5. RESEARCH AND DEVELOPMENT

During the past five years the U.S. economy has shown remarkable resilience and vitality. Economic growth is now steady and strong. Incomes are rising, household net worth is at an all-time high, and unemployment is low and continues to decline. Meanwhile inflation remains in check, largely because of record sustained productivity growth—averaging a 3.4 percent annual rate for the past half-decade.

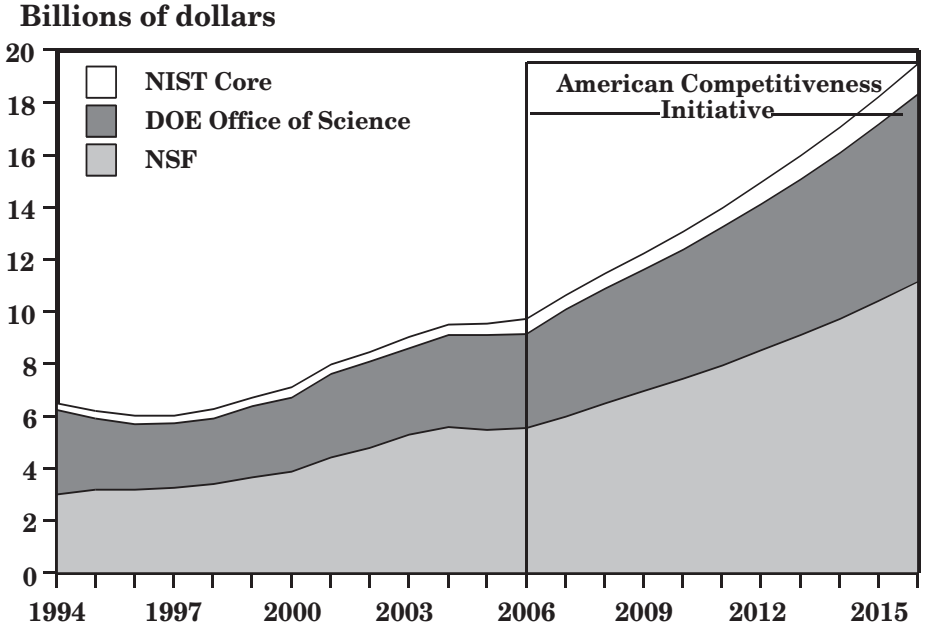
Our prosperity is no accident. The U.S. economy owes its strength in large measure to its willingness to build innovation capacity through the creation and growth of a world-class science and technology research enterprise and a high-quality scientific and technical education infrastructure. The relationship between support for science and economic growth is well documented. Investments in basic research lead to knowledge breakthroughs that fuel innovation, drive productivity, grow the economy, and change the way we see the world. Economists estimate that approximately half of post-World War II economic growth is directly due to technological progress fueled by research and development (R&D).

Economic payoffs to research come in the form of process and product innovations that reduce the costs of production, lower product prices, and result in new and better products and services. Consumers ultimately benefit from less expensive, higher quality and more useful products and services, and of course from earnings accruing to innovative companies. Today's transforming technologies and most popular consumer items have deep roots in basic and applied research.

By nearly every relevant metric, the U.S. leads the world in science and technology. With only about five percent of the world's population, the U.S. employs nearly one-third of all scientists and engineers and accounts for approximately one-third of global R&D spending (more than the rest of the G-8 nations combined), and U.S. researchers publish 35 percent of global science and engineering articles.

To sustain the nation's economic competitiveness, the President has called for a long-term vision to strengthen Federal support for the Nation's innovation enterprise in an integrated package of investments and policies in the American Competitiveness Initiative.

Chart 5-1. American Competitiveness Initiative Research



I. THE AMERICAN COMPETITIVENESS INITIATIVE

The centerpiece of the American Competitiveness Initiative in the President's 2007 Budget is a strong commitment to invest in basic research areas that advance knowledge and technologies used by scientists in nearly every field. Through the American Competitiveness Initiative, President Bush plans to double, over 10 years, investment in innovation-enabling research at three Federal agencies—the National Science Foundation (NSF), the Department of Energy's (DOE's) Office of Science, and the Department of Commerce's National Institute of Science and Technology (NIST) laboratories.

In 2007, the first year of the American Competitiveness Initiative, President Bush proposes $10.7 billion total for these agencies, an overall funding increase of $910 million, or 9.3 percent, above 2006. To reach doubling within ten years, overall annual increases will average roughly seven percent.

Research Agencies in the American Competitiveness Initiative

The National Science Foundation is the primary source of support for academic research in the physical sciences, funding potentially transformative basic research in areas such as nanotechnology, advanced networking and information technology, physics, chemistry, materials science, mathematics, and engineering. It is well regarded for management of funding through a competitive, peer-reviewed process. The increase in NSF funding is expected to support as many as 500 more research grants in 2007 and 6,400 additional researchers, students, post-doctoral fellows and technicians contributing to the innovation enterprise.

The Department of Energy's Office of Science supports grants and infrastructure for a wide range of basic research related to economically significant innovations including nanotechnology, biotechnology, high-end computing and advanced networking, and energy technologies. In addition to supporting 2,600 (10 percent) more researchers in 2007 than in 2006, the initiative provides for the construction of a number of cutting-edge scientific research tools with direct implications for economically-relevant R&D, including the world's most powerful civilian supercomputer and an x-ray light source user facility with world-leading capabilities to study materials, chemicals, and biological matter at the scale of an individual atom.

The Department of Commerce's National Institute of Standards and Technology is a high-leverage Federal research agency that supports economically significant innovations such as new materials and processes, electronics, computing and information technologies, advanced manufacturing integration, biotechnology, new energy sources such as hydrogen, and nanotechnology. NIST also plays a critical role in supporting standards development activities that are used by industry and government agencies.

II. IMPROVING THE PERFORMANCE OF R&D PROGRAMS

R&D is critically important for keeping our Nation economically competitive, and it will help solve the challenges we face in health, defense, energy, and the environment. Therefore, every Federal R&D dollar must be invested as effectively as possible.

R&D Investment Criteria

The Administration continues to improve the effectiveness of the Federal Government's investments in R&D by applying transparent investment criteria in analyses that inform recommendations for program funding and management. R&D performance assessment must be done with care. Research often leads scientists and engineers down unpredictable pathways with unpredictable results. This outcome can require special consideration when measuring an R&D program's performance against its initial goals.

With this in mind, the Administration is improving methods for setting priorities based on expected results, and is asking agencies to apply specific criteria that programs or projects must meet to be started or continued and supply clear milestones for gauging progress and improved metrics for assessing results.

As directed by the President's Management Agenda, the R&D Investment Criteria accommodate the wide range of R&D activities, from basic research to development and demonstration programs, by addressing three fundamental aspects of R&D:

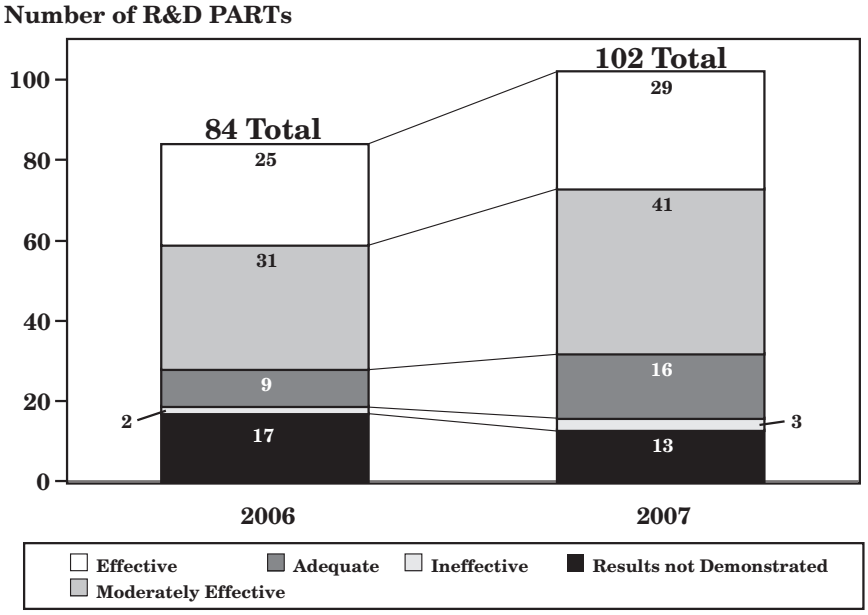
- *Relevance*—Programs must be able to articulate *why* they are important, relevant, and appropriate for Federal investment;
- *Quality*—Programs must justify *how* funds will be allocated to ensure quality; and
- *Performance*—Programs must be able to monitor and document *how well* the investments are performing.

In addition, R&D projects and programs relevant to industry are expected to apply criteria to determine the appropriateness of the public investment, enable comparisons of proposed and demonstrated benefits, and provide meaningful decision points for completing or transitioning the activity to the private sector.

As part of the President's Management Agenda's Budget and Performance Integration initiative, the Administration uses the Program Assessment Rating Tool (PART) to consistently assess the effectiveness of programs. A section of the PART specifically addresses the assessment of R&D program management and performance and is aligned with the R&D Investment criteria. In the last four years, agencies completed 795 PART assessments, of which 102 were for R&D programs. The results of these PART assessments may be found on the web at *www.whitehouse.gov/omb/part/*
.

Performance assessments help policy makers identify those programs that are the most effective and worthy of funding; however, the Administration does not allocate funding levels and initiate management reforms strictly by formula or based solely on PART results. For instance, funding may be reduced for Effective programs that have achieved what they set out to do, and Ineffective programs might receive more money if it is clear it would help them become more effective. The PART provides information that leads to more informed decisions.

Chart 5-2. Scores of R&D PART Assessments



R&D agencies will continue to integrate the R&D Criteria more meaningfully into the budget formulation process in the coming year. Based on lessons learned and other feedback from experts and stakeholders, the Administration will continue to improve the R&D Investment Criteria and their implementation to achieve more effective management of R&D programs and better-informed budget-allocation decisions.

President's Management Agenda Initiative

Research and Development Investment Criteria

FY 2006, Quarter 1 Status: RED, Progress: YELLOW

The initiative's red status score reflects the limited success many agencies have had in the Government-wide implementation of the initiative. The yellow progress score indicates that the initiative maintains momentum, as more R&D agencies use the criteria to assess their programs. All of the top 13 R&D agencies are using the R&D PART to assess their programs this year.

Research Earmarks

The Administration strongly supports awarding research funds based on merit review through a competitive process refereed by scientists. Such a system has the best prospects for ensuring that the top research is supported. Research earmarks—in general the assignment of money during the legislative process for use by a specific organization or project—are counter to a merit-based competitive selection process. Earmarks signal to potential investigators that there is an acceptable alternative to creating quality research proposals for merit-based consideration. Such an alternative can be an ineffective use of taxpayer funds.

Unfortunately, the practice of earmarking funds to colleges, universities, and other entities for specific research projects has expanded dramatically in recent years. The American Association for the Advancement of Science (AAAS) recently estimated that R&D earmarks total $2.4 billion in 2006, an increase of 13 percent over the Association's 2005 estimate. The AAAS uses a relatively narrow definition of an R&D earmark. Other organizations have estimated even higher levels of R&D earmarking.

Some argue that earmarks help spread the research money to states or institutions that would receive less research funding through other means. *The Chronicle of Higher Education* has reported that this is not the main role earmarks play. Often only a minor portion of academic earmark funding goes to the states with the smallest shares of Federal research funds.

Some proponents of earmarking assert that earmarks provide a means of funding unique projects that would not be recognized by the conventional peer-review process. To address this concern, a number of research agencies have procedures and programs to reward "out-of-the-box" thinking. Within the Department of Defense (DOD), the Defense Advanced Research Projects Agency seeks out high-risk, high-payoff scientific proposals, and program managers at the NSF set aside a share of funding for higher-risk projects in which they see high potential.

Earmarks that are outside of an agency's mission can detract from an efficient and effective Federal effort on behalf of taxpayers. For instance, the Congress directed DOD to fund research on a wide range of diseases including ovarian cancer, prostate cancer, diabetes, leukemia, and childhood cancer. Congressional adds in DOD's budget for medical research projects totals about $900 million in 2006 alone. While research on these diseases is very important, it is generally not unique to the U.S. military and can be better selected, carried out and coordinated within civil medical research agencies, without disruption to the military mission. At the same time, intrusion of earmarks into the peer-review processes of civilian medical research agencies would have a significant detrimental impact on funding the most important and promising research.

Earmarks that divert funding from a merit-based process will undermine America's research productivity. The Administration commends Congress for taking measures to protect NSF and the National Institutes of Health from this practice, which is a practice that should be followed throughout the R&D programs.

III. PRIORITIES FOR FEDERAL RESEARCH AND DEVELOPMENT

The 2007 Budget requests $137 billion for Federal R&D funding, which targets key research investments within agencies such as NSF, the DOE's Office of Science, and the Department of Commerce's National Institute of Standards and Technology laboratories. (Table 5–1 provides details by agency).

The "Federal Science and Technology" (FS&T) budget (shown in Table 5–2) highlights the creation of new knowledge and technologies more consistently and accurately than overall R&D data collection. The FS&T budget emphasizes research; does not count funding for defense development, testing, and evaluation; and totals less than half of Federal R&D spending. The 2007 Budget requests $60 billion for FS&T.

Multi-Agency R&D Priorities

The 2007 Budget targets important research investments that must be coordinated across multiple agencies. Three of these multi-agency initiatives—nanotechnology, information technology R&D, and climate change science—are coordinated by three separate dedicated offices to ensure unified strategic planning and implementation. The Administration is strengthening interagency coordination for other priority areas—such as improving cybersecurity. The Administration will continue to analyze other areas of critical need that could benefit in the future from improved focus and coordination among agencies.

Combating Terrorism R&D: Significant advances in securing the homeland and winning the war on terror have been made over the past few years through the focused application of the Nation's science and technology capability. Challenges remain, however, a number of which are being addressed through multi-agency research efforts that are coordinated through the National Science and Technology Council (NSTC) and other inter-agency fora.

In 2005, multi-agency R&D funding efforts made significant progress towards increasing the security of the homeland. A key example is the formation of the Domestic Nuclear Detection Office (DNDO). DNDO has the primary responsibility for developing a comprehensive system to detect and mitigate any attempt to illicitly import, assemble or transport a nuclear explosive device or its components into the U.S. To accomplish this mission, DNDO coordinates and draws upon the R&D expertise of key departments and agencies. An interagency group led by the Office of Science and Technology Policy has continued to support these and other related efforts by generating a long-term nuclear secu-

rity R&D vision and roadmap. In another example, interagency research programs such as the Face Recognition Grand Challenge are advancing core biometrics technologies and enhancing our understanding of the critical nexus between technical and privacy considerations.

The 2007 Budget provides continued support for these and many other homeland security related research areas, including R&D aimed at: finding and applying quick and cost-effective decontamination capabilities following a biological, chemical, nuclear or radiological incident; strengthening predictive modeling capabilities to augment our ability to assess the rate of geographic spread of infectious diseases or chemical agents or predict the impact of key policy decisions on factors affecting disease transmission; enhancing the safety of the Nation's food supply and agricultural systems through research directed at the epidemiology and ecology of emerging plant and animal diseases, and the development of more effective vaccine and diagnostic technologies; and enhancing cyber security through the Networking and Information Technology R&D program.

Networking and Information Technology R&D: The Budget provides $3 billion for the multi-agency Networking and Information Technology Research and Development (NITRD) Program, which plans and coordinates agency research efforts in high-end computing systems, large-scale networking, software development, high-confidence systems, information management, cyber security, and other information technologies. The agencies involved in this program coordinate efforts to accelerate research advancement in information technology, upon which every economic sector now depends.

In 2005, agencies participating in high-end computing R&D continued to make significant progress in implementing the recommendations contained in the Federal Plan for High-End Computing. The 2007 Budget provides for substantially increased activities in Leadership Class Computing by both DOE and NSF, one of the priorities contained in the Federal Plan. Relevant agencies will continue to conduct research in scalable systems software and applications to ensure that Federal investments in high-end computing achieve maximal impact.

Participating agencies will broaden their R&D activities in cyber security and information assurance, continuing to emphasize interagency coordination. For example, the Interagency Working Group (IWG) that coordinates R&D on information technology infrastructure protection was incorporated as part of the NITRD program in 2005, strengthening the connection between cyber security R&D and overall infrastructure protection. After completion of the Federal Plan for Cyber Security and Information Assurance R&D, the IWG will develop a roadmap for addressing any identified R&D gaps. Reports and general information about NITRD are available at *www.nitrd.gov/*.

Nanotechnology R&D: The Budget provides $1 billion for the multi-agency National Nanotechnology Initiative (NNI). The NNI focuses on R&D that creates materials, devices, and systems that exploit the fundamentally distinct properties of matter as it is manipulated at the atomic and molecular levels. The results of NNI-supported R&D are already leading to breakthroughs in disease detection and treatment, manufacturing at the nanoscale level, environmental monitoring and protection, energy production and storage, and creating electronic devices that have even greater capabilities than those available today.

Guided by the NNI, participating agencies will continue to focus on fundamental and applied research through investigator-led activities, multidisciplinary centers of excellence, education and training of nanotechnology workers, and infrastructure development, including user facilities and networks that are broadly available to researchers from across the scientific research community. In addition, agencies continue to maintain a focus on the responsible development of nanotechnology, with attention to the human and environmental health impacts, as well as ethical, legal, and other societal issues. Reports and general information about the NNI are available at *www.nano.gov/*.

Climate Change R&D: The 2007 Budget for the Climate Change Science Program (CCSP) continues to support the implementation of the CCSP Strategic Plan, which was released in July 2003. The 13 departments and agencies that participate in CCSP coordinate preparation of the budget and program implementation. During 2007, CCSP will continue research into important scientific uncertainties and preparation of a series of *Synthesis and Assessment* reports. The program expects to receive input from the National Research Council under the terms of a continuing advisory agreement. CCSP will continue to track deliverables and milestones for each of its programs in order to assess overall performance. Additional detail on individual agency activities will be provided in the Administration's 2007 edition of *Our Changing Planet.* Reports and general information about CCSP are available on the program's website: *www.climatescience.gov/*.

The Climate Change Technology Program (CCTP) continues to provide strategic direction and planning to help coordinate and prioritize activities within the portfolio of Federally funded climate change technology R&D consistent with the President's National Climate Change Technology Initiative (NCCTI). In 2005, the CCTP published a Vision and Framework for Strategy and Planning and released a draft Strategic Plan for review by the scientific community and the public. In 2006, the CCTP will address the nearly 300 comments received and publish a final Strategic Plan. The CCTP has also identified within its portfolio a subset of NCCTI priority activities, defined as discrete R&D activities that address technological challenges, which, if solved, could advance technologies with the potential to dramatically reduce, avoid, or sequester greenhouse gas emissions. Reports and general information about the CCTP are available on the program's website: *www.climatetechnology.gov/*.

The CCSP and CCTP will coordinate implementation of relevant climate change provisions in the 2005 Energy Policy Act as appropriate.

Hydrogen R&D: In 2005, the Hydrogen R&D Interagency Task Force led interagency coordination in hydrogen-related manufacturing and innovation, safety, codes and standards, and fundamental research on fuel cells, hydrogen production, and hydrogen storage. The Task Force established a web portal (*www.hydrogen.gov*) for hydrogen and fuel cell information. Additionally, the Task Force works with the International Partnership for the Hydrogen Economy, which coordinates hydrogen research among 15 nations representing two thirds of global energy consumption.

DOE will continue the President's Hydrogen Fuel Initiative to accelerate the worldwide availability and affordability of hydrogen-powered fuel cell vehicles. The initiative, which includes a 54-percent increase in targeted basic research investments in 2007, focuses on research to advance hydrogen production, storage, and infrastructure. The Initiative complements the Department's FreedomCAR Partnership with the auto industry, which is aimed at developing viable hydrogen fuel cell vehicle technology. To keep FreedomCAR on track, it will be essential that Congress refrain from earkmarking this program.

Stimulating Private Investment

Along with direct spending on R&D, the Federal Government has sought to stimulate private R&D investment through incentives in the Internal Revenue Code. A long-standing credit that expired at the end of 2005 provided a 20-percent tax credit for private research and experimentation expenditures above a certain base amount. The Administration proposes extending the Research and Experimentation tax credit starting 2006 and making it permanent. The proposed extension will cost $33.4 billion over the period from 2007 to 2011. In addition, a permanent tax provision lets companies deduct, up front, the costs of certain kinds of research and experimentation, rather than capitalize these costs. Also, equipment used for research benefits from relatively rapid tax depreciation allowance.

IV. FEDERAL R&D DATA

Federal R&D Funding

R&D is the collection of efforts directed towards gaining greater knowledge or understanding and applying knowledge toward the production of useful materials, devices, and methods. R&D investments can be characterized as basic research, applied research, development, R&D equipment, or R&D facilities, and the Office of Management and Budget has used those or similar categories in its collection of R&D data since 1949.

Basic research is defined as systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind.

Applied research is systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.

Development is systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

Research and development equipment includes acquisition or design and production of movable equipment, such as spectrometers, microscopes, detectors, and other instruments.

Research and development facilities include the acquisition, design, and construction of, or major repairs or alterations to, all physical facilities for use in R&D activities. Facilities include land, buildings, and fixed capital equipment, regardless of whether the facilities are to be used by the Government or by a private organization, and regardless of where title to the property may rest. This category includes such fixed facilities as reactors, wind tunnels, and particle accelerators.

There are over twenty Federal agencies that fund R&D in the U.S. The nature of the R&D that these agencies fund depends on the mission of each agency and on the role of R&D in accomplishing it. Table 5–1 shows agency-by-agency spending on basic and applied research, development, and R&D equipment and facilities.

Table 5–1. FEDERAL RESEARCH AND DEVELOPMENT

(Budget authority, dollar amounts in millions)

	2005 Actual	2006 Estimate	2007 Proposed	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
By Agency					
Defense	69,743	71,946	74,234	2,288	3%
Health and Human Services	28,687	28,767	28,737	–30	0%
NASA	10,197	11,394	12,245	851	7%
Energy	8,596	8,563	9,158	595	7%
National Science Foundation	4,138	4,199	4,548	349	8%
Agriculture	2,410	2,411	2,012	–399	–17%
Homeland Security	1,182	1,484	1,508	24	2%
Commerce	1,133	1,079	1,065	–14	–1%
Veteran Affairs	742	765	765	.....	.....
Interior	622	637	600	–37	–6%
Transportation	549	704	557	–147	–21%
Environmental Protection Agency	640	600	557	–43	–7%
Other	1,235	1,232	1,218	–14	–1%
Total	**129,874**	**133,781**	**137,204**	**3,423**	**3%**
Basic Research					
Defense	1,485	1,470	1,422	–48	–3%
Health and Human Services	15,752	15,996	16,037	41	0%
NASA	2,386	2,305	2,226	–79	–3%
Energy	2,937	2,987	3,315	328	11%
National Science Foundation	3,427	3,478	3,687	209	6%
Agriculture	838	846	771	–75	–9%
Homeland Security	55	95	49	–46	–48%
Commerce	53	56	87	31	55%
Veteran Affairs	297	306	306	.....	.....
Interior	36	42	40	–2	–5%
Transportation	33	39	39	.....	.....
Environmental Protection Agency	110	101	94	–7	–7%
Other	155	169	174	5	3%
Subtotal	**27,564**	**27,890**	**28,247**	**357**	**1%**
Applied Research					
Defense	4,787	5,169	4,478	–691	–13%
Health and Human Services	12,573	12,605	12,540	–65	–1%
NASA	1,957	1,759	1,118	–641	–36%
Energy	2,770	2,730	2,723	–7	0%
National Science Foundation	332	319	379	60	19%
Agriculture	1,124	1,157	974	–183	–16%
Homeland Security	842	1,093	943	–150	–14%
Commerce	813	779	769	–10	–1%
Veteran Affairs	401	414	414	.....	.....
Interior	533	545	510	–35	–6%
Transportation	304	392	305	–87	–22%
Environmental Protection Agency	415	387	359	–28	–7%
Other	587	591	594	3	1%
Subtotal	**27,438**	**27,940**	**26,106**	**–1,834**	**–7%**
Development					
Defense	63,336	65,221	68,315	3,094	5%
Health and Human Services	57	37	37	.....	.....
NASA	3,494	5,174	6,755	1,581	31%
Energy	1,759	1,804	1,990	186	10%
National Science Foundation	.....	.....	.....	.....	N/A
Agriculture	156	164	155	–9	–5%
Homeland Security	133	195	335	140	72%
Commerce	148	118	94	–24	–20%
Veteran Affairs	44	45	45	.....	.....
Interior	50	47	47	.....	.....
Transportation	194	255	194	–61	–24%
Environmental Protection Agency	115	112	104	–8	–7%
Other	461	424	409	–15	–4%
Subtotal	**69,947**	**73,596**	**78,480**	**4,884**	**7%**
Facilities and Equipment					
Defense	135	86	19	–67	–78%
Health and Human Services	305	129	123	–6	–5%

Table 5–1. FEDERAL RESEARCH AND DEVELOPMENT—Continued

(Budget authority, dollar amounts in millions)

	2005 Actual	2006 Estimate	2007 Proposed	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
NASA	2,360	2,156	2,146	–10	0%
Energy	1,130	1,042	1,130	88	8%
National Science Foundation	379	402	482	80	20%
Agriculture	292	244	112	–132	–54%
Homeland Security	152	101	181	80	79%
Commerce	119	126	115	–11	–9%
Transportation	.....	.....	.....	.....	N/A
Veterans Affairs	3	3	3	.....	N/A
Interior	18	18	19	1	6%
Environmental Protection Agency	.....	.....	.....	.....	N/A
Other	32	48	41	–7	–15%
Subtotal	**4,925**	**4,355**	**4,371**	**16**	**0%**

Table 5–2. FEDERAL SCIENCE AND TECHNOLOGY BUDGET

(Budget authority, dollar amounts in millions)

	2005 Actual	2006 Estimate	2007 Proposed	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
By Agency					
National Institutes of Health [1]	**28,444**	**28,410**	**28,428**	**18**	**0%**
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 [2]	1,664	1,542	1,019	–523	–34%
Energy [3]	**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 [4]	976	896	933	37	4%
Fossil Energy [5]	572	592	465	–127	–21%
National Science Foundation	**5,472**	**5,581**	**6,020**	**439**	**8%**
Defense	**6,273**	**6,628**	**5,900**	**–728**	**–11%**
Basic Research	1,485	1,470	1,422	–48	–3%
Applied Research	4,788	5,158	4,478	–680	–13%
Agriculture	**2,111**	**2,160**	**1,921**	**–239**	**–11%**
CSREES Research and Education [6]	659	675	569	–106	–16%
Economic Research Service	74	75	83	8	11%
Agricultural Research Service [7]	1,102	1,131	1,001	–130	–11%
Forest Service: Forest and Rangeland Research	276	279	268	–11	–4%
Interior (USGS)	**935**	**962**	**945**	**–17**	**–2%**
Commerce	**855**	**938**	**873**	**–65**	**–7%**
NOAA: Oceanic & Atmospheric Research	404	370	338	–32	–9%
NIST Intramural Research and Facilities	451	568	535	–33	–6%
Environmental Protection Agency [8]	**780**	**761**	**816**	**55**	**7%**
Veterans Affairs [9]	**743**	**765**	**765**	.....	.....
Transportation	**542**	**567**	**598**	**31**	**5%**
Highway research: Federal Highway Administration	411	430	468	38	9%
Federal Aviation Administration: Research, Engineering, and Development	131	137	130	–7	–5%
Education	**355**	**342**	**342**	.....	.....
Special Education Research and Innovation	83	72	72	.....	.....
National Institute on Disability and Rehabilitation Research	108	107	107	.....	.....
Research, Development, and Dissemination [10]	164	163	163	.....	.....
Total	**60,280**	**60,430**	**59,836**	**–594**	**–1%**

[1] In 2006, the Department of Health and Human Services will allocate an additional $18 million to NIH for Pandemic Influenza research from the Department of Defense Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and Pandemic Influenza Act, 2006.

[2] Includes Exploration Systems Research and Technology, Human Systems Research and Technology, Innovative Partnerships, and Prometheus Nuclear Systems and Technology.

[3] Data do not reflect actual transfers to Science Programs from other Department of Energy R&D programs to support the Small Business Innovation Research and the Small Business Technology Transfer programs.

[4] In 2006, Congress merged the Energy Supply and Energy Conservation accounts. The amount reported under the new Energy Efficiency and Renewable Energy Resources line within this account reflects a combination of the former Energy Conservation line item (excluding Weatherization and State grants) and the Renewables line item.

[5] Excludes funding for the Alaska Natural Gas Pipeline project.

[6] Includes the appropriation of earnings from the Native American Endowment Fund, but not the appropriation to the Endowment's principal.

[7] Excludes building and facilities. Also excludes the transfer of $6 million from the account.

[8] Science and Technology, plus superfund transfer.

[9] Includes the medical care and prosthetic research appropriation and VA medical care support transfer to research.

[10] Does not include funding for Regional Educational Labs.

Table 5–3. AGENCY DETAIL OF SELECTED INTERAGENCY R&D EFFORTS

(Budget authority, dollar amounts in millions)

	2005 Actual	2006 Estimate	2007 Proposed	Dollar Change: 2006 to 2007	Percent Change: 2006 to 2007
Networking and Information Technology R&D					
Defense [1]	775	1,128	1,018	–110	–10%
National Science Foundation	811	810	904	94	12%
Health and Human Services [2]	571	551	541	–10	–2%
Energy	377	384	473	89	23%
National Aeronautics and Space Administration	163	78	82	4	5%
Commerce	60	60	65	5	8%
Environmental Protection Agency	4	6	6	.....	.....
Total	**2,761**	**3,017**	**3,089**	**72**	**2%**
National Nanotechnology Initiative					
National Science Foundation	335	344	373	29	8%
Defense [1]	352	435	345	–90	–21%
Energy	208	207	258	51	25%
Health and Human Services [3]	168	175	173	–2	–1%
Commerce (NIST)	79	76	86	10	13%
National Aeronautics and Space Administration	45	50	25	–25	–50%
Environmental Protection Agency	7	5	9	4	80%
Agriculture	3	5	5	.....	.....
Justice	2	1	1	0	0%
Homeland Security	1	1	.....	–1	–100%
Total	**1,200**	**1,299**	**1,275**	**–24**	**–2%**
Climate Change Science Program					
National Aeronautics and Space Administration	1,237	1,043	1,025	–18	–2%
National Science Foundation	198	197	205	8	4%
Commerce (NOAA)	124	163	186	23	14%
Energy	127	131	126	–5	–4%
Agriculture	62	62	61	–1	–2%
National Institutes of Health	57	57	57	.....	.....
Interior (USGS)	27	27	26	–1	–4%
Environmental Protection Agency	20	19	17	–2	–11%
Smithsonian	6	6	6	.....	.....
U.S. Agency for International Development	6	6	6	.....	.....
Transportation	3	2	2	.....	.....
State	1	.....	.....	.....	.....
Total	**1,868**	**1,713**	**1,717**	**4**	**0%**
Subtotal, CCRI (included in CCSP total)	**211**	**200**	**200**	**0**	**0%**

[1] In 2005, DOD reviewed its contributions to NITRD and NNI and produced a more comprehensive and accurate accounting of the Department's funding of those activities. Accordingly, the funding levels shown in this table are larger than those shown in previous years.
[2] Includes funds from offsetting collections for the Agency for Healthcare Research and Quality.
[3] Includes funds from both the National Institutes of Health and National Institute of Occupational Safety and Health.