

The Federal Investment in R&D for 2005 and 2006

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AAAS R&D Budget and Policy Program

<http://www.aaas.org/spp/rd>

See the “What’s New” section for the latest updates; see the “Seminars and Presentations” section for copies of this presentation.

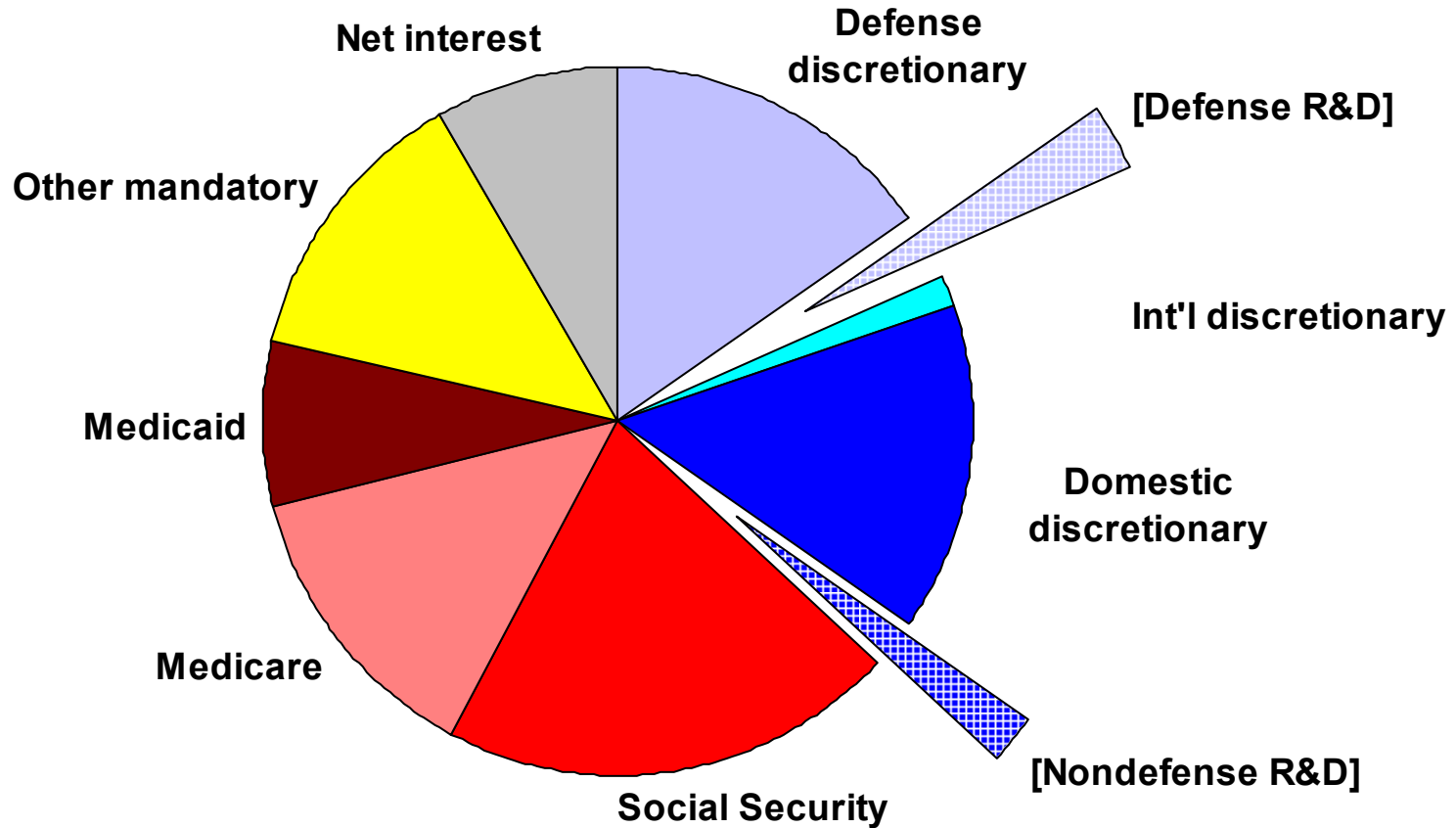


BUDGET CONTEXT FOR FY 2006

- This year's budget deficit could reach \$400 billion.
- Policymakers want to reduce the deficit by cutting discretionary spending rather than cutting entitlement programs or raising revenues.
- Domestic, non-security discretionary spending is flat in 2005, and would fall 1 percent in 2006 in the President's and congressional budget plans.
- Federal R&D investments come from the discretionary budget.

Composition of the Proposed FY 2006 Budget

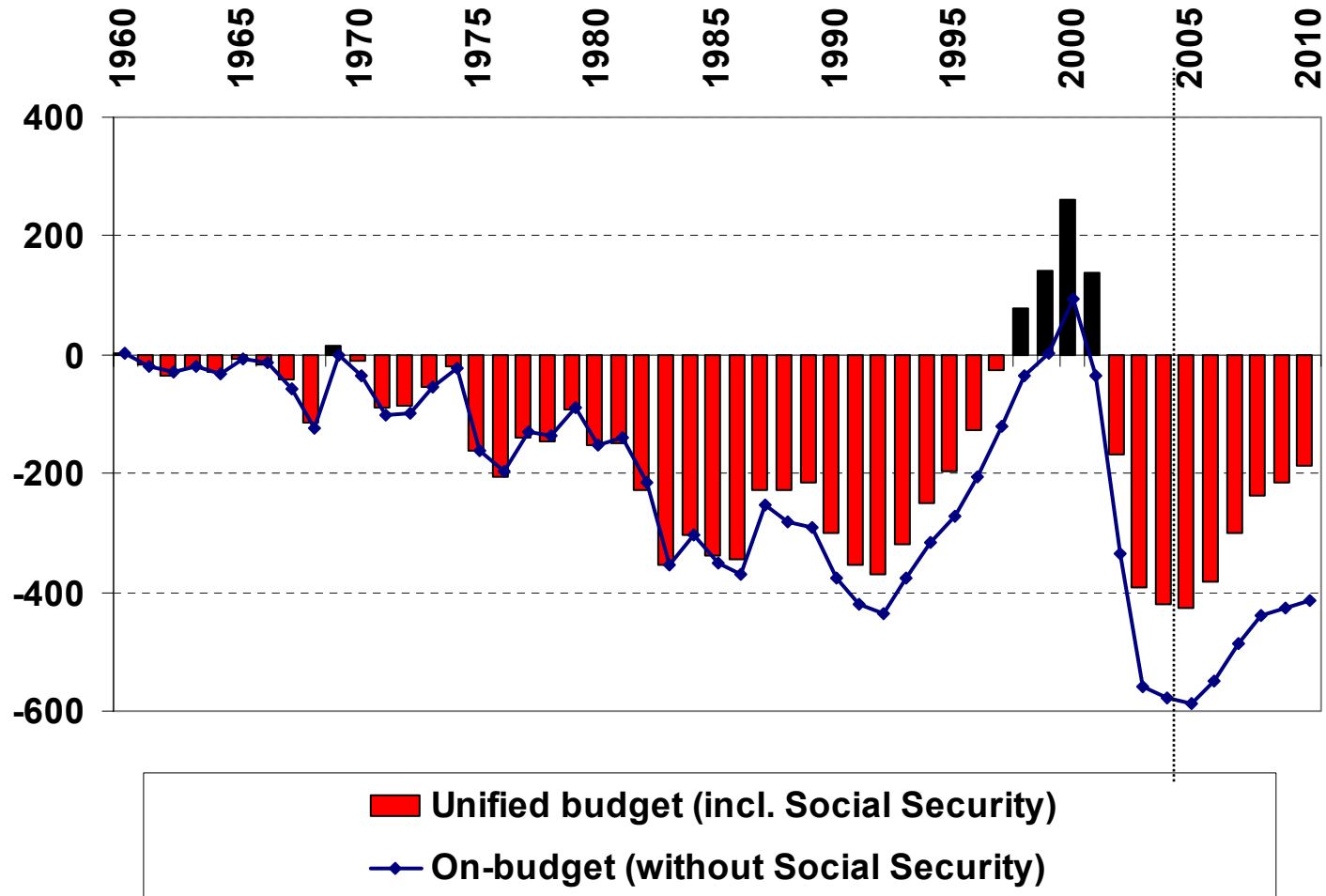
Total Outlays = \$2.6 trillion



Note: Projected Unified deficit is \$390 billion.
Figures exclude Iraq occupation costs, and Social Security reform.
Source: AAAS, based on *Budget of the United States Government FY 2006*.
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Federal Budget Deficit (or Surplus), FY 1960-2010

in billions of CONSTANT FY 2005 dollars

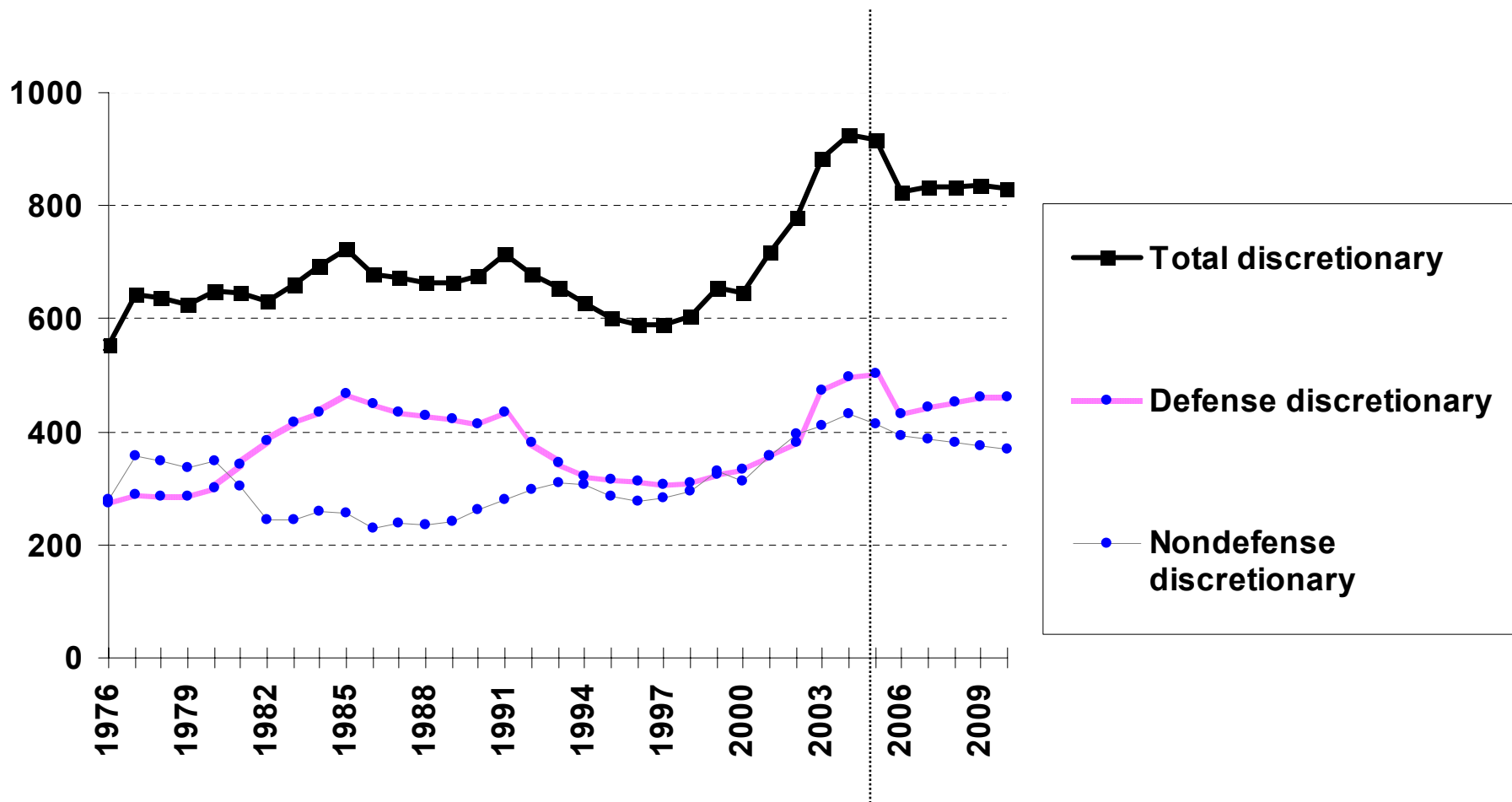


Data in fiscal years. Source: *Budget of the United States Government, FY 2006*. FY 2005 data are estimates. FY 2006-2010 data are budget projections. FY 2006 - 2010 figures exclude Iraq occupation costs, extensions of expiring tax cuts, and Social Security reform.
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Trends in Discretionary Spending, FY 1976-2010

in billions of constant FY 2005 dollars



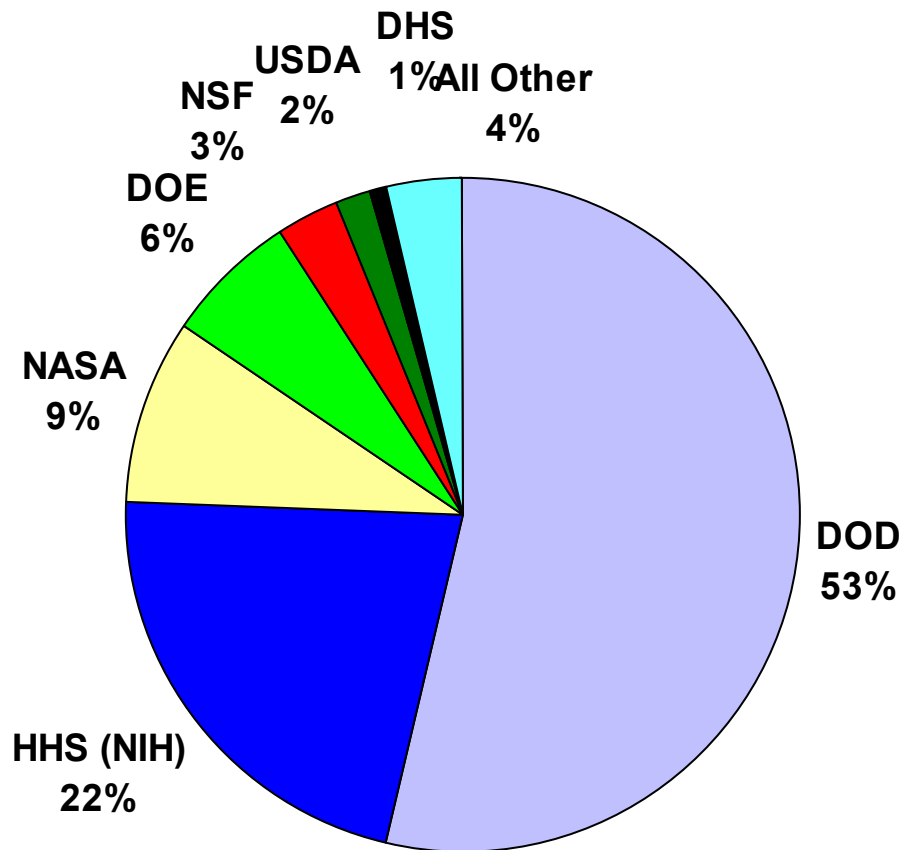
Data in fiscal years. Source: *Budget of the United States Government, FY 2006*. FY 2005 data are estimates. FY 2006-2010 data are budget projections; defense figures based on DOD and DOE planning profiles. FY 2006 - figures exclude Iraq occupation costs.

R&D IN THE FY 2006 BUDGET

- Federal R&D is at an all-time high of \$132 billion this year, but would barely increase (0.1%) in 2006 after flat funding for many agencies in 2005.
- In FY 2006, federal research funding would fall 1.4 percent to \$55.2 billion.
- The FY 2006 budget represents a downward shift from recent trends: declining funding for most R&D programs, modest increases for space exploration and homeland security R&D. Even defense R&D would level off.

Total R&D by Agency: FY 2006 Proposed

Budget Authority in billions of dollars



Total R&D =
\$132 billion
(REVISED)

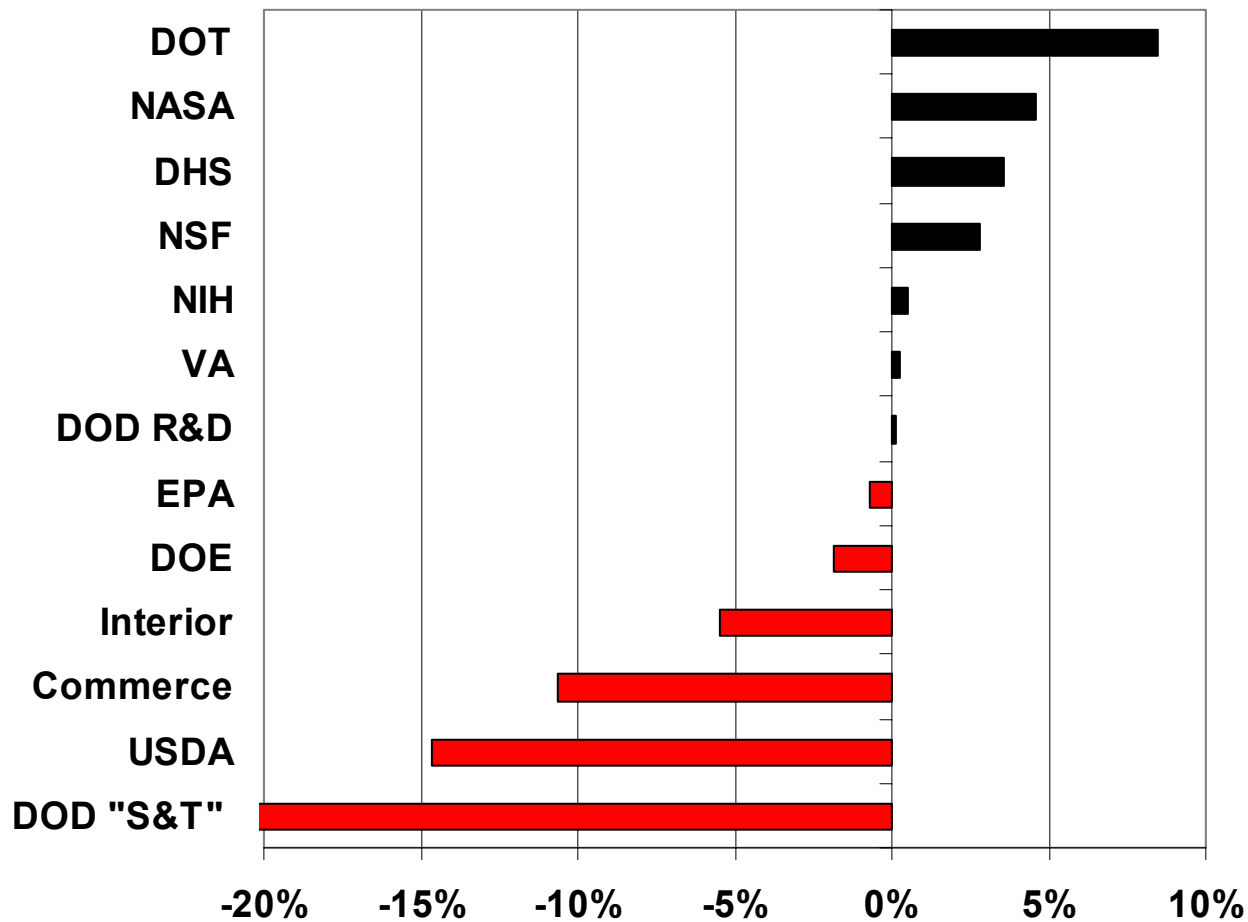
Source: AAAS, based on OMB R&D Budget Data and agency estimates for FY 2006.

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FY 2006 R&D Request

Percent Change from FY 2005



Source: AAAS, based on OMB R&D Budget Data and agency estimates for FY 2006.

DOD "S&T" = DOD R&D in "6.1" through "6.3" categories plus medical research.

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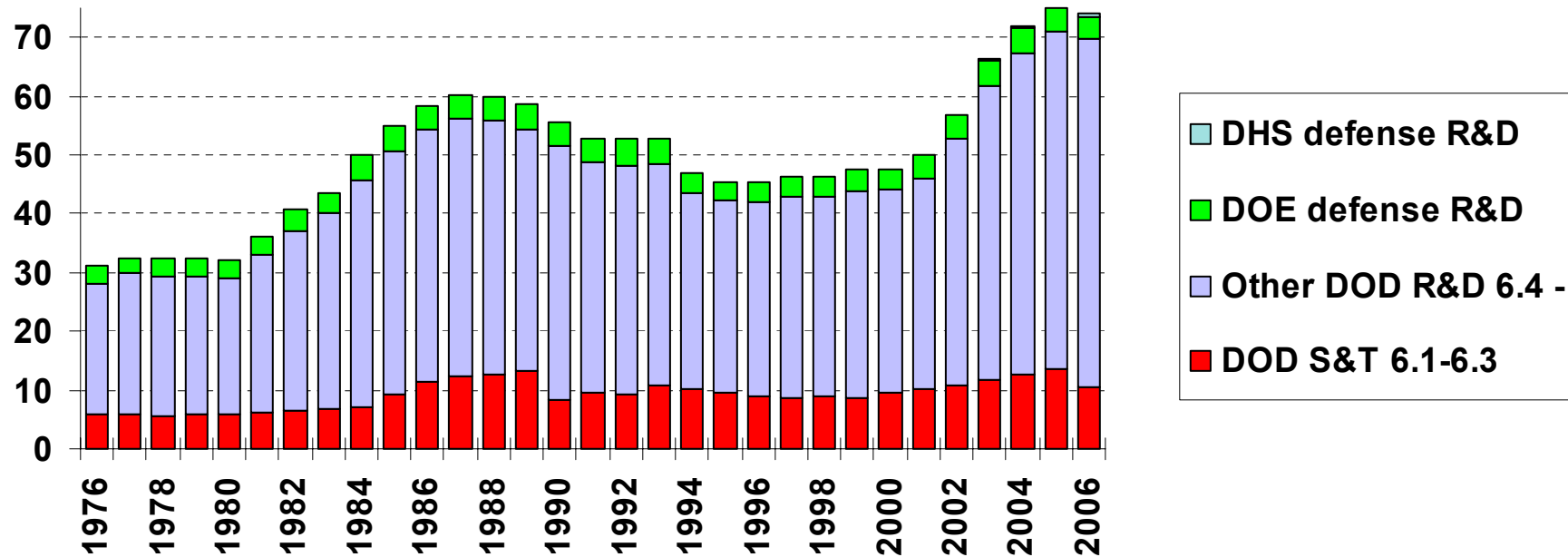


R&D IN THE FY 2006 BUDGET (2)

- There would be cuts across the federal R&D portfolio: DOE Office of Science, DOD basic and applied research, NOAA, USGS, USDA agricultural R&D, nanotechnology, IT.
- There would be hard choices even in favored agencies: in NASA, more for Space Station and space exploration technologies, but cuts in NASA physical and environmental research; increases for some DHS programs, but cuts in others.
- NSF: most research directorates would stay flat for three years. Steep cuts are proposed to education programs.
- NIH budget would increase just 0.5 percent.

Trends in Defense R&D, FY 1976-2006

in billions of constant FY 2005 dollars



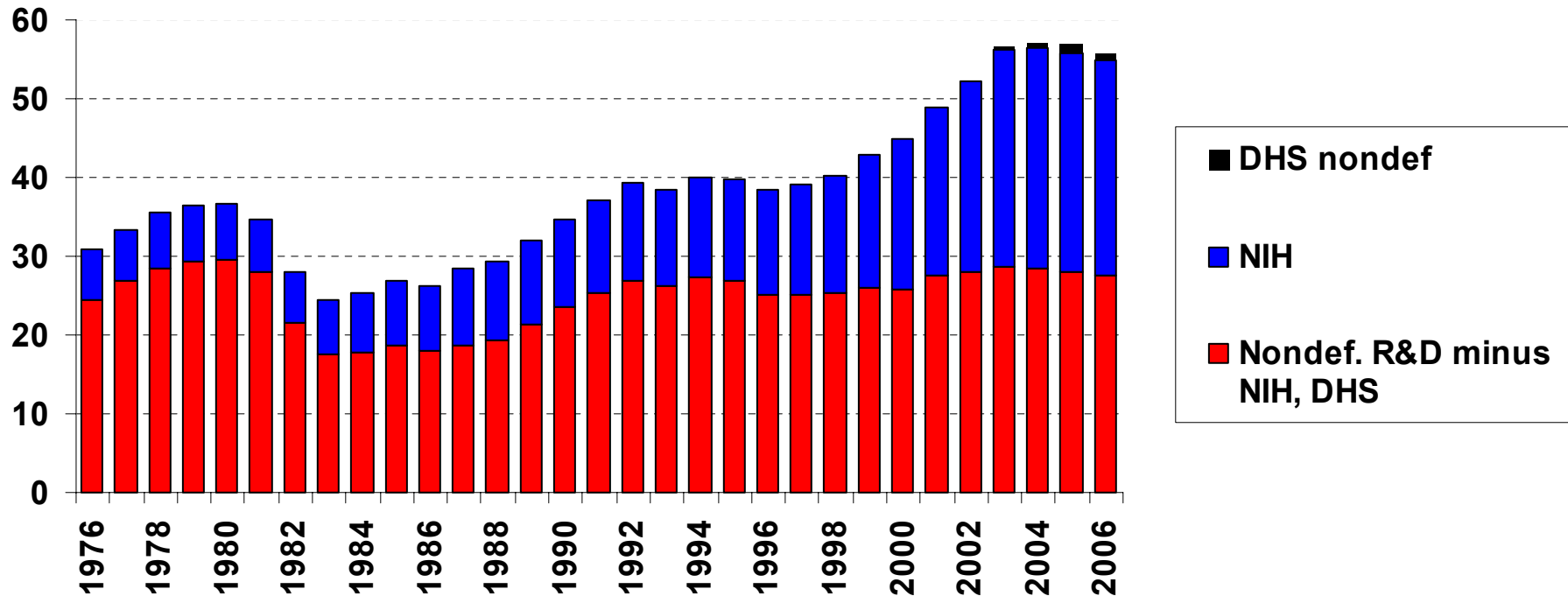
Source: AAAS analyses of R&D in *AAAS Reports VIII-XXX*. FY 2006 figures are President's request. DOD S&T figures are not strictly comparable for all years because of changing definitions.

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Selected Trends in Nondefense R&D, FY 1976-2006

in billions of constant FY 2005 dollars

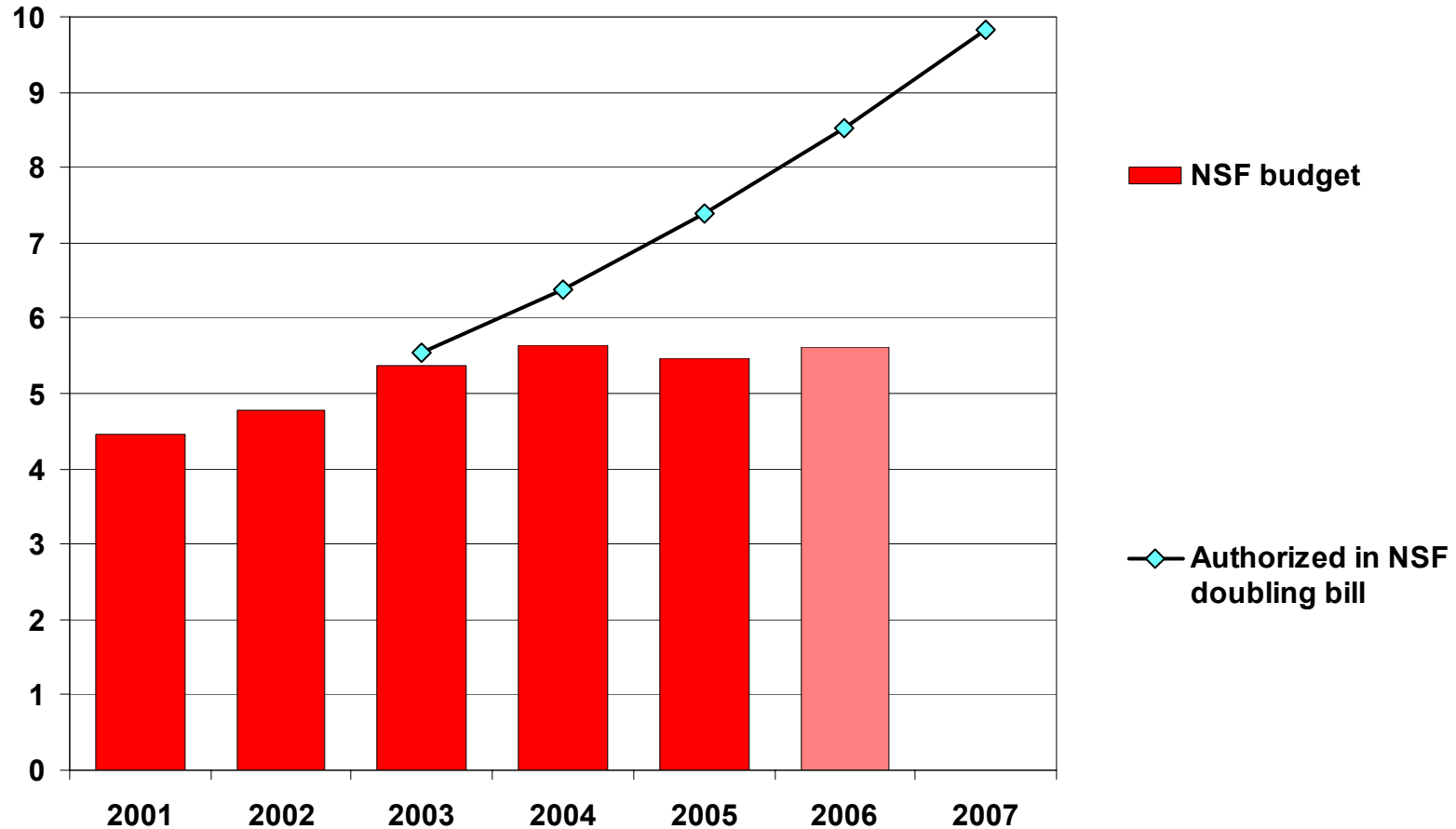


Source: AAAS analyses of R&D in AAAS Reports VIII-XXX. FY 2006 figures are President's request. R&D includes conduct of R&D and R&D facilities.
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National Science Foundation Budget vs. Authorization, FY 2001-2007

(budget authority in billions of dollars)

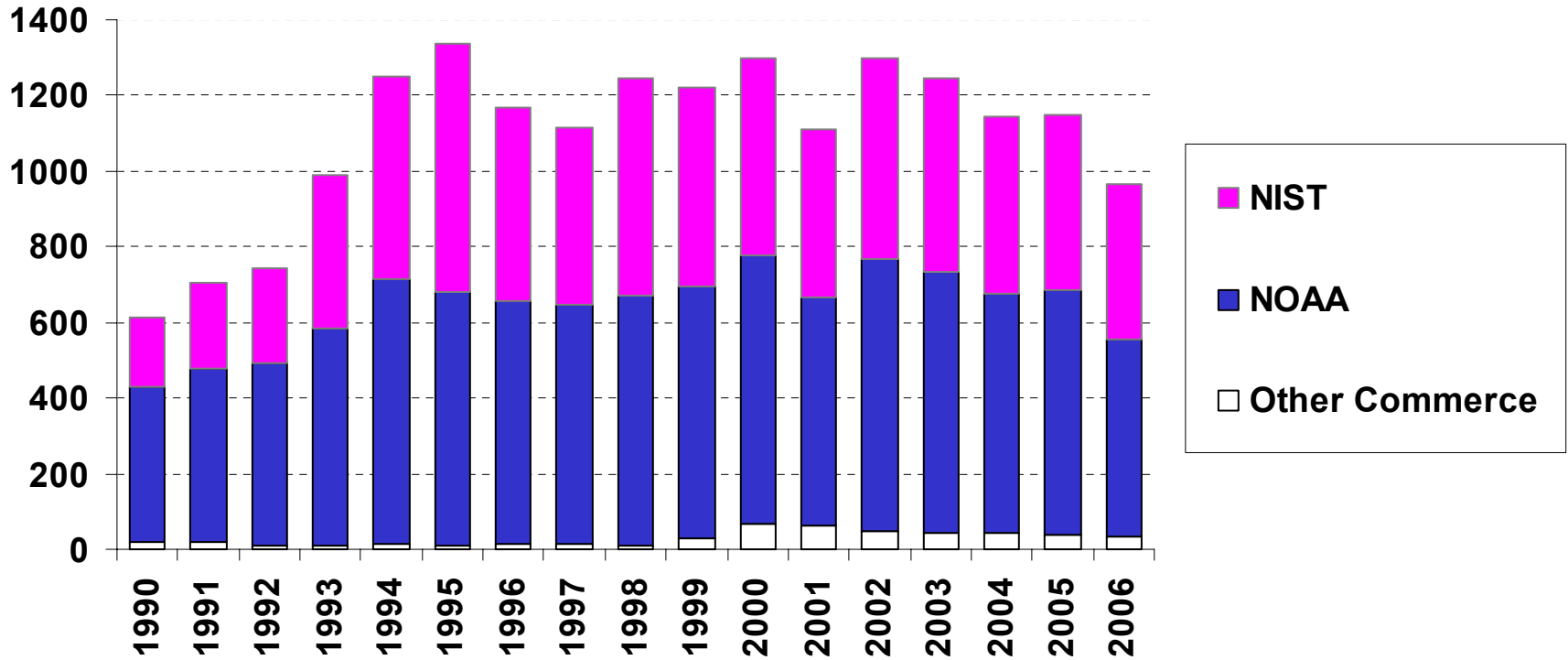


Source: National Science Foundation, Public Law 107-368, and latest AAAS estimates of NSF appropriations. FY 2006 is budget request. Authorized levels are authorizations in Public Law 107-368 (Dec. 2002). FEB. '05 © 2005 AAAS



Trends in Commerce R&D, FY 1990-2006

in millions of constant FY 2005 dollars

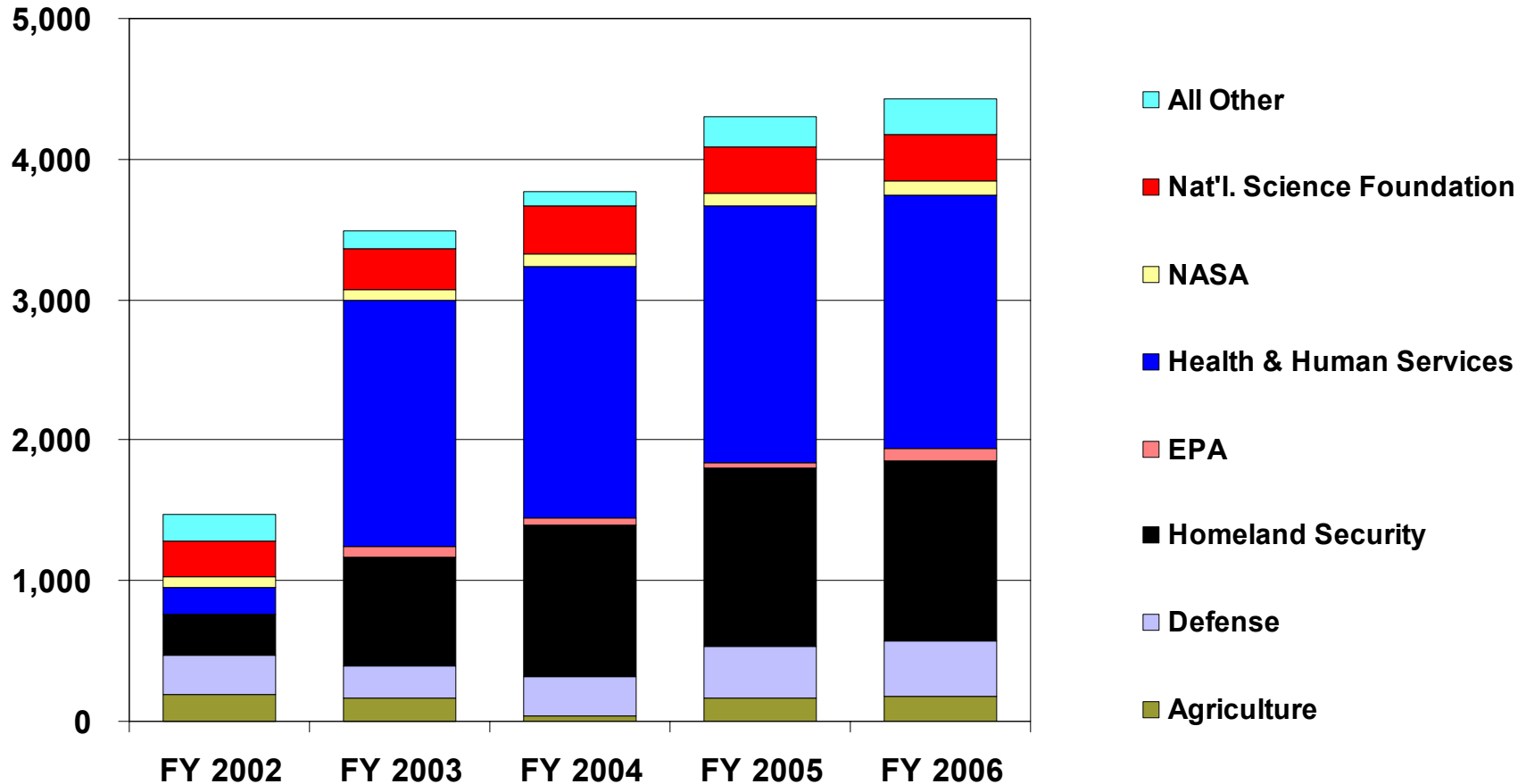


Source: AAAS analyses of R&D in *AAAS Reports VIII-XXX*. FY 2006 figures are President's request. R&D includes conduct of R&D and R&D facilities.
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Federal Homeland Security R&D, by Agency

(budget authority in millions of constant FY 2005 dollars, FY 2002-2006)

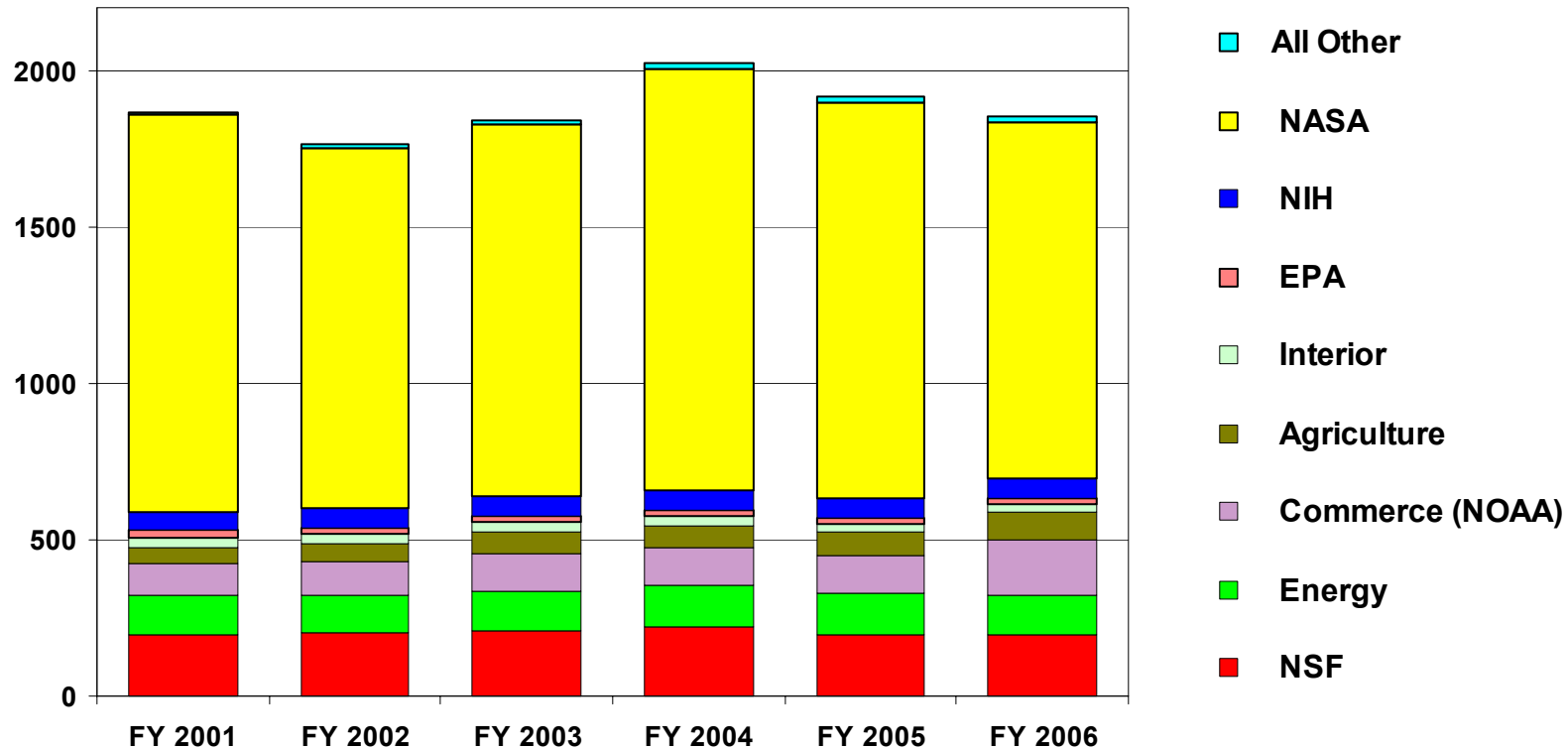


Source: AAAS, based on Office of Management and Budget data.
Includes conduct of R&D and R&D facilities.
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Climate Change Science Program, by Agency

(budget authority in millions of constant FY 2005 dollars, FY 2001-2006)

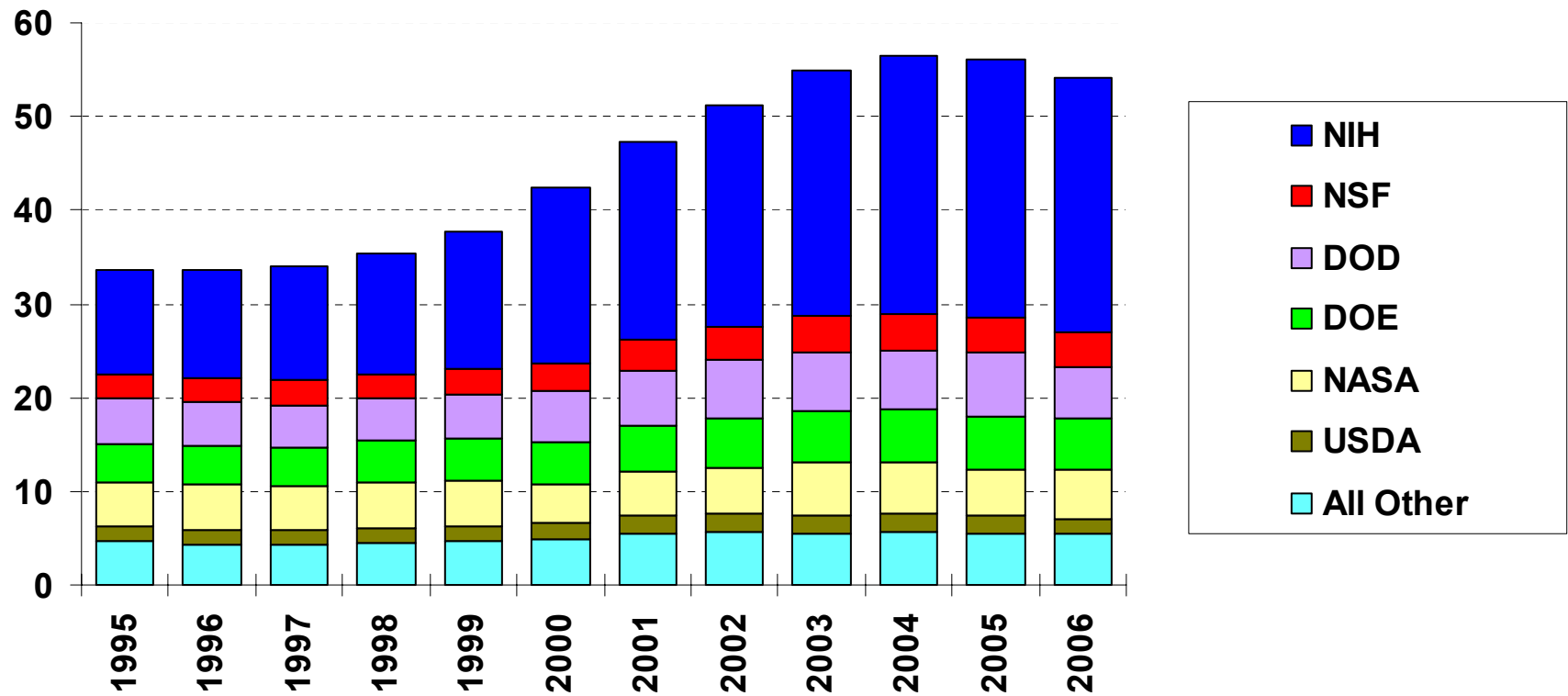


Source: Office of Management and Budget.
FY 2006 figures represent President's request.
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Trends in Research by Agency, FY 1995-2006

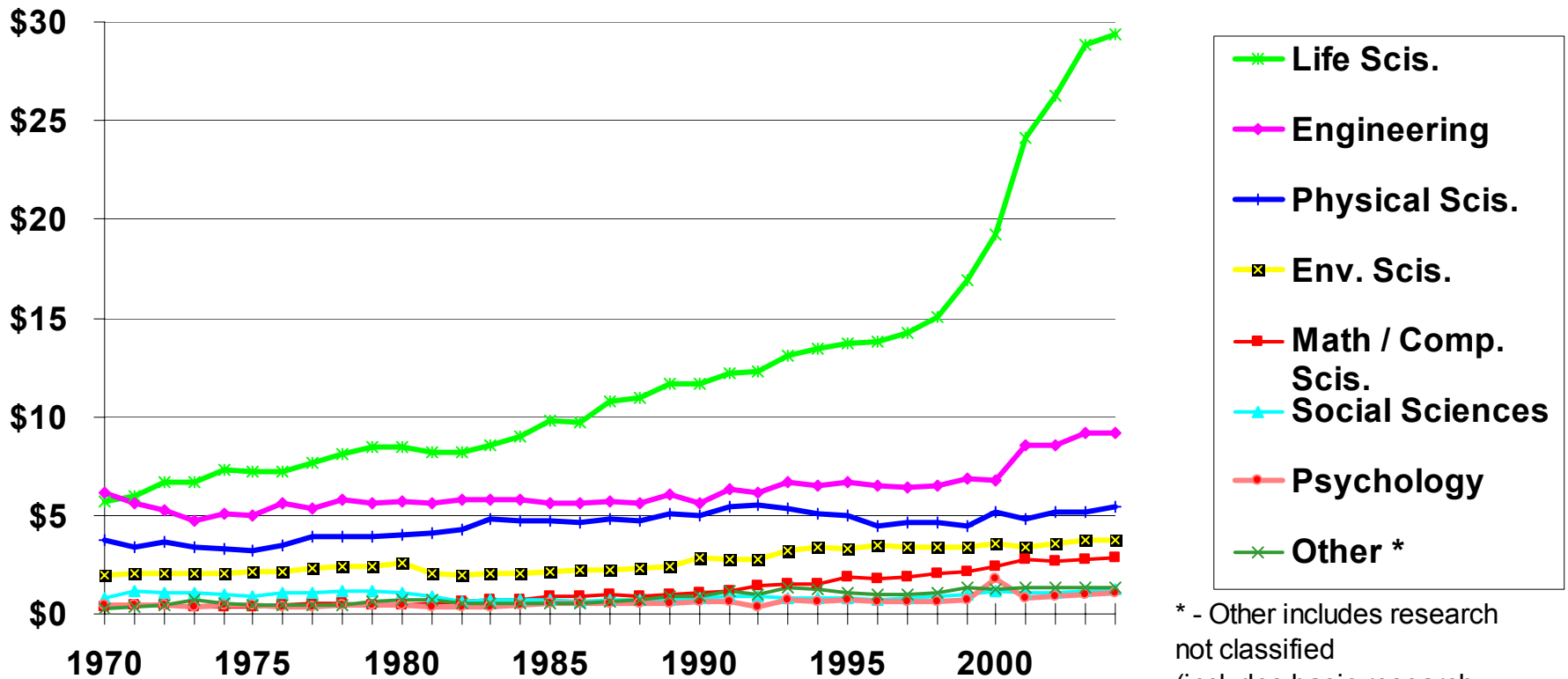
in billions of constant FY 2005 dollars



Source: AAAS analyses of R&D in *AAAS Reports VIII-XXX*. FY 2006 figures are President's request. R&D includes conduct of R&D and R&D facilities.
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Trends in Federal Research by Discipline, FY 1970-2004

obligations in billions of constant FY 2004 dollars

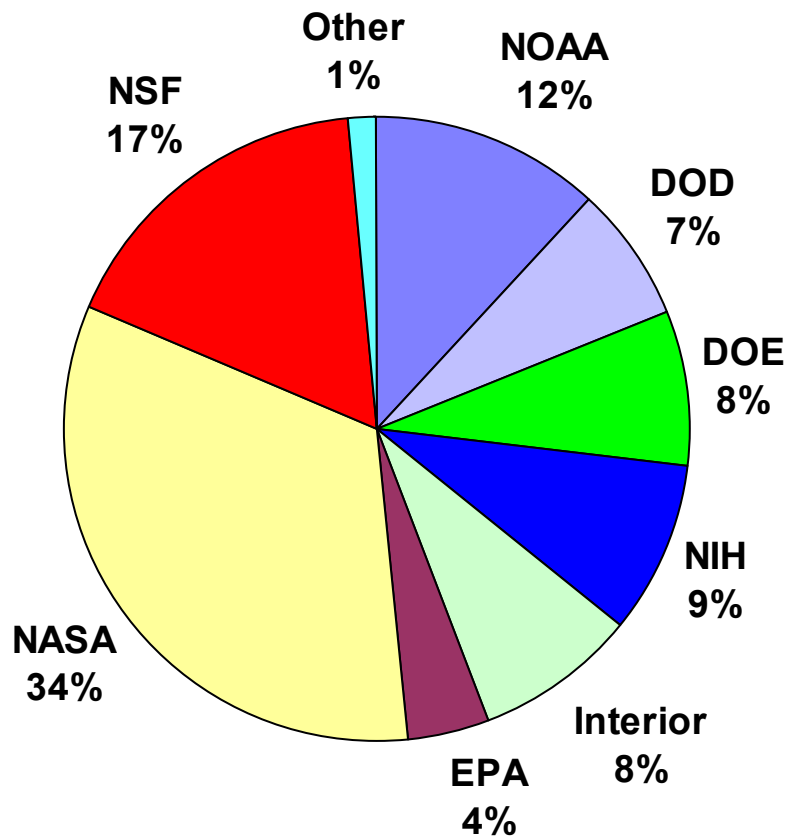


* - Other includes research not classified (includes basic research and applied research; excludes development and R&D facilities)

Source: National Science Foundation, *Federal Funds for Research and Development FY 2002., 2003, and 2004, 2004.* FY 2003 and 2004 data are preliminary. Constant-dollar conversions based on OMB's GDP deflators.
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Environmental Sciences Research in the FY 2004 Budget (preliminary obligations)



Total
Environmental
Sciences
Research:
\$3.8 billion
(includes basic
research and
applied research)

Environmental
Sciences include
atmospheric
sciences,
geological
sciences,
oceanography,
and other
environmental
sciences

Source: National Science Foundation, *Federal Funds for Research and Development FY 2002, 2003, and 2004, 2004*. Data exclude development and R&D facilities.

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R&D IN FY 2006 APPROPRIATIONS

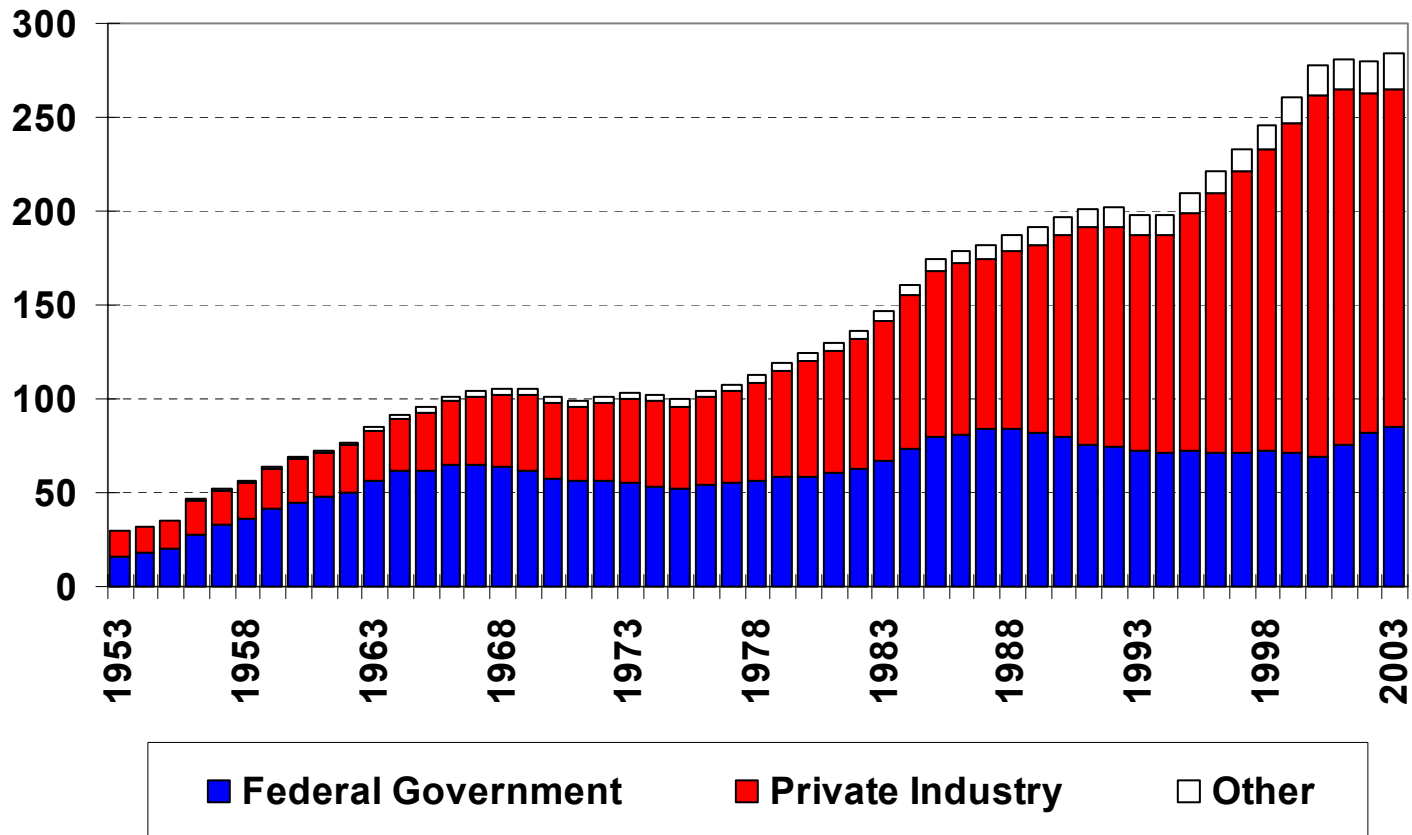
- Federal R&D is funded through 10 of the 11 (or 12) appropriations bills that fund all discretionary programs.
- Program-by-program funding levels will be decided in appropriations bills. There are 11 (House) or 12 (Senate) appropriations bills; 4 bills handle 95 percent of the R&D portfolio, but DOD, NIH, NASA/NSF, and DOE are considered separately.
- Many interagency efforts such as climate change R&D, homeland security, and environmental sciences research are appropriated through several bills.

THIS WEEK IN CONGRESS

- Congress has agreed to a budget resolution cutting domestic spending by 1 percent in 2006.
- The House continues writing its appropriations bills: DOD, Commerce, NSF, and NASA are up this week. The Senate begins its process this week.
- Lawmakers will try to add funds for defense research, and some domestic R&D programs, but they don't have extra money.
- Meanwhile, there are increasing concerns that the U.S. is losing its lead in R&D.

U.S. R&D Funding by Source, 1953-2003

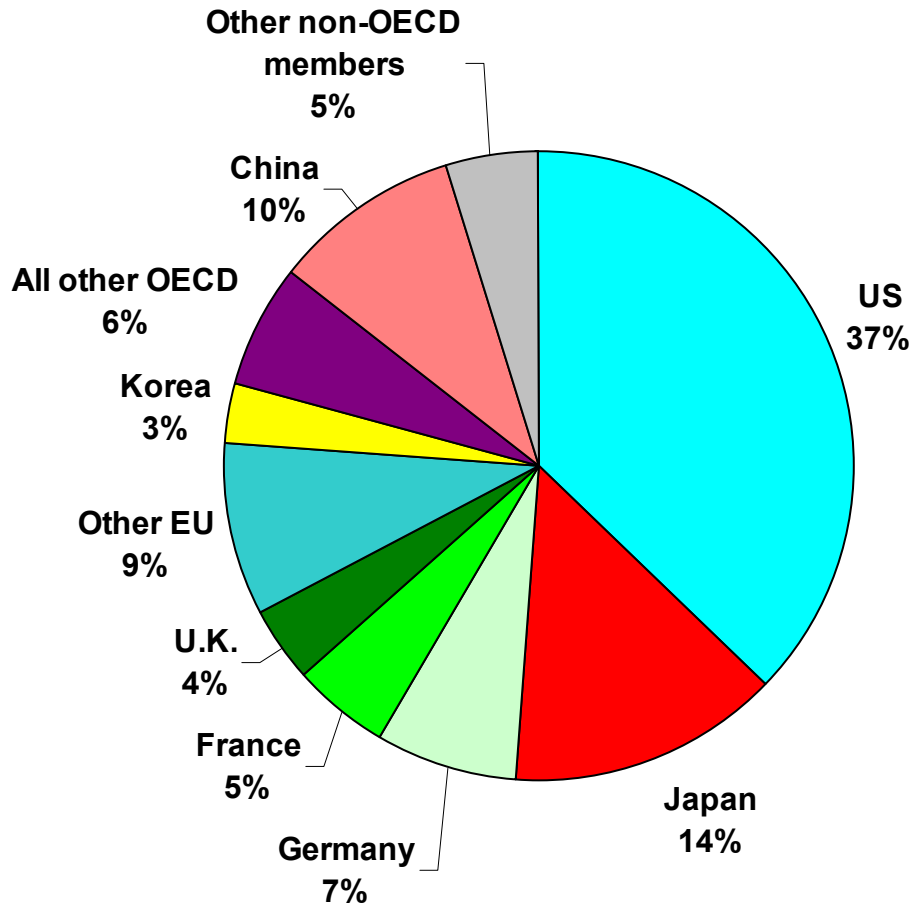
expenditures in billions of constant 2003 dollars



Source: NSF, Division of Science Resources Statistics. (Data for 2002 and 2003 are preliminary.)
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Shares of Total World* R&D, 2002



**Total World* R&D =
U.S. \$746.7 billion****

* World = OECD members plus Argentina, China, Romania, Israel, Russian Federation, Singapore, Slovenia, Taiwan

Source: OECD, Main Science and Technology Indicators, 2004.

** - calculated using purchasing power parities.

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