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Congress Finalizes Omnibus Budget for FY 2009 With Increases Across All Major R&D Agencies

(This report is a summary of AAAS estimates and analyses of federal R&D appropriations in final FY 2009 appropriations.)

Almost six months into the fiscal year, Congress gave final approval to a fiscal year (FY) 2009 omnibus bill on March 10 combining the nine unfinished appropriations bills, which President Obama later signed into law (P.L. 111-8) on March 11. The Democratic Congress' decision to delay finalizing the 2009 appropriations and avoid the threat of a veto by former President Bush seems to have paid off and allowed the new 111th Congress to provide additional domestic discretionary funds including research and development (R&D). The final $410 billion omnibus budget wraps up the FY 2009 appropriations for the remaining agencies that had been operating on a continuing resolution (CR) since the end of the 110th Congress. Included in the omnibus bill is $151.1 billion in federal R&D, an increase of $6.8 billion or 4.7 percent above the FY 2008 estimate. As a result, every major R&D funding agency will receive an increase greater than the expected rate of inflation, and in many cases the final FY 2009 numbers are larger than the budget request submitted by the previous administration to the 110th Congress. Most figures in this analysis exclude supplemental stimulus appropriations enacted on February 17 (Public Law 111-5).

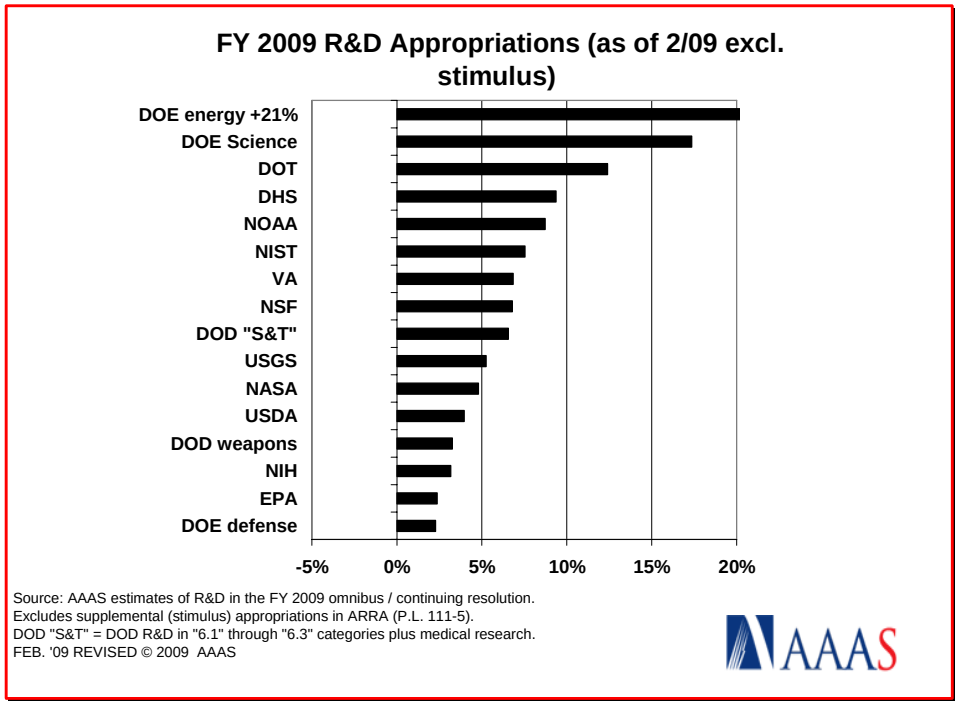

Figure 1. (click on image for PDF)

Highlights of Federal R&D in the Omnibus FY 2009 Appropriations

Although the federal government's fiscal year (FY) 2009 began on October 1, 2008, most of the government's FY 2009 budget was still unfinished then. The 110th Congress enacted a continuing resolution (CR) extending funding for all programs in unfinished 2009 appropriations bills at 2008 funding levels through March 6. The CR was attached to the three final FY 2009 appropriations bills, covering the Departments of Defense (DOD), Homeland Security (DHS), and Veterans Affairs (VA). All other federal agencies in the remaining 9 of the 12 appropriations bills had been operating temporarily at 2008 funding levels until a new omnibus bill was taken up by the 111th Congress. The U.S. House of Representatives passed its version of the final FY 2009 omnibus bill on February 25 and the bill then stalled in the Senate when Senate Majority Leader Reid (D-NV) postponed a vote on the omnibus when he could not obtain the necessary 60 votes to avoid a potential filibuster. The Congress was forced to extend the CR to March 11 and the Senate ultimately managed to pass the omnibus by voice vote on March 10 after agreeing 62-35 to limit debate. President Obama signed the omnibus bill on March 11.

- **The federal R&D portfolio in final FY 2009 appropriations will be $151.1 billion**, an increase of $6.8 billion or 4.7 percent above FY 2008 (see Table 1, Figure 1). With the exception of the National Science Foundation (NSF), Department of Defense (DOD) weapon programs and defense programs at the Department of Energy (DOE) all major R&D agencies receive increases greater than the original FY 2009 **budget request** sent to Congress by the Bush Administration (see Figure 2). That said, every major R&D funding agency still will see increases in their R&D portfolios.

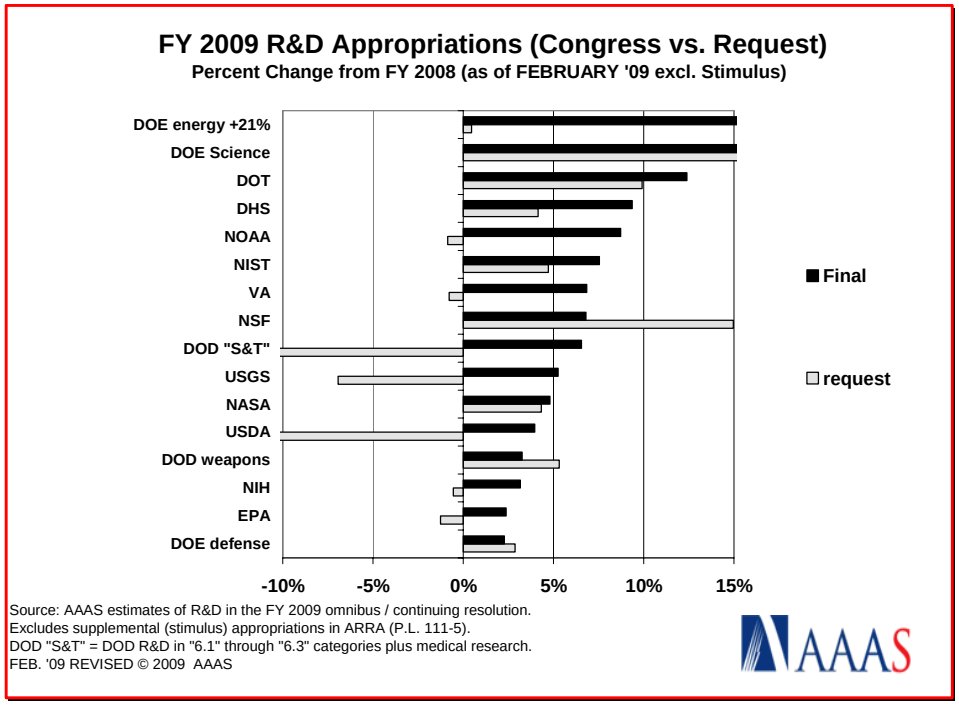

Figure 2.

- The federal investment in basic and applied research totals $60.5 billion, a big boost of $2.5 billion or 4.3 percent (see Table 2). After adjusting for inflation, **the federal investment in research will show an increase in 2009** for the first time in four years.

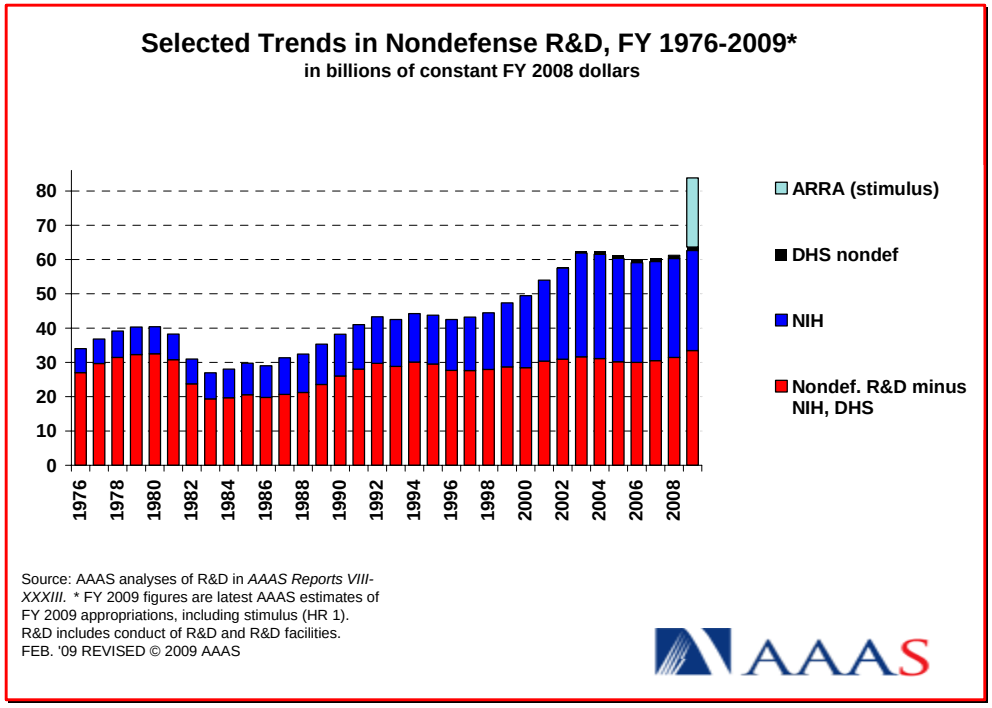

Figure 3. (click on image for PDF)

- Development funding also gains in 2009, increasing $4.0 billion or 4.8 percent to $85.9 billion (see Table 1). 80 percent of all federal development goes to DOD for weapons systems development.

- Nondefense R&D will grow $3.7 billion or 6.0 percent to almost $65 billion, a larger increase than defense R&D which only received a 3.8 percent increase for a total of $86.2 billion. Including the $20.8 billion for R&D in the stimulus bill, nearly all for nondefense programs, nondefense R&D funding for FY 2009 will almost parallel defense R&D for a total of $85.5 billion (see Table 1, Figure 3), a remarkable year for federal R&D overall.

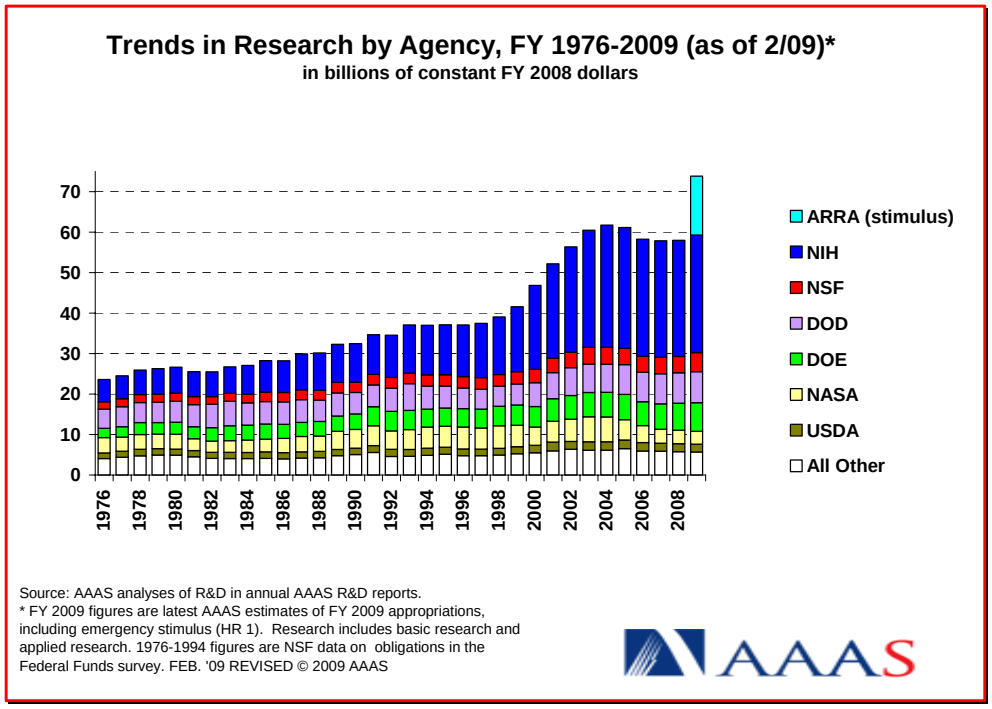

Figure 4

- **Large gains for COMPETES Agencies**. The National Science Foundation (NSF), the Department of Energy's Office of Science (DOE OS), and Commerce's National Institute of Standards and Technology laboratories (NIST), agencies slated for doubling as part of the America COMPETES Act passed by the previous Congress, will see increases in funding for FY 2009 consistent with doubling their budgets over a decade (see Table 1, Figure 1). Excluding stimulus funds, the three agencies in FY 2009 receive $4.8 billion for R&D (up 6.8 percent) at NSF, $4.3 billion for R&D (up 17.3 percent) at the DOE OS, and $561 million for R&D (up 7.5 percent) at NIST (See Table 1). Including the appropriations in the stimulus bill for these agencies results in respective increases in R&D to $7.5 billion (up 66 percent), $6.1 billion (up 69 percent), and $1.1 billion (up 115 percent over 2008 levels; see Table 4). The National Institutes of Health (NIH) will also receive a significant boost, with a total budget of $30.5 billion, a 3.2 percent increase, and a total budget of $40.9 billion (a 38 percent increase) with the stimulus funds included.

- **Agencies will see increases across the board for basic and applied research in FY 2009.** Overall, funding for basic and applied research will grow to $60.5 billion, an increase of $2.5 billion, or 4.3 percent, over FY 2008 (See Table 2). With the funding provided by the stimulus bill included, these numbers rise to $75.3 billion in overall funding, a 29.9 percent increase over 2008 and 31.5 percent more than requested under the 2009 budget (See Figure 4). With the stimulus excluded, several agencies will receive less than requested, although still more than in 2008. These include NIST and NSF, which will see overall increases in their research budgets of 2.5 percent and 8.7 percent, respectively (see above). The DOE Office of Science will receive an increase in its research budget of 9.4 percent over 2008.

- Defense R&D makes up 57 percent of the total federal R&D portfolio in final FY 2009 appropriations and receives an increase of 3.8 percent over its 2008 funding, rising to $86.2 billion (see Table 3). All nondefense R&D will receive $65.0 billion, an increase of 6.0 percent, (see Table 3). The largest increase in nondefense is in the energy budget function, which will receive almost $3 billion, or 21.2 percent more than 2008. The only expected decrease is in Administration of Justice, which will receive $352 million, 0.8 percent less than 2008. The omnibus appropriates 3.4 percent less funding for the general science budget function than was requested. However, the $9.9 billion appropriated for general science in the final the bill is still 11.8 percent more than 2008.

R&D Appropriations for Key Agencies

While the Departments of Defense, Homeland Security, and Veterans Affairs received their 2009 appropriations in September, the agencies listed below will receive their final FY 2009 budgets under the omnibus bill, which excludes amounts appropriated by the stimulus:

- Overall, R&D funding for the **National Institutes of Health (NIH)** will rise 3.2 percent over 2008 for a total of $29.7 billion, 3.7 percent more than requested levels (see Table 1; Figure 5) within a total NIH budget of $30.5 billion. In the final FY 2009 omnibus bill the NIH budget will finally see a rise in real terms rather than declining as it has been for the past five years. Funding for the NIH Common Fund (NIH Roadmap), a line item in the Office of the Director (OD) budget, will grow 9.1 percent over 2008 to $541 million, while the total OD budget will grow 12.2 percent for a total of $1.3 billion. All the remaining NIH institutes and centers will see slight increases in the range of 2.7 to 2.9 percent, while funding for the National Center for Research Resources and Buildings and Facilities will rise 6.1 percent and 5.6 percent, respectively. Other agencies in the Department of Health and Human Services (HHS) will remain flat, including the Centers for Disease Control at $441 million for R&D. A notable exception is the Office of the HHS Secretary, which will receive $275 million for biodefense countermeasures development, nearly triple the $102 million 2008 appropriation (see Table 2). With the stimulus included, HHS R&D will rise 39.7 percent over 2008 levels to $41.9 billion, NIH will receive almost $40 billion for R&D, an increase of 38.3 percent, and select areas will receive notably large infusions of funds, such as Buildings and Facilities, for which funding will more than quadruple above 2008 levels to $626 million (see Table 4 and agency-specific tables).

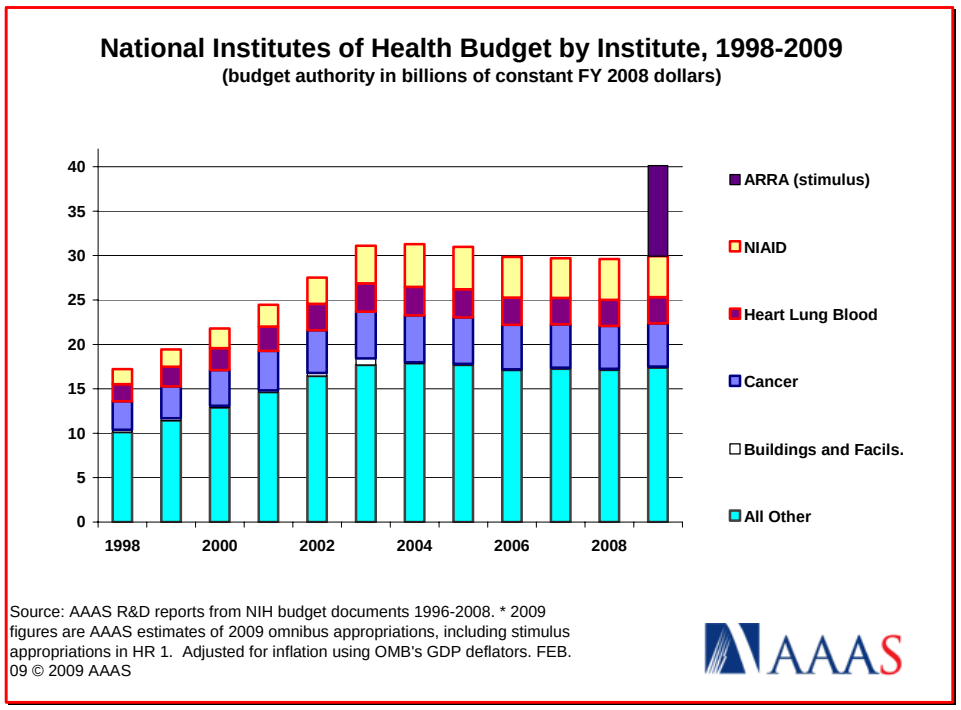

Figure 5

- The **National Science Foundation (NSF)** will see an overall increase of 6.8 percent over its 2008 budget (see Table 1; Figure 6), although the total $6.5 billion allocation is still 5.3 percent less than the requested amount. Investments in R&D will total $4.8 billion, 6.8 percent more than 2008 but 7.1 percent less than the request. While nearly all research directorates at NSF receive funding increases of at least 7.4 percent under the omnibus bill alone, some areas of NSF, namely Major Research Equipment (MRE) and

Integrative Activities, will see cuts (26 percent and 10.5 percent, respectively). Funding for NSF's Research and Related Activities (R&RA) will grow 7.4 percent for a total of $5.2 billion in FY 2009, while R&D programs within the Education and Human Resources (EHR) directorate will receive a boost of 19.6 percent for a total of $71 billion in the final omnibus. When one calculates the amount provided to the agency via the stimulus, the funds more than make up for the shortfalls in programs such as MRE, which will jump to a total of $552 million (168 percent increase) and $807 million for Integrative Activities, as well as enough additional funding to boost each area of the remaining R&RA programs between 44 percent and 52 percent above 2008 levels. When combining the omnibus and stimulus funds, the overall NSF R&D budget will grow 65.6 percent to $7.5 billion.

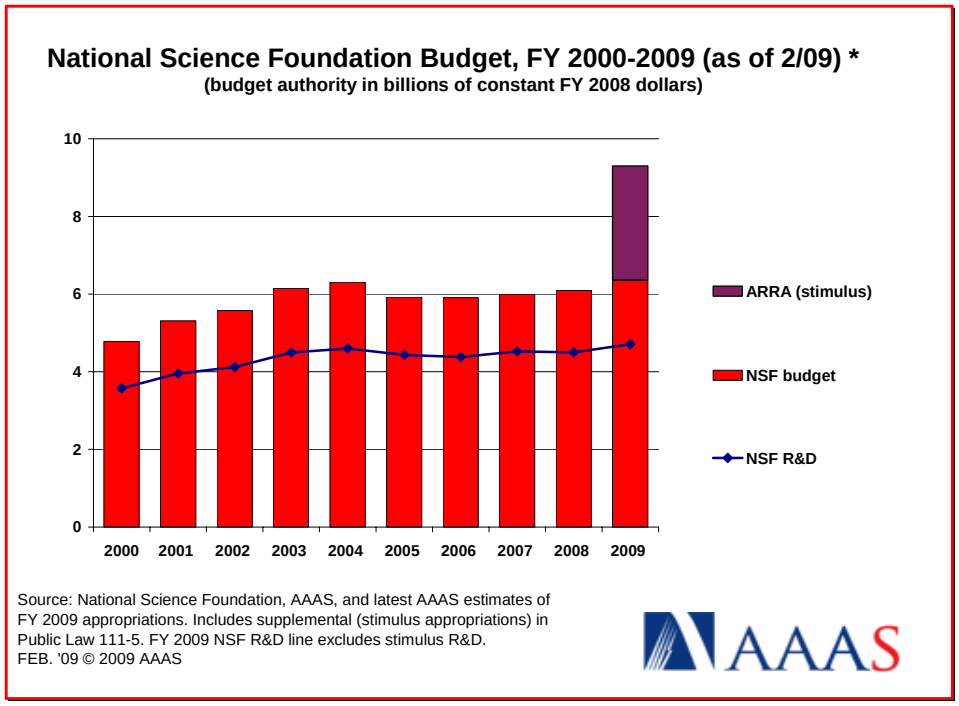

Figure 6

- Funding for the **National Aeronautics and Space Administration (NASA)** also will increase compared with 2008, with a 4.8 percent increase for a total R&D budget of almost $13 billion, although that amount rises further to 12.6 percent with stimulus funding included (see Table 4). NASA Science programs will receive an overall decrease of 4.3 percent below 2008 levels for a total of $4.5 billion in FY 2009. However, the Earth Science portion will increase 10.7 percent to $1.4 billion in 2009. NASA's Constellation Systems will be boosted almost 23 percent in FY 2009 with a final budget of $3.0 billion. The total NASA budget will grow 3.5 percent for a total of $17.8 billion with the largest gains going to Space Operations. In particular, the International Space Station will receive $2.1 billion, 13.6 percent more than 2008, the Space Shuttle will see a decrease of 8.7 percent for a total of almost $3 billion, and Space and Flight Support will see a boost of 62 percent to $723 million because of program transfers from Science. Notable areas besides the Space Shuttle that will see cuts overall, even with the stimulus funds included, are the Heliophysics and Astrophysics programs and Advanced Capabilities in exploration.

- The **Department of Energy's (DOE)** total R&D budget portfolio will rise 12.6 percent under the omnibus bill to almost $11 billion, 4.1 percent more than the request. The Office of Science will receive a 17.3 percent boost for a total of $4.3 billion for R&D, although that is 1.1 percent less than the budget request submitted by the Bush Administration (see Table 1). R&D in Energy Efficiency and Renewables will increase 16.2 percent to $1.4 billion, Nuclear Energy R&D will grow to $515 million (a 16.8 percent increase), and Fossil Energy will grow almost 45 percent to $834 million. The stimulus substantially

boosts DOE's R&D portfolio by contributing $400 million to the Advanced Research Projects Agency-Energy (ARPA-E), which was created under the 2007 America COMPETES Act but never funded, and nearly $1.6 billion in undistributed R&D funds for the Office of Science. Finally, the stimulus pushes total funding for DOE R&D nearly 68 percent over 2008 funding to $16.3 billion, the largest portion of which goes to Energy Efficiency and Renewables, totaling $3.95 billion, and Fossil Energy at $1.83 billion.

- The $2.5 billion in R&D funding that will be provided to the **U.S. Department of Agriculture** (USDA) under the omnibus bill reflects a 4.0 percent increase over 2008, a 25.5 percent boost above the requested level. Of note, the bill will preserve the bulk of funding for Integrated ($26 million) and Special Research ($84 million) grants under the Cooperative State Research, Education, and Extension Service (CSREES) program, which were reduced to a fraction of their 2008 amounts in the budget request for 2009. R&D for Agricultural Research Service (ARS) will grow only 1.2 percent for a total of $1.2 billion. Meanwhile, the bill will cut funds for ARS Buildings and Facilities by about 10 percent, although adding the $176 million provided by the stimulus bill makes up for that loss, more than tripling the amount committed in 2008. The 2009 USDA budget also contains $88 million in mandatory funds for bioenergy and other research provided by the June 2008 farm bill.

- Both of the R&D agencies within the Department of Commerce, the **National Institute of Standards and Technology (NIST)** and the **National Oceanic and Atmospheric Administration (NOAA)**, will see funding increases for 2009 under the FY 2009 omnibus. The total NOAA R&D portfolio will grow 8.7 percent to $632 million. NIST will see substantial increases, in particular for its Technology Innovation Program, formerly the Advanced Technology Program, which will receive a 40 percent boost over 2008 to $38 million for R&D and survive the complete funding cut under the initial request. In addition, the non-R&D Manufacturing Extension Partnership (MEP) program, slated for a drastic cut in the request, will increase 22.7 percent over 2008 levels to $110 million. And while the stimulus provides no additional R&D funds to NOAA, at NIST the stimulus bill more than quadruples its 2008 funding for construction, even with non-R&D earmarks excluded. The agency's Scientific and Technical Research programs are provided a $200 million boost from the stimulus, more than doubling the 2008 figure, although the omnibus bill alone will increase funding by 2.4 percent.

- Several R&D programs at the **Department of Transportation (DOT)** will increase above their 2008 levels and their requested funding amounts in the final omnibus bill. In particular, the Federal Aviation Administration (FAA) will see its R&D budget increase by 27.4 percent to $345 million and the Federal Highway Administration (FHWA) will see a 5.4 percent bump to $393 million. The only cuts under the appropriations bill will be a 6.4 percent drop in funding for the State Planning and Research program at FHWA and a 4.8 percent cut for R&D in the Federal Railroad Administration. Overall, the total R&D portfolio at Transportation will increase 12.4 percent to a total of $922 million.

- The **Department of the Interior** and the **Environmental Protection Agency (EPA)** will see modest increases in R&D funding over their 2008 amounts, although the omnibus will also prevent cuts for R&D in both agencies that were proposed by the Bush Administration. Overall, R&D programs at Interior will see an increase of 4.6 percent over 2008 and 14.5 percent more than requested for a total of $707 million. Interior's U.S. Geological Survey (USGS) R&D portfolio will increase 5.3 percent for a total of $617 million, and climate change research, in particular, will more than quadruple in the final appropriations, going from $7 million in 2008 to $41 million in FY 2009. The EPA, meanwhile, will sustain small cuts in its budgets for Clean Air and Sustainability S&T but overall will receive $561 million for R&D, which is 2.4 percent more than 2008 and 3.7 percent more than requested.

Waiting Until the New Year Pays Off

When the 110th Congress finally agreed to a FY 2009 budget resolution in June 2008, it allocated $1,013 billion for regular (non-emergency) FY 2009 appropriations, $21 billion more than President Bush's request. The budget assumed roughly the requested amount for defense discretionary programs, so the additional $21 billion would have allowed nondefense programs overall to increase slightly ahead of inflation, instead of declining as in the administration's request. At that time, Congress had hoped to use a

majority of the additional $21 billion to turn some requested cuts in R&D programs into flat funding or increases while sustaining large increases for key science programs.

However, former President Bush threatened to veto any appropriations bills that exceeded his request and the Democratic Congress therefore decided to delay most bills until a new President took office in January, bringing the entire FY 2009 process to a halt. To keep the government operating, lawmakers approved a continuing resolution (CR) extending funding for all programs in unsigned 2009 appropriations bills at 2008 funding levels through March 6. The CR contained final FY 2009 appropriations for the Departments of Defense (DOD), Homeland Security (DHS), and Veterans Affairs (VA); all three received substantial increases for their R&D portfolios, but other federal agencies in the remaining 9 of the 12 appropriations bills were left operating temporarily at or below 2008 funding levels for several months.

The election of Senator Barack Obama as the 44th President of the United States signaled a receptive environment for approving additional domestic appropriations, which initially led the research community to believe that a final resolution for FY 2009 would be addressed quickly. However, the new administration was dealt the more immediate and urgent task of addressing the nation's fiscal climate. The financial sector rescue that moved through Congress in the waning days of the 110th Congress and passage of a supplemental stimulus package, the American Recovery and Reinvestment Act (ARRA; P.L. 111-5), forced a further delay in handling the final FY 2009 appropriations. With hundreds of billions of dollars flowing out of the U.S. Treasury to buy mortgage-backed securities, a surge in R&D investments to the tune of $20.8 billion as allocated in ARRA, and a burgeoning budget deficit, the pressure on Congress and the President to scale back government spending grew.

Ultimately, the U.S. House of Representatives passed its version of the final FY 2009 omnibus bill on February 25 by a vote that was largely along party lines (246-183). The bill then stalled in the Senate, and Senate Majority Leader Harry Reid (D-NV) postponed a vote on the omnibus when he said he could not obtain the necessary 60 votes to avoid a potential filibuster. The Congress was forced to extend the CR to March 11 and the Senate finally managed to pass the omnibus by voice vote on March 10 after agreeing 62-35 to limit debate. President Obama signed the omnibus bill into law (P.L. 111-8) on March 11.

The picture for FY 2010 remains unclear, although President Obama released an outline of his initial budget plan on February 26, in the midst of negotiations for finalizing 2009. While the plan specifically aims to reduce deficit spending over the next five years, with an overall goal of halving the federal deficit by 2013, it includes room for several increases in science and technology funding. Although specific appropriations are not laid out in detail in the budget released by OMB, the text of the budget includes mention of some of the programs it seeks to fund.

Among the agencies that would see increases for their R&D activities are the Environmental Protection Agency (EPA), NASA, and the National Science Foundation (NSF), all of which have increases in funding over their 2008 baseline, excluding any funding received under the American Recovery and Reinvestment Act. The overall increase was largest at EPA, which would receive 34 percent more funding than its expected 2009 appropriate for a total of $10.5 billion. Several others would see increases, such as NASA, where overall funding would increase over 2008 levels by $1.4 billion for a total of $18.7 billion, and NSF, with an overall increase of 16 percent over 2008 funding for a total of $7 billion. However, while many specific programs are mentioned, the plan is merely an outline and does not provide a detailed funding request for each agency, which is expected from OMB in late April or early May.

Table 1. Total R&D by Agency
Congressional Action on R&D in the FY 2009 Budget (excluding stimulus)
(budget authority in millions of dollars)

			House-Senate Conference				
	FY 2008	FY 2009	**FY 2009**	Chg. from Request		Chg. from FY 2008	
	Estimate	Request	**Congress**	Amount	Percent	Amount	Percent
Defense (military) *	79,347	81,067	**82,378**	1,310	1.6%	3,030	3.8%
*("S&T" 6.1,6.2,6.3 + Medical) **	*13,456*	*11,669*	***14,338***	*2,669*	*22.9%*	*882*	*6.6%*
*(All Other DOD R&D) **	*65,891*	*69,398*	***68,040***	*-1,359*	*-2.0%*	*2,148*	*3.3%*
National Aeronautics & Space Admin.	12,251	12,780	**12,839**	59	0.5%	588	4.8%
Energy	9,724	10,519	**10,946**	427	4.1%	1,222	12.6%
(Office of Science)	*3,637*	*4,314*	***4,267***	*-46*	*-1.1%*	*631*	*17.3%*
(Energy R&D)	*2,369*	*2,380*	***2,876***	*496*	*20.8%*	*507*	*21.4%*
(Atomic Energy Defense R&D)	*3,718*	*3,825*	***3,803***	*-22*	*-0.6%*	*85*	*2.3%*
Health and Human Services	29,966	29,973	**31,052**	1,079	3.6%	1,086	3.6%
(National Institutes of Health)	*28,826*	*28,666*	***29,739***	*1,073*	*3.7%*	*913*	*3.2%*
(All Other HHS R&D)	*1,140*	*1,307*	***1,312***	*5*	*0.4%*	*172*	*15.1%*
National Science Foundation	4,501	5,175	**4,807**	-368	-7.1%	306	6.8%
Agriculture	2,359	1,955	**2,453**	498	25.5%	94	4.0%
Homeland Security	992	1,033	**1,085**	52	5.0%	93	9.4%
Interior	676	618	**707**	89	14.5%	31	4.6%
(U.S. Geological Survey)	*586*	*546*	***617***	*71*	*13.1%*	*31*	*5.3%*
Transportation	820	902	**922**	20	2.3%	102	12.4%
Environmental Protection Agency	548	541	**561**	20	3.7%	13	2.4%
Commerce	1,138	1,152	**1,228**	76	6.6%	90	7.9%
(NOAA)	*581*	*576*	***632***	*56*	*9.7%*	*51*	*8.7%*
(NIST)	*521*	*546*	***561***	*15*	*2.7%*	*39*	*7.5%*
Education	321	324	**336**	12	3.8%	15	4.7%
Agency for Int'l Development	223	223	**223**	0	0.0%	0	0.0%
Department of Veterans Affairs	891	884	**952**	68	7.7%	61	6.8%
Nuclear Regulatory Commission	71	77	**86**	9	11.7%	15	21.1%
Smithsonian	203	222	**222**	0	0.0%	19	9.4%
All Other	322	299	**339**	40	13.4%	17	5.3%
TOTAL R&D	**144,354**	**147,743**	**151,135**	**3,392**	**2.3%**	**6,782**	**4.7%**
Defense R&D	83,065	84,892	**86,180**	1,288	1.5%	3,115	3.8%
Nondefense R&D	61,288	62,851	**64,955**	2,104	3.3%	3,667	6.0%
Basic Research	28,837	29,656	**30,305**	649	2.2%	1,468	5.1%
Applied Research	29,151	27,626	**30,152**	2,526	9.1%	1,001	3.4%
Total Research	57,988	57,282	**60,457**	3,175	5.5%	2,468	4.3%
Development	81,890	85,745	**85,851**	106	0.1%	3,962	4.8%
R&D Facilities and Capital Equipment	4,476	4,716	**4,827**	111	2.4%	352	7.9%

AAAS estimates of R&D in FY 2009 appropriations bills, including HR 1 (ARRA). Includes conduct of R&D and R&D facilities.
All figures are rounded to the nearest million. Changes calculated from unrounded figures.
FY 2008 figures have been adjusted to reflect supplementals enacted in Public Law 110-252 and contained in the FY 2009 CR.
These figures have been revised since the publication of *AAAS Report XXXIII: R&D FY 2009.*
Revised to reflect FY 2009 appropriations in the FY 2009 omnibus appropriations bill (HR 1105).
February 24, 2009 - AAAS estimates of FY 2009 appropriations.
All figures EXCLUDE supplemental (stimulus) appropriations in Public Law 111-5.

Table 2. Estimated Research by Agency
Congressional Action on R&D in the FY 2009 Budget (excluding stimulus)
(budget authority in millions of dollars)

			House-Senate Conference				
	FY 2008	FY 2009	**FY 2009**	Chg. from Request		Chg. from FY 2008	
	Estimate	Request	**Congress**	Amount	Percent	Amount	Percent
Basic Research:							
Health and Human Services	15,966	15,861	**16,527**	666	4.2%	561	3.5%
National Institutes of Health	*15,963*	*15,858*	***16,524***	*666*	*4.2%*	*561*	*3.5%*
National Science Foundation	3,699	4,320	**4,000**	-320	-7.4%	302	8.2%
Department of Defense *	1,625	1,699	**1,835**	136	8.0%	210	12.9%
Department of Energy	3,266	3,557	**3,566**	9	0.3%	300	9.2%
Office of Science	*3,240*	*3,534*	***3,544***	*10*	*0.3%*	*304*	*9.4%*
National Aeronautics & Space Admin.	2,326	2,287	**2,329**	41	1.8%	3	0.1%
Department of Agriculture	868	798	**885**	87	10.9%	17	2.0%
Department of the Interior	43	40	**47**	6	15.2%	3	7.8%
Department of Homeland Security *	248	276	**284**	8	3.0%	36	14.6%
Smithsonian	149	153	**153**	0	0.0%	4	2.7%
Environmental Protection Agency	95	95	**98**	3	3.1%	2	2.4%
Department of Commerce	149	176	**158**	-18	-10.0%	9	6.4%
All Other *	403	394	**423**	29	7.2%	20	4.8%
Total Est. Basic Research *	28,837	29,656	**30,305**	649	2.2%	1,468	5.1%
RESEARCH (basic and applied):							
Health and Human Services	29,774	29,773	**30,852**	1,079	3.6%	1,078	3.6%
National Institutes of Health	*28,699*	*28,533*	***29,606***	*1,073*	*3.8%*	*907*	*3.2%*
National Science Foundation	4,040	4,742	**4,391**	-351	-7.4%	351	8.7%
Department of Defense *	7,510	6,138	**7,821**	1,684	27.4%	312	4.1%
Department of Energy	6,684	7,005	**7,214**	210	3.0%	531	7.9%
Office of Science	*3,240*	*3,534*	***3,544***	*10*	*0.3%*	*304*	*9.4%*
National Aeronautics & Space Admin.	3,296	3,103	**3,212**	109	3.5%	-84	-2.5%
Department of Agriculture	2,001	1,720	**2,005**	285	16.6%	4	0.2%
Department of the Interior	592	554	**614**	61	11.0%	22	3.8%
Department of Homeland Security *	629	654	**669**	16	2.4%	41	6.5%
Environmental Protection Agency	468	462	**479**	17	3.8%	11	2.4%
Department of Commerce	821	906	**878**	-28	-3.1%	57	6.9%
NOAA	*442*	*489*	***491***	*2*	*0.3%*	*49*	*11.0%*
NIST	*366*	*410*	***375***	*-35*	*-8.5%*	*9*	*2.5%*
Department of Transportation	577	616	**624**	7	1.2%	46	8.0%
Department of Veterans Affairs *	835	832	**896**	64	7.7%	61	7.3%
Department of Education	205	203	**211**	8	3.8%	6	2.8%
All Other	557	575	**589**	14	2.4%	32	5.7%
TOTAL EST. RESEARCH *	**57,988**	**57,282**	**60,457**	**3,175**	**5.5%**	**2,468**	**4.3%**

AAAS estimates of R&D in FY 2009 appropriations bills, including HR 1 (ARRA). Includes conduct of R&D and R&D facilities.

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

FY 2008 figures have been adjusted to reflect supplementals enacted in Public Law 110-252 and contained in the FY 2009 CR.

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Revised to reflect FY 2009 appropriations in the FY 2009 omnibus appropriations bill (HR 1105).

February 24, 2009 - AAAS estimates of FY 2009 appropriations.

All figures EXCLUDE supplemental (stimulus) appropriations in Public Law 111-5.

Table 3. Major Functional Categories of R&D
Congressional Action on R&D in the FY 2009 Budget (including stimulus)
(budget authority in millions of dollars)

			House-Senate Conference					
	FY 2008 Estimate	FY 2009 Request	**FY 2009 Congress**	Chg. from Request Amount	Chg. from Request Percent	Chg. from FY 2008 Amount	Chg. from FY 2008 Percent	% of Total ('09)
Defense * [1]	83,065	84,892	**86,480**	1,588	1.9%	3,415	4.1%	50.3%
Nondefense * [2]	61,288	62,851	**85,477**	22,626	36.0%	24,189	39.5%	49.7%
Space	11,739	12,334	**13,139**	805	6.5%	1,400	11.9%	7.6%
Health *	30,813	30,813	**42,785**	11,972	38.9%	11,972	38.9%	24.9%
Energy	2,460	2,474	**6,484**	4,010	162.1%	4,024	163.6%	3.8%
General Science *	8,829	10,225	**14,384**	4,159	40.7%	5,554	62.9%	8.4%
Natural Resources & Environ.	2,153	2,060	**2,259**	198	9.6%	106	4.9%	1.3%
Agriculture	2,022	1,640	**2,280**	640	39.0%	258	12.8%	1.3%
Transportation	1,359	1,366	**1,588**	222	16.2%	229	16.8%	0.9%
Commerce	557	576	**1,157**	581	100.9%	600	107.6%	0.7%
International	255	255	**255**	0	0.0%	0	0.0%	0.1%
Administration of Justice *	355	356	**352**	-4	-1.1%	-3	-0.8%	0.2%
All Other	746	752	**795**	43	5.7%	49	6.6%	0.5%
Total R&D *	144,354	147,743	**171,958**	24,214	16.4%	27,604	19.1%	100.0%

AAAS estimates of R&D in FY 2009 appropriations bills, including HR 1 (ARRA). Includes conduct of R&D and R&D facilities.

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

Classifications generally follow the government's budget function categories except health (which here includes health R&D in HHS and VA).

[1] Includes DOD R&D, atomic energy defense R&D in DOE, and defense-related R&D in DHS.

[2] Includes all R&D not in defense (domestic and international discretionary programs).

FY 2008 figures have been adjusted to reflect supplementals enacted in Public Law 110-252 and contained in the FY 2009 CR.

These figures have been revised since the publication of *AAAS Report XXXIII: R&D FY 2009.*

Revised to reflect FY 2009 appropriations in the FY 2009 omnibus appropriations bill (HR 1105).

February 24, 2009 - AAAS estimates of FY 2009 appropriations.

All figures INCLUDE supplemental (stimulus) appropriations in Public Law 111-5.

Table 4. Total R&D by Agency
Congressional Action on R&D in the FY 2009 Budget (including stimulus)
(budget authority in millions of dollars)

			House-Senate Conference				
	FY 2008	FY 2009	**FY 2009**	Chg. from Request		Chg. from FY 2008	
	Estimate	Request	**Congress**	Amount	Percent	Amount	Percent
Defense (military) *	79,347	81,067	**82,678**	1,610	2.0%	3,330	4.2%
*("S&T" 6.1,6.2,6.3 + Medical) **	*13,456*	*11,669*	***14,411***	*2,742*	*23.5%*	*955*	*7.1%*
*(All Other DOD R&D) **	*65,891*	*69,398*	***68,266***	*-1,132*	*-1.6%*	*2,375*	*3.6%*
National Aeronautics & Space Admin.	12,251	12,780	**13,789**	1,009	7.9%	1,538	12.6%
Energy	9,724	10,519	**16,309**	5,791	55.1%	6,586	67.7%
(Office of Science)	*3,637*	*4,314*	***6,129***	*1,815*	*42.1%*	*2,493*	*68.5%*
(Energy R&D)	*2,369*	*2,380*	***6,378***	*3,998*	*168.0%*	*4,009*	*169.2%*
(Atomic Energy Defense R&D)	*3,718*	*3,825*	***3,803***	*-22*	*-0.6%*	*85*	*2.3%*
Health and Human Services	29,966	29,973	**41,877**	11,904	39.7%	11,911	39.7%
(National Institutes of Health)	*28,826*	*28,666*	***39,865***	*11,199*	*39.1%*	*11,039*	*38.3%*
(All Other HHS R&D)	*1,140*	*1,307*	***2,012***	*705*	*54.0%*	*872*	*76.5%*
National Science Foundation	4,501	5,175	**7,454**	2,279	44.0%	2,953	65.6%
Agriculture	2,359	1,955	**2,629**	674	34.5%	270	11.4%
Homeland Security	992	1,033	**1,085**	52	5.0%	93	9.4%
Interior	676	618	**707**	89	14.5%	31	4.6%
(U.S. Geological Survey)	*586*	*546*	***617***	*71*	*13.1%*	*31*	*5.3%*
Transportation	820	902	**922**	20	2.3%	102	12.4%
Environmental Protection Agency	548	541	**561**	20	3.7%	13	2.4%
Commerce	1,138	1,152	**1,789**	637	55.3%	650	57.1%
(NOAA)	*581*	*576*	***632***	*56*	*9.7%*	*51*	*8.7%*
(NIST)	*521*	*546*	***1,121***	*575*	*105.3%*	*600*	*115.0%*
Education	321	324	**336**	12	3.8%	15	4.7%
Agency for Int'l Development	223	223	**223**	0	0.0%	0	0.0%
Department of Veterans Affairs	891	884	**952**	68	7.7%	61	6.8%
Nuclear Regulatory Commission	71	77	**86**	9	11.7%	15	21.1%
Smithsonian	203	222	**222**	0	0.0%	19	9.4%
All Other	322	299	**339**	40	13.4%	17	5.3%
TOTAL R&D	**144,354**	**147,743**	**171,958**	**24,214**	**16.4%**	**27,604**	**19.1%**
Defense R&D	83,065	84,892	**86,480**	1,588	1.9%	3,415	4.1%
Nondefense R&D	61,288	62,851	**85,477**	22,626	36.0%	24,189	39.5%
Basic Research	28,837	29,656	**38,920**	9,264	31.2%	10,083	35.0%
Applied Research	29,151	27,626	**36,395**	8,769	31.7%	7,244	24.8%
Total Research	57,988	57,282	**75,315**	18,034	31.5%	17,327	29.9%
Development	81,890	85,745	**88,202**	2,456	2.9%	6,312	7.7%
R&D Facilities and Capital Equipment	4,476	4,716	**8,440**	3,724	79.0%	3,965	88.6%

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Table 5. Estimated Research by Agency
Congressional Action on R&D in the FY 2009 Budget (including stimulus)
(budget authority in millions of dollars)

			House-Senate Conference				
	FY 2008	FY 2009	**FY 2009**	Chg. from Request		Chg. from FY 2008	
	Estimate	Request	**Congress**	Amount	Percent	Amount	Percent
Basic Research:							
Health and Human Services	15,966	15,861	**21,697**	5,836	36.8%	5,731	35.9%
National Institutes of Health	*15,963*	*15,858*	***21,694***	*5,836*	*36.8%*	*5,731*	*35.9%*
National Science Foundation	3,699	4,320	**5,501**	1,181	27.3%	1,802	48.7%
Department of Defense *	1,625	1,699	**1,844**	145	8.5%	219	13.5%
Department of Energy	3,266	3,557	**5,196**	1,639	46.1%	1,930	59.1%
Office of Science	*3,240*	*3,534*	***5,141***	*1,608*	*45.5%*	*1,902*	*58.7%*
National Aeronautics & Space Admin.	2,326	2,287	**2,586**	299	13.1%	260	11.2%
Department of Agriculture	868	798	**885**	87	10.9%	17	2.0%
Department of the Interior	43	40	**47**	6	15.2%	3	7.8%
Department of Homeland Security *	248	276	**284**	8	3.0%	36	14.6%
Smithsonian	149	153	**153**	0	0.0%	4	2.7%
Environmental Protection Agency	95	95	**98**	3	3.1%	2	2.4%
Department of Commerce	149	176	**207**	31	17.8%	58	39.2%
All Other *	403	394	**423**	29	7.2%	20	4.8%
Total Est. Basic Research *	28,837	29,656	**38,920**	9,264	31.2%	10,083	35.0%
RESEARCH (basic and applied):							
Health and Human Services	29,774	29,773	**39,854**	10,081	33.9%	10,080	33.9%
National Institutes of Health	*28,699*	*28,533*	***37,931***	*9,399*	*32.9%*	*9,232*	*32.2%*
National Science Foundation	4,040	4,742	**6,038**	1,296	27.3%	1,998	49.5%
Department of Defense *	7,510	6,138	**7,847**	1,709	27.8%	337	4.5%
Department of Energy	6,684	7,005	**10,719**	3,714	53.0%	4,035	60.4%
Office of Science	*3,240*	*3,534*	***5,141***	*1,608*	*45.5%*	*1,902*	*58.7%*
National Aeronautics & Space Admin.	3,296	3,103	**3,691**	588	18.9%	396	12.0%
Department of Agriculture	2,001	1,720	**2,005**	285	16.6%	4	0.2%
Department of the Interior	592	554	**614**	61	11.0%	22	3.8%
Department of Homeland Security *	629	654	**669**	16	2.4%	41	6.5%
Environmental Protection Agency	468	462	**479**	17	3.8%	11	2.4%
Department of Commerce	821	906	**1,079**	172	19.0%	257	31.3%
NOAA	*442*	*489*	***491***	*2*	*0.3%*	*49*	*11.0%*
NIST	*366*	*410*	***576***	*166*	*40.4%*	*210*	*57.2%*
Department of Transportation	577	616	**624**	7	1.2%	46	8.0%
Department of Veterans Affairs *	835	832	**896**	64	7.7%	61	7.3%
Department of Education	205	203	**211**	8	3.8%	6	2.8%
All Other	557	575	**589**	14	2.4%	32	5.7%
TOTAL EST. RESEARCH *	**57,988**	**57,282**	**75,315**	**18,034**	**31.5%**	**17,327**	**29.9%**

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Table 6. Major Functional Categories of R&D
Congressional Action on R&D in the FY 2009 Budget (including stimulus)
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Transportation	1,359	1,366	**1,588**	222	16.2%	229	16.8%	0.9%
Commerce	557	576	**1,157**	581	100.9%	600	107.6%	0.7%
International	255	255	**255**	0	0.0%	0	0.0%	0.1%
Administration of Justice *	355	356	**352**	-4	-1.1%	-3	-0.8%	0.2%
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(This analysis is one of a series of AAAS R&D Funding Updates on FY 2009 congressional appropriations. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D in FY 2009 appropriations, is available on the AAAS R&D Web Site (http://www.aaas.org/spp/rd) in the "FY 2009 R&D" or the "What's New" sections.)

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