Science
Office of Science

Overview

Appropriation Summary by Program

(dollars in thousands)

	FY 2006 Current Appropriation	FY 2007 Request	FY 2007 CR	FY 2008 Request
Science				
Basic Energy Sciences	1,110,148	1,420,980	1,197,084	1,498,497
Advanced Scientific Computing Research	228,382	318,654	234,514	340,198
Biological and Environmental Research	564,077	510,263	461,685	531,897
High Energy Physics	698,238	775,099	731,786	782,238
Nuclear Physics	357,756	454,060	396,166	471,319
Fusion Energy Sciences	280,683	318,950	305,151	427,850
Science Laboratories Infrastructure	41,684	50,888	41,986	78,956
Science Program Direction	159,118	170,877	161,469	184,934
Workforce Development for Teachers and Scientists	7,120	10,952	7,128	11,000
Small Business Innovation Research/Technology Transfer	116,813[a]	—	—	—
Safeguards and Security	73,630	76,592	73,636	76,592
Subtotal, Science	3,637,649	4,107,315	3,610,605	4,403,481
Less security charge for reimbursable work	-5,605	-5,605	-5,605	-5,605
Total, Science	3,632,044[b]	4,101,710	3,605,000	4,397,876
FTEs	949	1,014	989	1,058

Preface

As part of the second year of the President's American Competitiveness Initiative, the Office of Science (SC) request for Fiscal Year (FY) 2008 is $4,397,876,000; an increase of $296,166,000, or 7.2%, over the FY 2007 request. The request funds investments in basic research that are important both to the future economic competitiveness of the United States and to the success of Department of Energy (DOE) missions in national security and energy security; advancing the frontiers of knowledge in the physical sciences and areas of biological, environmental, and computational sciences and providing world-class research facilities for the Nation's science enterprise.

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[a] Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) includes $81,160,000 reprogrammed within Science plus $35,653,000 transferred from other DOE organizations.
[b] Total is reduced by $36,327,000 for a rescission in accordance with P.L. 109-148, the Emergency Supplemental Act to Address Hurricanes in the Gulf of Mexico and Pandemic Influenza, 2006

SC provides support for the basic research and scientific and technological capabilities that underpin the Department's technically complex missions. Part of this support is in the form of large-scale scientific user facilities. The suite of forefront facilities includes the world's highest energy proton accelerator (Fermi National Accelerator Laboratory's Tevatron) and the world's forefront neutron scattering facility (the Spallation Neutron Source at Oak Ridge National Laboratory), which began operations in 2006. SC facilities represent a continuum of unique capabilities that meet the needs of a diverse set of over 20,000 researchers each year. For example, the National Synchrotron Light Source (NSLS) began ultraviolet operations in 1982 and initially primarily enabled physical science research. However, through the 1990's the numbers of researchers from the life sciences rapidly grew as the characteristics of this facility better suited the needs of researchers who study protein structure. Today, the NSLS is playing a major role in the Protein Structure Initiative, a national effort to find the three-dimensional shapes of a wide range of proteins, while also providing a suite of beamlines to the soon to be available Center for Functional Nanomaterials and a host of other research efforts. The Department's five Nanoscale Science Research Centers and the computational resources at the National Energy Research Scientific Computing Center (NERSC) and Leadership Computing Facilities offer technological capabilities to the research community that are unmatched anywhere in the world.

The centerpiece of the American Competitiveness Initiative is President Bush's strong commitment to double investments over 10 years in key Federal agencies that support basic research programs in the physical sciences and engineering: SC, the National Science Foundation, and the Department of Commerce's National Institute for Standards and Technology core activities. While the American Competitiveness Initiative encompasses all SC funding, SC also supports other Presidential initiatives and priorities, such as the Advanced Energy Initiative, the Hydrogen Fuel Initiative, the National Nanotechnology Initiative, Networking and Information Technology Research and Development, the Climate Change Science Program, and ITER, an international nuclear fusion project.

Within the Science appropriation, SC has ten programs: Basic Energy Sciences (BES), Advanced Scientific Computing Research (ASCR), Biological and Environmental Research (BER), High Energy Physics (HEP), Nuclear Physics (NP), Fusion Energy Sciences (FES), Science Laboratories Infrastructure (SLI), Science Program Direction (SCPD), Workforce Development for Teachers and Scientists (WDTS), and Safeguards and Security (S&S).

Mission

SC's mission is to deliver the remarkable discoveries and scientific tools that transform our understanding of energy and matter and advance the national, economic, and energy security of the United States.

Benefits

SC supports basic research and technological capabilities that drive scientific discovery and innovation in the U.S. and underpin the Department's missions in energy, the environment, and national security. Important contributions to meeting DOE's applied mission needs are expected through developments in materials and chemical sciences, especially at the nanoscale, such as strong, tough, ductile, lightweight materials with low failure rates that will improve the fuel efficiency and innovative systems for harvesting light and storing energy that will dramatically improve solar energy conversion. The science, technology, and knowledge base developed from the Genomics: GTL program on understanding and harnessing the capabilities of microbial and plant systems could lead to cost-effective, renewable energy production, greater energy security, clean-up of legacy wastes, and tools for modifying concentrations of atmospheric CO_2 or for evaluating environmental impacts.

Computational modeling and simulation can improve our understanding of, and sometimes predict the behavior of complex systems and develop solutions to research problems that are insoluble by traditional or experimental approaches, too hazardous to study in the laboratory, or too time-consuming or expensive to solve by traditional means, including challenges such as understanding the fundamental processes associated with fluid flow and turbulence, chemical reactivity, climate modeling and prediction, molecular structure and processes in living cells, subsurface biogeochemistry, and astrophysics. Fusion, a fundamentally new source of energy under development, has the potential to provide a significant fraction of the world's energy by the end of the century. The international ITER project is a bold next step in fusion research, designed to produce, control, and sustain a burning plasma. Through investments in high-energy physics and nuclear physics, SC has historically provided the Nation with fundamental knowledge about the laws of nature as they apply to the basic constituents of matter and the forces between them. These investments in high energy and nuclear physics have enabled the U.S. to maintain a leading role in the development of technologies in areas such as nuclear energy, materials, semiconductors, nuclear medicine, and national security, and technologies such as the accelerator technologies leading to high-power x-ray light sources and advanced imaging techniques have been important to other fields of science.

Strategic Themes and Goals and GPRA Unit Program Goals

The Department's Strategic Plan identifies five Strategic Themes (one each for nuclear, energy, science, management, and environmental aspects of the mission) plus 16 Strategic Goals that tie to the Strategic Themes. Science supports the following goals:

Strategic Theme 3, Scientific Discovery and Innovation: Strengthening U.S. scientific discovery, economic competitiveness, and improving quality of life through innovations in science and technology.

Strategic Goal 3.1, Scientific Breakthroughs: Achieve the major scientific discoveries that will drive U.S. competitiveness; inspire America; and revolutionize our approaches to the Nation's energy, national security, and environmental quality challenges.

Strategic Goal 3.2, Foundations of Science: Deliver the scientific facilities, train the next generation of scientists and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.

The programs funded by the Science appropriation have the following six GPRA Unit Program Goals which contribute to the Strategic Goals in the "goal cascade":

GPRA Unit Program Goal 3.1/2.50.00: Advance the Basic Science for Energy Independence—Provide the scientific knowledge and tools to achieve energy independence, securing U.S. leadership and essential breakthroughs in basic energy sciences.

GPRA Unit Program Goal 3.1/2.51.00: Deliver Computing for Accelerated Progress in Science—Deliver forefront computational and networking capabilities to scientists nationwide that enable them to extend the frontiers of science, answering critical questions that range from the function of living cells to the power of fusion energy.

GPRA Unit Program Goal 3.1/2.48.00: Harness the Power of Our Living World—Provide the biological and environmental discoveries necessary to clean and protect our environment, offer new energy alternatives, and fundamentally change the nature of medical care to improve human health.

GPRA Unit Program Goal 3.1/2.46.00: Explore the Fundamental Interactions of Energy, Matter, Time, and Space—Understand the unification of fundamental particles and forces and the mysterious forms of unseen energy and matter that dominate the universe, search for possible new dimensions of space, and investigate the nature of time itself.

GPRA Unit Program Goal 3.1/2.47.00: Explore Nuclear Matter, from Quarks to Stars—Understand the evolution and structure of nuclear matter, from the smallest building blocks, quarks, and gluons; to the stable elements in the Universe created by stars; to unique isotopes created in the laboratory that exist at the limits of stability and possess radically different properties from known matter.

GPRA Unit Program Goal 3.1/2.49.00: Bring the Power of the Stars to Earth—Answer the key scientific questions and overcome enormous technical challenges to harness the power that fuels our sun.

Contribution to Strategic Goals

Six of the programs within the Science appropriation directly contribute to Strategic Goals 3.1 and 3.2 as follows:

Basic Energy Sciences (BES) contributes to Strategic Goals 3.1 and 3.2 by producing advances in the core disciplines of basic energy sciences—materials sciences and engineering, chemistry, geosciences, and biosciences. The scientific discoveries at the frontiers of these disciplines impact energy resources, production, conservation, efficiency, and the mitigation of adverse impacts of energy production and use—discoveries that will help accelerate progress toward long-term energy independence, economic growth, and a sustainable environment. BES also provides the Nation's researchers with world-class research facilities, including reactor and accelerator-based neutron sources, light sources including the X-ray free electron laser currently under construction, and electron beam micro-characterization centers. These facilities provide important capabilities for imaging and characterizing materials of all kinds from metals, alloys, and ceramics to semiconductors and fragile biological samples; and for studying the chemical transformation of materials. Construction of the Spallation Neutron Source was completed in FY 2006 and will enter its second full year of operation in FY 2008. Major items of equipment are supported in FY 2008 for the fabrication of approximately nine to ten additional instruments for the SNS. All five Nanoscale Science Research Centers will be operational in FY 2008—the Center for Nanophase Materials Sciences at Oak Ridge National Laboratory, the Molecular Foundry at Lawrence Berkeley National Laboratory, the Center for Nanoscale Materials at Argonne National Laboratory, the Center for Integrated Nanotechnologies at Sandia National Laboratories and Los Alamos National Laboratory, and the Center for Functional Nanomaterials at Brookhaven National Laboratory. The Linac Coherent Light Source (LCLS) at SLAC will continue construction at the planned level, including partial support for the SLAC linac. The Transmission Electron Aberration Corrected Microscope project continues as a major item of equipment. Support is provided for research and development (R&D) and project engineering and design (PED) activities for the National Synchrotron Light Source–II (NSLS–II) to enable the study of material properties and functions, particularly materials at the nanoscale, at a level of detail and precision never before possible. BES will increase support for basic research for the President's Hydrogen Fuel Initiative solar energy utilization and electric-energy storage. BES also continues ongoing Scientific Discovery through Advanced Computing (SciDAC) efforts.

Advanced Scientific Computing Research (ASCR) contributes to Strategic Goals 3.1 and 3.2 by advancing fundamental mathematics and computer science research that enables simulation and prediction of complex physical, chemical, and biological systems; providing the advanced computational capabilities needed by researchers to take advantage of that understanding; and delivering the fundamental networking research and facilities that link scientists across the nation to the computing and experimental facilities. ASCR has been a leader in the computational sciences for several decades and supports research in applied mathematics, computer science, specialized algorithms, and scientific software tools that enable scientific discovery essential for research program across SC, as well as other elements of the Department. By the end of FY 2008, the Leadership Computing Facility at Argonne National Laboratory will expand to 250–500 teraflops of high performance computing capability with low electrical power needs to accelerate scientific understanding in areas that include materials science, biology, and advanced designs of nuclear reactors. The Leadership Computing Facility at Oak Ridge National Laboratory will acquire a 1 petaflop (quadrillions of processes per second) Cray Baker system in late FY 2008 to enable further scientific advancements. Delivery of the next generation of high performance resources at the National Energy Research Scientific Computing Center (NERSC) is scheduled for early FY 2007. This NERSC-5 system is expected to provide 100–150 teraflops of peak computing capacity. Expanded efforts in Applied Mathematics will support critical long term mathematical research issues relevant to petascale science, multiscale mathematics, and optimized control and risk analysis in complex systems. Expanded efforts in Computer Science will enable scientific applications to take full advantage of high-end computing systems at the Leadership Computing Facilities.

Biological and Environmental Research (BER) contributes to Strategic Goals 3.1 and 3.2 by advancing energy-related biological and environmental research in genomics and our understanding of complete biological systems, such as microbes that produce ethanol from cellulose; by developing models to predict climate over decades to centuries; by developing science-based methods for cleaning up environmental contaminants and for long-term stewardship of the sites; by providing regulators with a stronger scientific basis for developing future radiation protection standards; and by conducting limited research in medical imaging, radiotracers, and development of an artificial retina. Discoveries at these scientific frontiers may bring transformational and unconventional solutions to some of our most pressing and expensive problems in energy and the environment. BER continues the Genomics: GTL program as its top priority, employing a systems approach to biology at the interface of the biological, physical, and computational sciences for DOE's energy security and environmental mission needs. As part of the GTL program, BER will continue to support the development of two Bioenergy Research Centers to be selected and initiated in FY 2007 and will add and support a third Center in FY 2008. All three centers will conduct comprehensive, multidisciplinary research programs focused on microbes and plants to drive scientific breakthroughs that will aid in the development of cost-effective biofuels and bioenergy production. The sequencing capacity of the Production Genomics Facility will increase in FY 2008 to support the growing demand and needs of the DOE research mission. Structural Biology infrastructure and innovative research on the biological effects of low dose radiation needed for future radiation protection standards will be sustained. BER continues as a partner in the interagency Climate Change Science Program focusing on understanding the principal uncertainties of the causes and effects of climate change, including abrupt climate change, understanding the global carbon cycle, developing predictive models for climate change over decades to centuries, and supporting basic research for biological sequestration of carbon. Basic research in Environmental Remediation continues to support fundamental research at the interfaces of biology, chemistry, geology, hydrology, and physics for solutions to environmental contamination challenges, including research for the development of two new field research sites providing new opportunities to validate laboratory findings under field conditions. Support for the Environmental Molecular Sciences Laboratory continues to provide integrated experimental and technological resources to the scientific community and support for instrumentation and operation of the three Atmospheric Radiation Measurement facilities continues.

High Energy Physics (HEP) contributes to Strategic Goals 3.1 and 3.2 by advancing understanding of the basic constituents of matter, deeper symmetries in the laws of nature at high energies, and mysterious phenomena that are commonplace in the universe, such as dark energy and dark matter. Research at these frontiers of science may uncover new particles, forces, or undiscovered dimensions of space and time; explain how matter came to have mass; and reveal the underlying nature of the universe. HEP supports particle accelerators and very sensitive detectors to study fundamental particle interactions at the highest possible energies as well as non-accelerator studies of cosmic particles using experiments conducted deep underground, on mountains, or in space. HEP places a high priority on maximizing scientific data derived from the three major HEP user facilities: the Tevatron Collider and Neutrinos at the Main Injector (NuMI) beam line at Fermilab, and the B-factory at SLAC. HEP will continue to lead the world with these forefront user facilities at Fermilab and SLAC in FY 2008, but these facilities will complete their scientific missions by the end of the decade. Thus the longer-term HEP program supported by this request begins to develop new cutting-edge facilities in targeted areas (such as neutrino physics) that will establish U.S. leadership in these areas in the next decade, when the centerpiece of the world HEP program will reside at CERN (the European Organization for Nuclear Research). HEP continues to support software and computing resources for U.S. researchers participating in the Large Hadron Collider (LHC) program at the CERN laboratory as well as pre-operations and maintenance of the U.S.-built systems that are part of the LHC detectors. HEP maintains support for International Linear Collider (ILC) R&D to support a U.S. role in a comprehensive and coordinated international R&D program, should the ILC be built. The NuMI Off-axis Neutrino Appearance (NOνA) Detector, which was originally proposed as a line item construction project in FY 2007 under the generic name of Electron Neutrino Appearance (EνA) Detector, continues in FY 2008. In addition, new Major Items of Equipment beginning fabrication in FY 2008 are the Dark Energy Survey project, a small experiment to measure neutrino interactions with ordinary matter in the NuMI beam (Main Injector Experiment ν–A [MINERνA]), and U.S. contributions to the Japanese Tokai-to-Kamioka (T2K) neutrino oscillation experiment. Activities to improve the intensity of the proton beam for the ongoing neutrino program at Fermilab continue and HEP supports further R&D on superconductive radiofrequency (RF) technologies in FY 2008.

Nuclear Physics (NP) contributes to Strategic Goals 3.1 and 3.2 by supporting peer-reviewed scientific research to advance knowledge and provide insights into the nature of energy and matter, and, in particular, to investigate the fundamental forces which hold the nucleus together and determine the detailed structure and behavior of the atomic nuclei. NP builds and supports world-leading scientific facilities and state-of-the-art instruments necessary to carry out its basic research agenda of fundamental nuclear physics and training a workforce relevant to the Department’s missions for nuclear-related national security, energy, and environmental quality. NP also supports an effort in nuclear data that collects, evaluates, and disseminates nuclear physics data for basic nuclear research and for applied nuclear technologies, such as the design of next generation reactors. World-leading efforts on studies of hot, dense nuclear matter and the origin of the proton spin with beams at the Relativistic Heavy Ion Collider (RHIC) will continue, including implementation of required instrumentation to realize scientific goals. Construction of the Electron Beam Ion Source (EBIS) continues together with the National Aeronautics and Space Administration (NASA) to provide RHIC with more cost-effective, reliable operations and new research capabilities. In addition to RHIC efforts, the studies of hot, dense nuclear matter include NP contributions to enhance heavy ion capabilities of existing LHC experiments and the accompanying research program at universities and laboratories. Operations of the Continuous Electron Beam Accelerator Facility (CEBAF) are supported to provide high-energy electron beams to investigate a unique property called “confinement” that binds together the fundamental constituents of protons and neutrons, particles called quarks and gluons. The accelerator provides beams simultaneously to all three experimental halls to better understand the structure of the nucleon. Support is provided to complete project engineering and design of the 12 GeV Upgrade to CEBAF in FY 2008 as well as continue upgrade-related R&D activities. NP also continues efforts in nuclear structure/astrophysics, fundamental interactions, and neutrinos. Efforts at the Argonne Tandem Linac Accelerator System (ATLAS) and the Holifield Radioactive Ion Beam Facility (HRIBF) will be supported to focus on investigating new regions of nuclear structure, studying interactions in nuclear matter like those occurring in neutron stars, and determining the reactions that created the nuclei of the chemical elements inside stars and supernovae. R&D on rare isotope beam development, relevant for next-generation facilities in nuclear structure and astrophysics continues in FY 2008. Fabrication of the GRETINA gamma-ray tracking array, which will revolutionize gamma ray detection technology is supported in FY 2008 and will offer dramatically improved capabilities to study the structure of nuclei at ATLAS and HRIBF. The Fundamental Neutron Physics Beamline (FNPB) and neutron Electric Dipole Moment experiment under fabrication at the SNS continues and, when completed, will deliver record peak currents of cold neutrons and ultracold neutrons for studies of the fundamental properties of neutrons and search for new physics beyond the Standard Model. R&D and design activities are supported for neutrino-less Double Beta Decay experiments and funds are provided to initiate the fabrication of one of the candidate neutrino-less Double Beta Decay experiments, the Cryogenic Underground Observatory for Rare Events (CUORE), which will measure the absolute mass of the neutrino and determine whether the neutrino is its own antiparticle.

Fusion Energy Sciences (FES) contributes to Strategic Goals 3.1 and 3.2 by advancing the theoretical and experimental understanding of plasma and fusion science through its domestic research and development activities and a close collaboration with international partners on specialized facilities abroad, including ITER. In addition to supporting fundamental research into the nature of fusion plasmas, FES supports the operation of a set of unique and diversified experimental facilities. These facilities provide scientists with the means to test and extend our theoretical understanding and computer models—leading ultimately to improved predictive capabilities for fusion science. Advances in plasma physics and associated technologies will bring the U.S. closer to making fusion energy a part of the Nation’s energy solution. ITER, an experiment to study and demonstrate the scientific and technical feasibility of fusion power, is a multi-billion dollar international research project that will, if successful, move towards developing fusion’s potential as a commercially viable, clean, long-term source of energy near the middle of the century. FES continues to lead the U.S. Contributions to the ITER project and places increased emphasis on its national burning plasma program. The U.S. Contributions to the ITER project provides for the U.S. “in-kind” equipment contributions, U.S. personnel to work at the ITER site, and cash for the U.S. share of common expenses such as infrastructure, hardware assembly, installation, and contingency. The funding for ITER increases in FY 2008 to provide for procurements for fabrication of significant hardware components. Experimental research on tokamaks is continued in FY 2008, with continued emphasis on physics issues of interest to the ITER project. The DIII-D tokamak at General Atomics (a private company), will operate for 15 weeks in FY 2008 to conduct research relevant to burning plasma issues and topics of interest to the ITER project in addition to maintaining the broad scientific scope of the program. Operations at Alcator C-Mod at the Massachusetts Institute of Technology will be maintained at 15 weeks and operations at the National Spherical Torus Experiment (NSTX) at the Princeton Plasma Physics Laboratory (PPPL) will remain at 12 weeks. Fabrication of the major components of the National Compact Stellarator Experiment (NCSX) at PPPL continues and assembly of the entire device will be completed in FY 2009. FES will issue a joint solicitation in FY 2008, with the National Nuclear Security Administration (NNSA), focused on academic research in high energy density laboratory plasmas (HEDLP), which supports the Department’s programmatic goals in inertial confinement fusion science.

Funding by Strategic and GPRA Unit Program Goal

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Strategic Goals 3.1, Scientific Discovery and 3.2, Foundations of Science			
GPRA Unit Program Goal 3.1/2.50.00, Advance the Basic Science for Energy Independence (BES)	1,110,148	1,420,980	1,498,497
GPRA Unit Program Goal 3.1/2.51.00, Deliver Computing for Accelerated Progress in Science (ASCR)	228,382	318,654	340,198
GPRA Unit Program Goal 3.1/2.48.00, Harness the Power of Our Living World (BER)	564,077	510,263	531,897
GPRA Unit Program Goal 3.1/2.46.00, Explore the Fundamental Interactions of Energy, Matter, Time, and Space (HEP)	698,238	775,099	782,238
GPRA Unit Program Goal 3.1/2.47.00, Explore Nuclear Matter, from Quarks to Stars (NP)	357,756	454,060	471,319
GPRA Unit Program Goal 3.1/2.49.00, Bring the Power of the Stars to Earth (FES)	280,683	318,950	427,850
Subtotal, Strategic Goals 3.1, Scientific Discovery and 3.2, Foundations of Science	3,239,284	3,798,006	4,051,999
All Other			
Science Laboratories Infrastructure	41,684	50,888	78,956
Program Direction	159,118	170,877	184,934
Workforce Development for Teachers and Scientists	7,120	10,952	11,000
Small Business Innovation Research/Technology Transfer	116,813	—	—
Safeguards and Security	73,630	76,592	76,592
Total, All Other	398,365	309,309	351,482
Total, Strategic Goals 3.1 and 3.2 (Science)	3,637,649	4,107,315	4,403,481

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government’s portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews.

In the FY 2005 PART review, OMB assessed six SC programs: ASCR, BES, BER, FES, HEP, and NP. Program scores ranged from 82–93%. Three programs—BES, BER, and NP—were assessed “Effective.” Three programs—ASCR, FES, and HEP—were assessed “Moderately Effective.” In general the FY 2005 assessment found that these SC Programs have developed a limited number of adequate performance measures. These measures have been incorporated into this Budget Request, grant solicitations, and the performance plans of senior managers. As appropriate, they are being incorporated into the performance-based contracts of management and operating (M&O) contractors.

SC has taken steps to enhance public understanding of our complex scientific performance measures by developing a PART website (http://www.sc.doe.gov/measures/) that answers questions such as “What does this measure mean?” and “Why is it important?” The Annual Performance Targets are tracked through the Department’s Joule system and reported in the Department’s Annual Performance and Accountability Report. Roadmaps with detailed information on tracking progress toward the long-term measures have been developed with the Scientific Advisory Committees and links to these reports are provided on SC’s PART website. The Scientific Advisory Committees are reviewing progress toward those measures vis-à-vis the roadmaps every three to five years. The first reviews are being conducted during FY 2006 and early FY 2007. Links to the results of these reviews will be provided on SC’s PART website as they become available.

OMB did not complete a PART for any SC Programs for the FY 2008 Budget, but has provided SC with recommendations to further improve performance. The improvement plan action items for the current fiscal year may be found at http://ExpectMore.gov (search by program name).

SC has incorporated this feedback from OMB into the FY 2008 Budget Request decision process, and will continue to take the necessary steps to improve performance.

Indirect Costs and Other Items of Interest

Institutional General Plant Projects

Institutional General Plant Projects (IGPPs) are miscellaneous construction projects that are each less than $5,000,000 in TEC and are of a general nature (cannot be allocated to a specific program). IGPPs support multi-programmatic and/or inter-disciplinary programs and are funded through site overhead. Examples of acceptable IGPPs include site-wide maintenance facilities and utilities, such as roads and grounds outside the plant fences or a telephone switch that serves the entire facility.

Examples of current year projects are:

- East Campus Parking Expansion design and construction at Oak Ridge National Laboratory. This project, scheduled for completion in FY 2006, will provide expanded parking capacity for the recently completed Third Party Buildings, Joint Institute for Computational Science/Oak Ridge Center for Advanced Studies, and Research Support Center, as well as the Multiprogram Research Facility. TEC: $3,500,000.
- 5000 Area Utility System Upgrades. This project will provide upgraded utility services for the Oak Ridge National Laboratory East Campus area to support expanded ORNL capability. TEC: $475,000.
- Campus Public Safety Camera System. This project will install video cameras on the exterior of all buildings on the Pacific Northwest National Laboratory campus to allow for monitoring, recording, assessment, and responding to events. Additionally, free standing emergency call stations will be installed to allow staff to immediately seek assistance or report events should the need arise. TEC: $2,326,070.

The following displays IGPP funding by site:

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Oak Ridge National Laboratory	10,000	16,000	16,000
Pacific Northwest National Laboratory	2,000	5,000	5,000
Argonne National Laboratory	—	—	2,000
Total, IGPP	12,000	21,000	23,000

Facilities Maintenance and Repair

The Department's facilities maintenance and repair activities are tied to its programmatic missions, goals, and objectives. Facilities Maintenance and Repair activities funded by the Office of Science or at SC laboratories are displayed in the following tables. SC has set maintenance targets for each of its laboratories to achieve overall facilities maintenance and repair levels consistent with the National Academy of Science recommendation of 2%–4% of replacement plant value for the SC laboratory complex.

Indirect-Funded Maintenance and Repair

Facilities maintenance and repair activities funded indirectly through overhead charges at SC laboratories are displayed below. Since this funding is allocated to all work done at each laboratory, these activities are paid for using funds from SC and other DOE organizations, as well other Federal agencies and other entities doing work at SC laboratories. Maintenance reported to SC for non-SC laboratories is also shown.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Ames Laboratory	1,123	963	997
Argonne National Laboratory	27,386	28,323	28,974
Brookhaven National Laboratory	27,019	24,248	26,844
Fermi National Accelerator Laboratory	9,047	8,166	8,330
Lawrence Berkeley National Laboratory	16,920	13,000	15,904
Lawrence Livermore National Laboratory	2,760	2,850	2,887
Oak Ridge Institute for Science and Education	815	394	393
Oak Ridge National Laboratory	26,907	24,823	25,568
Oak Ridge National Laboratory facilities at Y-12	844	750	750
Office of Scientific and Technical Information	350	464	477
Pacific Northwest National Laboratory	1,865	1,800	1,631
Princeton Physics Plasma Laboratory	5,177	5,089	5,499
Sandia National Laboratory	1,946	1,999	2,045
Stanford Linear Accelerator Center	8,002	7,092	7,234
Thomas Jefferson National Accelerator Facility	2,811	2,622	2,674
Total, Indirect-Funded Maintenance and Repair	132,972	122,583	130,207

Direct-Funded Maintenance and Repair

Generally, facilities maintenance and repair expenses are funded through an indirect overhead charge. In some cases, however, a laboratory may charge maintenance directly to a specific program. An example of this might be if the maintenance were performed in a building used only by a single program. These direct-funded charges are nonetheless in the nature of indirect charges, and are not directly budgeted. The maintenance work for the Oak Ridge Office is direct funded and direct budgeted by the Science Laboratories Infrastructure program. A portion of the direct-funded maintenance and repair expenses reflects charges to non-SC programs performing work at SC laboratories.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Brookhaven National Laboratory	2,009	2,337	2,384
Fermilab National Accelerator Facility	3,235	3,249	3,313
Notre Dame Radiation Laboratory	153	150	154
Oak Ridge Institute for Science and Education	54	—	—
Oak Ridge National Laboratory	21,483	17,542	18,068
Oak Ridge National Laboratory facilities at Y-12	75	75	75
Oak Ridge Office	1,891	2,019	2,065
Stanford Linear Accelerator Center	1,322	1,373	1,400
Thomas Jefferson National Accelerator Facility	50	51	52
Total, Direct-Funded Maintenance and Repair	30,272	26,796	27,511

Deferred Maintenance Backlog Reduction

SC is increasing focus on reducing the backlog of deferred maintenance at its laboratories as part of the Federal Real Property Initiative within the President's Management Agenda. The deferred maintenance backlog at the end of FY 2006 is estimated to be $225,000,000. The Department's goals for asset condition are based on the mission dependency of the asset. For example, the asset condition index target for mission critical facilities is 0.95 or above, where the index is computed as 1.0 minus the ratio of deferred maintenance to replacement plant value. To reduce the deferred maintenance backlog such that SC achieves the goals, SC sets targets for each of its laboratories for activities specifically focused on reduction of the backlog that exceeds Departmental goals. The overall target for deferred maintenance reduction funding is $36,000,000 in FY 2008, an increase of $16,200,000 over the planned level in the FY 2007 request. Deferred maintenance activities are primarily funded by the laboratories as overhead, charged to all uses of the laboratory facilities. These deferred maintenance estimates are in addition to funding of day-to-day maintenance and repair amounts shown in the tables above. In order to assure that new maintenance requirements are not added to the backlog, SC has set targets for our laboratories that, overall, exceed 2% of the SC laboratory complex replacement plant value, commensurate with the industry standard funding level recommended by the National Academy of Sciences of 2–4% of the replacement plant value. The tables below show the targets planned for funding of deferred maintenance backlog reduction.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Argonne National Laboratory	—	2,574	1,983
Brookhaven National Laboratory	—	5,940	7,163
Fermi National Accelerator Laboratory	—	1,980	4,328
Lawrence Berkeley National Laboratory	—	2,178	6,069
Oak Ridge National Laboratory	—	5,544	14,400
Princeton Physics Plasma Laboratory	—	396	465
Stanford Linear Accelerator Center	—	792	686
Thomas Jefferson National Accelerator Facility	—	396	906
Total, Deferred Maintenance Backlog Reduction	—	19,800	36,000

SC Funding for Selected Administration Priorities

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
American Competitiveness Initiative	3,632,044	4,101,710	4,397,876
Advanced Energy Initiative	393,029	535,153	713,137
Hydrogen Fuel Initiative	32,500	50,000	59,500
Climate Change Science Program	130,461	126,187	129,585
Networking and Information Technology Research and Development	247,174	344,672	369,782
National Nanotechnology Initiative	204,893	256,914	285,586
ITER (TPC)	19,315	60,000	160,000