

To: DEMOCRATIC MEMBERS, Science Committee
From: Science Committee Democratic Staff
Subject: Background for February 15th Hearing on the President's FY2007 Budget Request for R&D
Date: February 14, 2006

Summary:

As part of the Administration's "American Competitiveness Initiative," the President's budget proposes significant increases to support basic research in the physical sciences for the DOE Office of Science, NSF and parts of NIST. Despite these increases, the overall federal science and technology (FS&T) budget across the government drops by 1%. So while some parts of agencies under Science Committee jurisdiction are clear winners, there are many more science and technology programs with significant losses in the FY2007 budget.

Science Committee staff's detailed analysis (below) of the President's budget revealed the Devil is in the Details. Specifically, NASA and NIH funding would remain essentially flat and NOAA R&D for oceanic and atmospheric research would decline by 8% even as we see NPOESS program costs spiraling out of control. DOE would sustain major cuts throughout Energy Efficiency and for the second year DOE would have to eliminate the gas and oil technologies program. At NIST, overall research funding would decrease by 23% which includes the elimination of the Advanced Technology Program and a 56% reduction to the Manufacturing Extension Program.

In short, science that is not part of the President's American Competitiveness Initiative is cut in order to balance the increases at NSF, NIST and DOE; So what one hand giveth, the other taketh away. This budget appears to cut science to fund science.

Competitiveness is about job creation and retention. This budget and this implementation of an American Competitiveness Initiative plan will not increase our nation's competitiveness now or in the future.

I. The President’s Budget Cuts Science to Fund Science

The Request Cuts Science Funding – The Administration will brag about increases for R&D spending from 2001 through this budget request. But the fact is that the best indicator for federal research investment, the “Federal S&T budget” (a measure that excludes weapons development from the equation), has been targeted for a decrease again this year by the Administration. For FY2006, the Administration requested a decrease to the Federal S&T budget of 1.4%. For FY2007, the Administration requests a decrease of 1.0%. So, despite increases in some areas of science, overall science and technology research would be cut below FY2006 levels.

TABLE 1: Science Funding

Budget Authority in Millions

Parentheses indicate negative numbers

These numbers are not additive

	FY2004 Actual	FY2005 Actual	FY2006 Estimate	FY2007 Request	Dollar Change: FY2006 to FY2007 Request	Percent Change: FY2006 to FY2007 Request
Federal R&D Budget	125,338	129,874	133,781	137,204	3,423	2.5%
Federal R&D Basic Research	26,588	27,564	27,890	28,247	357	1.3%
Federal R&D Applied Research	27,838	27,438	27,940	26,106	(1,834)	(7.0%)
Federal S&T Budget	60,565	60,280	60,430	59,836	(594)	(1.0%)

The Administration Treats Congressional Earmarks Hypocritically – Again this year, the Administration decries R&D earmarks but does nothing (e.g., requiring competition) to lessen their impact. Furthermore, when it suits the Administration to count earmarks (e.g., when calculating budget increases from 2001-2007), they do so. When it doesn’t suit them to count earmarks (e.g., when claiming that one of their budget cuts isn’t a real cut when the earmarks are left off), they don’t. It is Congress’s constitutional prerogative to set spending priorities. Thankfully for science and technology and our country’s future competitiveness, Congress has increased spending in these areas above the amount of the President’s request throughout the term of this Administration.

The Budget Does Not Increase America’s Competitiveness – Competitiveness is about job creation and retention. Yet, the single best government program to provide immediate help to U.S. manufacturers – the Manufacturing Extension Program – is severely slashed AGAIN. MEP is the only federal program with a proven track record in creating and retaining manufacturing jobs. Yet, the Administration proposes to cut MEP by 56%. Additionally, the Advanced Technology Program is AGAIN targeted for elimination. Both MEP and ATP have widespread Congressional and private sector support because they help in job creation **NOW** and in the future and reduce the loss of jobs overseas; thus, MEP and ATP INCREASE American competitiveness and should not be targets for elimination. Long term planning is laudatory but planning for 30 years

in the future should not come at the expense of maintaining high-skill, high-wage jobs for hard working Americans right now.

The Administration is a Day Late and a Dollar Short. – While we were pleased to see the Administration putting forth a plan to finally follow through on their commitment to double NSF funding, the Administration is four years behind and \$3.8 billion, 39%, short of their commitment. In 2002, the Congress passed, and this President signed into law, an authorization bill doubling NSF funding over five years. However, the President's requests for NSF since the NSF doubling signing ceremony had been anemic until the FY2007 budget request. As a result, even with the FY2007 proposed increase, the NSF budget is still below the 15% annual increase needed to meet the 5 year doubling profile called for in the NSF authorization statute. So rather than doubling by FY2007, if this plan is carried out, the original doubling goal would not be met until 2013.

Table2:
Federal Science and Technology Budget

(Budget Authority in Millions)
Negative numbers in parentheses

By Agency	FY2005 Actual	FY2006 Estimate	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
NASA	8,128	7,680	7,073	(607)	(8%)
Science	5,502	5,254	5,330	76	1%
Aeronautics	962	884	724	(160)	(18%)
Exploration Systems	1,664	1,542	1,019	(523)	(34%)
Energy	5,642	5,636	6,155	519	9%
Science Programs	3,600	3,596	4,102	506	14%
Electricity Transmission & Distribution	101	136	96	(40)	(29%)
Nuclear Energy	393	416	559	143	34%
Energy Efficiency and Renewable Energy Resources	976	896	933	37	4%
Fossil Energy	572	592	465	(127)	(21%)
National Science Foundation	5,472	5,581	6,020	439	8%
Commerce	855	938	873	(65)	(7%)
NOAA: Oceanic and Atmospheric Research	404	370	338	(32)	(9%)
NIST: Intramural Research and Facilities	451	568	535	(33)	(6%)
EPA	780	761	816	55	7%
Interior (USGS)	935	962	945	(17)	(2%)
Transportation	542	567	598	31	(5%)
Highway Research: FHA	411	430	468	38	9%
FAA: Research, Engineering and Development	131	137	130	(7%)	(5%)
NIH	28,444	28,410	28,428	18	0%
Defense	6,273	6,628	5,900	(728)	(11%)
Agriculture	2,111	2,160	1,921	(239)	(11%)
Veterans Affairs	743	765	765	0	0%
Education	355	342	342	0	0%
Total	60,280	60,430	59,836	(594)	(1%)

Table 3:
Federal Research and Development (R&D) Spending Details

(Budget Authority in Millions)
 Negative numbers in parentheses

By Agency	FY2003 Actual	FY2004 Actual	FY2005 Actual	FY2006 Estimate	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
Defense	58,838	65,462	69,743	71,946	74,234	2,288	3.2%
Health and Human Services	27,411	28,047	28,687	28,767	28,737	(30)	(0.1%)
NASA	10,681	10,574	10,197	11,394	12,245	851	7.5%
Energy	8,312	8,779	8,596	8,563	9,158	595	7.0%
National Science Foundation	3,972	4,160	4,138	4,199	4,548	349	8.3%
Agriculture	2,334	2,222	2,410	2,411	2,012	(399)	(16.6%)
Homeland Security	737	1,053	1,182	1,484	1,508	24	1.6%
Commerce	1,200	1,137	1,133	1,079	1,065	(14)	(1.3%)
Transportation	701	661	549	704	557	(147)	(20.9%)
Veterans Affairs	819	866	742	765	765	0	0.00%
Interior	643	627	622	637	600	(37)	(5.8%)
Environmental Protection Agency	568	661	640	600	557	(43)	(7.2%)
Other	1,223	1,089	1,235	1,232	1,218	(14)	(1.1%)
Total	117,439	125,338	129,874	133,781	137,204	3,423	2.6%
Subtotals By Area							
Basic Research	25,306	26,588	27,564	26,928	26,608	357	1.3%
Applied Research	26,624	27,838	27,438	28,235	28,232	(1,834)	(6.6%)
Development	59,983	66,535	69,947	71,425	72,666	4,884	6.6%
Facilities and Equipment	5,526	4,377	4,925	4,983	4,798	16	0.4%
“Federal S&T Budget”	56,974	60,565	60,280	61,696	60,819	(594)	(1.0%)

II. Budget Details by Agency –
NIST, NOAA, NSF, NASA, DOE, DHS, FAA, and EPA

Below we give a detailed analysis of the FY2007 Budget as it pertains to most areas of the Science committee’s jurisdiction.

For an additional resource, Kei Koizumi of the American Association for the Advancement of Science (AAAS) has an excellent analysis of the FY2007 R&D budget. The AAAS analysis can be accessed at: <http://www.aaas.org/spp/rd/prel07p.htm>

A. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

Overview

The FY07 budget request is 23% decrease from FY06 appropriated levels. (If you back out earmarks, \$137 million, the FY07 request is still a 6% decrease.) The FY07 request eliminates funding for ATP and cuts MEP funding by 56%. The FY07 request is consistent with the Administration’s FY06 funding request for ATP and MEP. Overall, the FY07 request is budget neutral – increases for the NIST labs are offset by cuts to MEP and ATP.

TABLE 4: NIST Funding

(Budget Authority in Millions)
 Negative numbers in parentheses

NIST Programs	FY2006 Request	FY2006 Enacted	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
Laboratories	421.0	387.5	459.4	71.9	18.6%
Baldrige	5.3	7.3	7.6	0.3	4.1%
Advanced Technology Program (ATP)	0.0	79.0	0.0	(79)	(100.0%)
Manufacturing Extension Partnership Program (MEP)	46.8	104.6	46.3	(58.3)	(55.7%)
Construction	58.9	173.6	68	(105.6)	(60.8%)
TOTAL	532.0	752.0	581.3	(170.7)	(22.7%)

FY2007 NIST Budget Request Summary

Laboratories Account

Consistent with the Administration’s National Innovation Initiative, the Administration is touting an 18% increase for the NIST lab account. However, the increase for the NIST Labs (\$72 million) is offset by a \$58.3 decrease in MEP funding. In addition, the ATP account transfers \$13 million to the NIST labs. Eliminating ATP creates a \$13 million

hole in the NIST lab budget, so the FY07 requests includes \$13 million to cover this “ATP” shortfall in the lab budget. Last year under the same budget scenario, Congress restored MEP funding by moving funds from the requested Lab increase. Given the FY07 budget constraints it is likely that the same thing will happen again this year.

Advanced Technology Program (ATP)

The Administration proposes to eliminate ATP funding. While the budget request does not include close-out cost, carry-over funds from the prior year should cover any liabilities. The Administration is justifying the termination of the ATP due to the growth of venture cap funds and other financial services for high-risk technologies. The Administration provides not documentation for these assertions. In addition, the FY07 NASA request includes the Red Planet Capital Fund which operate similar to the ATP. The Administration will also claim that the President’s Competitiveness Initiative will have broadbased economic impacts while the ATP only benefits individual companies. However, the ATP program only supports projects with broad-based industry economic benefits and has specific examples to show that ATP projects have broad-based benefits.

Manufacturing Extension Partnership (MEP)

The Administration proposes cutting MEP funding by 56% to \$46.3 million. The Administration has not consulted with the states about how the MEP network would operate at this funding level. The FY07 request includes \$11.3 million for overhead and oversight leaving only \$35 million for actual grants to MEP centers – less than half of what is required to maintain a fully operation national network of MEP centers. (In FY06, \$92 million in grants will be made to MEP Centers.) The Administration justifies the MEP cut by claiming that the program has evolved to where less funding is required and that the MEP offers services that are also provided by private entities. However, a report by the National Association of Public Administrators concluded that the small manufacturing community is underserved and that MEP does not displace the private sector.

B. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

Overview

The overall NOAA budget is reduced by over 6 percent from the 2006 enacted level. The Administration's budget includes \$589 million in terminated expenses. A portion of this funding was then used to restore or increase spending on Administration priorities bringing their budget request to \$3.8 billion. Once again, the Administration's budget proposal puts the burden on Congress to restore funding for Agency programs. The additions to the Weather Service budget and the satellite budget are too little compensation for the severe reductions in research, operations, conservation, and management programs in the other line offices of the Agency.

TABLE 5: NOAA Funding

(Budget Authority in Millions)
Negative numbers in parentheses

NOAA Programs	FY2004 Actual	FY2005 Enacted	FY2006 Enacted	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
National Weather Service	824.9	783	848.2	881.9	33.7	4.0%
Oceanic & Atmospheric Research	414.6	413.8	379.6	348.6	(31)	(8.2%)
National Environmental Satellite, Data, and Information Service	827.1	907.4	952.2	1033.9	81.7	8.6%
Program Support	358.5	449.2	491.0	406.1	(84.9)	(17.3%)
National Ocean Service*	605.3	668.3	590.5	413.1	(177.4)	(30.0%)
National Marine Fisheries Service**	758.1	823.0	803.8	736.9	(66.9)	(8.3%)
TOTAL Budget Authority***	3,788.50	4,044.7	4,065.3	3820.6	(244.7)	(6.4%)

* NOS programs are shared jurisdiction with the Resources Committee or not within the jurisdiction of the Committee on Science.

** NMFS is solely within the jurisdiction of the Resources Committee

***This Figure includes appropriated funds transferred from fisheries funds

FY2007 NOAA Budget Request Summary

National Weather Service (NWS):

The National Weather Service appears to be one of the bright spots in the NOAA budget. The President's request is 4 percent higher than the FY2006 enacted budget. The \$34 million increase includes \$25 million to cover pay raises and inflation. The budget also includes funds to move the wind profiler system from research to fully operational status (\$3.5 million) and it restores funding to the Space Environment Center which was cut by

Congress in the FY2006 appropriation (\$3.2 million). Once these items are accounted for, this budget provides little in the way of programmatic increases.

The budget advertises an increase of \$12.4 million for the U.S. tsunami warning program for a total of \$20.4 million. This increase is accomplished through a combination of transfers and offsets of other NWS programs. The tsunami warning program received \$10.2 million dollars in FY06.

Oceanic and Atmospheric Research:

The office of Oceanic and Atmospheric Research contains over half of the research programs at NOAA. This office receives a cut of \$31 million below the FY06 enacted levels, an eight percent reduction.

The Ocean Commission's Report recommended that Congress double the federal ocean and coastal research budget over the next five years. In response, the Administration's budget once again cuts the Ocean, Coastal, and Great Lakes Research account from \$127 million to \$103 million, a 19 percent reduction.

The President's budget increases funding for Climate Research by \$11.6 million to \$181 million. Weather and air quality research declines by \$26 million dollars (39% reduction).

National Environmental Satellite Data and Information Service (NESDIS):

The NESDIS budget is dominated by the satellite procurement programs: the Geostationary Operational Environmental Satellite (GOES), the Polar Orbiting Environmental Satellite (POES), and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). The multi-year design, construction, and launch schedules for these satellites determine most of the increases and decreases of this account.

In FY07, the procurement schedule for these satellite systems results in an increase in the NESDIS budget of \$109.8 million over the FY06 enacted level. These increases in the NESDIS procurement accounts are offset by reductions in spending in the operations, research, and facilities account of \$28 million which includes the reduction of \$19 million for NOAA's data centers and information services. NOAA is responsible for collecting, processing, disseminating and archiving all data collected through its satellites and other environmental monitoring networks.

This function has been chronically under-funded. Without these services the data gathered through the satellites and other observing networks is unavailable for operations or research. If we cannot adequately fund the data services needed for today's satellites and observing networks, it is questionable that we will be able to utilize data from any new networks or enhanced satellite systems under development.

C. NATIONAL SCIENCE FOUNDATION (NSF)

Overview

The President's FY 2007 budget proposal for NSF is \$6.02 billion, which is \$439 million, or 7.9%, above the FY 2006 appropriations level and \$3.8 billion, or 39%, below the FY 2007 level authorized in P.L. 107-368 (see table below).

Overall, the FY 2007 budget growth is the first substantial growth since P.L. 107-368, the NSF doubling authorization bill, was enacted in 2002, but is still below the 15% annual increase needed to meet a 5-year budget doubling profile as called for in the NSF authorization statute. The budget request indicates the Administration intends to provide annual increases of approximately 7%, which would allow for budget doubling in 10 years from the FY 2006 base year. If this plan were carried out, the original doubling goal of the statute, \$9.8 billion, will be met in 2013, rather than in FY 2007.

TABLE 6: NSF Funding

(Budget Authority in Millions)
Negative numbers in parentheses

NSF Programs	FY2003 Actual	FY2004 Actual	FY2005 Enacted	FY2006 Enacted	Authorization FY2007*	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
Research – Total	4054.4	4293.3	4220.6	4331.5		4666.0	334.5	7.7%
Education	934.9	944.1	841.4	796.7		816.2	19.5	2.4%
Major Research Equip. & Facilities Construction	179.0	184.0	173.6	190.9		240.4	49.5	25.9%
Salaries & Expenses	189.4	218.9	223.2	246.8		281.8	35.0	14.2%
Inspector General	8.7	9.5	10.0	11.4		11.9	0.5	4.4%
Nat. Science Board	2.9	2.2	4.0	4.0		3.9	(0.1)	(1.0%)
Total	5369.3	5652.0	5472.8	5581.2	9839.3	6020.2	439.0	7.9%

* no funding levels were designated for subcategories for FY 07 by P.L. 107-368

Major features of the budget proposal:

- Approximately half of the proposed increase for the research accounts goes to the 4 interagency crosscut programs: Networking and Information Technology R&D (+\$93 million), National Nanotechnology Initiative (+\$29 million), Climate Change Science Program (+\$8 million), and Homeland Security (+\$42 million).

- The major research facilities construction account receives a 26% finding increase (+\$50 million) allowing for 3 new starts.
- Less than an inflationary increase (+2.5%) is provided for the education directorate, with continued phase out of the K-12 Math and Science Partnerships (MSP) program (-\$17 million) and flat funding for other K-12 and undergraduate education programs. Women and minority education programs are increased by \$26 million (+22%) and graduate fellowship/traineeship programs by \$8 million (+5%).
- Addition of \$35 million (+14%) for personnel support and information technology infrastructure at NSF.

Research Programs

For the research accounts, the request totals \$334.5 million (+7.7%) above the FY 2006 appropriations level:

TABLE 7: NSF Research Program Funding

(Budget Authority in Millions)

Negative numbers in parentheses

NSF Programs	FY2004 Actual	FY2005 Enacted	FY2006 Enacted	FY2007 Request	Dollar Change: FY2006 to FY2007	Percent Change: FY2006 to FY2007
Biological Sciences	587.0	576.8	576.7	607.8	31.2	5.4
CISE	605.4	490.2	496.4	526.7	30.3	6.1
Engineering	565.6	557.1	580.9	628.6	47.6	8.2
Geosciences	713.4	697.2	702.8	744.8	42.0	6.0
Math & Physical Sciences	1091.6	1069.4	1085.4	1150.3	64.8	6.0
Social, Behavioral & Economic Sciences	184.3	196.8	199.9	213.8	13.8	6.9
Office of Cyberinfrastructure		123.4	127.1	182.4	55.3	43.5
Office of International S&E	40.8	34.0	34.5	40.6	6.1	17.6
U.S. Polar Research Programs	274.2	278.3	322.7	370.6	47.9	14.8
U.S. Antarctic Logistical Support Activities	67.5	70.3	66.7	67.5	0.8	1.3
Integrative Activities	163.5	130.9	137.1	131.4	(5.7)	(4.2)
Total, Research and Related Activities	4293.3	4225.4	4331.5	4665.9	334.5	7.7

Of the \$334.5 million increase, \$203 million is for NSF contributions to interagency research initiatives (see below); \$50 million is for acquisition of a leadership-class high performance computing system; and a \$48 million addition is for polar research programs, including support for U.S. participation in the International Polar Year. Costs for the operation of Coast Guard icebreakers to support scientific programs in polar regions continues to be included in the NSF request (\$57 million; \$58 million was appropriated for FY 2006).

For interagency research initiatives: National Nanotechnology Initiative, +8.6% (\$373.2 million); Networking and Information Technology Research and Development, +11.5% (\$903.7 million); Climate Change Science Program, 4.3% (\$205.2 million); and Homeland Security, 12.4% (\$384.2 million).

Major Research Equipment and Facilities Construction

The major facilities account grows by \$50 million, or 26%, under the request. Funding continues for 5 construction projects: ALMA telescopes (\$47.9 million); IceCube neutrino observatory (\$28.6 million); EarthScope, an earthquake detection and earth sciences research network (\$27.4 million); the Scientific Ocean Drilling Vessel (\$42.9 million); and the South Pole Station (\$9.1 million – the estimated cost to complete the project). Funding is requested for 3 new starts: National Ecological Observatory Network, or NEON (\$12.0 million); Alaska Region Research Vessel (\$56.0 million); and Ocean Observatories Initiative (\$13.5 million).

In accordance with PL 107-368, the budget request also identifies one facilities construction project that is next in line for funding in FY 2008: an Advanced LIGO (a physics/astronomy experiment to measure gravity waves).

Education Programs

For the education directorate, the request totals \$19.5 million (2.5%) above the FY 2006 appropriations level, which is still 3.2% below the FY 2005 appropriations level. A reorganization is proposed for the directorate that would combine Elementary, Secondary and Informal Education with Research, Evaluation and Communication to form Research on Learning in Formal and Informal Settings (DRL), and that folds Math and Science Partnerships (MSP) into Undergraduate Education. Both of the new divisions suffer budget cuts, a slight cut for DRL and a 7% cut for DUE because the MSP is cut by \$17 million (this continues the proposal to eliminate new starts in the program and only support currently funded projects till completed).

An increase of \$26 million (+22%) is proposed for women and minority programs and an increase of \$7.6 million (+5%) for graduate fellowship and traineeship programs.

Salaries and Expenses

The budget request for internal operations at NSF totals \$281.8 million (+14%), including costs for adding 22 permanent employees and for improving information technology capabilities for grants management and information security.

D. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Overview

The FY 2007 NASA budget request is for \$16.792 billion. It is approximately \$169 million above the amounts appropriated for NASA in FY 2006 (a 1 percent increase—or 3.2 percent if the \$350 million appropriated for NASA as part of last year’s Katrina supplemental is excluded).

TABLE 8: NASA Five Year Funding Plan

(Budget Authority in Millions)
Negative numbers in parentheses

Account	FY2006 NASA Op Plan	FY 2007 Request	FY 2008 Request	FY 2009 Request	FY 2010 Request	FY 2011 Request
Solar System Exploration	1,582.3	1,610.2	1,598.6	1,840.4	1,899.6	1,846.7
The Universe	1,507.9	1,509.2	1,500.9	1,307.9	1,276.1	1,309.7
Earth-Sun System	2,163.5	2,210.6	2,283.7	2,288.9	2,315.8	2,390
Exploration Systems	3,050.1	3,978.3	3,981.6	4,499.8	5,055.9	8,775.1
Education Programs	162.4	153.3	152.4	153.1	154	153.3
Aeronautics Research	884.1	724.4	731.8	732.4	722.8	722.7
International Space Station	1,753.4	1,811.3	2,200.3	2,255.6	2,197.1	2,360.8
Space Shuttle*	4,777.5	4,056.7	4,087.3	3,794.8	3,651.1	146.7
Space and Flight Support	338.8	366.5	392.8	392	394.7	389.2
TOTAL NASA	16,623	16,792.3	17,309.4	17,614.2	18,026.3	18,460.4
Year to Year Change **		3.2 %	3.1 %	1.8 %	2.3 %	2.4 %

* Includes emergency supplemental of \$349.8 million in FY 2006 for Hurricane Katrina response and recovery.

** Percent change from FY 2006 does not include emergency supplemental \$349.8 million in FY 2006.

The FY 2007 budget request continues the reallocation of funding from science and aeronautics to human space flight that was seen in the President’s FY 2006 budget request. Approximately \$3.1 billion is being cut from the Science Mission Directorate’s programs over the period FY 06-10 relative to what had been assumed in the five-year plan accompanying last year’s budget request. That follows an earlier cut of

approximately \$1.1 billion that was made to the Science Mission Directorate's runout last year relative to the runout that accompanied the FY 2005 NASA budget request.

Congress appropriated about \$900 million for Aeronautics in FY 2006. The FY 2007 budget request would reduce the Aeronautics funding level to \$724 million, with reductions made to aviation safety and R&D in support of the next generation air traffic management system. Within the Exploration Systems account (funding in support of the Moon-Mars initiative), funding is shifted from research and technology programs to pay for development of the Crew Exploration Vehicle (CEV) and its Crew Launch Vehicle (CLV). As part of that shift, funding for fundamental and applied life and microgravity sciences research has been virtually eliminated.

Approximately \$3.6 billion is being added to the Space Operations account in the years FY 06-10 relative to the runout that accompanied last year's budget request. The main reason for the increase was the Administration's under-budgeting for Shuttle operating costs for the years FY 08-10 when they announced the President's Vision for Space Exploration (VSE). In addition, when the decision was made to retire the Shuttle in FY 2010, the International Space Station maintenance and logistics approach had to change, with more spares and logistics needing to be pre-positioned in advance of the Shuttle's retirement. However, the budget that accompanied the VSE did not sufficiently fund for those spares, etc.

Additional information on specific funding cuts and increases, as well as policy issues raised by the FY 2007 NASA budget request will be provided in the background memorandum that is being prepared for the February 16th hearing on NASA's budget request.

E. DEPARTMENT OF ENERGY (DOE)

Overview

DOE would see its non-defense R&D funding increase substantially in FY2007. Funding for the Office of Science (OS) would increase 14.1 percent to \$4.1 billion. The requested increases are widespread in OS with Basic Energy Sciences up \$286 million, Advanced Scientific Computing up \$84 million, High Energy Physics up \$58 million, and Fusion Energy Science up \$31 million. Some Renewable Energy programs did very well, at the expense of major cuts throughout Energy Efficiency. For the second year DOE would eliminate the gas and oil technologies program and requested no discretionary funding for the Ultra-deep Natural Gas and Other Petroleum R&D program authorized in the Energy Policy Act of 2005. The FutureGen coal program funding in fossil energy is intact with the request more than doubling for FY'07, despite cuts in other parts of Fossil Energy. The Nuclear Energy request would be increased more than 18 percent due largely to the new, proposed Global Nuclear Energy Partnership (GNEP) for which the Administration is requesting \$250 million in FY'07. Overall, FY 2007 request for Energy R&D is 23% less than authorized in EPACT 2005.

TABLE 9: Department of Energy Science Related Funding

(Budget Authority in Millions)
Negative numbers in parentheses

DOE Programs	FY2006 Request	FY2006 Enacted	FY2007 Request	Dollar Change: 2007 to 2006	Percent Change: 2007 to 2006	% of EPACT 2005 Authorization
Renewable Energy						RE: (49%)
Energy Efficiency	1200.2	1173.8	1176.4	2.5	0.2	EE: (63%)
Nuclear Energy	510.7	535.6	632.6	97.0	18.1	(04%)
Fossil Energy	759.9	841.6	648.8	(193.7)	(22.9)	(63%)
Electricity Delivery & Energy Reliability	95.6	161.6	124.9	(36.9)	(22.8)	(48%)
Office of Science	3536.3	3596.3	4101.7	505.3	14.1	(.01%)

Once again, DOE plays a shell game by moving energy programs around and hiding them in hopes they can't be found. In some cases programs just disappear. Energy Efficiency Deployment activities such as Rebuild America, Energy Efficiency Information and Outreach, Clean Cities, and Energy Star, have been shuffled around and severely cut. Innovations and Inventions as well as Building Codes, Training and Assistance were eliminated altogether. Funding for the Federal Energy Management Program, which facilitates the Federal Government's adoption of clean energy technologies, continues its steady decline.

F. DEPARTMENT OF HOMELAND SECURITY (DHS)

Overview

The President's FY 2007 budget proposal for the DHS S&T Directorate is \$1.00 billion, which is \$485 million, or 32.6%, below the FY 2006 appropriations level. The actual change in programmatic content is much less than would appear to be the case. Nearly 70% of the decrease results from an administrative change:

- \$334 million formerly funded under Radiological and Nuclear Countermeasures and the Domestic Nuclear Detection Office (DNDO) is transferred to a new DNDO that is organizationally separate from the S&T Directorate (new DNDO budget details below).

A second administrative change complicates the interpretation of programmatic priority changes between FY 2006 and FY 2007:

- \$112 million has been moved from the R&D accounts to the Management and Administration (M&A) account. Previously, salaries and benefits for non-government employees (contractors, IPAs, etc) were bookkept under the various R&D accounts. For FY 2007, these costs have been consolidated in M&A, which results in approximately a 13% reduction in the R&D accounts for FY 2007 relative to the amounts for FY 2006. This change masks programmatic changes between FY 2006 and FY 2007 in the table below. For example, Biological Countermeasures appears to have a \$39 million decrease for FY 2007, but the actual change in resources available to the program is +\$10 million.

Other major changes in the budget request:

- Counter- Man Portable Air Defense Systems (Counter-Man PADS): -\$104 million

The hardware development part of the program will be completed and a prototype system will be integrated on 3 commercial aircraft during FY 2006. The FY 2007 funds (\$5 million) are for monitoring and collecting data on these aircraft to measure the performance and reliability of the system.

- Transferred RDT&E Programs: +\$99 million

Several activities have been transferred from other parts of DHS to the S&T Directorate to further consolidate RDT&E activities within S&T (which had been one of the Science Committee's goals). The funds are split between Explosives Countermeasures (+\$84 million) and Support of DHS Conventional Missions (+\$14 million).

- Cybersecurity: +\$8 million

Although a relatively small amount, this represents a 47% increase in cybersecurity R&D, which is an area that had been stagnant at DHS and an area for which the Committee has been encouraging a greater funding allocation. The effective increase is greater than the apparent increase because of the reallocation of M&A costs described previously.

TABLE 10: DHS Detailed Program Funding. Science and Technology Directorate

(Budget Authority in Millions)
 Negative numbers in parentheses

DHS Programs	FY2005 Enacted	FY2006 Enacted	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
Bio Countermeasures (including NBACC & PIADC)	452	376	337	(39)	(10.4%)
Nuclear and Radiological Countermeasures	131	19	-	(19)	NA
Domestic Nuclear Detection Office	-	315	-	(315)	NA
Chemical Countermeasures	61	94	83	(11)	(11.7%)
High-Explosive countermeasures	19	44	87	43	97.7%
Threat and Vulnerability, Testing and Assessments	84	43	40	(3)	(7.0%)
Counter MANPADS	52	109	5	(104)	(95.4%)
Support of DHS Conventional Missions	52	79	89	10	12.7%
Rapid Prototyping Program	66	35	-	(35)	NA
Emerging Threats	13	8	-	(8)	NA
Emergent & Prototypical Technology	-	-	19	19	NA
Standards/State and Local Programs	40	35	22	(13)	(37.1%)
University Centers & Fellowship Programs	114	62	52	(10)	(16.1%)
Cybersecurity	18	17	23	6	35.3%
Critical Infrastructure Protection	65	40	15	(25)	(62.5%)
Interoperability & Compatibility	7	26	30	4	15.4%
SAFETY Act Implementation	1	7	5	(2)	(28.6%)
Transferred RDT&E Programs*	0	99	-	(99)	NA
Administration/Salaries	69	80	196	116	145.0%
TOTAL	1244	1487**	1002	(485)	(31.7%)

Acronyms:

NBACC = National Biodefense Analysis and Countermeasure Center

PIADC = Plum Island Animal Disease Center

ManPADS = Man Portable Air Defense Systems

RDT&E = Research, Development, Test, and Evaluation

NA = Not Applicable

* Added to Explosive Countermeasures (+\$84 M) and to Support of DHS Conventional Missions (+\$14M).

**Does not include \$20M rescission – not yet allocated among programs.

DHS Domestic Nuclear Detection Office (DNDO) FY 2007 Budget

The President's FY 2007 budget proposal for the DNDO is \$536 million. This is a new office that combines the activities previously housed in the Radiological and Nuclear Countermeasures and the Domestic Nuclear Detection Office, which were both part of the DHS S&T Directorate. For FY 2006, the combined funding for those two programs was \$334 million.

With this reorganization, DHS has integrated all nuclear detection research, development, test, evaluation, acquisition, and operational support in a single office. DNDO is responsible for developing the global nuclear detection architecture and acquiring and supporting the deployment of the domestic detection system to counter the import of a nuclear device or radiological material.

TABLE 11: DHS Domestic Nuclear Detection Office Program Funding

(Budget Authority in Millions)
Negative numbers in parentheses

Account	FY06 Enacted	FY07 Request
Research, Development and Operations	-	327
Systems Acquisition	-	178
Administration/Salaries	-	30
Total	-	536

**G. FEDERAL AVIATION ADMINISTRATION (FAA)
RESEARCH, ENGINEERING & DEVELOPMENT (RE&D)**

Overview

The President's FY 2007 budget request for the FAA RE&D activity, including activities now designated under Facilities & Equipment (F&E) as advanced Technology Development and Prototyping (ATDP), is \$175 million, which is \$29 million (-14%) below the FY 2006 appropriations level.

TABLE 12: FAA Funding

(Budget Authority in Millions)
Negative numbers in parentheses

FAA Program Activity	FY2004 Actual	FY2005 Enacted	FY2006 Enacted	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
RE&D						
System Planning & Resource management	0.5	0.5	1.2	1.2	0.0	0.0%
Joint Program & Development Office	-	5.1	17.9	18.1	0.2	1.1%
Hughes Tech Center	3.4	3.4	3.4	3.4	0.0	0.0%
Weather	23.7	20.7	20.4	19.5	(0.9)	(4.4%)
Wake Turbulence	--	4.3	2.3	3.1	0.8	34.8%
Aircraft Safety Technology	57.2	53.0	49.2	42.6	(6.6)	(13.4%)
Human Factors	17.2	21.1	17.7	17.7	0.0	0.0%
Aeromedical Research	8.8	10.1	8.8	7.0	(1.8)	(20.5%)
Environment & Energy	7.9	11.8	15.8	16.0	0.2	1.3%
RE&D – Total	118.7	129.9	136.6	130.0	(6.6)	(4.9%)
F&E – Advanced Technology Development & Prototyping (ATDP) *	69.7	58.6	67.5	45.1	(22.4)	(33.2%)
TOTAL RE&D and F&E ATDP	188.4	188.5	204.1	175.1	(29.0)	(14.2%)

* The FY 1999 appropriations bill for FAA moved R&D activities on Capacity & Air Traffic Management; Communications, Navigation & Surveillance; and Airport Technology from the RE&D account to a new budget category, Advanced Technology Development and Prototyping, in the F&E account.

The principal change from FY 2006 is the 22% decrease in F&E ATDP, which mainly results from eliminating congressional earmarks in the FY 2006 appropriation (\$6.3 million) and removing airport research (\$17.5 million for FY 2006) and pavement research (\$4 million). The Administration for the past two years has placed the latter two activities in the Grants-in-Aid for Airports account, while the appropriations committees have put them in F&E ATDP.

Within the RE&D account, the main change is a reduction (-\$5 million) in support for materials research and catastrophic failure research under the Aircraft Safety Technology activity.

H. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Overview

At first glance it appears the Science and Technology account increases by \$57 million. However, all of this increase is the result of an accounting change – a transfer of a line to the S & T from the Environmental Programs and Management account of \$61 million. After the transfer is accounted for the picture is quite different.

TABLE 13: EPA Funding

(Budget Authority in Millions)

EPA Program	FY2005 Enacted	FY2006 Enacted	FY2007 Request	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
Science & Technology	786	731	788 <i>(727)*</i>	+57 <i>(- 4)*</i>	+ 8% <i>(<1%)*</i>
Environmental Programs & Management	2309	2347	2307 <i>(2368)*</i>	- 40 <i>(+ 21)*</i>	- 2% <i>(+ 1%)*</i>
Inspector General	45	37	35	- 2	- 5%
Buildings & Facilities	45	40	40	0	0
Oil Spill Response	18	16	16	0	0
Program Funds	1321	1199	1218	+ 19	+ 2%
Science & Tech.	39	30	28	- 2	- 7%
Insp. General	15	13	13	0	0
Total SUPERFUND	1375	1242	1259	+ 17	+ 1%
LUST	71	80	73	+ 7	+ 9%
State & Tribal Asst. Grants	3608	3214	2797	- 417	- 13%
TOTAL EPA	8,256.9	7,625	7316	-309	- 4%

*The values in the parentheses reflect the actual requested changes in program dollars. The Administration's budget table for the FY2007 request includes an accounting change. The total for Science and Technology contains a \$61 million accounting change. The operation and maintenance of all EPA facilities used to appear in the Environmental Programs and Management account. For the FY2007 request, \$61 million dollars is charged to the Science and Technology account to reflect the cost of the Science and Technology facilities.

The President has proposed a total budget authority for Science and Technology (S & T) accounts at EPA of \$ 755 million. This includes the appropriated funds for Science and Technology (\$727 million) and the transfer of funds from the Superfund trust fund for

Science and Technology programs (\$28 million). This results in a decrease in S & T funding at EPA of \$6 million from the FY2006 enacted levels, a one percent reduction.

When the allocation for S & T is viewed in the context of the President's overall budget proposal for EPA, the picture is more grim than the S & T numbers suggest. The President is requesting a cut of \$309 million from EPA's budget, a reduction of 4%.

The State and Tribal Assistance Grant account, funds vital for maintaining and upgrading wastewater treatment infrastructure across the nation, is reduced by 13%. Congress will once again have to find the additional funds to meet the needs in the STAG account. In a tight budget year, the proposal to reduce the STAG account will put increased pressure on the other accounts in EPA making any restoration of science funding difficult, if not impossible.

At EPA just as in many of the other federal science agencies, the budget proposal does not live up to its advertisement. The Administration is asking us to believe this budget advances science and innovation. If the Administration's EPA budget proposal for retreating funding is enacted, the only things that will be advancing are pollution and public health problems.