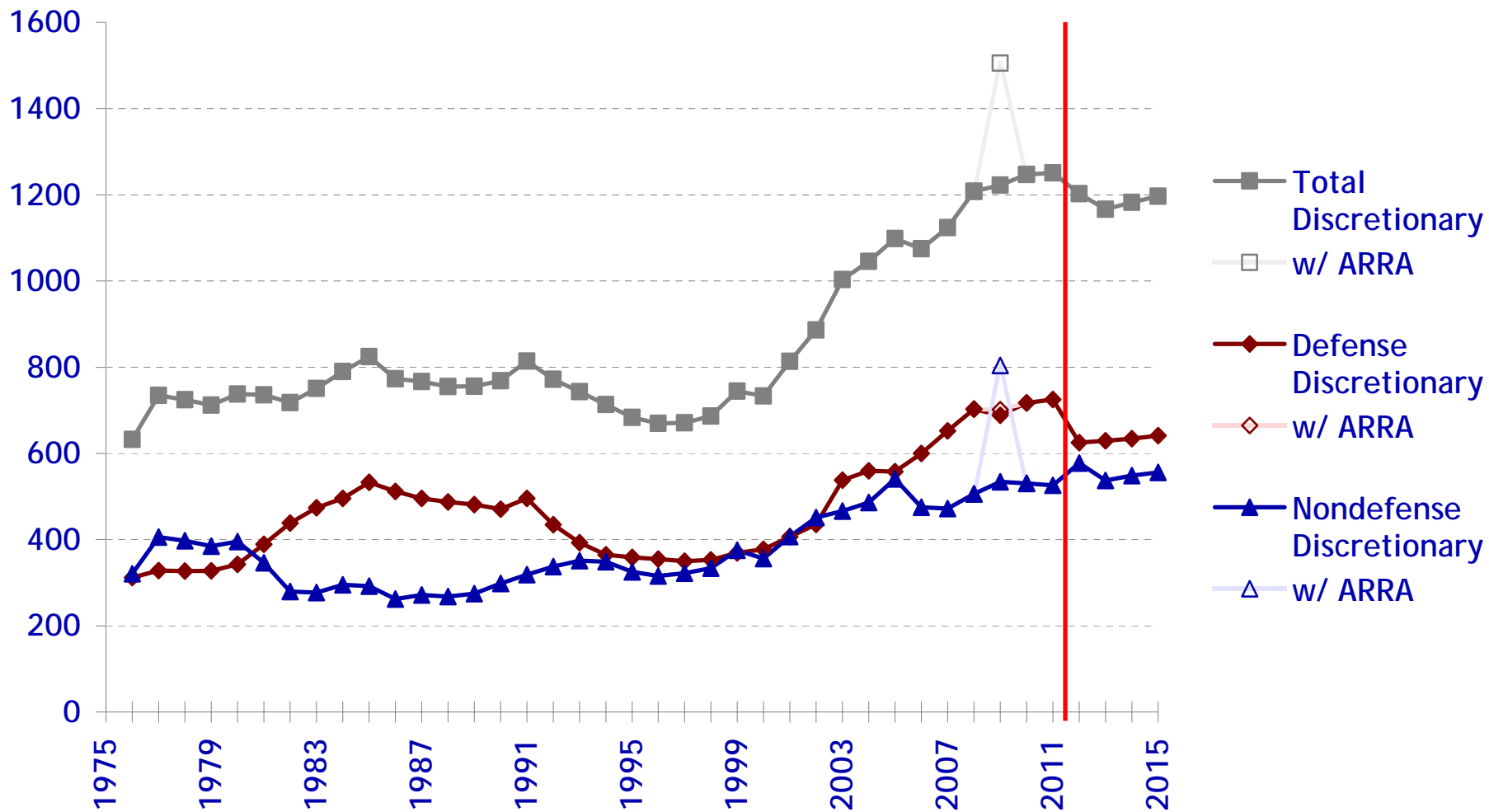
Projected unified deficit is \$1.3 trillion.

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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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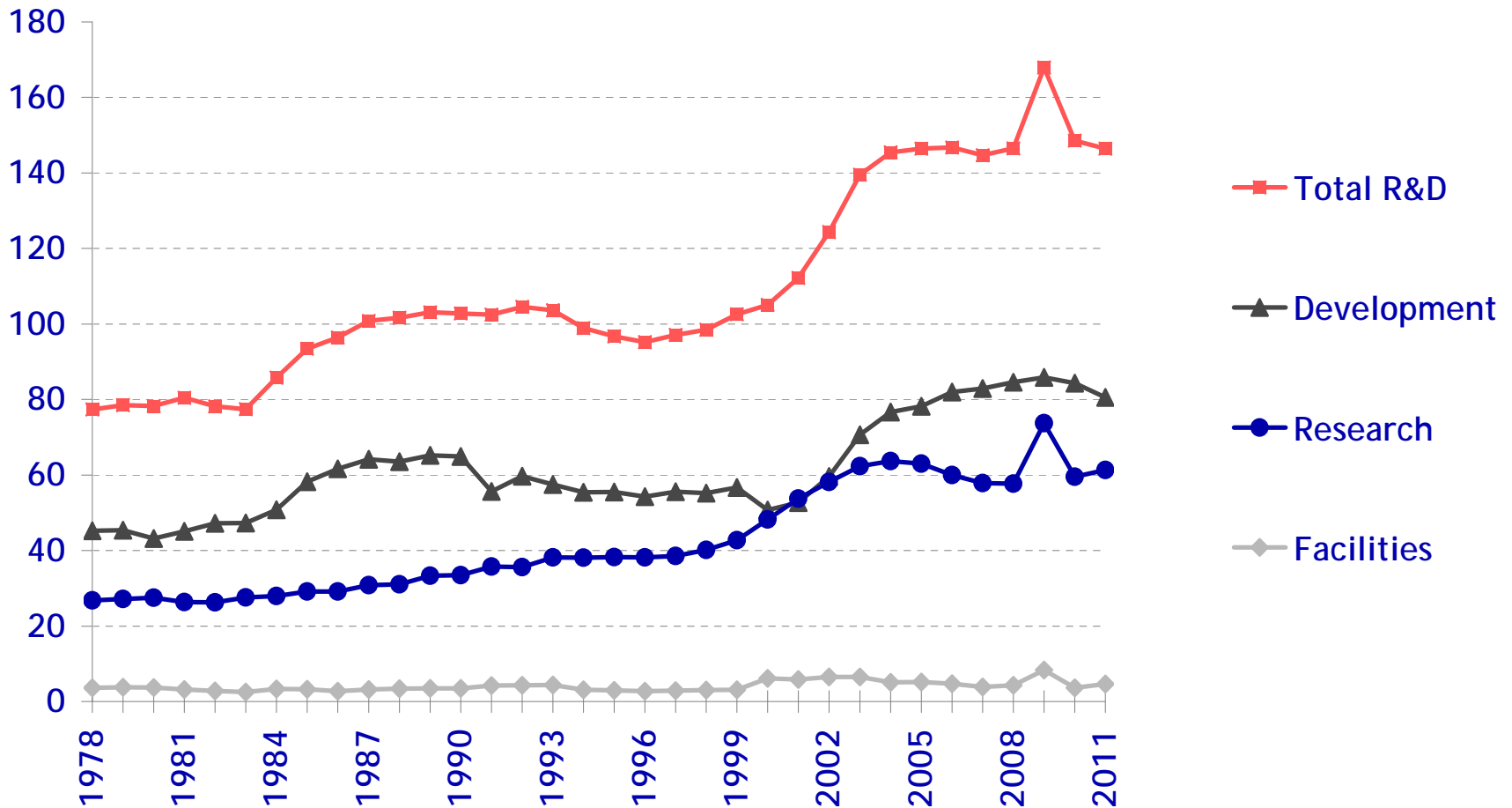


# The FY 2011 Federal R&D Investment

- 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

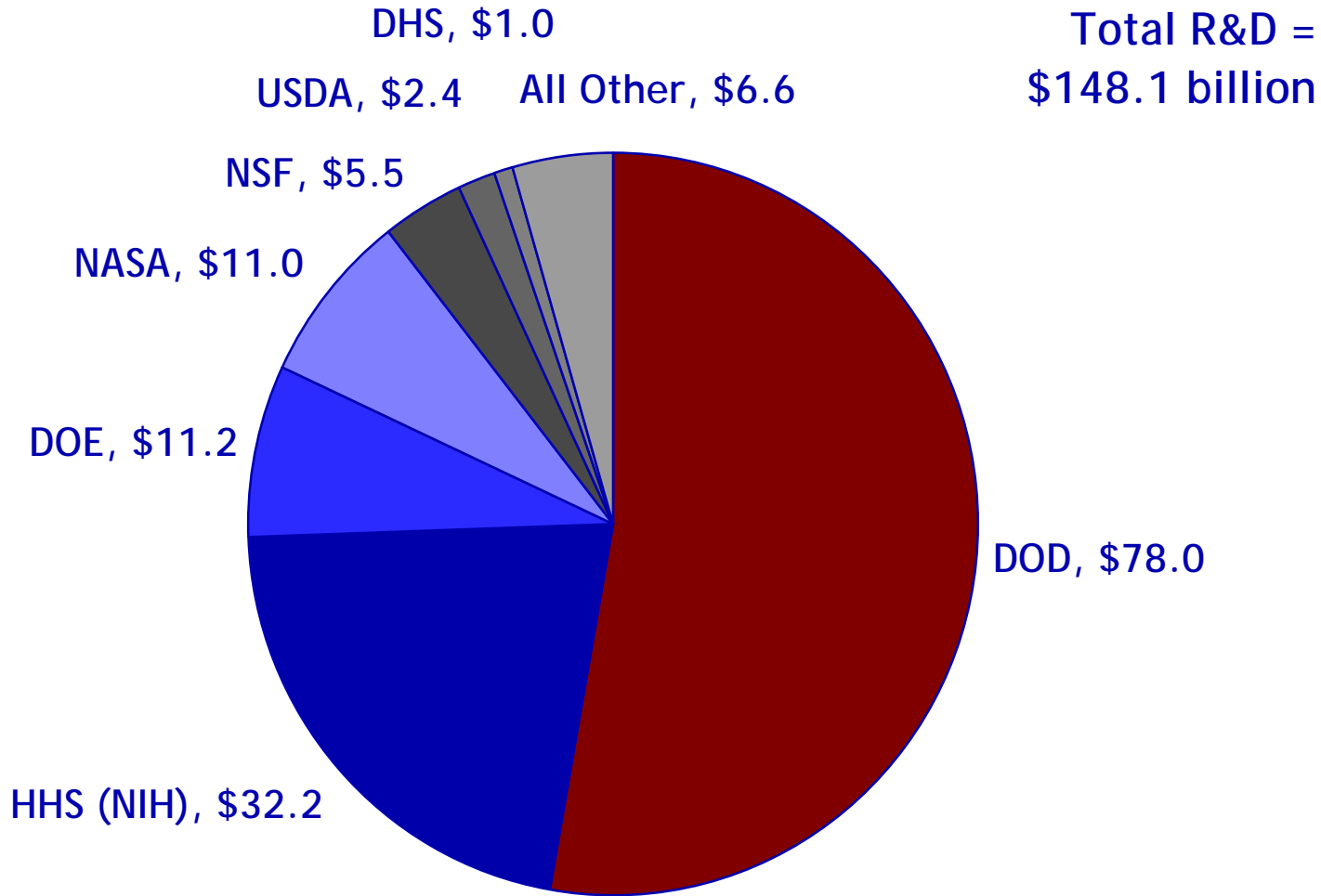


Source: AAAS analyses of R&D in annual AAAS R&D reports.  
FY 2011 figures are latest AAAS estimates of FY 2011 request.  
R&D includes conduct of R&D and R&D facilities.  
1976-1994 figures are NSF data on obligations in the Federal Funds survey.  
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#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

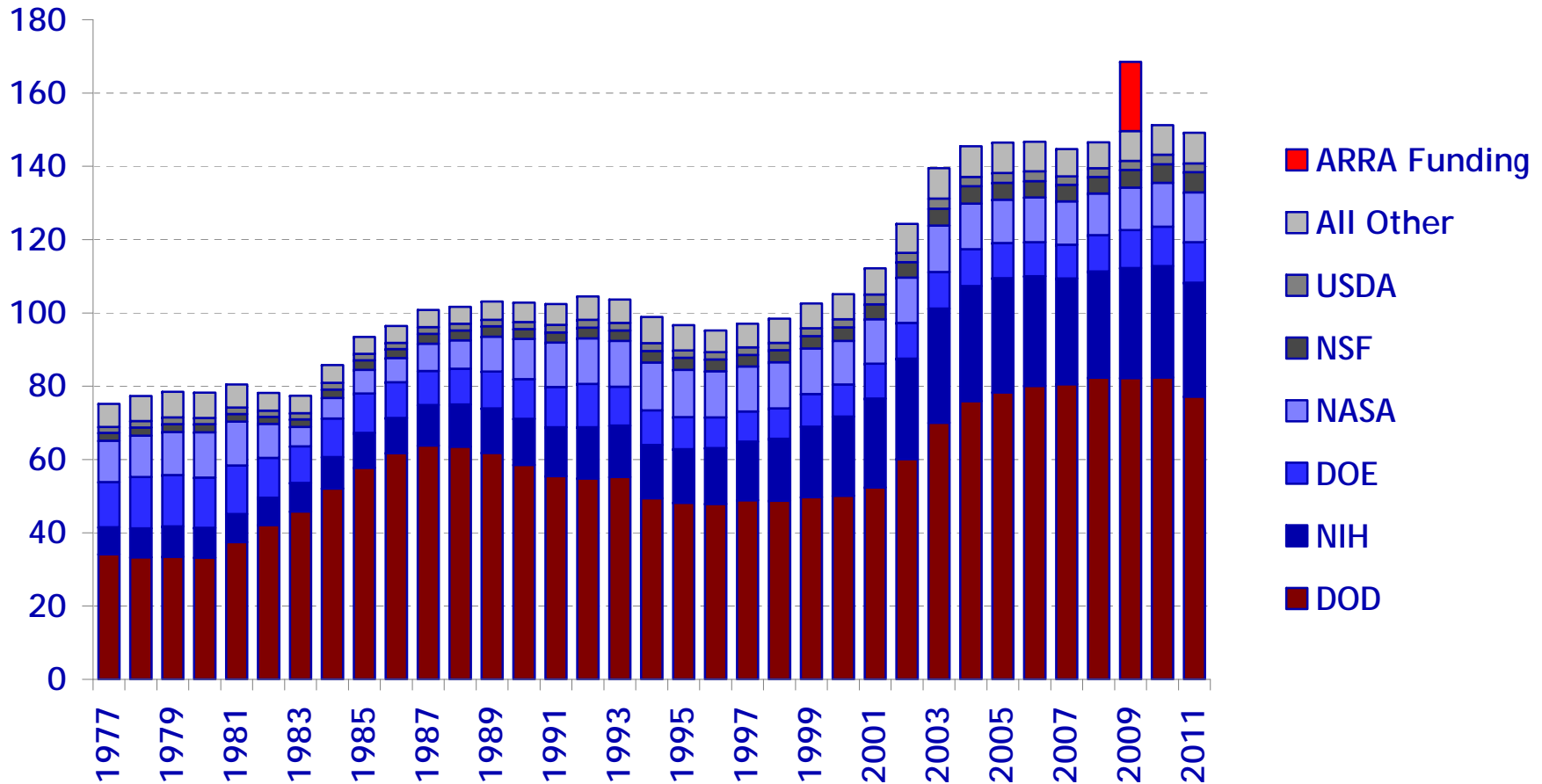
R&D includes conduct of R&D and R&D facilities.

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# Trends in R&D by Agency

in billions of constant FY 2010 dollars



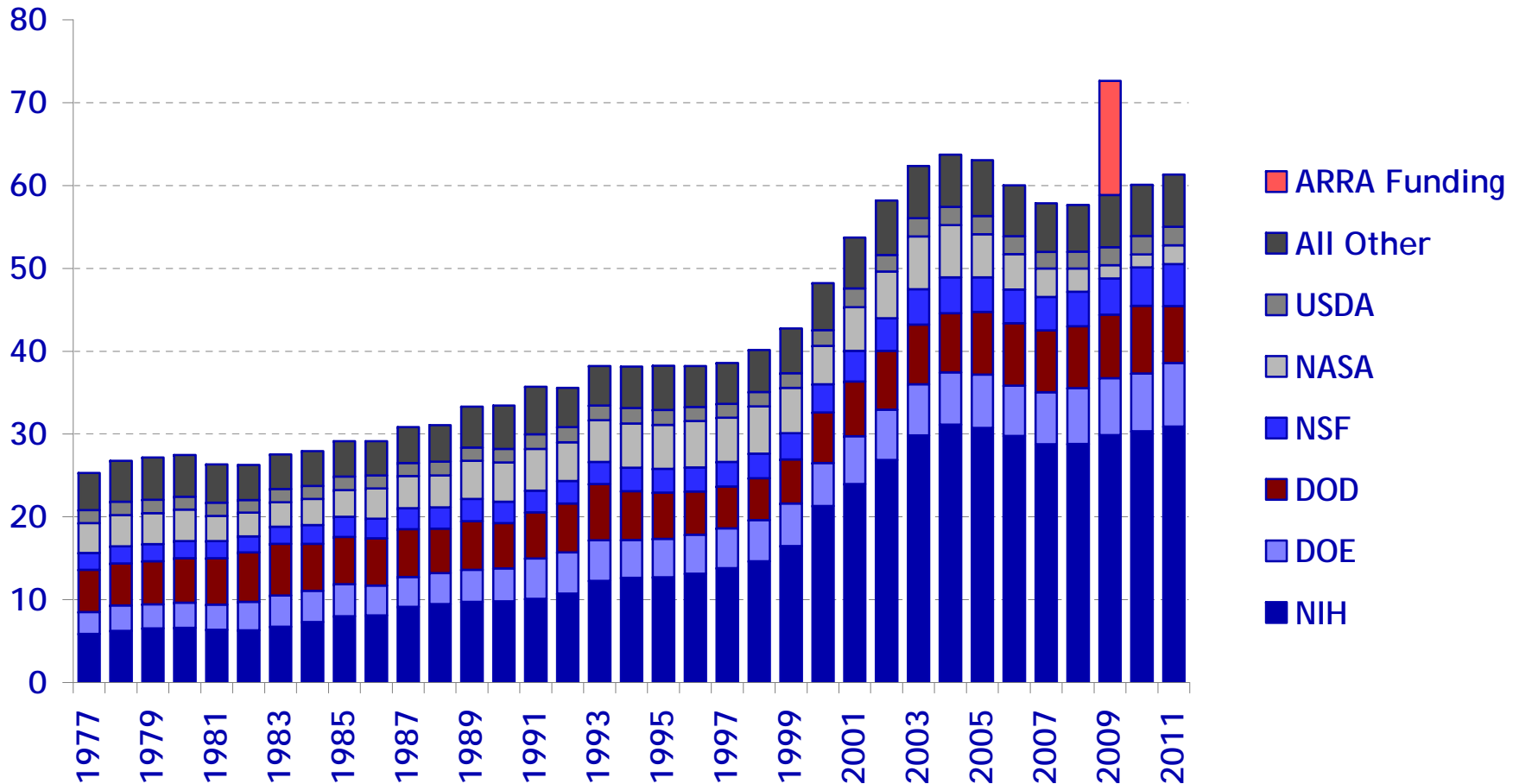
Source: AAAS Report: Research & Development series.  
 FY 2010 and FY 2011 figures are latest estimates.  
 1976-1994 figures are NSF data on obligations in the Federal Funds survey.  
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# Trends in Research by Agency

in billions of constant FY 2010 dollars

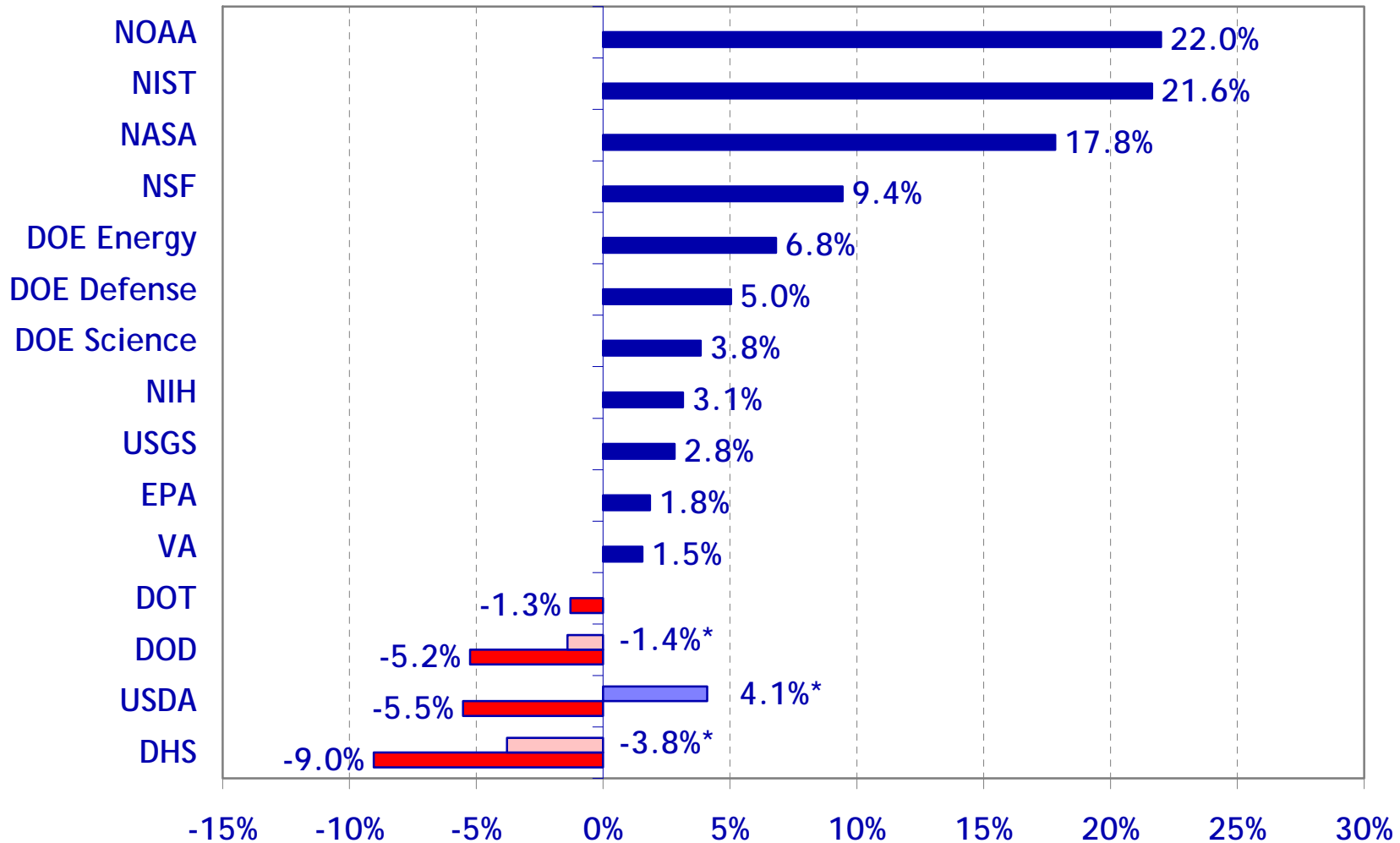


Source: AAAS Report: Research & Development series.  
 FY 2010 and FY 2011 figures are latest estimates.  
 Research includes basic research and applied research.  
 1976-1994 figures are NSF data on obligations in the Federal Funds survey.  
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# R&D in the FY 2011 Budget Request

percent change from FY 2010



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

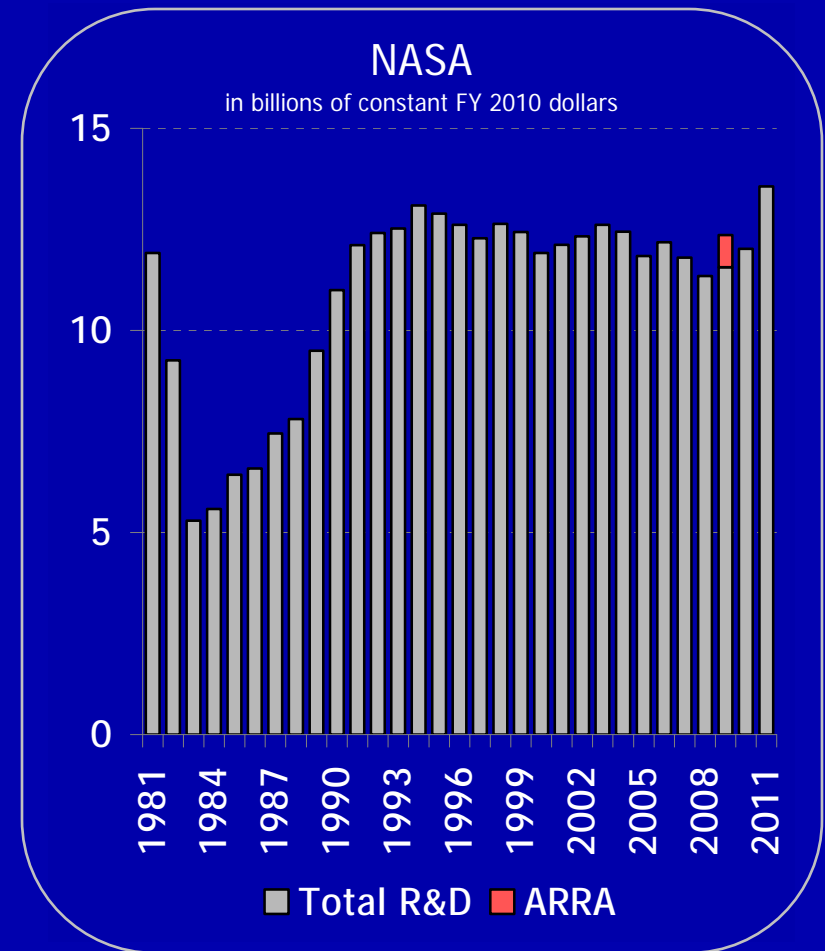
\* - Lighter colored bars indicate percent change with projected FY 2011 earmarks.

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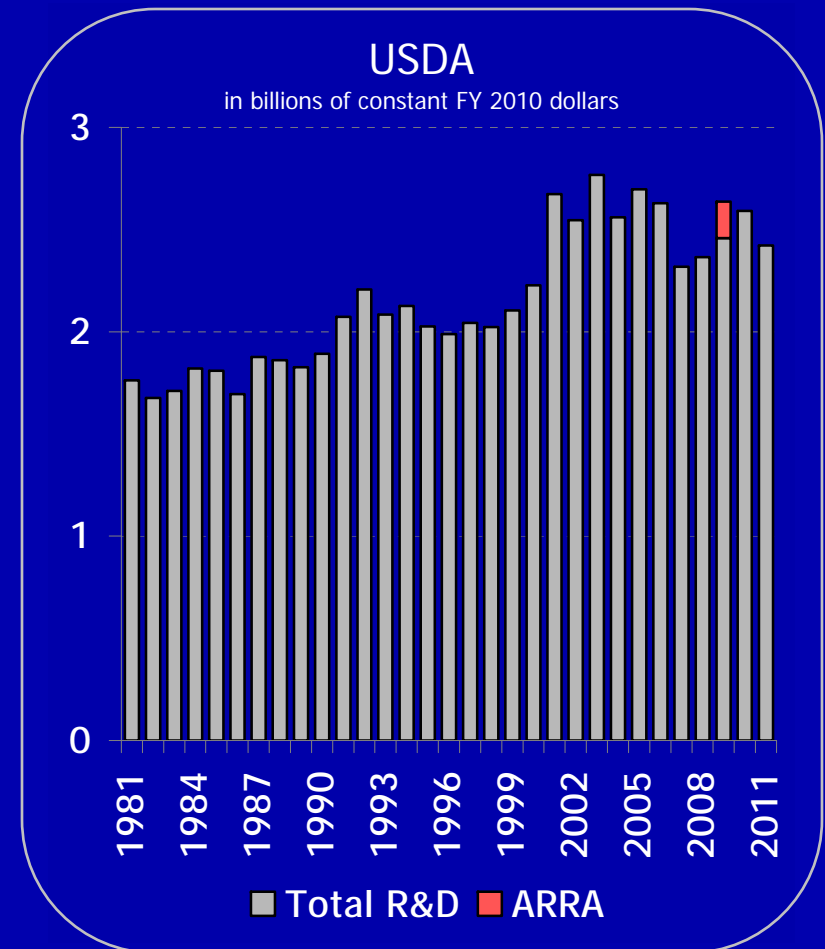
# NASA

- Total R&D
  - Request: \$11.0b
  - House: \$9.7b, +4.1%
  - Senate: \$10.5b, +12.4%
- NASA Reauthorization (S.3729)
  - International Space Station through 2020
  - One additional shuttle mission
  - Commercial cargo and crew services for near-earth orbit
  - New space launch system and multi-purpose crew vehicle
  - New \$500 million Space Research and Technology Program



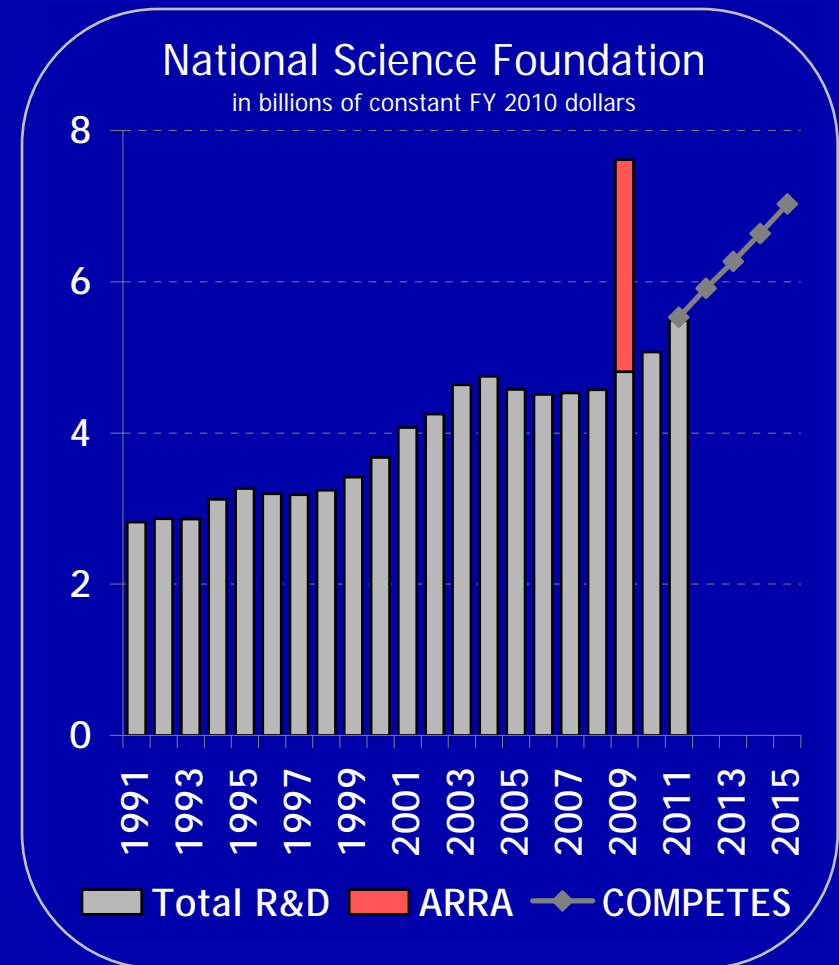
# USDA

- Total R&D
  - Request: \$2.1b
  - House: \$2.2b, +4.4%
  - Senate: \$2.2b, +3.9%
- Buildings and Facilities
  - Request: -\$76m
  - House: \$20m (est)
  - Senate: \$34m
- Agriculture and Food Research Initiative (AFRI)
  - Request: \$429m (+\$166m)
  - House: \$312m, +18.9%
  - Senate: \$310m, +18.1%



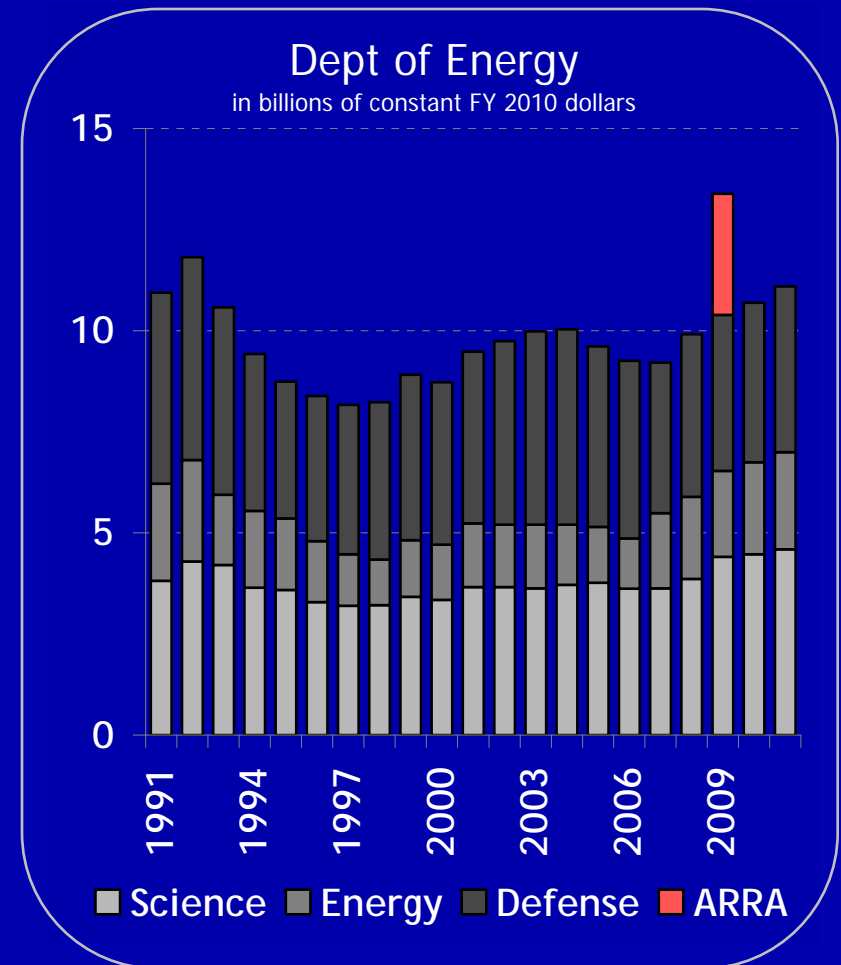
# National Science Foundation

- Total
  - Request: \$7.42b
  - House: \$7.42b, +8.0%
  - Senate: \$7.35b, +7.0%
- R&D
  - Request: \$5.54b
  - House: \$5.50b, +8.6%
  - Senate: \$5.49b, +8.3%
- National Innovation Strategy
- Workforce Development
- Broadening Participation



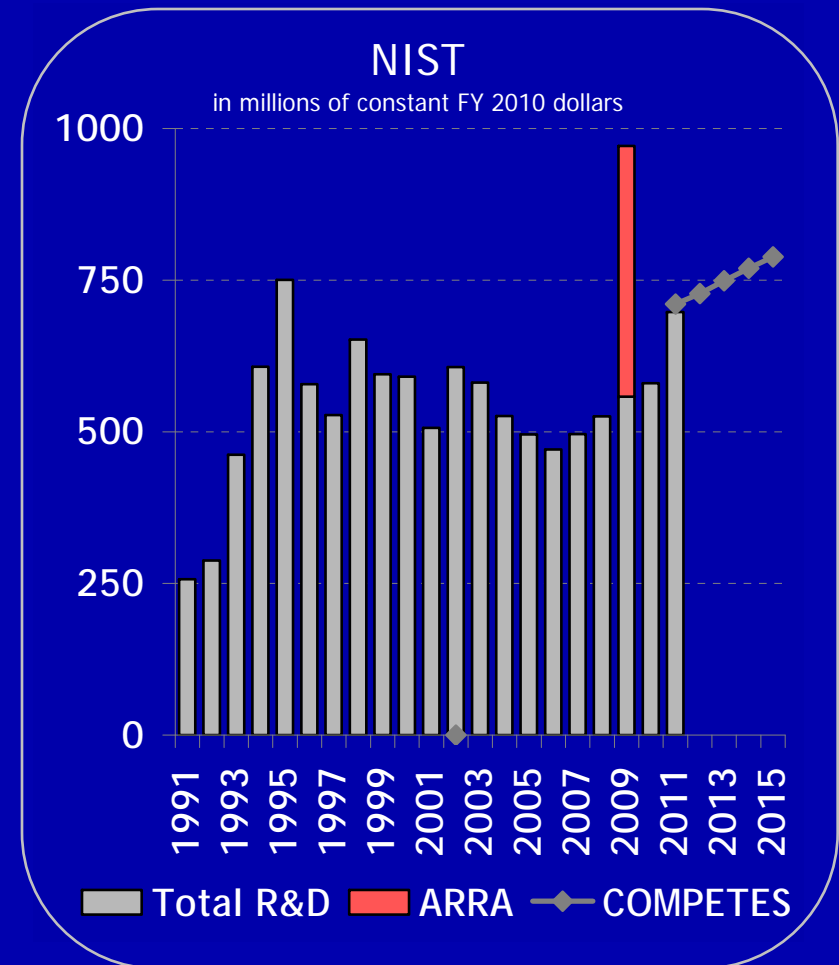
# Department of Energy

- Total R&D
  - Request: \$11.2b
  - House: \$10.9b, +1.6%
  - Senate: \$11.0b, +3.3%
- Office of Science
  - Request: \$5.1b
  - House: \$4.9b, -0.1%
  - Senate: \$5.0b, 2.2%
- ARPA-E
  - Request: \$300m
  - House: \$220m
  - Senate: \$200m



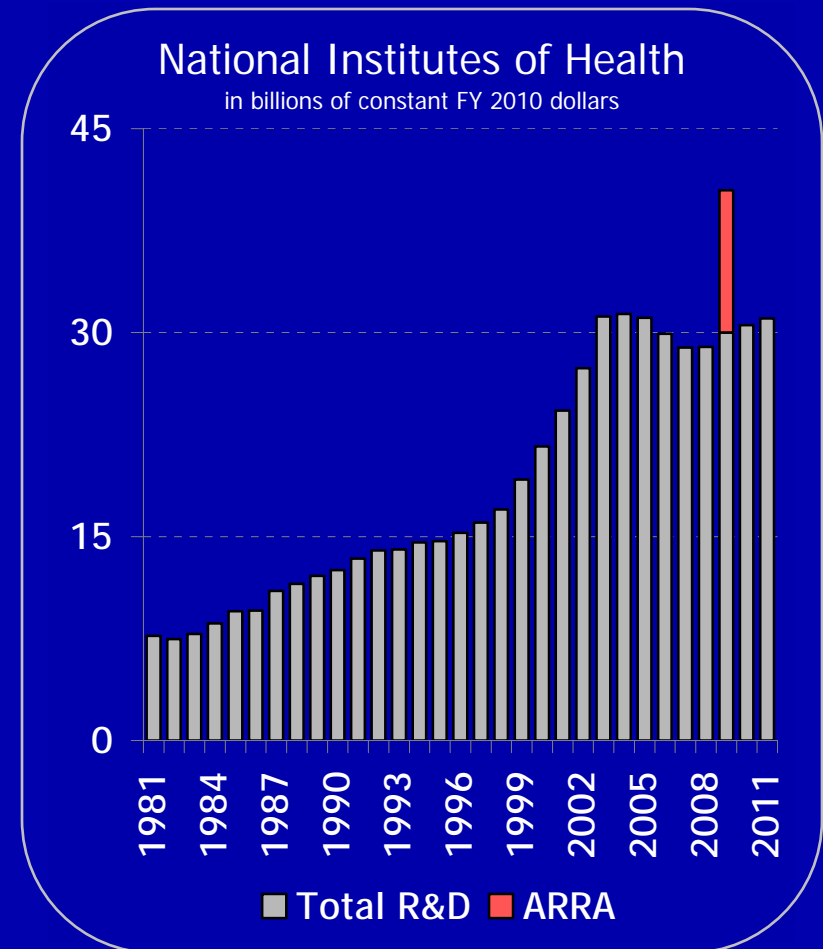
# NIST

- Total R&D
  - Request: \$705m
  - House: \$673m, +16.1%
  - Senate: \$734m, +26.6%
- NIST Labs R&D (STRS)
  - Request: \$521m
  - House: \$491m, +9.0%
  - Senate: \$521m, +15.6%
- Competitive Manufacturing and Construction in a Clean-Energy Economy
  - +\$34.6 million



# National Institutes of Health

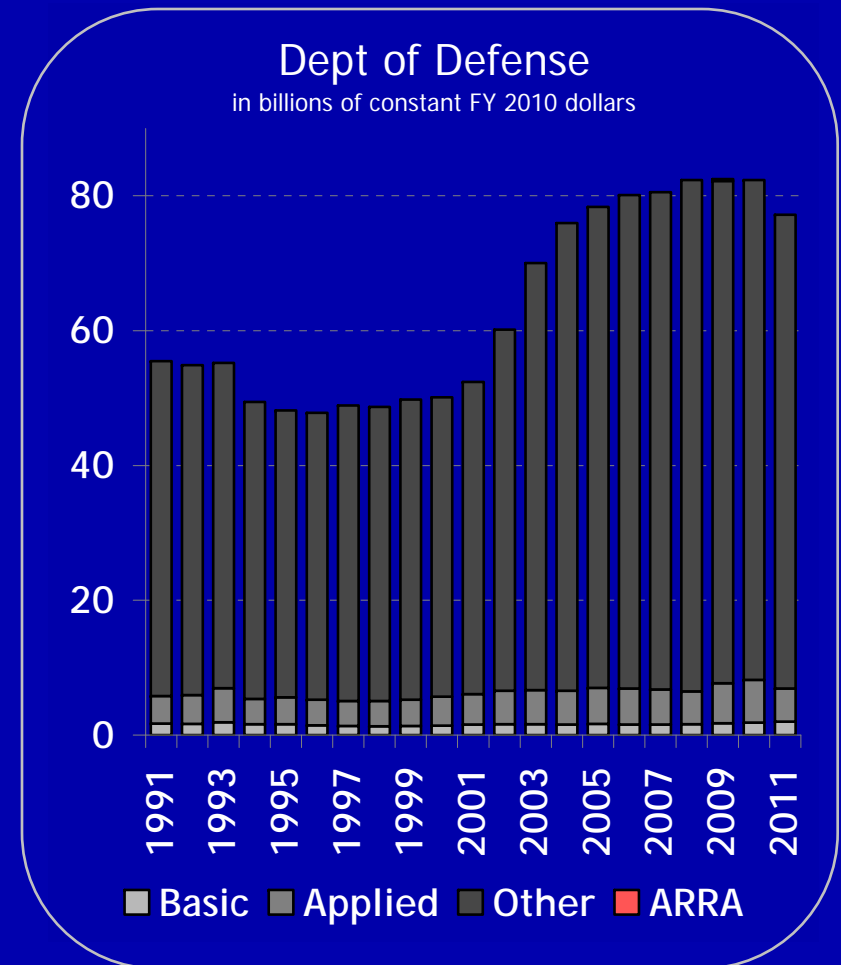
- Total
  - Request: \$32.2b
  - House: \$32.2b, +3.2%
  - Senate: \$32.2b, +3.2%
- Cancer and autism spectrum disorders
- AIDS research - Global Fund
- National Nanotechnology Initiative: +6.0% to \$382m
- Therapeutics for Rare and Neglected Diseases (TRND)
- National Synchrotron Light Source-II (NSLS-II): \$33m





# Department of Defense

- Total R&D
  - Request: \$78.4b
  - House: \$79.3b, -5.1%
  - Senate: \$79.3b, -5.1%
- S&T (6.1-6.3 + medical)
  - Request: \$12.4b
  - Senate: \$14.0b, -5.5%
- From major weapons systems to counter insurgency in future years



## Next Steps

- So far, the House has passed 2 appropriation bills and have subcommittee approval of 9 others. The Senate Appropriations Committee has reported on 11 bills, but none have passed the full Senate.
- Congress passed a CR which extends funding until December 3.
- Fall elections will push budget action back to November, December, or even 2011 and it will likely be in the form of an omnibus bill.
- FY 2012: OMB Memos: 5% reduction; list of low-impact programs totaling 5% of discretionary budget. Initial budget submissions were due to OMB by September 13.

## FY 2012 R&D Challenges

- Promoting sustainable economic growth and job creation
- Defeating the most dangerous diseases and achieving better health outcomes for all while reducing health care costs
- Moving toward a clean energy future to reduce dependence on energy imports while curbing greenhouse gas emissions
- Understanding, adapting to, and mitigating the impacts of global climate change
- Managing the competing demands on land, fresh water, and the oceans for the production of food, fiber, biofuels, and ecosystem services based on sustainability and biodiversity
- Developing the technologies to protect our troops, citizens, and national interests

# Industry Innovation Initiatives

- S.3839 - SBIR/STTR Extended through January 31, 2011
  - Keeps same percentages (SBIR: 2.5%, STTR: 0.3%)
- R&D Tax Credit Proposal
  - Make the tax credit permanent
  - Increase simple formula credit from 14 to 17 percent
- ARRA Report: \$100 billion in innovation
  - \$18.7 billion in R&D
- H.R.5297 - Small Business Jobs and Credit Act
  - \$30 billion small business lending fund
  - \$12 billion in tax breaks
- "Make it in America" Agenda

# STAR-METRICS

- \$1 million to measure the impact of R&D funding
  - OSTP, NSF, NIH initially involved
- Starting with Recovery Act monies
- Phase 1 - Employment statistics from university records
- Phase 2 - Measure economic growth, scientific knowledge, social outcomes from a broader set of records
- Phase x - Measure impact of yearly budgetary funding

## For More Information...

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

Twitter: @AAAS\_RDBudget

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

