DOE/CR-0039

FY 1997 Congressional Budget Request

Budget Highlights

Hazel R. O'Leary
Secretary of Energy

March 1996

Department of Energy

Chief Financial Officer

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Policy Overview

Introduction

The Department of Energy serves the nation by advancing science and technology, ensuring a the national defense, providing for a more secure and sustainable energy future, and improving our environmental quality. Our budget request for FY 1997 reflects the Administration's priorities and commitments in these areas. It also reflects our work over the past three years to reshape the Department of Energy to bring these services to the American people as cost-effectively as possible.

Science and Technology

Department of Energy research contributes substantially to the nation's scientific excellence. Over the past 50 years, DOE and its predecessor agencies have established an extensive National Laboratory and university network of expertise in science and engineering—a network that has supported the research of over 60 Nobel prize winners, including four of the five scientists who won Nobel prizes in physics and chemistry in 1995. Through more than two dozen laboratories and numerous special user facilities, we support a major portion of the nation's federally funded research in civilian science and technology development. Our research supports America's technological innovation in energy, environment, national security, and health.

Year after year, DOE-funded research at the National Laboratories wins more "R&D 100" awards than that of any other organization. These "Nobels of new technology" are selected from international entries by a panel of 70 experts and the editors of *R&D Magazine* to recognize the 100 most outstanding technology developments of the year. Since the first of these awards in 1963, technologies funded by the Department of Energy have won more of them than all other government agencies combined and more than twice as many as the top industrial winner. In 1995, DOE's research was recognized with 33 "R&D 100" awards.

In an era of reduced budgets, we are paring overhead costs and improving laboratory services. These changes are in accord with recent recommendations of two independent assessments, the Secretary of Energy's Task Force on Strategic Energy Research and Development and the Task Force on Alternative Futures for the Department of Energy National Laboratories.

National Security

The end of the Cold War has not brought an end to nuclear threats or risks. Reducing the global nuclear danger is one of the United States' primary national security goals. The Department's national security programs are responsible for preventing the proliferation of nuclear weapons, maintaining confidence in our nuclear weapons deterrent without underground nuclear testing, safeguarding and disposing of nuclear materials, and improving nuclear reactor safety. Toward these ends, the Department is aggressively pursuing science-based alternatives to underground

testing to ensure the safety and reliability of the enduring arsenal and to support the Comprehensive Test Ban Treaty. At the same time we are pursuing: an assured source of tritium for the future; dismantlement of nuclear weapons; effective nuclear material protection, control, and accounting in Russia and the other Newly Independent States; and improved nuclear safety worldwide.

Energy Security and Environmental Quality

The Department supports development of technologies that advance energy security and improve environmental quality. These technologies are meeting the concerns of the American public for a sustainable energy future. The clean energy technologies emerging from DOE research are increasing the nation's economic productivity and lowering America's energy bills, while decreasing the environmental impacts of energy production and use.

Recent forecasts indicate that the nation's dependence on oil will rise significantly in coming years. As U.S. oil production declines, the nation now meets nearly half its oil needs with imports—up from 41 percent in 1992. At the same time, global energy demand, fueled by economic growth in developing nations, is projected to increase by 40 percent over the next 15 years. This new demand is expected to exacerbate problems with urban air quality and global climate change. Fortunately, new energy supply and end-use technologies and fuel substitution can dramatically improve global environmental quality and reduce the nation's dependence on imported oil.

The Department advances the use of U.S. clean energy products and technologies both domestically and worldwide. The federal role in energy research and development is justified by energy and environmental trends that will affect the nation in the long run. The private sector tends to under invest in the long-term research required to develop the energy technologies that will meet the nation's long-term national security and environmental needs. This is why the Department leverages federal funding with non-federal resources to develop technologies for a cleaner and affordable energy future.

Environmental Cleanup

The Department is responsible for remediating the Cold War legacy of contamination at its nuclear weapons complex, across 130 sites in 33 states—a daunting challenge that will require hundreds of billions of dollars over several decades. We are clearing major institutional hurdles in the transition from nuclear weapons production to environmental cleanup. Over the past three years, we have focused our resources on eliminating the highest risks first, including explosive tank wastes and unstable plutonium. In FY 1995 alone, the Department completed 119 interim and 75 large-scale environmental cleanups of contaminated sites at DOE facilities. At the same time, we are developing effective technologies for resolving many of our environmental and safety challenges.

Changes in the Way We Do Business

Recent changes in the world have had a profound impact on the mission of the Department of Energy. The end of the Cold War has allowed us to reshape our vision and change how we do business.

More than ever, American citizens are holding us accountable for superior results with fewer resources. We now measure performance from a customer's perspective, strategically aligning business plans, goals, and organizational structures with our vision. We are improving our process efficiency and effectiveness. We are creating an environment in which every employee can continuously improve performance.

In keeping with the Administration's commitment to streamline federal operations, DOE is reducing management layers and promoting employee responsibility. These changes—along with contract reform and performance measurement—are increasing accountability for results in all our activities. Programs are now aligned by "business lines" that represent elements of the Department's missions: science and technology; national security; energy resources; and environmental quality. Strategic planning and program evaluation conducted along these business lines have become corporate practices that clarify our goals, priorities, and milestones—allowing us to improve our services and cost-effectiveness.

Strategic Alignment Implementation

In May 1995, the Secretary announced a Strategic Alignment Initiative, committing the Department to achieving $1.7 billion in savings over five years as part of the Administration's efforts to reduce federal spending. For FY 1996, DOE pledged Strategic Alignment Initiative savings of $221 million, to be achieved by reducing Federal staffing by 1,380 positions (10 percent) and by decreasing operational costs through office closings, consolidations, and organizational efficiencies.

We are currently ahead of our Strategic Alignment savings commitments. Since May 1995, we have eliminated 1,300 Federal positions, closed three field offices, vacated three Washington, D.C. office locations, and consolidated several programs. Net savings from staffing reductions alone are anticipated to amount to over $50 million in FY 1996.

The Department estimates that FY 1996 savings achieved by reducing support service contracting will amount to $120 million, well ahead of our $90 million target. We also anticipate savings of $40 million from reductions in FY 1996 travel costs. Other projected savings for FY 1996 include $41 million in information management and $6 million through improvements in our National Environmental Policy Act processes. In addition, we have recovered $3.1 million from the sale of Cold War era assets.

The Department is utilizing workforce management tools such as buyouts, attrition, outplacement, managed hiring, and involuntary separations to achieve staffing targets. We have streamlined DOE's portion of the Code of Federal Regulations by 25 percent and reduced

internal directives by 50 percent. These regulatory changes have eliminated unnecessary paperwork, improved operations, cut overhead expenditures, and relieved our customers of burdensome requirements.

Streamlining DOE's Workforce

Completing a comprehensive reexamination of the DOE organizational structure and staffing, the Department improved its overall supervisor-to-worker ratio from 1:5.5 to 1:7.9 during FY 1995. Twelve DOE organizations achieved a 1:10 ratio. Our goal for FY 1996 is to achieve a 1:11 ratio Department-wide.

Privatization

At DOE, strategic planning has helped us identify facilities and services that might be better placed in the private sector. We are attempting to privatize some of these facilities and services. In our first privatization effort, DOE successfully transferred the operation of our uranium enrichment facilities to a government corporation, the United States Enrichment Corporation (USEC), in 1993. The Administration plans to complete privatization of USEC in late 1996. The newly approved sale of the Alaska Power Administration will transfer a formerly federal function to the private sector. We are privatizing the Elk Hills oil field, part of the Naval Petroleum Reserves, and studying the privatization of other National Petroleum Reserve fields. We are also privatizing the National Institute of Petroleum and Energy Research in Oklahoma. These steps will reduce the federal deficit and allow for greater market competition.

Many of our privatization efforts offer multiple benefits. For example, we are advancing our nonproliferation and national security interests—and reducing our storage costs—through our efforts to arrange the sale of blended-down surplus uranium as commercial reactor fuel.

At our Hanford Site, we have embarked on the largest privatization effort in the history of the environmental cleanup program. We are moving forward with plans to select one or more private companies to design, finance, build, own, and operate plants to treat and solidify 56 million gallons of radioactive and hazardous waste. By guaranteeing these companies a steady waste stream over a period of time and a fixed price per unit of waste, the Department will assure progress on the reduction of a major risk that has remained from Cold War weapons production.

These changes make good economic sense. Our privatization efforts recognize the appropriate role of government and contribute to reducing the national deficit.

Contract Reform

The Department has reformed its procurement practices to promote

Progress in Contract Reform

In FY 1995, the Department incorporated reforms into nine of its largest contracts, including management and operations at the Hanford Reservation, West Valley Demonstration Project, Waste Isolation Pilot Project, Argonne National Laboratory, Brookhaven National Laboratory, Continuous Electron Beam Accelerator Facility, Rocky Flats Site, Kansas City Plant, and Oak Ridge Reservation.

competition for the management and operation of DOE facilities and sites, and to improve contractor performance and accountability. We have initiated management contracts that award fees on the basis of specific results, and we are compensating our contractors on the basis of performance evaluations. To save taxpayer dollars, we are adding incentives for cost avoidance and cost reduction in our new contracts. In our existing contracts and subcontracts, we have identified similar changes that will increase performance and reduce costs. Over a five-year period, these reforms will affect over $40 billion in contracted services.

Cross-Program Collaboration

One result of DOE's Strategic Alignment Initiative has been an increase in collaboration among programs. Such collaboration creates synergies in the Department's research efforts. Our Energy Research program works with our Environmental Management program in the development of advanced biotechnology and in identifying basic research that will lead to new environmental technologies. These technologies are expected to lower the multi-billion dollar cost of cleaning up the environmental risks that remain from more than 50 years of nuclear weapons production.

Defense Programs and Energy Research are planning high performance computing advances for the National Laboratories through our DOE 2000 Initiative. The Nuclear Energy and the Nonproliferation and National Security programs are working together to improve international nuclear security and nuclear safety in the former Soviet Union and eastern Europe.

The Energy Efficiency and Renewable Energy and Fossil Energy programs are collaborating on reducing greenhouse emissions, which contributes to the Administration's Climate Change Action Plan.

Management of Research and Development

In response to recommendations by the Task Force on Alternative Futures for the DOE National Laboratories, the Department will be reducing research and development overhead costs by $1.6 billion over five years. These savings are coming primarily from eliminating unnecessary layers of oversight and project management at the laboratories and other facilities.

Communications with the Public

The Department has vastly expanded the information it offers to the public through the World Wide Web on the Internet. The system brings together information from 50 DOE home pages for headquarters, programs, and field sites. Providing updates on DOE activities, conferences, documents, and research, the DOE Home Page receives roughly 90,000 queries per week.

Our newly established Laboratory Operations Board is working to streamline management at our laboratories, while our new R&D Council is improving the coordination of DOE research. Consistent with Administration policy and current law, the Department will manage its research and development activities to maximize the mission benefits from collaborations with

other agencies and the private sector, and to continue to improve its partnership practices and timely decision making.

Freedom of Information

DOE has declassified more than two million pages of documents since 1993. For the first time in history, the Department in 1995 closed more Freedom of Information Act cases than were filed. The average age of pending cases has decreased by 61 percent since 1992, and the number of Freedom of Information Act cases closed at DOE headquarters has increased from 475 in 1992 to 1,400 in 1995.

Openness Initiative

The Department has adopted a policy of openness to better serve the nation and increase confidence in DOE decisions. Over the past two years, DOE has declassified thousands of documents, many of which have contributed to public discussion of complex issues such as the disposition of plutonium and the ethics of early medical experiments that helped to determine the effects of radiation. We have reduced an extensive backlog of public requests for information. Our customers and stakeholders now advise us in many of the Department's policy and planning processes, increasing support for DOE activities.

Science and Technology

Fundamental and applied research supported by the Department of Energy advances U.S. world leadership in science, mathematics, and engineering. DOE's National Laboratories play a critical role in large scale, multi-disciplinary research in the national interest. We offer unique advanced research facilities for the use of our nation's and the world's scientific community. We support the research of individuals of unparalleled intellectual strength and scientific curiosity.

Our energy, environmental, and health research provide the scientific foundations for new technologies that supply energy, conserve resources, control pollution, reduce manufacturing waste, predict the impacts of global climate change, develop new ways to clean up hazardous waste, and assess energy-related health and environmental risks. Our basic research in high energy physics, nuclear physics, and fusion leads to new insights into the nature of energy and matter. DOE also provides leadership in the national effort to improve science, mathematics, and engineering education.

For FY 1997, our programs will place new emphasis on biotechnology directed at remediating environmental damage and protect the ecosystem. Our fusion research will be redirected toward smaller-scale, long-term fundamental research at universities and our laboratories, along with contributing to international efforts to develop fusion as an energy option. We plan to sustain the momentum in High Energy and Nuclear Physics, maintain the Science Facilities Initiative, and improve the integration of research and applied technology programs. We will balance our efforts to provide world-class facilities to researchers from other organizations with

our efforts to conduct the Department's own research.

Research Infrastructure

The Department's National Laboratories, the largest research system of its kind in the world, offer the expertise of over 40,000 engineers and scientists who conduct research in the national interest. More than 15,000 additional industry, university, and government-sponsored scientists currently perform experiments at the Laboratories' user facilities—physics accelerators, neutron and light sources, and smaller facilities such as electron microscopy centers. These experiments involve semiconductors, polymers, alloys, nuclear science, superconductors, magnetic materials, structural biology, pharmaceuticals, and many other fields of research. The Department places a high priority on maintaining and improving the infrastructure of our laboratories and other facilities.

Nobel Prize Winners and DOE Research

DOE and its predecessor agencies funded the research of four of the five American scientists awarded the Nobel Prize in 1995 for their work in physics and chemistry. Mario Molina of the Massachusetts Institute of Technology and F. Sherwood Roland of the University of California at Irvine were recognized as co-discoverers in 1974 of the connection between chlorofluorocarbons (CFCs) and ozone depletion. Their research led to successful international cooperation to phase out the use of CFCs to preserve the earth's ozone layer.

Martin Perl of DOE's Stanford Linear Accelerator Center discovered the tau lepton subatomic particle in 1976. He shares the physics prize with Frederick Reines, who was employed at Los Alamos National Laboratory when he discovered the neutrino particle in 1956 using a reactor at the Savannah River Site. Their research contributed to the theoretical understanding of subatomic particles and the origin of the universe.

While the National Laboratories excel at "big science" and interdisciplinary research, DOE's support for research at universities is helping to educate the next generation of scientists and engineers.

Basic Energy Research and Biotechnology

The Department's Basic Energy Sciences program supports energy-related research and scientific user facilities. This program's research extends to the materials sciences, chemical sciences, geosciences, and energy biosciences that underpin the Department's technological advances in energy efficiency, renewable energy, fossil fuels, and fusion.

The Department also funds research aimed at mapping the human genome by 2005,

Microbial Ecosystems Discovery

Researchers at DOE's Pacific Northwest Laboratory in the state of Washington have discovered a microbial ecosystem that is not dependent on photosynthesis. The bacteria appear to thrive on chemical energy in basalt, a rock common to Earth and Mars. The discovery could explain how organisms survived on Earth more than one billion years before the evolution of photosynthesis. The research is part of DOE's subsurface science program for study of microorganisms with potential for transforming or immobilizing hazardous and radioactive waste.

developing advanced medical technologies, and determining the structure and function of cells and molecules. Our biological research originated from the concerns about the health and safety effects of nuclear radiation and chemical by-products.

In FY 1997, the Department will emphasize exploration of the world of microbial diversity, to develop applications for bioremediation. In addition, DOE will continue working to develop and understand the data needed to predict how energy use affects climate. Our FY 1997 request for Basic Energy Sciences maintains the FY 1996 funding level for research supporting the development of energy technologies, scientific user facilities, and design of the spallation neutron source. The funding request for Biological and Environmental Research will reflect a decline in construction projects, with the completion of two construction projects in FY 1996. Funding for most other research remains level, with the exception of increases for the Human Genome project, bioremediation, and global climate change research.

The Effect of Clouds on Climate Change Predictions

A major uncertainty in current climate change prediction models is the effect of clouds on the reflection and absorption of solar radiation. DOE's Atmospheric Radiation program has collected extensive data on cloud effects, in flights over northern Oklahoma. The team for this mission included personnel from five DOE laboratories, three NASA Centers, and a dozen universities.

High Energy and Nuclear Physics

The Department supports High Energy Physics and Nuclear Physics research at the National Laboratories and universities directed at understanding the nature of energy and matter at the most fundamental level and the basic forces that govern all processes in nature. Our major facilities at Fermi National Accelerator Laboratory, Continuous Electron Beam Accelerator Facility, Stanford Linear Accelerator Center, and Brookhaven National Laboratory provide scientists with the means to conduct experimental research on the subatomic particles that constitute and determine the behavior of all matter in the universe.

DOE Labs Map Human Chromosomes

Two of DOE's Human Genome Research Centers published detailed maps of two complete chromosomes in FY 1995. These are the most detailed "physical maps" of the locations of human genes and are the culmination of five years of laboratory work. Human chromosomes, with their three billion bits of code, hide an estimated 70,000 to 80,000 genes. For most chromosome "maps", the level of detail is still too low to enable scientists to easily locate genes of biomedical interest. The map of chromosome 16, produced at Los Alamos Scientific Laboratory Genome Center, has a high density of detail and is contributing to the ultimate computer-based map of the human genome.

In High Energy Physics, the Department continues to champion U.S. participation in the Large Hadron Collider program at the European Laboratory for Particle Physics (CERN). Over 500 U.S. scientists have expressed their enthusiasm for the project

by joining collaborations that promote this work. For FY 1997, the Department has requested funds to provide the foundation for U.S. involvement in this international program, pending successful negotiations, with a corresponding slight decrease in funding for High Energy Physics research and facilities operations relative to FY 1996.

Science at Fermilab and the Stanford Linear Accelerator

The Tevatron accelerator at Fermilab continues to set world records for particle beam intensity, greatly exceeding the Department's original goal for this facility. As a result of this increased beam intensity, researchers at Fermilab were able to discover the top quark, the last of a family of six subatomic particles to be found. The discovery was announced in March 1995. Using the world's highest polarized high energy electron beam at the Stanford Linear Accelerator Center, scientists recently achieved the world's most precise measurement of the weak mixing angle, a fundamental parameter of the Standard Model of particle physics.

The Department expects the completion of the $293 million B-Factory project at the Stanford Linear Accelerator Center in FY 1998 and the $259 million Main Injector project at Fermilab in FY 1999. Both projects are proceeding on schedule and on budget. The B-Factory will enable scientists to study charge-parity violation, a process which explains the complete dominance of matter over antimatter in our universe and, hence, our very existence. Of the other High Energy Physics experiments planned for the B-factory, the principal one will rely on the BABAR detector, under design by a large international collaboration of physicists to precisely detect and measure particle collisions in B-factory experiments. The Main Injector at Fermilab will provide a five-fold increase in luminosity for collider experiments and a doubling of intensity for the fixed target program, both essential to the continuation of forefront physics research at Fermilab. The increased luminosity will allow for a closer look at the nature of the top quark in detail and for investigation of other new leads in physics research.

In Nuclear Physics, the Continuous Electron Beam Accelerator Facility (CEBAF) in Norfolk, Virginia, is now operational, and the construction of the Relativistic Heavy Ion Collider (RHIC) remains at expected cost and on schedule for completion in FY 1999. Completion of the Radioactive Ion Beam facility (RIB) at Oak Ridge National Laboratory will allow for experiments in astrophysics and unstable nuclei. Our FY 1997 request for

Increasing our Understanding of the Nature of Matter

In November 1995, one hundred scientists started work on the first experiment in a broad program at the newly completed Continuous Electron Beam Accelerator Facility (CEBAF) in Norfolk, Virginia. CEBAF users are employing a continuous stream of electrons that jets around an underground oval through supercooled cavities at close to the speed of light. The research will determine the pattern of protons that are ejected from directing this electron beam onto carbon, iron, and gold foil targets, enabling scientists for the first time to learn how a nucleon propagates within nuclei. The project was proposed by Argonne National Laboratory and five U.S. universities.

Nuclear Physics, slightly lower than current fiscal year funding, reflects a decline in construction funding as RHIC nears completion.

Fusion

In its July 1995 report on the Fusion Energy program, the President's Committee of Advisors on Science and Technology (PCAST) concluded that the promise of an economical and environmentally attractive fusion energy source for the future is a reasonable and important endeavor for the nation. Furthermore, the committee concluded that research and development on fusion is a valuable investment in the nation's energy future as well as sustaining an important field of scientific research—plasma science. In response to FY 1996 funding reductions, the Fusion Energy Advisory Committee (FEAC) recently released its report titled "A Restructured Fusion Energy Sciences Program." The committee recommended a program that would include an increased emphasis on plasma science, continued operation of the three major United States tokamak facilities through 1997, and continued active U.S. participation in the International Thermonuclear Experimental Reactor Engineering Design Activities. The Department has accepted all of the committee's recommendations in principle, and the program is making a transition from a schedule-driven energy technology development program to an energy sciences research program. The mission of the restructured program is to advance plasma science, fusion science, and fusion technology—the knowledge needed for an economically and environmentally attractive fusion energy source.

Advances in Fusion Science

New results from the Tokamak Fusion Test Reactor (TFTR) at DOE's Princeton Plasma Physics Laboratory and the DIII-D tokamak at General Atomics show that experiments at TFTR may enable researchers to investigate the science of tokamak plasma at power levels not previously thought possible with existing facilities. During recent experiments, scientists have discovered a new way to operate these facilities that could double their performance. If further testing confirms this discovery, DOE will be able to better study the behavior of burning fusion plasmas and eventually to use fusion to produce electricity in a simpler, significantly less expensive way than previously planned.

While the current budget situation does not permit the program budget to be increased to the $275 million level recommended by the FEAC, the $255.6 million requested is less than four percent below the recommended level, when $8 million in program direction funds are included.

At the requested funding level, the program will pursue three goals: (1) advance plasma science in pursuit of national science and technology goals, (2) develop fusion science and technology and innovations in plasma confinement approaches to fusion, and (3) pursue fusion energy science and technology goals as a partner in an international effort.

Information Technology

Jointly sponsored by the DOE Offices of Energy Research and Defense Programs, the DOE 2000 Initiative is deploying advanced communications and high-

performance computing to transform information technology at the National Laboratories. As "National Collaboratories," the Department's research facilities will allow scientists nationwide to network to solve problems as easily as if they were in the same building. Massively parallel supercomputing can help probe basic questions regarding the effects of energy systems on the environment and aid research into new ways to convert and produce energy. Supercomputing can solve "large" mysteries, such as those involving global climate, and "small" mysteries, such as those involving molecules and subatomic particles. The Department will maintain the FY 1996 level of support for computational and technology research in FY 1997.

Award-winning Computing Advancements

Three of Research and Development Magazine's R&D 100 awards in 1995 went to DOE laboratories for computing advancements ranging from software that generates grids for modelling automobiles to advanced chemistry software to design pharmaceuticals.

Science Education

In FY 1997, the Department will maintain its support for the national effort to improve education in science, math, and engineering. In FY 1996, over 3,500 undergraduate, graduate, and postdoctoral students and faculty will participate in DOE science education programs at our National Laboratories. In FY 1995, DOE made grants that enabled 28 universities to share their research reactors with students and researchers from colleges and universities that lack comparable facilities. The Department also works with U.S. electric utilities to provide matching grants for nuclear engineering education at leading universities. In 1995, the Department provided new science instructional tools to over 100,000 teachers.

National Security

In August 1995, the President announced that the U.S. would seek a true zero-yield Comprehensive Test Ban Treaty. The President based his decision in part on assurances by the Department that our science-based stockpile stewardship program, along with new certification procedures, would ensure the continued safety and reliability of the nuclear weapons stockpile.

The President established the following specific safeguards that define the conditions under which the United States would enter into a Comprehensive Test Ban Treaty. First, the Department would conduct a science-based stockpile stewardship program to ensure a high level of confidence in the safety and reliability of the nuclear weapons stockpile. This would include a broad range of effective and continuing experimental programs. Second, DOE would maintain modern nuclear laboratory facilities and programs in theoretical and exploratory nuclear technology to attract and retain the highest caliber of scientists and engineers. Third, the Department would maintain a basic capability to conduct nuclear testing, to allow for the possible resumption of testing in the event that the United States ceases to be bound by the Comprehensive Test Ban

Treaty or similar agreements. Fourth, DOE would continue comprehensive research and development to improve treaty monitoring capabilities and operations. Fifth, the development of a broad range of intelligence gathering and analytical capabilities would continue. The sixth safeguard would be the understanding that if the President were to be informed by the Secretaries of Energy and Defense that a high level of confidence in the safety or reliability of a weapon type critical to the nuclear deterrent could no longer be certified, the President, in consultation with the Congress, would be prepared to withdraw from the Comprehensive Test Ban Treaty under the "supreme national interests" clause in order to conduct whatever testing might be required.

The Department has developed the Stockpile Stewardship and Management program, as a single, highly integrated technical program for maintaining the safety and reliability of the U.S. nuclear weapons stockpile in an era without underground testing or new weapons production. The program must meet three challenges. It must maintain the enduring nuclear weapons stockpile while transforming the weapons complex to one that is more appropriate for a smaller stockpile. It must preserve the core intellectual and technical competencies of the weapons laboratories. Without underground nuclear testing, the nation must place its confidence in the competency of the people who make scientific and technical judgments related to the safety and reliability of U.S. nuclear weapons using above ground experimentation and new computational approaches. Finally, the Department must ensure that the activities needed to maintain the nation's nuclear deterrent are coordinated and compatible with the nation's arms control and nonproliferation objectives.

In FY 1997, the Stockpile Stewardship program will continue its near-term investments in new tools required to maintain confidence in the safety, security, and reliability of the stockpile. One of the key experimental capabilities planned for the Stockpile Stewardship program is the National Ignition Facility (NIF). The NIF is designed to be the world's largest and most powerful laser. It will help assure the reliability and security of the nuclear weapons stockpile by creating experimental conditions that approach certain aspects of weapons physics. In December 1995, the Secretary announced her decision to proceed with Title I preliminary design of the facility after determining that research at the NIF would be consistent with U.S. nuclear nonproliferation objectives. An FY 1997 increase in funding for the NIF is needed for detailed design. A decision on whether to build the NIF will be made later this year.

The stewardship program will require greatly improved computational capabilities. The Department will increase its Accelerated Strategic Computing Initiative efforts in FY 1997. In September 1995, the Department announced a $45 million joint development contract between DOE, Sandia National Laboratories, and Intel Corporation to build by the end of 1996 a computer that will be 10 times more powerful than any existing one. As part of the Accelerated Strategic Computing Initiative, the computer will simulate the reliability and performance of nuclear

weapons and predict the effects of their aging over time.

A decrease in funding for technology transfer in FY 1997 will allow the Department to continue its transition from cooperative research and development agreements in partnership with industry to direct support for Stockpile Stewardship and Management.

In October 1995, the Secretary announced that the Department will pursue a "dual track" approach to ensure that new tritium is available to meet the needs of the weapons stockpile. DOE will investigate securing a purchase option on either irradiation services at an existing commercial reactor or an as yet unfinished commercial reactor that can be converted for tritium production. At the same time, the Department will begin work to build and test components for a linear accelerator that would be capable of producing tritium. Over the next three years, the Department also plans to further develop tritium targets and to examine the policy and regulatory issues associated with the purchase of a commercial reactor or irradiation services. An increase in funding for FY 1997 reflects this approach to supplying tritium for the stockpile. Completion of the transfer of production at Mound, Pinellas, and Rocky Flats to our Kansas City, Savannah River, Los Alamos, and Sandia facilities represents a decrease in the DOE budget request.

Weapons Dismantlement and Management of Fissile Materials

In FY 1995, the Department safely dismantled 1,393 nuclear weapons. The President's nonproliferation policy commits the United States to dealing with the growing accumulation of fissile materials surplus to U.S. defense needs. At the same time, the Administration is pursuing the purchase of highly enriched uranium from former Soviet nations and its conversion to peaceful use as reactor fuel.

U.S. efforts regarding the long-term storage and disposition of surplus weapons-usable plutonium and highly enriched uranium support and encourage reciprocal action abroad and advance international nonproliferation objectives. The United States and Russia have agreed to cooperate closely to prevent the proliferation of weapons of mass destruction and their missile delivery systems. A cooperative U.S.-Russian technical study of plutonium disposition options is underway.

ARIES

The Department is developing an Advanced Retrieval and Integrated Extraction System (ARIES) to disassemble plutonium weapons components, converting the plutonium to a stable, inspectable form suitable for long-term storage and disposition. ARIES allows plutonium to be recovered from nuclear warheads in a single, waste-free step. This eliminates the workplace and environmental hazards associated with previous recovery methods. A key ARIES component was awarded a 1995 R&D Magazine award. The unclassified technology, developed by Los Alamos National Laboratory with support from Lawrence Livermore National Laboratory, has been demonstrated to Russian scientists cooperating on the joint U.S.-Russian technical study of plutonium disposition options. ARIES is expected to contribute to the management of surplus weapons plutonium and to nonproliferation.

DOE has placed some U.S. surplus weapons-usable uranium and plutonium under international inspection and will add more as soon as practicable. This will provide the President with maximum flexibility in arriving at reciprocal fissile materials reduction agreements with Russia. In addition, DOE's efforts to blend down surplus weapons highly enriched uranium and, where practical, sell the resulting low enriched uranium for future peaceful use in commercial reactors, advances U.S. non-proliferation and national security interests, reduces storage costs, and provides returns to the U.S. Treasury. As our budget request for FY 1997 precedes critical programmatic decisions to determine fissile material storage and disposition, DOE's request allows for first-year expenditures that would cover all storage alternatives and tests to validate disposition options.

Nonproliferation

The international proliferation of weapons of mass destruction presents a major challenge to the nation's security. Reducing the nuclear danger is a primary goal of the Administration's national security strategy. The Department is very active in providing leadership for numerous international arms control and nonproliferation efforts, through our scientific, technical, analytical, and operational capabilities. Our near-term priorities are to: 1) secure nuclear materials, technology, and expertise in Russia and the Newly Independent States; 2) maintain effective protection, control, and accountability of nuclear materials, technology and expertise in the United States; 3) limit weapons-usable fissile materials worldwide; 4) ensure transparent and irreversible nuclear reductions worldwide; 5) support the completion of a Comprehensive Test Ban Treaty in 1996; 6) develop an integrated program for preventing, detecting and responding to nuclear terrorism and smuggling; and 7) control nuclear exports.

Arms Control for the Middle East Peace Process

The first ever meeting of representatives from Egypt, Israel, Jordan, Oman, and other Middle East states at a DOE laboratory focused on the role of arms control, technology, negotiations, and verification in the Middle East. At a three-day workshop in 1995 at Sandia National Laboratory, these representatives and DOE nuclear experts designed treaty-monitoring systems for a hypothetical peace settlement between two states.

The Department played a major role in the indefinite extension of the Nuclear Nonproliferation Treaty and we currently provide key technical and analytical support to the negotiations on the Comprehensive Test Ban Treaty. In addition, the Department is working to develop the systems and technologies necessary to verify the Comprehensive Test Ban Treaty.

We have also expanded U.S. efforts with Russia and the Newly Independent States to protect, control and account for stockpiles of fissile material. In working toward transparency and irreversibility of nuclear disarmament, DOE established new initiatives with Russia on confirming warhead dismantlement and on shutting down remaining plutonium production. Our efforts have encompassed exchanges of information on warhead safety and security and on the disposition of fissile materials.

We have monitored the purchase of low enriched uranium derived from hundreds of tons of highly enriched uranium from Russia. DOE is also playing a key role in initiating and expanding the effort to place excess U.S. fissile materials under International Atomic Energy Agency safeguards. These efforts remain a high priority for FY 1997, with an increase in international cooperation expected. The Department will partially offset these increased requests for arms control activities with reductions in nonproliferation and verification research and development.

To reduce the use of plutonium and highly enriched uranium in civilian fuel cycles, the Department has led the U.S. effort to limit the production and use of reactor-grade plutonium internationally. We have worked to convert research and test reactors throughout the world from the use of highly enriched uranium to low enriched uranium. We plan to continue these initiatives in FY 1997.

Naval Reactors

The Department continues to support more than 120 operating naval reactors on nuclear-powered U.S. ships. The Naval Nuclear Propulsion program maintains a viable submarine force for the nation, logging over 100 million miles without a nuclear accident. DOE continues to develop the next generation reactor for the New Attack Submarine. Our cost-saving initiatives include shutting down six of eight land-based plants by the end of FY 1996. In FY 1997, we will emphasize materials development as the age of the nuclear fleet increases.

International Reactor Safety

The Department's Soviet-Designed Reactor Safety Program is a comprehensive effort in cooperation with partners in other countries to increase the level of safety at 59 nuclear power plants in Russia, Ukraine, and the Central and Eastern European countries of Bulgaria, Czech Republic, Hungary, Lithuania, and Slovakia. Program activities are designed to support host country efforts to reduce risks associated with reactor operations and to transfer technologies required for an indigenous safety infrastructure.

Support for Chornobyl Shutdown

The Department's establishment of an International Research Center on Nuclear Safety, Radioactive Waste and Radioecology in the Ukraine will provide nuclear safety training, environmental research, and technology development as well as assist with short-term safety upgrades to operating Chornobyl units, socioeconomic problems related to shutdown, and alternative employment for some Chornobyl workers. These efforts are critical, in view of the risks to the entire region posed by continued power production by Soviet-designed reactors at Chornobyl.

The Department has established an International Nuclear Safety Center at Argonne National Laboratory to promote nuclear safety worldwide. Along with a comparable organization in Russia, the Center will provide for collaborative research and information exchange on nuclear safety worldwide. In accordance with the June 1994 Gore-Chernomyrdin agreements, DOE also supports the shutdown of the three remaining plutonium production reactors in Russia. Results in

late 1995 from feasibility studies on power production alternatives are expected to enable decisions on how best to convert the three reactors from production of plutonium for weapons to safe power production.

Energy Resources

The Department's R&D programs are part of the nation's investments in our energy future. Our work covers a broad spectrum of energy forms and technologies intended to make the production and utilization of all forms of energy, including renewables, fossil and nuclear, more efficient and environmentally benign. For example, our research efforts in fossil fuels drive down the costs of finding and developing those resources, both at home and abroad. Our work to make energy use more efficient and to drive down the costs of renewable energy resources, opens the way to our energy future and diminishes our increasing need for imported oil. Both contribute to our energy security by lessening our dependence on imported oil and by increasing the price elasticity of our energy supply and demand.

Other innovative energy R&D efforts include programs to develop new energy resources such as hydrogen and lessen the environmental impacts of energy production and use.

In June 1995, the Secretary's Task Force on Strategic Energy Research and Development, a panel of independent energy experts chaired by Daniel Yergin, found that DOE's energy R&D funding had been reduced in constant dollars by 75 percent over the past 17 years. Private sector energy R&D is also being scaled back and is shifting away from research with long- and mid-term goals. Despite benefits to their competitiveness in the long term, U.S. businesses increasingly are reluctant to perform energy research where profits are unlikely to be realized in the short term. Further reductions in energy R&D threaten the adequacy of the nation's energy supplies and its environmental quality into the next century.

Energy R&D has resulted in—and will continue to provide—important gains in energy efficiency and fuel substitution that counteract the nation's reliance on oil imports. It is also yielding technologies that allow us to produce and use conventional fuel resources more efficiently and with significantly less environmental impact. This work will improve the energy outlook for future generations. Any increase in the use of clean and efficient energy technologies adds a measure of protection for the environment, both regionally and globally.

Federal cost-sharing with industry has proved to be an effective means of funding of energy R&D. Our FY 1997 budget request calls for an increased sharing of costs with non-federal sources. The success of this approach relies on the continuity of long-term funding commitments

Protecting and enhancing environmental quality is a vital aim of the Administration's energy policy. In 1993, President Clinton launched the Climate Change Action Plan for reducing U.S. greenhouse gas emissions, to meet U.S. commitments to the international

Framework Convention on Climate Change. The Department plays a major role in implementing the Climate Change Action Plan through voluntary programs and partnerships. Our Climate Change Action Plan programs have prompted business and industry to take action to reduce greenhouse gas emissions without costly regulation and mandatory targets. Voluntary, market-driven actions of businesses and households can carry the nation far toward meeting its international obligations. The Department's role is to serve as a catalyst for action, a role defined and supported by the Administration's budget request. Despite tightening fiscal constraints, the Administration is pursuing funding for Climate Change Action Plan programs that would maintain our investment at FY 1995 levels. We are also placing high priority on other Presidential commitments—the Partnership for a New Generation Vehicle, the Federal Energy Management program, and Weatherization assistance.

The Yergin Task Force's June 1995 report cites dozens of federally-funded technological advances that "are generating billions of dollars worth of annual consumer energy savings and new business opportunities, and playing an important role in job creation."

Transportation Technologies

The Department places high priority on building a foundation for dramatically improving the energy efficiency of transportation, as reflected in increases for our transportation technology programs in our FY 1997 request. The goal of lowering the nation's high consumption of oil requires improved transportation efficiency. The Department continues to emphasize the development of automotive technologies that could triple the fuel economy of today's mid-size sedan within 10 years.

Fuel Cell Vehicles

DOE has developed a new methanol reformer that could bring fuel cell cars one step closer to the market. Fuel cells are like batteries with fuel tanks. Unlike batteries, they never need charging and produce electricity as long as they have fuel. Compact enough to fit under a car hood, the new reformer releases the hydrogen bound up in methanol in the gas tank. The hydrogen then fuels the fuel cells that power an electric car. Earlier versions of the reformer were too bulky to install in an average automobile. The new design is simple and inexpensive to manufacture. DOE is developing fuel cells as a power source that is more energy-efficient and less polluting than conventional internal combustion engines.

Market Introduction of Electric Vehicles

Recently, major U.S. auto manufacturers have announced plans to produce and sell electric vehicles for the first time since the early days of the auto industry. Some models will be available in late 1996. Electric vehicles offer the potential to significantly reduce air pollution especially in California and the Northeast. DOE has been instrumental in the development of electric car technologies for over two decades, through conducting research at the National Laboratories.

The Partnership for a New Generation Vehicle represents the Administration's commitment to this goal. Launched in December 1993, the Partnership for a New Generation Vehicle builds on existing DOE research and development efforts and

incorporates the work of eight federal agencies and the private sector in areas such as high performance computing for automotive design, on-board diagnostics, advanced materials, materials recycling, laser beam welding, and fuel combustion optimization.

In FY 1997, the Department will complete testing of first generation hybrid engines that hold the promise of increasing automobile fuel efficiency by 75 percent. We will finish the assembly of hybrid propulsion system components for demonstrating a vehicle with double the conventional fuel economy. In addition, promising work on automobile fuel cells, ceramic and aluminum components, and heavy-duty diesel engines will continue.

Use of low-cost, clean domestic transportation fuels can counteract the drawbacks of importing oil, while reducing urban air pollution and greenhouse gas emissions. Plans for FY 1997 call for demonstration of highly efficient natural gas, ethanol, and propane vehicles, and continued promotion of the use of alternative fuel vehicles for federal and Clean Cities fleets. These activities build production capability and infrastructure for alternative fuel vehicles in the private sector. DOE will continue to participate with the U.S. Advanced Battery Consortium in developing energy storage devices that are critical to the design of electric and hybrid vehicles.

Energy Efficiency in Industry and Buildings

Through its Industries of the Future program, the Department works with eight of the nation's most energy-intensive industries—petroleum refining, steel, aluminum, glass, metal casting, forest products, textiles, and chemicals—to improve resource efficiency and energy productivity. Together, these industries account for 80 percent of energy demand in U.S. manufacturing, as well as 90 percent of its hazardous waste and air pollution and 60 percent of its toxic waste. The Department's National Industrial Competitiveness through Energy, Environment, and Economics (NICE^3), Climate Wise, Motor Challenge, and Industrial Assessment Center programs work together to reduce energy use and greenhouse gas emissions in industry. The NICE^3 program alone has led industry to save an estimated $99 million a year since 1991 through reductions in hazardous waste, waste water treatment and energy consumption. Estimated cumulative benefits through 2010 from DOE's FY 1997 portfolio of industrial energy R&D investments include a 4.3 quadrillion Btu reduction in energy use and 673 million tons less solid waste. In response to Galvin Commission recommendations that DOE National Laboratories should collaborate in more areas of research, 16 DOE laboratories have signed a memorandum of cooperation on the Industries of the Future program. These efforts, and DOE's other

Rebuilding America

Recent federal investments of $500,000 in DOE's Rebuild America program to bring energy efficiency technologies to institutional and local government buildings attracted nearly $33,000,000 in state, local, and private funding.

Energy Efficiency programs, support the President's Climate Change Action Plan, a high priority for FY 1997.

To advance energy efficiency in buildings, the Department provides funding for research and development of technologies that lower building operation costs and reduce greenhouse gas emissions. In 1995, the Department launched a partnership with the private sector to save building owners as much as $700 million a year in energy costs by 2000, through investments in energy-efficient equipment. For FY 1997, DOE will work with the U.S. Conference of Mayors and the private sector to accelerate the market entry of energy-efficient building technologies. Research and development of technologies for heating and cooling, lighting, appliance, windows and related uses will continue. Reinvention of our process for developing codes and standards for appliances and equipment in cooperation with industry and consumer stakeholders is a high priority for FY 1997.

GAX Heat Pump

In partnership with industry, DOE has developed an improved heat pump that will provide cleaner, more efficient heating and cooling at lower cost. The generator-absorber heat exchange technology (GAX) is a natural-gas fired, ammonia-cooled heat pump design. Benign refrigerants, ammonia and water, replace the harmful CFCs and HCFCs used in conventional heating and cooling systems.

Rooftop Photovoltaic Systems

The Department has contributed to a breakthrough in photovoltaic solar energy applications with a product that integrates highly efficient solar cells into conventional roofing shingles. In a cost-shared partnership with industry, DOE has developed a rooftop photovoltaic system expected to be offered commercially in early 1997. The new shingles provide the same structural durability as ordinary asphalt shingles and use sunlight as a renewable energy source to power homes.

The Department's Federal Energy Management Program demonstrates federal government leadership by putting in place energy efficiency technologies and practices that will reduce energy consumption in federal facilities. These measures will save taxpayers an estimated $20 billion cumulatively by 2015. They also will generate substantial markets for U.S. energy efficient technologies and services. In FY 1995, DOE accelerated private sector investment in federal energy efficiency by over $20 million, and we expect an additional $40 million of investment in FY 1996. In FY 1997, the Federal Energy Management Program will emphasize utility incentive programs and expand the range and availability of financing mechanisms for energy savings performance contracts, to boost the leverage of federal funds with private sector resources.

Continued Research in Renewable Technologies

Renewable energy technologies play an increasingly important role in the nation's long-term energy future. The Department focuses its renewable energy research and development on reducing the costs of major renewable technologies to competitive levels by early in the next decade. The

Administration is committed to funding core renewable energy research in photovoltaics, solar thermal power, wind energy, biomass energy, geothermal energy, high temperature superconductivity, and hydrogen at FY 1995 levels in FY 1997. This research lays the foundation for future sustainable energy resources and has helped open major international markets for advanced U.S. technology.

Fossil Fuel Technologies

The United States is reliant on fossil fuels for about 85 percent of the energy it consumes. While the Administration and Department support the increased use of renewable energy, measures are also needed to ensure that economic benefits from low-priced fossil fuels do not come with unacceptable environmental costs or energy security risks.

Wind Energy

The Department's wind energy R&D program is making critical contributions to expanding the use of wind energy in the United States and building a domestic industry that can compete in a growing global market. In 1995, wind energy equipment sales worldwide topped $1 billion. Through a cost-shared technology partnership with 12 firms, DOE is successfully assisting U.S. companies to compete aggressively in an international arena once dominated by European wind turbine companies.

A key goal of fossil energy R&D is to increase the efficiency of fossil fuel recovery, conversion, and end-use. Increasing efficiency in gas and coal-fueled power generation to 60 percent could result in global reduction of greenhouse gas emissions on the order of 500 million metric tons of carbon by the year 2025, —over one-third of current U.S. carbon emissions. In a future scenario with high fossil fuel use, increasing efficiency could be one of the most cost-effective approaches to reducing carbon dioxide emissions in the electricity sector.

The Department's request for Fossil Energy programs in FY 1997 is consistent with Congressional guidance on reducing fossil energy research and development. Our remaining commitments to technology advances will be highly leveraged with industry cost-sharing.

Increased Efficiency and Environmental Quality in Power Production

Research and development of advanced natural gas power systems, including fuel cells and advanced turbines, can provide cleaner and more efficient alternatives to current systems. When integrated with the research and development of advanced coal-powered systems, this work can potentially reduce carbon dioxide emissions from coal power plants by over 40 percent in comparison to existing options. To ensure their acceptance in the market, these advanced natural gas power systems will have to reduce busbar electricity costs by 10 to 20 percent and emissions of regulated pollutants by an order of magnitude in comparison to current technology. Cost reductions of this order will eventually be worth many times the cost of the research and development that provide them, as they will save consumers billions of dollars each year.

Lower costs are also the key to the United States' capturing a share of the estimated

$20-billion-per-year international coal power technology market. Increasing our nation's share of this global market would create thousands of high-paying jobs in the United States. This is especially true in the case of energy markets in rapidly developing, cash-short, coal-rich countries such as China and India, where most of the growth in greenhouse gas and other emissions are projected to occur.

In FY 1997, many of DOE's gas and coal-fueled power systems will be entering their final phase of development. Evidence of a near-term payoff will be seen in the availability of a number of attractive systems by 2000. Successful commercialization of these systems will permit us to redirect funding, within existing fiscal constraints, toward longer-term, high-payoff R&D.

Supply Security and Environmental Quality in Gas and Oil Production and Delivery

In FY 1997, the Department will seek to enhance the value of the nation's oil and gas resource base. Our natural gas and oil research, development, and deployment program focuses on environmental technology and regulatory streamlining to reduce oil and gas production and processing costs without compromising environmental protection. We also seek to advance exploration, production and processing technologies that reduce operating costs.

The Department supports R&D to help ensure that the long-term supply of reasonably-priced natural gas—the nation's cleanest fossil fuel resource—is adequate to fuel the rapidly expanding domestic gas infrastructure. The Energy Information Administration projects that about half of the expected one-third increase by 2015 in domestic natural gas consumption will fuel new power plants that can be expected to operate for 30 years or more. It is likely that natural gas will play a strong environmental and economic role through the first half of the 21st century. The nation will require increasing amounts of natural gas from domestic resources that are not currently economical to produce. New and advanced technologies for production and utilization will be required that can overcome disadvantages in the geological setting, quality of gas, or location of these vast domestic resources.

The Department conducts R&D to increase domestic oil production and to lengthen the productive lives of domestic oil resources. Marginally economic wells with high remaining resource potential are being abandoned at an alarming rate, and tens of billions of barrels of oil may never be economical to produce. The Department's R&D in gas and oil recovery could preserve the availability of these resources and increase domestic production by nearly one million barrels per day by 2015, offsetting equivalent amounts of imports.

Final Phase of the Clean Coal Technologies Program

The United States' reserves of coal can provide for hundreds of years of energy consumption. The Clean Coal Technology program demonstrates ways that coal may be used in a cleaner, lower cost manner in the future. Five successive competitive solicitation cycles of the Clean Coal

Technology program have resulted in 43 demonstrations of advanced coal utilization technology, representing public and private investments of more than $7 billion.

The early rounds focused on technologies to reduce conventional pollutants and resulted in technologies to reduce sulfur dioxide at half the cost of older technologies. In addition, these rounds produced technologies to reduce NO_x that performed far better than older technologies and were among the lowest cost options available. These NO_x technologies are now at work in one-fourth of the nation's coal-fired plants.

Advanced coal power technologies are now being demonstrated in the Clean Coal Technology program that are expected to achieve efficiencies in the range of 40 to 45 percent. These technologies promise to reduce regulated pollutants by an order of magnitude and to be competitive with current technology. Further R&D advancements in these technologies are expected to increase coal power technology efficiencies to as much as 60 percent, lower electricity busbar costs 10 to 20 percent below current technology, minimize waste by generating more useful byproducts, and provide solutions, should more stringent control of effluents be required.

By the beginning of FY 1996, $2.41 billion of the $2.55 billion appropriated for the Clean Coal Technology program had been made available for its implementation. The Department will continue the program until it is completed. Due to technical and market risks inherent in first-of-a-kind commercial applications, not all selected projects are likely to be completed. Based on an analysis of potential project completions and terminations, the Administration has decided to rescind $325 million of Clean Coal Technology funding. The Department plans to review the current portfolio of projects and intends to make project decisions to meet the proposed rescission amount with a minimum impact on overall program objectives.

Strategic Petroleum Reserve

The Strategic Petroleum Reserve currently stores almost 600 million barrels of crude oil in underground salt caverns to protect the nation against oil supply disruptions. The Strategic Petroleum Reserve program is designed to maintain an initial drawdown rate capability of 3.9 million barrels per day for 90 days, and a somewhat lower rate thereafter. In FY 1997, DOE will continue to resolve operational problems caused by excessive gas content in roughly 100 million barrels of crude oil at three sites. Removal of the oil at Weeks Island, where water intrusion threatens the integrity of the site, will be completed and fill of the cavern with brine will begin. No oil acquisition is planned. Funding will support maintenance, security, drawdown readiness, and continued mitigation of operational problems.

Naval Petroleum and Oil Shale Reserves

The National Defense Authorization Act for FY 1996 requires the Department to sell the Elk Hills oil field at the Department's Naval Petroleum Reserve in California by February 10, 1998. The Department is requesting a minimum budget for FY 1997 to continue operations at a level that will not overly impact

revenues prior to sale. The FY 1997 funding level will reduce the drilling and well remediation program to minimum levels and all development activities will be eliminated. Total receipts from the Reserve's operation in FY 1995 were $417 million. Receipts are estimated at $435 million in FY 1996 and may fall to $407 million in FY 1997 due to reductions in investment funding.

Light Water Reactors

As part of its energy mission, DOE continues to advance nuclear power as an energy option by developing a safer generation of light water reactors. The current focus of our cost-shared light water reactor research is to make a certified standardized advanced light water reactor available at the earliest possible date. This will ensure that nuclear power can continue to contribute to new electrical capacity after 2010, if market decisions call for it. For FY 1997, we will also focus our Nuclear Energy resources on international nuclear safety efforts and reactor termination activities.

Standardized Nuclear Plants

In efforts that are cost-shared with industry, DOE is proceeding with two advanced light water plant designs with a potential to lower the costs and increase the safety of future nuclear power production. DOE's first-of-a-kind engineering for these plants goes to a level of detail beyond that required for Nuclear Regulatory Commission certification, in order to assure the standardization will lower costs. Completion of first-of-a-kind engineering for the advanced boiling water reactor is expected in FY 1996; the passive pressurized water reactor design is scheduled to reach the same milestone in FY 1998.

The Department resolves technical issues that stand in the way of continued operation of existing nuclear plants, including license renewal. Our nuclear R&D ensures the continued safety of the nation's nuclear power plants and will support the extension of nuclear power plant life beyond the current arbitrary 40-year licensing period, where appropriate.

Isotope Program

The Isotope program provides radioactive and enriched stable isotope products and associated services to a widely varied domestic and international market. These products and services are used in medical research and treatment, and national defense, and industrial applications. The Department has resumed the electromagnetic separation of stable isotopes at the calutrons at Oak Ridge National Laboratories. These calutrons are the only facilities outside the former Soviet Union capable of separating a wide range of stable isotopes for medical applications.

Radioisotope Power for Saturn Exploration

Three radioisotope thermoelectric generators and 157 radioisotope heater units provided by DOE will supply electrical power and heat for the NASA Cassini spacecraft for the expected nine years of the mission. The Cassini spacecraft will be launched in 1997 to explore the planet Saturn. The Cassini spacecraft is a joint effort with the European Space Agency.

Civilian Radioactive Waste Management

The Department has made substantial progress in its pursuit of a disposal solution

to the accumulation of spent fuel from civilian nuclear power plants and other high-level radioactive wastes.

The following significant accomplishments over the past year reflect an increased budget for FY 1995 and represent a valuable return on investment.

We completed approximately one-half (2.5 miles) of the planned excavation at Yucca Mountain and are now tunneling through the proposed repository horizon to assess the viability of the site to host a geologic repository.

We reduced the scientific and technical uncertainty surrounding the proposed repository site through analysis of scientific data. The analyses revealed that rock at the repository level is more competent and drier than had been anticipated. Investigations uncovered no unexpected geologic features and suggest that ground water flow at the repository horizon has been very limited for the past 100,000 years or more.

We also made progress in 1995 on cask development and environmental review requirements for near-term transport of waste.

Congressional redirection and the 40 percent reduction in program funding (from $522 million in FY 1995 to $315 million in FY 1996) provided through the FY 1996 appropriations process required substantial revisions to our plans.

The Department has refocused the Yucca Mountain site characterization work to emphasize core scientific activity, excavation of sections of the exploratory studies facilities necessary for scientific study, and completion of the repository and waste package conceptual designs. Activities supporting preparation and filing of a license application for the repository were deferred. However, the accumulated scientific data from the Yucca Mountain activities, along with management improvements and contractor consolidation, will allow us to reduce future expenditures while maintaining momentum towards our fundamental program objectives.

In response to Congressional redirection for FY 1996, we will execute the orderly phaseout of cask development and environmental requirement activities associated with transportation, and will transfer responsibilities to the private sector. In preparation to move large quantities of waste, we have initiated non-site-specific design and engineering to meet possible interim storage needs.

The principal objectives of our FY 1997 budget request are to: 1) resolve the remaining scientific and technical uncertainties concerning the construction and operation of a repository at Yucca Mountain by 1998; and 2) regain a viable schedule to file a license application for a repository, at a reduced level of expenditure.

Export Promotion

DOE continues to promote the export of clean U.S. energy and environmental technologies to emerging global markets in India, China, South Africa, Latin America, and other regions of the world. The Asian economies alone are expected to spend as much as $1 trillion on power-related

infrastructure over the next 15 years, according to the Energy Information Administration. The United States has powerful economic reasons to capture as much of this market as possible.

The environmental benefits of sustainable energy technologies provide a compelling reason for DOE to encourage the export of renewable energy technologies, as mandated by the Energy Policy Act of 1992. The use of renewable energy technologies reduces the emission of greenhouse gases that are responsible for global climate change. The Energy Policy Act authorizes the Secretary to develop policies and programs to encourage export and promotion of domestic energy resource technologies to developing countries.

Our trade missions to India, Pakistan, China, and South Africa have helped advance these important international economic and policy objectives of the Administration. The United States has vital economic, energy, environmental, and security interests in each of these nations. Three of these nations are strategically important because of their past, present, or future nuclear ambitions. Each faces major energy and industrialization challenges. Energy development is central to economic expansion, and the economic stability of these nations over time will have a significant impact on regional and global security. Most importantly, these missions have helped create business and jobs for U.S. firms during a period of intense global competition. Our four missions during 1994 and 1995 helped advance 143 trade agreements with a potential value of $19.7 billion.

State Energy Programs

State energy needs, opportunities, and use vary widely. Our State Energy program enables states to benefit from funding for Energy Efficiency and Renewable Energy activities that cross all energy use sectors. In FY 1995, each State Energy program dollar leveraged $11 in non-federal funds.

In FY 1995, DOE funding for Weatherization Assistance led to the weatherization of 118,000 homes, reducing the need for home heating assistance to low-income families. In addition, the program upgraded 1,455 schools and hospitals. Through these activities, Weatherization Assistance saved the estimated equivalent of 900,000 barrels of oil in FY 1995, reduced energy costs by over $28 million, and provided employment for 13,000 people.

The Department has been forced to make difficult tradeoffs in response to budget reductions. We have had to decrease the FY 1997 request for Weatherization Assistance by 37 percent relative to FY 1995. This level is still 25 percent above the conference mark for FY 1996.

Energy Information

The Energy Information Administration provides objective energy data for government, industry and the public to promote sound policy-making and public understanding of energy issues. DOE's FY 1997 request for the Energy Information Administration will allow us to put all publicly available data on an Internet home page, provide data on CD ROM, assess the requirements of our public and

private sector customers, as well as to continue gathering and analyzing energy information. The Energy Information Administration will issue approximately 250 reports and analyses and field an estimated 300,000 public inquiries in FY 1997.

Budget cutbacks in FY 1996, however, will cause reductions in the Energy Information Administration programs. From FY 1995 to FY 1996, overall funding for the Energy Information Administration was reduced by 15 percent, and contract funds and Federal staff were reduced by 35 percent. The Department is eliminating 15 of its National Energy Modeling System projects. As a result, the interactive access, customer support, and energy supply analysis capabilities of the National Energy Modeling System will be significantly diminished. Likewise, the frequency and breadth of Energy Information Administration data collection will be reduced. For example, the Manufacturing Energy Consumption Survey will be conducted every three years instead of every two. Less analysis will be undertaken in all program areas; for example, motor gasoline imports analysis will be eliminated. Publications, including the *Petroleum Marketing Annual* and the *Quarterly U.S. Energy Industry Financial Developments Report*, will be terminated.

Environmental Quality

Environmental management of DOE's weapons production complex entails more than the extensive cleanup of a 50-year legacy of nuclear contamination. We are also stabilizing stored plutonium, managing and maintaining major facilities, supporting nonproliferation policies, and conducting scientific research. Our six priorities are to: address urgent risks, assure worker safety, assume managerial and financial control, obtain on-the-ground results, focus our technology development, and involve the public in our decisions.

On all these fronts, the Department has made measurable progress. In FY 1995, we completed 75 remedial action projects, an increase of 134 percent over the previous fiscal year. To date, the Department has completed 194 remedial actions out of an original total of 705. From our Plutonium Uranium Extraction Plant at Hanford, we shipped 100,000 gallons of nitric acid to England for reuse, saving 10 months and $37 million on our deactivation of that facility. At our Hanford and Fernald sites, we achieved a new milestone in reducing lost work days due to accidents. At Rocky Flats, we have based contractor fees on actual performance and provided new incentives for cost savings.

While the Department's environmental management efforts have increased, the growth in funding for these efforts has leveled off. In FY 1996, over $840 million worth of responsibilities was shifted from our Defense Programs to our Environmental Management program, including most activities at the Savannah River Site, the Pinellas Site, and the Mound facility. We are using risk assessment to prioritize our activities. The Department is taking advantage of opportunities to privatize some of the cleanup work, employing the power of the

marketplace to improve efficiency in operations. We are reducing the size of our headquarters offices and staff and completing difficult but necessary reductions of about 17,500 contractor employees.

Public involvement is helping us to make economically acceptable decisions on how our program is to move forward. Our budget "work out" sessions are bringing us together with our federal and state regulators to find more cost-effective ways to meet our commitments. With these regulators, we are modifying existing compliance agreements as necessary to conform with budget constraints.

For the long term, the Department will focus on reducing the most urgent risks first, while at the same time investing in the development of new technologies to grapple with intractable problems in a more cost-effective manner. We are confident that the work we do in stabilizing contaminated sites will buy us the time to implement these technologies in the future.

Reducing urgent risks from unstable plutonium, corroding spent nuclear fuel and targets, and high level waste tanks will remain our highest priority. We will continue to get more cleanup results through the changes we have made in the way we do business.

Getting on with Cleanup

In previous years, much of the Department's Environmental Restoration program funding was spent on characterizing the contamination at more than 10,000 locations in over 130 sites. We are now spending more money on actual cleanup work than we are spending on our legally mandated assessments and studies.

In addition to finishing 75 remedial actions in 1995, we completed cleanups at five Formerly Utilized Sites Remedial Action Program sites, bringing the total completed to date to 21 out of 46. Two Uranium Mill Tailings Remedial Action program sites were also completed in 1995, bringing the total completed to date to 16 out of 24. We also completed 17 decommissioning projects on facilities no longer operational. On the technology front, we made 24 new or improved technologies available for transfer to the private sector, and successfully demonstrated 50 technologies at pilot-, bench-, or full-scale. To involve the public in our decisions, advisory boards were created at Hanford, Idaho National Engineering Laboratory, Nevada Test Site, Monticello Site, Fernald, Oak Ridge, Rocky Flats, Savannah River, Los Alamos National Laboratory, Sandia National Laboratories, and Pantex Sites.

For the long term, we must reexamine the wisdom of attempting to remove all contaminated soil. The long-term risks and costs of the Environmental Management program are highly dependent upon the amount of contaminated material that is excavated and disposed. We must remove contamination where it is necessary to protect public health and the environment. At the same time, we must carefully consider the risks and the costs of any particular cleanup strategy.

Budget "Work Out" Sessions and Compliance Agreements

Beginning in April 1995, the Department initiated a series of "work-out" sessions to address environmental activities under declining budgets. These sessions bring together senior headquarters, field, and contractor managers and senior representatives of our federal and state regulatory agencies to find more cost-effective ways to meet environmental management commitments. The sessions have been held at Hanford, Savannah River, and Rocky Flats, and others are scheduled for Oak Ridge and the Idaho National Engineering Laboratory. One result has been the "Blueprint for Action and Cost Control at Hanford." This agreement, between Washington State, the Department, the Environmental Protection Agency, and the Hanford contractors, identifies a framework for implementing a more efficient and cost effective cleanup program at Hanford under the Tri-Party Agreement. Those involved have committed to a partnership to improve environmental performance and create cost savings of more than $1 billion at Hanford over the next five years.

The Department is working to establish effective compliance agreements that are realistic and cost-sensitive. The Department has completed negotiations for 29 site treatment plans and Compliance Orders required by the Federal Facility Compliance Act and expects an additional 6 plans with accompanying Orders to be issued in the near future. These plans represent a three-year, collaborative effort by the Department, the hazardous waste regulatory agencies of the states, the Environmental Protection Agency, and the public.

Public Involvement Reduces Costs

Local stakeholders continue to help DOE make economically feasible, technically sound, and publicly-acceptable decisions on how the cleanup program is to move forward. One example of success in this effort is the Fernald Citizens Task Force which was established in August 1993. The Task Force recommended that residual contamination levels match land use levels and that certain low level waste be stored at the site instead of being transported off site. The Task Force determined that to leave soil that has radiation levels within acceptable risk undisturbed is more prudent than transporting it. Estimated savings resulting from this decision amount to over $2 billion.

In recognition of future funding and technical uncertainties, most state orders requiring compliance incorporate a "rolling" approach to setting cleanup schedules.

Processing Defense Waste

Pretreatment of the 34 million gallons of high-level waste at DOE's Savannah River Site began in FY 1995 with the start of operations at the In Tank Processing Facility. The pretreatment is the first step in the immobilization of this waste in the Defense Waste Processing Facility, scheduled for operation in FY 1996.

Under this approach, schedules will be set for near-term, high-priority activities and longer-term activities will be scheduled over time. Most Orders state that the Department's future funding for Environmental Management will be considered in setting and revising plans.

Pollution Prevention at DOE

In December 1995, the Department won an Environmental Champion Award for reduction in the release of toxic chemicals from DOE facilities. Jointly sponsored by the Environmental Protection Agency and McGraw-Hill Company, the first-ever Environmental Champion Awards were presented to 20 U.S. companies and DOE. The awards are part of a National Performance Review initiative for "common sense" regulatory reform and government that works better and costs less.

Based on preliminary data reported in the 1994 Toxic Chemical Release Inventory, the Department met its goal of reducing the release of toxic chemicals from its facilities by 7 percent. In FY 1995, DOE successfully initiated 17 pollution prevention projects that will pay for themselves within 3 years.

The Department's goal is to have the agreements with our regulators establish a manageable, regular process for addressing fiscal and technical uncertainties. Schedules should be more realistic and results-driven while still providing for accountability. The Department is committed to complying with environmental laws that apply to its sites and operations. Some of the compliance agreement schedules are unworkable within current fiscal constraints. We are working cooperatively with the states, stakeholders, and the Environmental Protection Agency to renegotiate those agreements as appropriate to ensure greatest risk reduction and risk prevention per dollar spent.

Waste Management

DOE is also working with regulators to resolve how to treat mixed radioactive and hazardous waste, or "mixed waste," at our facilities in compliance with the Resource Conservation and Recovery Act (RCRA) and the Federal Facilities Compliance Act (FFCA). For each facility that generates or stores mixed waste, the Department has prepared a comprehensive site treatment plan. These plans were submitted to state and Environmental Protection Agency regulators in April 1995 to meet the FFCA deadline of October 1995. To date, compliance orders for 28 of the 35 site treatment plans have been approved by these regulators, and negotiations are continuing on the remaining seven.

Improved Contracting for Environmental Management

Within the past two years, DOE has initiated competitions for contracts at Idaho National Engineering Laboratory, Rocky Flats Site, Nevada Test Site, Savannah River Site, and Hanford Site. Contractors have pledged savings of roughly $2 billion in the two competitive procurements for Rocky Flats and Idaho National Engineering Laboratory alone. Both contain incentives for economic development. The Rocky Flats contract rewards progress in site conversion. The Idaho contract includes commitments by the contractor to develop new cleanup technologies. Our new contracting policies also encourage federal site managers and contractors to engage private companies and explore privatization opportunities.

DOE is ahead of schedule in treating mixed waste with thermal technologies at the Idaho National Engineering Laboratory. In addition, the achievement of three critical milestones in FY 1995 is enabling us to maintain our schedule for receiving waste at our Waste Isolation Pilot Plant in FY 1998.

Safely Managing Nuclear Weapons Materials

In addition to what is conventionally thought of as "cleanup," the Department is responsible for stabilizing nuclear materials at sites across our complex. At the end of the Cold War, nuclear material production lines and reactor operations were halted in various stages, leaving nuclear material in various forms and packaging configurations. Collectively, these inadequately stored nuclear materials pose some of the highest risks in the country. Stabilization is required to reduce these risks and place these materials in a condition for long-term storage. Over the last year, we have stabilized over 12,000 liters of liquid uranium at the Idaho National Engineering Laboratory. We successfully started up the purification part of the F-Canyon at Savannah River to stabilize plutonium at that facility. Disposition of 7,000 gallons of plutonium nitrate at our Plutonium Uranium Extraction Plant at Hanford was completed, and at the Idaho National Engineering Laboratory 391 fuel handling units were transferred to more secure storage.

Privatizing Cleanup

The Department is in the process of privatizing some of its environmental management activities. At Hanford, we have already privatized low-level mixed waste thermal treatment projects and laundry services, for a projected savings of $630 million. Privatization of some waste management at DOE facilities is expected to reduce federal costs. For the difficult remediation of 56 million gallons of waste stored at our Hanford Site in Washington, we issued a request for proposals in February 1996. Our plan is to select one or more companies by August 1996 that will build, own, and operate plants to treat these wastes. At our Oak Ridge facilities in FY 1996, we plan to award competitive contracts to private firms for full-scale demonstration of technologies for solidifying and vitrifying mixed low-level wastes. Private firms have also expressed interest in demonstrating remote treatment of transuranic waste at existing facilities at Oak Ridge.

Decommissioning

The decommissioning of contaminated facilities that the Department no longer needs addresses safety and environmental problems and prevents such problems from arising in the future. DOE recently joined with the Environmental Protection Agency in developing a decommissioning policy for DOE facilities. The resulting policy establishes a decommissioning approach that rapidly achieves environmental compliance and risk reduction, while keeping costs down. Cost-conscious decommissioning will be a major focus of DOE's national decommissioning program in the coming year. A planned analysis of surveillance and maintenance requirements, practices, and costs is intended to identify ways to reduce overhead costs associated with unused buildings awaiting decommissioning.

Risk Assessment

The Department continues to place an emphasis on sound risk assessment to prioritize our work. Our draft report "Risks and the Risk Debate: Searching for

Common Ground" provides a foundation of technical, environmental, financial, and social analysis that will help determine how fully, quickly, and costly it will be to stabilize and clean up environmental damage left from the Cold War. The report indicates that 88 percent of our Environmental Management budget is directed toward medium- and high-risk activities. The hazardous nature of the materials we manage and contamination we clean up poses serious risks to public health, and more immediate threats to the people who carry out the on-the-ground work of cleanup, waste management, and materials stabilization. We have continued to emphasize worker and public health and safety to minimize these risks.

Pace of Technology Development

In FY 1995, 24 DOE-developed technologies for environmental management were made available to the private sector. During the same time, the Department demonstrated another 50 environmental technologies at various stages of development. Among the technologies put to use in FY 1995 for cleanup at the Mound Laboratory in Ohio was the Dig Face Characterizations system. This system is far faster than conventional environmental characterization processes, reducing workers' potential exposure to hazards.

Technology Development

Current environmental remediation methods are often inefficient and extremely expensive. In some cases, no means exist to clean up hazardous and radioactive contamination. The Department's Environmental Management Technology Development program develops and demonstrates new or improved technologies that lower risks to workers, the public, and the environment. These technologies often reduce cleanup costs or provide solutions where none had existed. Beginning in FY 1996, the Department established an Environmental Management Science Program to direct long-term basic research that supports breakthrough cleanup technologies. This research will bridge the gap between the Department's fundamental research and needs-driven applied technology development.

Our Science and Technology program, new in FY 1997, will be aimed at developing and demonstrating technologies that would allow for faster, safer, and more affordable cleanup of contamination and management of waste. Research will be conducted in concert with the National Laboratories and our Office of Energy Research. The program responds to the findings of the Galvin Commission, which recommended targeted, long-term basic research in environmental management.

Environment, Safety and Health

The Department is developing the tools program managers need to manage safety at our facilities more effectively and at less cost to taxpayers. We are demonstrating that we can improve our operations by integrating safety considerations into our planning processes. We are making the most efficient use of our limited resources by targeting our most urgent risks. At our Fernald facility, for example, we avoided nearly $2 million in unnecessary work, by "building" safety and health considerations into work plans. In much the same way, we saved $500,000 at our Hanford facility.

This approach to planning work has become a standard practice throughout the DOE complex, saving taxpayers millions of dollars while making our work safer.

Opening the Record on Human Radiation Experiments

In 1995, the Department completed research on more than 435 human radiation experiments performed during World War II and the Cold War, opening over 250,000 pages of historical documents to public scrutiny on the Internet. DOE also released a 29-part series of related oral histories by researchers and others with firsthand knowledge of the experiments. The program is part of the Department's efforts to increase public communication and trust and to declassify documents as appropriate.

Our vulnerability assessments over the past three years have identified risks due to conditions at our facilities and weaknesses in the way we handle spent fuel, plutonium, and hazardous chemicals that could affect public or worker health, or the environment. These assessments have allowed us to reset our priorities so as to direct our resources toward the most urgent risks. We have completed 281 of the 503 corrective actions identified by the spent fuel vulnerability assessment and 64 of the 152 corrective actions identified by the plutonium vulnerability assessment. At the Hanford K-basins, for example, we are addressing our highest spent fuel risks. At Savannah River, the FB-Line and F-Canyons are stabilizing plutonium solutions.

Our Environment, Safety, and Health independent oversight program has been extremely useful in helping the Department effectively target risk. This oversight provides the Department with professional appraisals of safety that clearly articulate the principles of sound management of environment, safety, and health. These appraisals also set forth expectations for improvement.

The Department is doing new kinds of work at facilities where "top down" orders were originally designed to meet the needs of weapons production. These orders are no longer always suitable for current decontamination, decommissioning, and environmental cleanup activities that involve hundreds of different tasks in aging facilities with hazards that are difficult to predict. Our "Necessary and Sufficient" process allows us to tailor our safety standards to our work and our facilities. In a pilot application of this process at a major Hanford facility, we were able to greatly reduce worker exposure to hazards while cutting costs by 50 percent. The Department plans to use this process for the safe and timely stabilization of facilities at Rocky Flats and other sites across our complex.

The following sections present the Department of Energy's FY 1997 budget request in detail. Our commitment to ensuring the national defense, providing for a more secure and sustainable energy future, and improving the nation's environmental quality is reflected in this request.

Budget by Business Line

The Budget Highlights contained in the remainder of this document are organized by Appropriation account. The Department also crosscuts budgetary information by organization and by business line. Arranging budgets by business lines assists us in implementing our Strategic Plan and Strategic Alignment initiatives. When we created the Department's first-ever Strategic Plan, in April, 1994, we provided a framework and a shared vision for our missions in National Security, Energy Resources, Environmental Quality, and Science and Technology. With this plan, we began organizing our missions into business lines.

In the fall of 1994 we announced Phase II of our strategic planning process, our Strategic Alignment Initiative. The objective was to identify better, more cost-effective means of performing the core missions defined in our strategic plan and further define our business lines.

Departmental elements will operate more efficiently and effectively through the clustering of program offices by business line, the clarification of roles and responsibilities, the assignment of lead offices, and office and activity consolidations. Our challenge is to perform these mission responsibilities within a shrinking budgetary environment. This requires that we do things differently in the future than we have in the past. We must simplify and make sense out of internal processes that currently are burdensome and redundant, and we must save dollars across-the-board. We are committed to further excellence in our mission areas and know that we can implement these missions better and at lower costs through fundamental changes in the way we do business. We are driven by more than simply the imperative of deficit reduction. Our primary motivations for change are:

- Fundamental processes that govern how the Department operates are cumbersome, inefficient, and drain our employees of energies that could be spent more productively in other ways. In response, we must re-engineer these processes and eliminate unnecessary steps so that we can sharpen our focus on mission results.

- Like most bureaucracies, the Department has responded to problems in the past by adding new layers of management and new processes on top of old ones. In response, we must delayer the organization, establish flatter organizational structures, and empower our employees to meet and exceed customer needs.

- Redundancies within the Department and inefficient procedures have persisted from one Administration to the next, without a fundamental re-thinking of how to do things better. In response, we already have seized the initiative to make major changes in the way we operate, and will accelerate these changes through the commitments in Strategic Alignment Initiative.

Realigning the Energy Resources Programs - The Energy Resources business line programs realignment will be implemented in Fiscal Year 1996. This approach will facilitate integration of programmatic planning and policy, corporate decision making, prioritization of initiatives and budget resources, and customer service.

Through the Strategic Alignment initiative, significant improvements in departmental performance and operational efficiency will be enhanced through a number of changes in the Department. An Energy Resources board will oversee the energy business line policy direction and will integrate and coordinate crosscutting policy, technology and administrative issues. We will realign the Offices of Energy Efficiency and Renewable Energy, Fossil Energy, Nuclear Energy, and the Energy Information Administration. This action will eliminate redundant functions, flatten the organizations, improve operational efficiency, and will enable a more integrated approach to the Department's energy portfolio. Realigning the Energy Resources business line will enable a reduction of 502 employees (over 5 years) for a total savings of $133 million. The goal is to strategically align DOE programs in the Energy Resources business line to: enhance corporate decision making; facilitate integration of energy programs and policy; coordinate technology and energy research; and provide more effective customer interface. In addition, the implementation plan is responsive to recommendations of the Yergin Task Force, Galvin Report, and customer/ stakeholder feedback.

Realigning the National Security Programs - A National Security business line and Executive Committee have been established with membership consisting of the office heads for Defense Programs; Nonproliferation and National Security; Fissile Materials Disposition; and Nuclear Energy. An Executive Secretariat to review crosscutting issues will be established to support the Executive Committee.

The National Security business line will recommend consolidation of specific functions across the business line to achieve reengineering efficiencies to reduce work in selected functions by 35 percent. Specific functions selected for streamlining are information management; Headquarters Security Officer; training; National Environmental Policy Act compliance; procurement; and personnel.

In addition, better coordination of National Security activities eliminates confusing and redundant policy direction and gaps in laboratory tasking. Improved management and consolidation of the National Security business line will enable a reduction of 292 positions over five years, save $58.6 million over five years, and decrease the work in selected business management activities by 35 percent.

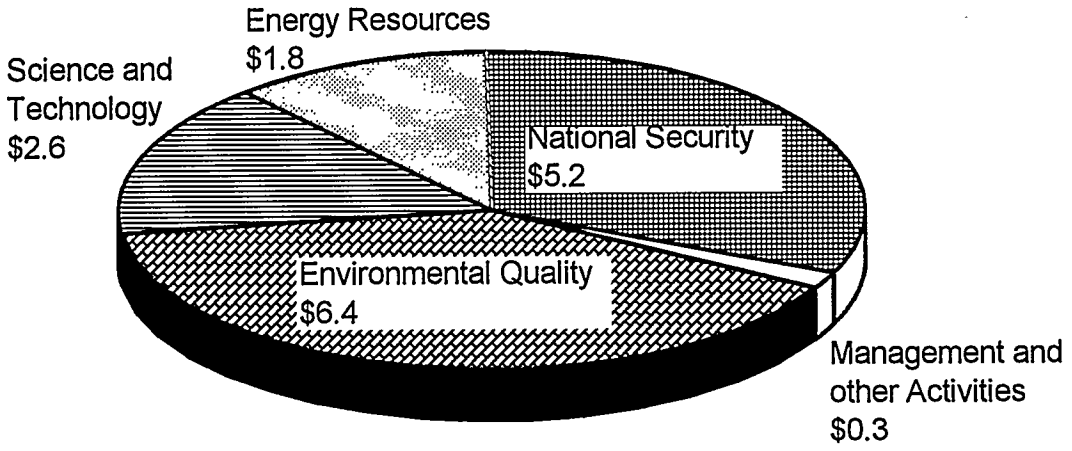
Remaining Business Lines - The Environmental Quality and Science and Technology business lines continue to seek innovative streamlining and cost saving strategies. Areas currently being reviewed involve duplications between the Offices of Environmental Management and Environmental, Safety and Health and within the Office of Energy Research.

Through these actions we have made tough decisions about how we perform our work in a fashion that reduces the size and costs of the Department. This alignment is a bold action plan to reduce layers of management, eliminate organizational redundancies, and integrate activities that historically have operated in isolation. In so doing, we will meet our most important objective, which is to better serve our customers as we deliver on our missions: protecting national security and reducing nuclear danger, enhancing our long-term energy security, advancing the frontiers of scientific understanding, protecting the environment, and developing technologies that contribute to U.S. economic productivity.

The following chart breaks out Department of Energy FY 1997 programs by business line.

Department of Energy

(Dollars in Billions)



FY 1997 Budget Authority - $16.3

Business Lines by Organization

In many instances Department of Energy organizations manage programs which are funded in different Appropriations. The following table shows the full financial responsibilities of organizations and business lines in the Department by combining appropriation lines.

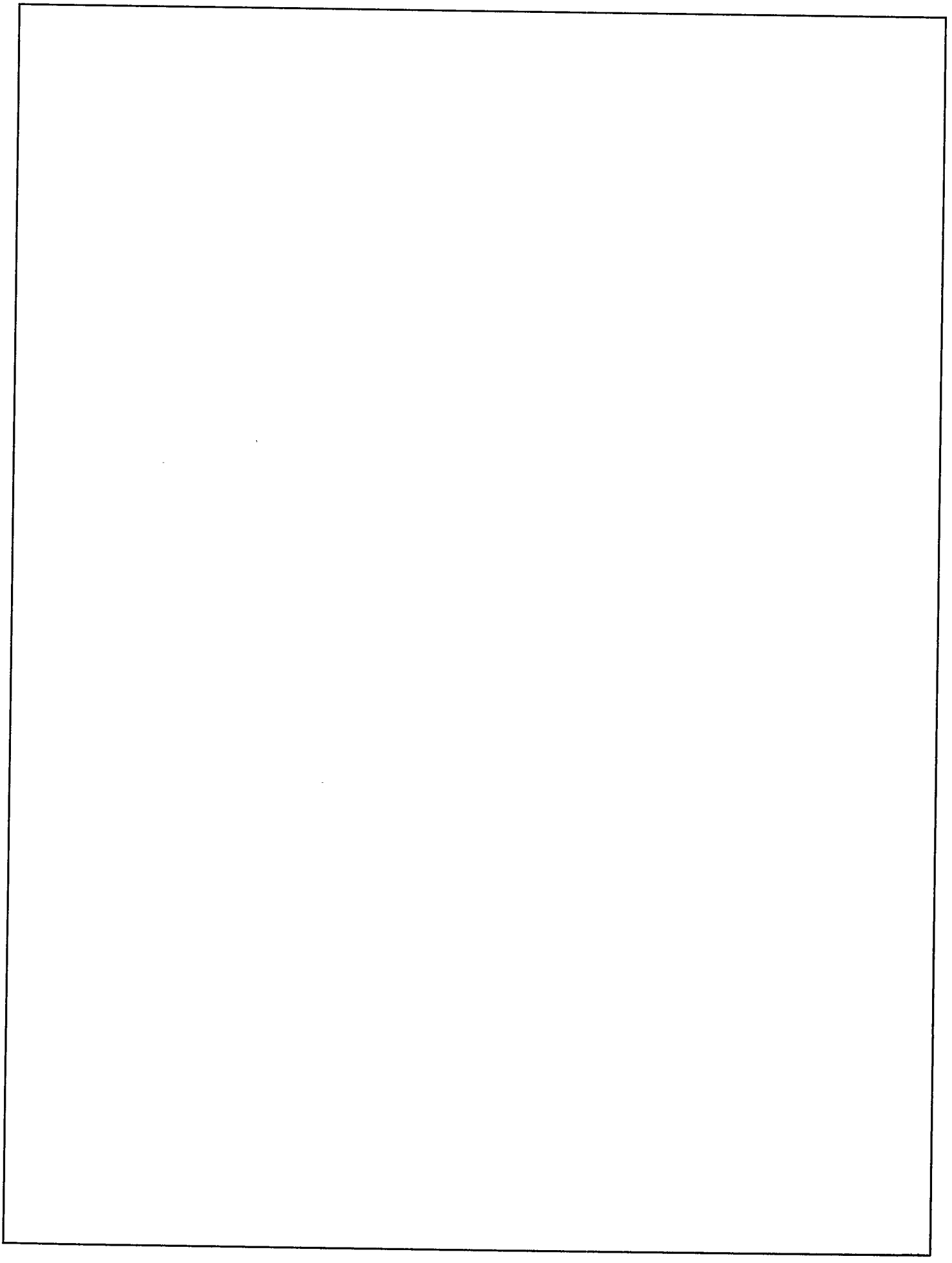
	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
National Security					
Defense Programs	3,212,188	3,443,775	3,710,002	266,227	7.7%
Nonproliferation & Nat'l Security	472,340	552,579	586,972	34,393	6.2%
Surplus Fissile Materials	50,246	70,269	93,796	23,527	33.5%
Worker and Community Transition	123,326	81,688	67,000	-14,688	-18.0%
International nuclear safety & security (NE)	60,400	30,000	72,200	42,200	140.7%
Naval Reactors (NE)	674,455	682,198	663,932	-18,266	-2.7%
Total, National Security	4,592,955	4,860,509	5,193,902	333,393	6.9%
Energy Resources					
Energy Efficiency & Renewable Energy	1,111,250	811,874	1,084,308	272,434	33.6%
Fossil Energy	776,638	717,883	215,308	-502,575	-70.0%
Nuclear Energy (except Nat'l Security)	380,781	280,894	275,854	-5,040	-1.8%
Power Marketing Administrations	234,575	317,432	264,435	-52,997	-16.7%
Total, Energy Resources	2,503,244	2,128,083	1,839,905	-288,178	-13.5%
Science and Technology					
Energy Research	2,694,355	2,485,160	2,548,582	63,422	2.6%
Scientific & Technical Information	15,824	11,796	12,000	204	1.7%
Technology Partnerships	2,902	—	—	—	—
Total, Science and Technology	2,713,081	2,496,956	2,560,582	63,626	2.5%
Environmental Quality					
Environmental Management	6,284,439	5,993,093	5,878,376	-114,717	-1.9%
Civilian Radioactive Waste Management	522,742	400,026	400,028	2	0.0%
Environment, Safety & Health	192,570	188,865	176,006	-12,859	-6.8%
Total, Environmental Quality	6,999,751	6,581,984	6,454,410	-127,574	-1.9%
Total, Business Lines	16,809,031	16,067,532	16,048,799	-18,733	-0.1%
Other Programs	381,902	320,794	354,548	33,754	10.5%
Federal Energy Regulatory Commission	—	-42,000	-25,892	16,108	38.4%
Undistributed adjustments	-34,965	-15,869	-48,177	-32,308	-203.6%
Total, Discretionary funding	17,155,968	16,330,457	16,329,278	-1,179	-0.0%

Crosswalk from Business Line to Appropriation

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	National Security	Energy Resources	Science and Technology	Environmental Quality	Other	Total, DOE
Energy and Water Development Activities						
Energy supply research & development	—	616,999	1,551,432	763,620	88,446	3,020,497
Uranium supply & enrichment activities	—	27,800	—	—	—	27,800
Uranium enrichment D&D fund	—	—	—	240,200	—	240,200
General science & research activities	—	—	1,009,150	—	—	1,009,150
Atomic energy defense activities:						
Weapons activities	3,710,002	—	—	—	—	3,710,002
Defense environmental restoration & waste mgmt	—	—	—	5,409,310	—	5,409,310
Other defense programs	1,483,900	—	—	63,800	—	1,547,700
Defense nuclear waste disposal	—	—	—	200,000	—	200,000
Total, Atomic energy defense activities	5,193,902	—	—	5,673,110	—	10,867,012
Departmental administration	—	—	—	—	119,475	119,475
Office of the inspector general	—	—	—	—	29,605	29,605
Power marketing administrations:						
Alaska power administration	—	4,000	—	—	—	4,000
Southeastern power administration	—	20,900	—	—	—	20,900
Southwestern power administration	—	26,900	—	—	—	26,900
Western area power administration	—	221,665	—	—	—	221,665
Falcon & Amistad operating & maintenance fund	—	970	—	—	—	970
Colorado river basin	—	-10,000	—	—	—	-10,000
Total, Power marketing administrations	—	264,435	—	—	—	264,435
Nuclear waste disposal fund	—	—	—	200,028	—	200,028
Total, Energy and Water Development Activities	5,193,902	909,234	2,560,582	6,876,958	237,526	15,778,202
Interior and Related Agencies						
Fossil energy research and development	—	348,508	—	—	—	348,508
Alternative Fuels Production	—	-4,000	—	—	—	-4,000
Naval petroleum and oil shale reserves	—	149,500	—	—	—	149,500
Energy conservation	—	715,363	—	—	—	715,363
Economic regulation	—	—	—	—	2,725	2,725
Strategic petroleum reserve	—	221,300	—	—	—	221,300
Energy information administration	—	—	—	—	66,120	66,120
Clean coal technology	—	-500,000	—	—	—	-500,000
Total, Interior and Related Agencies	—	930,671	—	—	68,845	999,516
Uranium enrichment D&D fund discretionary payments	—	—	—	-422,548	—	-422,548
Excess FERC receipts	—	—	—	—	-25,892	-25,892
Total, Department of Energy	5,193,902	1,839,905	2,560,582	6,454,410	280,479	16,329,278



Summary by Appropriation

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy and Water Development Activities					
Energy supply research & development	3,412,738	2,869,382	3,020,497	151,115	5.3%
Uranium supply & enrichment activities	73,123	29,294	27,800	-1,494	-5.1%
Uranium enrichment D&D fund	301,327	278,807	240,200	-38,607	-13.8%
General science & research activities	970,329	982,150	1,009,150	27,000	2.7%
Atomic energy defense activities:					
Weapons activities	3,212,347	3,456,238	3,710,002	253,764	7.3%
Defense environmental restoration and waste mgmt	5,404,660	5,466,395	5,409,310	-57,085	-1.0%
Other defense programs	1,444,885	1,473,927	1,547,700	73,773	5.0%
Defense nuclear waste disposal	129,430	248,400	200,000	-48,400	-19.5%
Total, Atomic energy defense activities	10,191,322	10,644,960	10,867,012	222,052	2.1%
Departmental administration	92,641	84,936	119,475	34,539	40.7%
Office of the inspector general	28,036	26,601	29,605	3,004	11.3%
Power marketing administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	22,423	19,843	20,900	1,057	5.3%
Southwestern power administration	21,308	29,778	26,900	-2,878	-9.7%
Western area power administration	184,352	262,551	221,665	-40,886	-15.6%
Falcon & Amistad operating & maintenance fund	—	1,000	970	-30	-3.0%
Colorado river basin	—	—	-10,000	-10,000	—
Total, Power marketing administrations	234,575	317,432	264,435	-52,997	-16.7%
Federal energy regulatory commission	—	—	—	—	—
Nuclear waste disposal fund	392,630	151,626	200,028	48,402	31.9%
Total, Energy and Water Development Activities	15,696,721	15,385,188	15,778,202	393,014	2.6%
Interior and Related Agencies					
Fossil energy research and development	421,370	421,497	348,508	-72,989	-17.3%
Alternative Fuels Production	-3,900	-2,400	-4,000	-1,600	-66.7%
Naval petroleum and oil shale reserves	186,993	148,786	149,500	714	0.5%
Energy conservation	717,482	538,913	715,363	176,450	32.7%
Economic regulation	14,182	8,094	2,725	-5,369	-66.3%
Strategic petroleum reserve	243,663	287,000	221,300	-65,700	-22.9%
SPR petroleum account	-107,764	-187,000	—	187,000	100.0%
Proceeds from sale of Weeks Island Oil, SPR decommissioning	—	-100,000	—	100,000	100.0%
Energy information administration	84,645	72,379	66,120	-6,259	-8.6%
Clean coal technology	36,276	150,000	-500,000	-650,000	-433.3%
Total, Interior and Related Agencies	1,592,947	1,337,269	999,516	-337,753	-25.3%
Uranium Enrichment D&D fund discretionary payments	-133,700	-350,000	-422,548	-72,548	-20.7%
Excess FERC receipts	—	-42,000	-25,892	16,108	38.4%
Total, Department of Energy	17,155,968	16,330,457	16,329,278	-1,179	-0.0%

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

Energy Supply Research and Development

The Energy Supply Research and Development appropriation accounts support a variety of energy research and applied technology programs as well as programs providing environmental oversight and mitigation. Organizations with programs supported by this appropriation include Energy Efficiency and Renewable Energy; Nuclear Energy; Environmental Management; Environment, Safety and Health; Energy Research; and Field Management.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Supply Research and Development					
Energy efficiency and renewable energy	403,398	288,761	368,945	80,184	27.8%
Nuclear energy	312,104	256,561	248,054	-8,507	-3.3%
Environment, safety, and health	128,293	123,605	112,206	-11,399	-9.2%
Energy research	1,743,722	1,538,992	1,539,432	440	0.0%
Environmental management	735,533	617,802	651,414	33,612	5.4%
Other programs					
Civilian waste research and development	690	—	—	—	—
Technical information management	15,995	11,976	12,000	24	0.2%
Technology partnership	2,902	—	—	—	—
Field offices and management	127,433	112,915	121,723	8,808	7.8%
Information systems investment	—	—	14,900	14,900	—
Total, Other programs	147,020	124,891	148,623	23,732	19.0%
Subtotal, Energy Supply Research and Development	3,470,070	2,950,612	3,068,674	118,062	4.0%
Use of prior year balances and other adjustments	-57,332	-81,230	-48,177	33,053	40.7%
Total, Energy Supply Research and Development	3,412,738	2,869,382	3,020,497	151,115	5.3%

Energy Efficiency and Renewable Energy

Mission - The Office of Energy Efficiency and Renewable Energy strives to ensure National energy security by lessening U.S. dependency on imported oil through investments in energy efficiency and renewable energy technologies, and improves environmental quality by promoting the efficient use of clean energy resources.

Program Overview - To fulfill its mission, the Office of Energy Efficiency and Renewable Energy (EE) supports research and development efforts in energy efficiency and renewable technologies in utility, building, transportation, and industry sectors. EE also supports efforts to commercialize and deploy these technologies in both the domestic and international markets. In addition, EE provides current information on these technologies to the public to encourage investments/acceptance/incorporation of these technologies in the energy practices of businesses, communities, and State and local governments. In a major portion of these efforts, EE routinely requires matching funds from industries, States, and other program partners and is successfully achieving, at a minimum, 50-50 cost-shared projects. EE is funded by both the Energy Supply R&D and Energy Conservation appropriation accounts. The activities provided by the Energy

Supply R&D appropriation will be discussed in this section. Programs supported by Energy Conservation appropriation will be discussed in the Interior and Related Agencies appropriations.

Since the passage of the Energy Policy Act of 1992, there has been a steady increase in support and funding of the solar and renewable energy programs. Starting in FY 1994 through FY 1995, the Solar and Renewable Energy program saw large funding increases (+$97 million in FY 1994 and additional +$50 million in FY 1995). These funding increases reflect the startup of Presidential initiatives for the Climate Change Action Plan program, deployment partnerships, and efforts in industry growth/sustainability and in penetrating international markets. The Climate Change Action Plan (CCAP) initiative consists of any existing or new programs that contributed to the reduction of greenhouse gas emissions (CO_2, CH_4 and N_2O). Deployment partnerships are supported by funding demonstration projects to ensure that key technological barriers are addressed. Industry growth/sustainability is achieved by funding core R&D activities to maintain the U.S. lead role in these technologies. Investing in international market penetration now will permit the US renewable energy industries to capture international market share, create domestic jobs, and generate export revenue.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Efficiency and Renewable Energy					
Solar and Renewable Resources Technologies					
Solar Energy					
Solar building technology research	4,349	1,942	5,000	3,058	157.5%
Photovoltaic energy systems	83,835	61,559	86,994	25,435	41.3%
Solar thermal energy systems	30,316	24,270	23,750	-520	-2.1%
Biofuels energy systems	52,340	53,671	80,890	27,219	50.7%
Wind energy systems	45,031	31,551	49,650	18,099	57.4%
Renewable energy production incentive program	4,659	662	3,489	2,827	427.0%
National renewable energy laboratory	5,963	2,000	5,000	3,000	150.0%
Resource assessment	3,847	1,942	—	-1,942	-100.0%
Solar and renewable energy deployment	28,869	14,671	8,509	-6,162	-42.0%
Total, Solar Energy	259,209	192,268	265,082	71,014	36.9%
Geothermal	45,437	33,392	35,600	2,208	6.6%
Hydrogen research	8,940	14,500	11,012	-3,488	-24.1%
Electric energy systems and storage	41,388	34,284	36,050	1,766	5.2%
Policy and management	17,792	13,975	17,301	3,326	23.8%
Total, Solar and Renewable Resources Technologies	372,766	288,419	363,245	74,826	25.9%
In-house energy management	30,632	342	5,700	5,358	1566.7%
Subtotal, Energy Efficiency and Renewable Energy	403,398	288,761	368,945	80,184	27.8%
Use of prior year balances	-9,630	-15,800	—	15,800	100.0%
Total, Energy Efficiency and Renewable Energy	393,768	272,961	368,945	95,984	35.2%

Budget Overview - In FY 1997, Energy Efficiency and Renewable Energy (EE) is requesting $369 million in the Energy Supply R&D Appropriation, in addition to the $715 million requested in the Energy Conservation account within the Interior and Related Agencies Appropriations. The $96 million increase in Energy Supply R&D over the comparable FY 1996 budget puts the

FY 1997 budget request back at the program's FY 1995 funding level. The Administration has chosen to fully support the Solar and Renewable Program because it will produce tangible results in such areas as export dollars, domestic employment, and environmentally friendly energy resources. The FY 1997 budget request for EE's Solar and Renewable Energy program funds a balanced portfolio of R&D in near-term, mid-term and long-term renewable technologies. The Solar and Renewable Energy deployment activities are heavily cost-shared by industry. The amount of cost-sharing by industry is proportionately related to how close the technology is to market entry.

The challenge DOE faces in FY 1997 is to produce more successes in a time of declining Federal budgets. The strategy for achieving this is demonstrated in the funding priorities in the Solar and Renewable program where Photovoltaic, Biofuels and Wind technologies received the majority of the budget. The Photovoltaics program in recent years has achieved numerous technological breakthroughs from which commercial applications are currently being realized. There is great industry interest and financial support for taking these applications into the market place. The Biofuels program has garnered similar interest and support from the utilities and transportation industry because it has demonstrated great potential in providing a real alternative energy resource for baseload power production and producing ethanol, an important alternative fuel option, that is cost-competitive with fossil fuels. Although Wind technology can currently produce electric power at a cost of 4 to 5 cents/kWh (at wind speed of 15mph), it is crucial to invest further in this technology because the wind energy technology sales in the world market is projected to reach $2-3 billion by the year 2000. The U.S. wind industry can capture a sizable market share if improvements to current technologies can be made to further decrease the cost of electric power production.

FY 1997 Budget Request - The FY 1997 budget request of $369 million supports and emphasizes the following major program activities:

Photovoltaics (PV) - ($87 million). Half of the program's resources funds fundamental research, which is essential for continual progress towards long-term goals of improved performance and lower costs. The remaining resources will be used in competitive procurements for highly cost-shared projects with U.S. utilities and the photovoltaics industry. The cost-shared projects focus on three areas: 1) researching manufacturing process technologies (PVMat); 2) establishing and economic validating utility applications of photovoltaics systems (UPVG); and 3) developing photovoltaics products that can be integrated into commercial and residential buildings (PV:BONUS).

Solar Thermal - ($24 million). Continues FY 1996 R&D activities in three Solar Thermal Electric (STE) technologies: power towers, dish/engines, and parabolic troughs. The STE program is a leveraged cost-shared program with industry and user communities that aims to achieve technology advancements in order to produce electricity at 5-7 cents/kWh cost from a current cost of 17 cents/kWh.

Biofuels - ($81 million). The Biofuels program's goal is to develop cost-competitive technologies in two major focus areas: converting biomass resources into electric power production, and converting biomass to liquid transportation fuels, mainly ethanol production. Biofuels technology is pursued because it: 1) is a low-cost renewable baseload electric generation alternative; 2) will create jobs in rural areas through dedicated feedstock for Biofuels systems; and 3) benefits the environment in two ways: a) Biofuels burns cleanly because carbon released to the atmosphere is offset by carbon consumption during this resource's growing cycle, and b) encourages the use of agricultural residues such as forestry wastes and rice-straws as biomass fuels.

Wind- ($50 million). The program focuses R&D efforts on understanding how wind turbine blades may better capture the kinetic energy in winds of varying speeds and how the structures and components of wind turbines can be best designed for cost effectiveness and reliability. The goal of the wind program is to reach a cost of wind-generated electricity of 2.5 cents per kWh so that the domestic wind industry will be in the position to seize a good share of the projected $2-3 billion wind technology sales market in the year 2000.

Solar and Renewable Energy Deployment - ($9 million). The program has three main thrusts: 1) The Solar International program increases U.S. exports of renewable technologies through strategic marketing and public/private partnerships and by increasing availability of commercial financing resources; 2) The Commercialization Ventures program facilitates the market entry of viable, new renewable technologies by reducing financial barriers and leveraging private sector funding; and 3) The Information and Communications Transfer program provides renewable energy information and assistance to individuals, businesses, and State and local governments.

Geothermal - ($36 million). Geothermal energy comprises 40 percent of the U.S. energy resource base. Electric power from geothermal resources is delivered at low environmental impact and has the highest reliability of base-load power from any source. Geothermal R&D efforts are focused on the following activities: 1) locate & confirm undiscovered geothermal reservoirs; 2) reduce exploration and production drilling costs; and 3) enhance conversion efficiency of geothermal energy to electric power. These program actions will contribute to the goal of a life-cycle cost of producing electricity at 3 cents/kWh and will yield increases in the amount of geothermal energy that can be economically recovered.

Hydrogen Research and Development - ($11 million). This program funds R&D efforts in hydrogen production from renewable energy power system or gasification of biomass, and hydrogen storage and transport technologies. It also funds cost-shared projects with industry on hydrogen production by gasification, photochemical and

reforming processes for near term market introduction. Hydrogen is the cleanest and potentially the most efficient energy resource available.

Electric Energy Systems and Storage - ($36 million). The program funds the Electric and Magnetic Fields program, which coordinates health effects research; maintains high temperature Superconductivity R&D funding to increase electric utility system capacity and increase motor and generator efficiencies; supports the Climate Challenge program, which is a joint initiative between DOE and the electric utility industry to reduce greenhouse emissions; and continues R&D on the energy storage program to enhance performance, reliability and reduce costs of utilities.

In-House Energy Management (IHEM) - ($6 million). Supports funding of retrofit projects and modifications that will reduce energy consumption and utility costs for DOE facilities. Also funds Program Operations activities such as on-site training for improved operation of central power plants and conducting feasibility surveys and studies of DOE facilities to determine retrofit and modification requirements. IHEM retrofits and modifications have resulted in a reduction in energy consumption of 24 percent since 1985 for DOE facilities.

Program Direction - ($17 million). Funding supports 132 FTEs at both Headquarters and the field (Salary and Benefits - $12 million and Travel - $0.7 million). Funding also supports $4.3 million in contractual services that funds the operation of the Golden Field Office and support services for all Solar and Renewable Energy programs.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Photovoltaic (PV)	+$25.0

Increase of $1 million to maintain level of effort in Fundamental Research activities in order to continue investigating semiconductor materials. Increase of $4 million to expand R&D partnership in advanced materials and devices work to support thin-film research and engineering. Thin-film technology shows significant promise for reducing energy costs from PV systems. Increase of $19 million in Collector Research and Systems Development activities to fund an assortment of cost-shared projects with the Utility PhotoVoltaic Group for an additional 13 megawatt of installed capacity small and large-scale utility projects; Photovoltaic Manufacturing Technology Project contractors for last phase of the R&D contracts; and PV:BONUS (Building Opportunities in the US for Photovoltaics) to complete field testing and assessment of 5 PV products developed in FY 1996.

Biofuels +$27.0

Increase of $14 million in Systems Development will allow four project selected through the Biomass Power for Rural Development Initiative to enter into construction phase. Increase of $14 million in Biochemical Conversion to demonstrate first of a kind cellulosic-to-ethanol technology and to mass produce low-cost biocatalyst. These two projects are cost-shared with industrial partners. Increase of $4 million for research in Biomass for Cogeneration. Decrease of $5 million terminates the following activities. 1) Municipal Solid Waste program; 2) the liquid fuels related thermoconversion of biomass activity; and 3) the annual solicitation for proposals to demonstrate biomass technologies.

Wind +$18.0

Increase of $5.3 million in Applied Research for core research activities and to provide for a 1.5 megawatt dynamometer for research testing at the National Wind Technology Center (NREL). Increase of $4 million in Turbine Research to complete 3 innovative utility-grade wind turbines capable of producing electricity at 2.5 cents/kWh. Increase of $1.8 million in Cooperative Research and Testing to provide technology assistance to U.S. companies competing for global markets. Increase of $6.5 million in Technology Development to restore CCAP activities such as the Turbine Verification program and the Wind Cluster deployment program, which will construct cost-shared small wind plants with farmers and small utilities.

In-House Energy Management (IHEM) +$6.0

Initiate restructured IHEM program that increases use of energy saving performance contracts to implement retrofit projects through private sector investment and state-of-the -art energy/water technologies demonstration at DOE sites to encourage energy efficiency improvements and operating cost reductions.

Nuclear Energy

Mission - The Office of Nuclear Energy, Science & Technology provides technical leadership for domestic and international nuclear issues and strives to maintain nuclear energy as a viable source to meet future energy requirements.

Program Overview - To fulfill its mission, Nuclear Energy manages efforts to improve the safety of nuclear reactors in the U.S. and abroad; supports development of advanced nuclear power plant reactors; provides nuclear power systems and related technologies to space and national security customers; helps to ensure a reliable supply of medical, industrial and research isotopes; manages facilities in a safe, economic and environmentally sound manner; and supports the U.S. nuclear education infrastructure. Besides activities provided for in the Energy Supply R&D appropriation, there are international programs funded in the Other Defense Activities appropriation and uranium-related programs funded in the Uranium Supply & Enrichment Activities appropriation. These are discussed in other sections.

Over the last few years, Nuclear Energy has shifted the focus of its support from multiple technologies as potential civilian power sources to a single preferred technology, the Advanced Light Water Reactor. The Advanced Light Water Reactor program is a cost-shared effort with industry to standardize and certify nuclear reactor designs so that they are readily available to help meet the electrical capacity that is projected to be required early in the next century. The primary activities of this program should be completed by 1999. Another important activity is the Advanced Radioisotope Power Systems program. This is an ongoing effort to provide nuclear power sources to NASA, Defense, and other customers, as their needs dictate. The current project is to provide a power source for NASA's Cassini launch, scheduled for 1997. Producing various stable and radioactive isotopes for medical, industrial, and research purposes is another ongoing program. Nuclear Energy also continues to manage work at Argonne National Lab-West in Idaho. Efforts include shutting down the EBR-II reactor and developing electrometallurgical refining as a treatment for spent nuclear fuel. Finally, Nuclear Energy supports the U.S. nuclear education infrastructure by offering fellowships to graduate students in nuclear engineering and health physics and providing research grants to university nuclear engineering programs. Some of this support is given to historically black colleges and universities.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Nuclear Energy					
Nuclear energy research and development					
Light water reactor	62,831	40,000	40,000	—	—
Advanced reactor research and development	19,401	—	—	—	—
Space reactor power systems	1,154	—	—	—	—
Advanced radioisotope power system	59,582	48,512	40,000	-8,512	-17.5%
Facilities	7,013	—	—	—	—
Nuclear technology research and development	20,559	25,000	30,000	5,000	20.0%
Oak Ridge landlord	14,224	14,400	16,000	1,600	11.1%
Test reactor area landlord	3,951	3,900	4,000	100	2.6%
Advanced test reactor fusion irradiation	2,340	2,303	800	-1,503	-65.3%
University reactor fuel assistance and support	3,505	3,500	6,950	3,450	98.6%
Total, Nuclear energy research and development	194,560	137,615	137,750	135	0.1%
Termination costs	69,215	79,171	79,100	-71	-0.1%
Isotope support	20,875	24,658	12,704	-11,954	-48.5%
Program direction	27,454	15,117	18,500	3,383	22.4%
Subtotal, Nuclear Energy	312,104	256,561	248,054	-8,507	-3.3%
Use of prior year balances	-4,446	-4,961	—	4,961	100.0%
Total, Nuclear Energy	307,658	251,600	248,054	-3,546	-1.4%

Budget Overview - The FY 1997 budget request for Nuclear Energy in the Energy Supply R&D appropriation is $248.1 million, which is $8.5 million lower than the FY 1996 appropriation. The FY 1997 budget request reflects Nuclear Energy's programmatic priorities. Significant funding is dedicated to Departmental reactor termination activities, which stem from the Administration's commitment to discontinue unnecessary research and development of new reactor designs. In conjunction with this strategy, the budget fully supports the continued effort to improve the current reactor designs, which entails making standardized, certified light water reactor designs available for commercial use at the earliest possible date. The budget also provides for the production of power sources for NASA missions and develops electrometallurgical refining as a method of treating spent fuel from Departmental reactors.

In addition, the Office of Nuclear Energy is requesting $72.2 million in the Other Defense Activities appropriation for its international programs, which will reduce the risk of accidents from Soviet-designed reactors in Russia and other former Soviet bloc nations, and $27.8 million in the Uranium Supply & Enrichment Activities Appropriation for the Department's residual uranium program activities. The total FY 1997 funding requested by Nuclear Energy is $367.0 million, excluding $645.0 million requested for Naval Reactors.

FY 1997 Budget Request - The FY 1997 Energy Supply R&D budget request for Nuclear Energy is $248.1 million. The Light Water Reactor program remains constant at $40 million and provides enough funding to achieve final design approval of the Westinghouse AP-600 reactor ($7.5

million). The Light Water program will also conduct the first-of-a-kind engineering efforts (the next phase after final design approval) of the General Electric Advanced Boiling Water Reactor and the AP-600 reactor ($18.0 million). $40 million is also requested for the Advanced Radioisotope Power Systems program, which will fund the completion of radioisotope thermoelectric generator production for NASA's Cassini mission and begin establishing the capability to recycle or replenish the usable inventory of Plutonium-238. The Nuclear Technology R&D program, funded at $30.0 million, will continue to develop electrometallurgical refining as a spent fuel treatment method. Various facility and landlord costs are funded at a level of $20.8 million, while staffing needs and university support required $25.5 million. Termination of the EBR-II reactor at Argonne-West continues as scheduled, with defueling expected to be complete at the end of FY 1997 and final shutdown of the facility anticipated in 1998. The gas turbine-modular helium reactor program closeout will be completed in FY 1997. Funding for both shutdowns totals $79.1 million. Finally, the Isotope program will be funded at a level of $12.7 million, which will provide for the continued production of isotopes necessary for medical, industrial and research purposes.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Isotope Support (FY 1996 - $24.7 million, FY 1997 - $12.7 million) Decision on funding for molybdenum-99 in FY 1997 will be made after the Record of Decision.	- $12.0
Advanced Radioisotope Power Systems (FY 1996 - $48.5 million, FY 1997 - $40.0 million) Decrease due to near completion of the radioisotope thermoelectric generators (RTGs) for NASA's Cassini mission (3 RTGs and a backup will be delivered to Kennedy Space Center by the end of the year).	- $8.5
Nuclear Technology R&D (FY 1996 - $25.0 million, FY 1997 - $30.0 million) Increase due to implementation of Argonne-West Nuclear Safety Center projects, including an electronic International Nuclear Safety Database and development of accident simulation software and accident management strategies for Soviet-designed reactors.	+ $5.0
University Nuclear Science & Reactor Support (FY 1996 - $3.5 million, FY 1997 - $7.0 million) Increase due to additional support for universities' reactor maintenance and conversion of their reactor cores from highly enriched uranium to low enriched uranium, which supports the Department's non-proliferation goals.	+ $3.5

Program Direction (FY 1996 - $15.1 million, FY 1997 - $18.5 million) + $3.4

Increase due to the fact that the FY 1996 appropriation was supported by almost $5 million of carryover, while the FY 1997 request is not. Employee buyouts also cause the FY 1997 level to be slightly higher. End of year staffing level decreases from 147 in FY 1996 to 129 in FY 1997.

Environment, Safety and Health

Mission - The Office of Environment, Safety and Health (EH) seeks to ensure that Department of Energy (DOE) activities are conducted in a way that prevents accidents or injuries to workers and the public and prevents harm to the environment. As the equivalent of a "corporate resource" for DOE, EH is the Department's major source of expertise in disciplines such as environmental protection, nuclear safety engineering, public health, industrial hygiene, radiation protection, construction safety, risk management, epidemiology, and occupational medicine. The Department is transitioning to new missions of weapons dismantlement, environmental cleanup, and decontamination and decommissioning. These newer tasks will pose challenges to DOE workers where hazards are numerous and varied and exposures can be unknown and unpredictable.

Program Overview - EH seeks to model itself after private corporations with the best environment, safety and health records. Based on the premise that systems that effectively manage environment, safety and health are also the key to improving the cost-effectiveness and efficiency of work, EH assists the line programs develop management systems that proactively identify and efficiently cope with hazards before they cause accidents, disease or environmental contamination.

The overall program structure of EH corresponds to the major components identified in the program's strategic plan. These business lines, which impact the entire spectrum of environment, safety and health activities in the DOE complex are, Technical Assistance, Oversight, Policy, Health Studies, and the Management and Administration of the program. In addition, the program oversees and implements the National Environmental Policy Act (NEPA), and the Radiation Effects Research Foundation (RERF) for DOE.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Environment, Safety, and Health					
Office of environment, safety and health (non-def)	83,180	84,290	73,160	-11,130	-13.2%
Program direction	45,113	39,315	39,046	-269	-0.7%
Subtotal, Environment, Safety, and Health	128,293	123,605	112,206	-11,399	-9.2%
Use of prior year balances	—	-4,396	—	4,396	100.0%
Total, Environment, Safety, and Health	128,293	119,209	112,206	-7,003	-5.9%

Budget Overview - The FY 1997 budget structure for the Office of Environment, Safety and Health has been consolidated into two major appropriation accounts. One is associated with the Defense missions of the Department and the other encompasses Department-wide or Non-Defense activities. The Energy Supply Research and Development account includes Technical Assistance, Policy, NEPA, RERF and Management and Administration and is discussed in this section. The request for the Non-Defense program in FY 1997 is $112.2 million, which is a decrease of $7.0 million over the comparable FY 1996 appropriated amount of $119.2 million.

FY 1997 Budget Request -

Technical Assistance - Program request is $29.2 million and supports activities in the complex associated with radioactive, hazardous and toxic materials. Line Management Support funds the development of guidance, demonstration of effective practice, implementation of "necessary and sufficient" requirements and direct program assistance to DOE field offices and contractors for safety and health programs. The Environment, Safety and Health Guidance activity supports the development of interpretations and guidance documents for safety and health issues and for the environmental requirements of various environmental statutes. Interagency Representation activities consist primarily of monitoring emerging environmental regulations that may affect DOE operations and providing expertise to line management on these regulations.

Policy- The FY 1997 request for the Policy program is $2.3 million. Activities here provide for operation of the Technical Standards Program and activities necessary to implement the nuclear safety program.

National Environmental Policy Act (NEPA) - The NEPA request of $3.5 million supports the timely implementation of the Department's proposed activities by assuring compliance with the National Environmental Policy Act and related environmental review requirements that are necessary before project commitment.

Radiation Effects Research Foundation (RERF) - The RERF is funded at $15 million and supports research programs in Japan to study the effects of radiation exposure in survivors of the atomic bombings of Hiroshima and Nagasaki.

Management and Administration - Management and Administration provides for the centralized management and direction of the Office of Environment, Safety and Health planning process, budgeting, financial control, procurement, information management, technical training and professional development. The request in FY 1997 is $23.1 million. Program Direction, which includes the working capital fund, is funded at $49.7 million and supports 316 Full Time Equivalents (FTEs).

Highlights of Program Changes	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Technical Assistance	-$4.96
Technical Assisatance is reduced in the amount of $4.96 million from $34.2 million to $29.2 million through streamlining contractor support in areas such as Radiation protection visits, ES&H vulnerability assessments, Re-engineering of line management support in Occupational Medicine, and by completing the process for defining, describing, and documenting record keeping and recording requirements for worker health and safety.	
Radiation Effects Research Foundation (RERF)	-$5.0
RERF reduced its request by $5 million compared to FY 1996 level through cost saving measures identified in recent program evaluations.	

Energy Research

Mission - The Office of Energy Research has a dual mission. The first element of the mission involves basic research in energy related areas, and provides the science that triggers and drives technological development within the Department. The second element of the mission involves the High Energy and Nuclear Physics programs, which conduct fundamental research in energy, matter, and the basic forces of nature. Research in both missions is conducted primarily at DOE National Laboratories by laboratory and university researchers, and the mission includes operation, maintenance, and construction of new scientific facilities.

Program Overview - Office of Energy Research programs are funded in two separate appropriations accounts, reflecting the dual mission of the office. Research into the fundamental nature of matter and energy is funded in the General Sciences appropriation. Office of Energy Research programs funded by the Energy Supply R&D appropriation either support or are related to DOE technology programs. Research is generally of a long-term, fundamental nature, and is dependent on large DOE-owned scientific facilities. The fundamental research includes providing a scientific base for future energy options, a science base for fusion energy, and a science base for identifying, understanding, and anticipating the long-term health and environmental consequences of energy production, development, and use. There are also several associated activities which support laboratory infrastructure management, education activities, and evaluation of energy technologies. A new program in FY 1997, Computational and Technology Research, consolidates research previously funded under Technology Transfer program and the Applied Mathematics, and Advanced Energy Projects subprograms of the Basic Energy Sciences program.

The Basic Energy Sciences program supports high quality research to develop and improve energy technologies, provides world class scientific facilities, and designs and builds advanced facilities for future research needs. Large National Laboratory scientific facilities, staffed by laboratory, university, and industry researchers, are used to conduct investigations in materials and chemical sciences, engineering and geosciences, and energy biosciences. Capital equipment and construction supports research activities. The program funds full operation and maintenance of these state-of-the-art scientific user facilities. Facilities include research reactors, accelerators, X-ray and ultraviolet light sources, a laser facility for combustion research, and other specialized facilities.

Biological and Environmental Research has two primary foci: environment and health. Environmental activities focus on the consequences of energy production and use, risk assessment, transport of pollutants, environmental restoration ,and bioremediation technologies and includes a substantial climate change research program. Health related programs include understanding and mitigating the potential health effects of energy development, waste cleanup; cellular, molecular and structural biology for understanding energy related health effects, and for biotechnology research; the human genome project; and, diagnostic and therapeutic medical applications of DOE technologies. The program has been restructured into four new research

subprograms in FY 1997: Life Sciences, Environmental Processes, Environmental Restoration, and Medical Applications.

Fusion Energy Sciences seeks to provide a science base for fusion as a potential energy source of the future. The program supports several fusion reactor facilities, and both laboratory and university based experimental and theoretical research teams. Due to severe funding cutbacks for fusion energy in FY 1996, the program is being restructured to concentrate on the scientific principles involved in fusion rather than on fusion technologies. In response to the Fusion Energy Advisory Committee (FEAC) report dated January 27, 1996, the new mission of the program is "Advance plasma science, fusion science, and fusion technology...". Policy goals are to advance plasma science, develop fusion science/technology/plasma confinement innovations, and continue as a partner in the International Thermonuclear Experimental Reactor (ITER) Engineering and Design Activities (EDA).

The new Computational and Technology Research program combines several activities previously funded elsewhere in Energy Research. These include Laboratory Technology Research, which funds cooperative agreements and other partnerships; Mathematical, Information and Computational Sciences, which studies advanced computing applications and techniques, and provides high performance computer access to DOE researchers; Advanced Energy Projects, which supports promising, but not yet matured technologies; and management of the Small Business Innovation Research Program.

The Office of Energy Research also supports the Multiprogram Energy Laboratories-Facilities Support program, which provides infrastructure maintenance and upgrade; University and Science Education activities, which fund education programs at universities and DOE laboratories; and, the Energy Research Analysis program which evaluates DOE research projects and programs.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Research					
Biological and environmental research	408,245	406,401	379,075	-27,326	-6.7%
Fusion Energy	333,292	227,394	255,600	28,206	12.4%
Basic energy sciences	596,727	654,576	653,675	-901	-0.1%
Computational and technology research	175,778	150,498	158,143	7,645	5.1%
Advanced neutron source	12,781	—	—	—	—
Energy research analyses	3,330	3,414	2,000	-1,414	-41.4%
Multiprogram energy labs - facility support	28,702	34,105	28,885	-5,220	-15.3%
University and science education programs	61,461	18,900	19,900	1,000	5.3%
Program direction	50,967	43,704	42,154	-1,550	-3.5%
Small business innovation research (SBIR)	72,439	—	—	—	—
Subtotal, Energy Research	1,743,722	1,538,992	1,539,432	440	0.0%
Use of prior year balances	-19,696	-35,982	—	35,982	100.0%
Total, Energy Research	**1,724,026**	**1,503,010**	**1,539,432**	**36,422**	**2.4%**

Budget Overview - The FY 1997 budget request for the Office of Energy Research maintains research activities at slightly below FY 1996 levels after inflation. For energy related research, a top priority is implementing the recent recommendations of the Fusion Energy Advisory Committee (FEAC). Additional funding is also provided for the DOE 2000 initiative (virtual laboratories) and strengthening selected life sciences and environmental research topics. Increases are largely offset by completion of two Congressionally mandated projects ($7.0 million for the Biomedical Research Foundation of northwest Louisiana, and $8.5 million for the Oregon Health Sciences University) and completion of four construction projects (ANL Structural Biology Center, FY 1996 $4.3 million and FY 1997 $0; Lawrence Berkeley National Laboratory (LBNL) Structural Biology Center, FY 1996 $2.6 million and FY 1997 $0; LBNL Human Genome Laboratory, FY 1996 $5.7 million and FY 1997 $1.0 million, completed; PNL Environmental and Molecular Sciences Laboratory, FY 1996 $50.0 million and FY 1997 $35.1 million, completed). The budget request for Office of Energy Research programs is $2,548.6 million, of which $1,009.2 million is requested in the General Science appropriation, and $1,539.4 million in the Energy Supply Research and Development appropriation. The budget request for the Energy Supply Research and Development programs is described below.

In addition, as part of an initiative to improve planning and budgeting for large-scale construction projects within the Department of Energy, $13 million is requested in FY 1997 in a separate, government-wide allowance (proposed in the government-wide General Provisions in the *Appendix* volume of the Budget of the United States Government) to fully-fund construction and construction-related activities at the Combustion Research Facility, Phase II for FY 1998 and FY 1999. This amount is not attributed to the Department of Energy in the budget totals.

FY 1997 Budget Request -

Basic Energy Sciences - The FY 1997 budget request for Basic Energy Sciences is $653.7 million, a slight decrease from FY 1996. Funding will support continuation of ongoing research activities and operation of all user facilities. Materials and Chemical Sciences will fund high-priority, peer reviewed research, while also providing support for ten scientific user facilities. Operation of user facilities will require one-third of the Basic Energy Sciences budget. Research and design activities for a spallation neutron source will continue at the $8.0 million level. Funding for construction projects increases slightly, reflecting scheduled funding for Phase II of the Combustion Research Facility (TEC $26.8 million, FY 1996-$2.0 million, FY 1997-$9.0 million, completion FY 1999), offset, in part, by completion of the 6-7 GeV Synchrotron Radiation Source at Argonne in FY 1996 ($-3.2 million).

Biological and Environmental Research - The FY 1997 budget request for Biological and Environmental Research is $379.1 million, a net decrease of $27.3 million from FY 1996. (Energy Research's funding for the Environmental Measurements Laboratory, a DOE Government-owned, Government operated facility in New York City, is reduced from $4.5 million in FY 1996 to $3.6 million in FY 1997 as the

Assistant Secretary for Environmental Management assumes landlord responsibility for the laboratory.) The Medical Applications subprogram is reduced by $14.6 million reflecting completion of two Congressionally mandated projects in FY 1996. Construction funding declines as both the Structural Biology Center at Argonne National Laboratory (FY 1996-$4.3 million) and the ALS Structural Biology Support Facilities at Lawrence Berkeley National Laboratory (LBNL) (FY 1996-$2.6 million) were completed in FY 1996; and funding for the two remaining projects, the LBNL Human Genome Laboratory (TEC $24.6 million, FY 1996-$5.7 million, FY 1997-$1.0 million) and the Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratory (TEC-$207.9 million, FY 1996-$50.0 million, FY 1997-$35.1 million), also drops as both projects are completed in FY 1997. The Health Effects subprogram also decreases in FY 1997 (-$1.8 million) as the program shifts to molecular and cellular biology to identify and characterize DNA repair genes and to determine individual responsiveness to energy related health effects. Funding for human genome research increases from $67.8 million to $75.7 million to permit completion of eight million out of three billion bases of human DNA sequence. Other research activities are generally funded near FY 1996 levels. An increase of $5.7 million will enhance research on subsurface microorganisms for bioremediation. Funding for the high priority Climate Change research program increases in FY 1997 (FY 1996-$110.8 million, FY 1997-$112.4 million) to allow establishment of the third Atmospheric Release Measurement (ARM) site.

Fusion Energy Sciences - The FY 1997 budget request for Fusion Energy Sciences is $255.6 million, a $28.2 million increase over FY 1996. Activities to be funded are consistent with recommendations made in the Fusion Energy Advisory Committee Report of January 1996. That report was prepared in response to FY 1996 funding reductions. The program will refocus on critical basic science and technology foundations while maintaining its commitment to the International Thermonuclear Experimental Reactor (ITER). DOE will continue to participate in the ITER Engineering Design Activities into FY 1998 (FY 1996-$55.0 million, FY 1997-$55.0 million), and will begin negotiating the extent of its participation in ITER construction; DOE will not, however, seek to host the ITER facility. Funding will allow completion of the experimental program at the Tokamak Fusion Test Reactor (TFTR) at Princeton prior to its shutdown in either FY 1997 or FY 1998. Enhanced equipment funding supports two Major Items of Equipment: the National Spherical Tokamak Experiment at Princeton (TEC $18.5 million, FY 1997-$5.0 million, complete FY 1999) will reconfigure existing equipment to study Tokamak innovations; the upgrade to the DIII-D at General Atomics (TEC $32.4 million, FY 1996-$.7 million, FY 1997-$4.0 million, complete FY 1999) provides an advanced heat removal system, allowing the facility to be used for ITER related research. The proposed Tokamak Physics Experiment project at Princeton was terminated in FY 1996.

Computational and Technology Research - Computational and Technology Research is a new program which combines programs previously funded in various places by Energy Research. On a comparable basis, the budget increases by $7.6 million to $158.1 million in FY 1997. The majority of the increase ($5.2 million) is related to initial funding for the joint Energy Research-Defense Programs DOE 2000 initiative, an effort to develop tools that enable geographically separated scientists to work together more effectively. There is also an increase for Laboratory Technology Research (FY 1996-$17.7 million, FY 1997-$21.8 million) which funds cooperative agreements and technical assistance. The increases are offset by reductions for capital equipment ($-1.5 million) and Advanced Energy Projects ($-0.2 million).

Multiprogram Energy Laboratories-Facilities Support - The Multiprogram Energy Laboratories-Facilities Support program been reduced (FY 1996-$34.1 million, FY 1997-$29.4 million) resulting in no new construction starts in FY 1997.

University and Science Education - University and Science Education budgets an additional $1.0 million in FY 1997 (FY 1996-$18.9 million, FY 1997-$19.9 million) to enhance participation at the National Laboratories by undergraduate and graduate students and faculty.

Energy Research Analysis - Funding reductions for Energy Research Analysis (FY 1996-$3.4 million, FY 1997-$2.0 million) will result in fewer peer reviews.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Basic Energy Sciences	
• Increase construction funding for Combustion Research Facility from FY 1996-$2 million to FY 1997-$9 million.	+$7.0
• Complete 6-7 GeV construction in 96 (-$3.2 million) and reduced 6-7 GeV equipment (-$4.7 million).	-$7.9
Biological and Environmental Research	
• Complete two Congressionally mandated projects in FY 1996 (Biomedical Research Foundation of northwest Louisiana $7.0 million, and Oregon Health Sciences University $8.5 million).	-$15.5
• Complete construction of two structural biology centers in FY 1996 (Structural Biology Centers at ANL $4.3 million and LBL $2.6 million).	-$6.9
• Complete construction of Human Genome Lab (FY 1996 $5.7 million and FY 1997 $1.0 million) in FY 1997. and the Environmental and Molecular Sciences Lab (FY 1996 $50.0 million and FY 1997 $35.1 million) in FY 1997.	-$19.6

- Human Genome completes sequencing of eight million bases out of a total of three billion bases. +$7.9
- Enhance bioremediation research. +$5.7
- Other programmatic changes. +$1.1

Fusion Energy In response to Fusion Energy Advisory Committee (FEAC) report:

- Increased funding for Fusion and Plasma Science. +$18.8
- Fusion Technologies provides increase for materials research. +$1.0
- Initiate National Spherical Tokamak Experiment at Princeton (TEC $18.5 million FY 1996 $0 FY 1997 $5 million, complete FY 1999), and continue equipment upgrade for DIII-D at General Atomics (TEC $32.4 million FY 1996 $0.7 million FY 1997 $4.0 million, complete FY 1999). +$8.8
- Other equipment upgrades. +$1.1

Computational and Technology Research

- New DOE 2000 initiative in cooperation with DOE Defense Programs. +$5.1
- Laboratory Technology Research cooperative agreements and technical assistance enhancements. +$4.1
- Reduced equipment and Advanced Energy Projects. -$1.6

Multiprogram Energy Laboratories-Facilities Support

- Reduce construction funding, no new starts. -$6.2
- Increase funding for facility planning and inactive/surplus facilities. +$0.9

University and Science Education

- Increase student/faculty laboratory participation. +$1.0

Energy Research Analysis

- Decrease level of peer review. -$1.4

Energy Research-Energy Supply Program Direction

- Reduced funding for staffing. -$1.5

Other Energy Programs

Field Management and Operations

Mission - The Office of Associate Deputy Secretary for Field Management (FM) provides managerial oversight of the eight Operations Offices and the Ohio and Rocky Flats Field Offices in addition to acting as lead office for a number of Departmental initiatives. The four Field Operations Offices funded here, Chicago, Idaho, Oak Ridge, and Oakland, are responsible for the integrated management of energy laboratories and facilities as well as overseeing execution of departmental programs and projects in the field.

Program Overview - The activities funded in this account were previously funded within the Departmental Administration account. By creating a separate entity, Field Operations and Management, in Energy Supply, Research and Development, the Department is providing for a more focused resource management of the four multi-purpose field operations offices.

The federal activities conducted at the four field offices include budget, accounting, legal, patent, personnel, procurement acquisition, and environmental safety and health assessment. In addition, these 1,065 federal employees conduct management oversight of approximately 56,800 management and operating contractor employees at the four field installations. Field Management provides oversight of the Department's life-cycle capital asset program. It is the lead office for a number of Departmental initiatives, including Strategic Alignment, contract reform, and consolidation of Headquarters oversight activities.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Field operations and management	127,433	112,915	121,723	8,808	7.8%

FY 1997 Budget Overview - Field Management, together with the four Field Operations offices, requests $112.9 million, an increase of $8.8 million over the FY 1996 Enacted Appropriation of $113 million. This budget request provides for a projected on-board strength of 1,065 full-time equivalent employees in accordance with FY 1997-2000 Strategic Alignment staffing targets, which call for decreases in field employment by approximately 21 percent. The Field Operations Offices achieved their SAI end of year 1997 targets in FY 1996, one year ahead of schedule. It should be noted, that the programmatic FTEs at the four Field Offices will remain on their SAI schedule and will achieve the end of year 1997 target reductions.

FY 1997 Budget Request (Dollars in Millions) -

Field Operations - Provides $121.7 million: $78.2 million for salaries and benefits, $2.0 million for travel, contractual support funding of $41.0 million, and capital equipment funding of $0.5 million. Contractual support includes $1.3 million to finance Field Management's share of the headquarter's working capital fund. (Field

Management/66 FTEs, Chicago/273 FTEs, Oakland/216 FTEs, Oak Ridge/372 FTEs and Idaho/138 FTEs)

Highlights of Program Changes	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Field Management The increase is due to the pay raise offset by FTE reductions and restoration of funding for awards, overtime, furlough savings at $0.5 million in addition to $0.2 million of contractual services related to inflation of 3.2 percent.	+$0.7
Chicago The increase is due to the pay raise offset by FTE reductions and restoration of funding for awards, overtime, furlough savings at $0.9 million, in addition to $0.3 million increase in contractual services, related essentially to inflation.	+$1.2
Idaho The increase is due to the pay raise offset by FTE reductions and restoration of funding for awards, overtime, furlough savings at $1.8 million, in addition to $0.1 million increase in contractual services, related to inflation.	+$1.9
Oak Ridge The increase is due to pay raise and restoration of funding for awards, overtime, furlough savings at $1.3 million and pay raise of $1.3 million, in addition to $0.4 million increase in contractual services, related essentially to inflation.	+$3.0
Oakland The increase is due to the pay raise offset by FTE reductions and restoration of funding for awards, overtime, furlough savings at $0.8 million, buyouts of $0.4 million and $0.5 million of prior year (FY 1995) balances, in addition to $0.3 million increase in contractual services, related essentially to inflation.	+$2.0

Information Management Investment Program

Mission - The Office of Human Resources and Administration provides timely and comprehensive management support to all organizational elements for the Department in such areas as staffing, personnel, information management, and administrative services.

Program Overview - This program supports the Strategic Alignment Initiative on integrating Information Management which has a goal to realize savings through consolidating information resource acquisitions, designing an information architecture for the Department and ensuring interoperability among all sites. The specific activity of this program is to fund prioritized corporate information management projects.

Budget Overview - The Information Management Investment Program is a new program in FY 1997. It is managed by the office of Human Resources and Administration (HR). The balance of HR's budget requirements are in the Departmental Administration account and is described in that section of the document. This new budget initiative is intended to effect significant outyear savings in the area of information resources by consolidating acquisition of equipment and software, designing a Department-wide information system architecture, and prioritizing projects. Carefully planned investment is expected to pay substantial dividends in the future.

FY 1997 Budget Request - The FY 1997 Budget Request for the Information Management Investment program is $14.9 million

Technical Information Management Program

Mission - The Technical Information Management Program collects/manages/disseminates scientific and technical information resulting from DOE R&D and environmental programs, and collects worldwide scientific information for the Department.

FY 1997 Budget Request - Funding for the Technical Information Management Program will be maintained at the FY 1996 level (FY 1996 - $12.0 million, FY 1997 - $12.0 million).

Environmental Restoration & Waste Management (non-defense)

Mission - The Environmental Management (EM) program identifies and reduces environmental, health and safety risks at sites where the Department previously carried out nuclear energy or weapons research and production activities through waste management and environmental restoration. The EM program's goals are to: 1) eliminate and manage the urgent risk in the system; 2) emphasize health and safety for workers and the public; 3) establish a system that increases managerial and financial control; 4) demonstrate tangible results; 5) focus technology development efforts on identifying and overcoming obstacles to progress; and 6) establish a stronger partnership between DOE and its stakeholders.

Program Overview - Programs of the Office of Environmental Management are funded in separate appropriations. This section discusses the non-defense Environmental Management activities provided for under the Energy Supply Research and Development appropriation. Environmental Management efforts supported by other appropriations will be discussed separately. These include the Defense Environmental Restoration and Waste Management appropriation, which funds the defense portion of the program, and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund.

The Energy Supply Research and Development appropriation funds the non-defense portion of the program including environmental restoration, waste management and nuclear material and facility stabilization efforts, as well as limited site operations activities.

Environmental Restoration activities stabilize radioactive waste, conduct remediation activities and perform decommissioning and decontamination work at contaminated Department of Energy (DOE) sites. The program also performs Departmental assessments and characterizations to determine the potential for radioactive and hazardous waste releases and to reduce and remove the potential risks to the environment, human health and safety from past non-defense activities.

Environmental Restoration activities that are authorized under their own legislation include the Uranium Mill Tailings Remedial Action (UMTRA) Surface and Groundwater projects and the Formerly Utilized Sites Remedial Action Project (FUSRAP). These projects maintain relatively short project durations, small project life cycle costs, and well-defined scopes. The UMTRA projects are directed toward the cleanup of uranium mill tailings sites, while the FUSRAP project supports the cleanup of radioactive contaminated sites from the early years of the Nation's atomic energy program. FUSRAP's sites also include commercial operations that Congress authorized DOE to remedy, such as the Maywood and Wayne sites in New Jersey.

The Waste Management program minimizes, characterizes, stores, transports, treats and disposes of the Department's radioactive, hazardous, mixed and sanitary waste.

The Nuclear Material and Facility Stabilization (NMFS) program protects workers, the public, and the environment from exposure and contamination associated with radioactive and hazardous

waste and materials contained within surplus facilities. In order to decrease surveillance and maintenance funding and lower the cost of doing business, NMFS focuses on deactivating facilities and stabilizing materials.

The Site Operations program supports the cleanup, transition to safe shutdown, and the disposition of the non-Defense portion of the Mound site. The Pollution Prevention Program is responsible for coordinating and implementing the Pollution Prevention Program in compliance with existing regulatory, Executive Order, and Department requirements, and reporting on the Department's progress in meeting its statutory obligations.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Environmental Restoration & Waste Mgmt. (Non-Defense)					
Environmental restoration	386,396	361,377	358,239	-3,138	-0.9%
Waste management	268,428	173,514	199,023	25,509	14.7%
Nuclear materials and facilities stabilization	78,580	78,571	91,353	12,782	16.3%
Site operations	2,129	4,340	2,799	-1,541	-35.5%
Subtotal, Environmental Restoration & Waste Mgmt.	735,533	617,802	651,414	33,612	5.4%
Use of prior year balances	-23,381	-19,911	—	19,911	100.0%
Total, Environmental Restoration & Waste Management	712,152	597,891	651,414	53,523	9.0%

Budget Overview - In addition to the $651.4 million being requested within the Energy Supply R&D appropriation for Environmental Management, $5,409.3 million is requested under the Defense Environmental Restoration and Waste Management appropriation and $240.2 million is requested under the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund. This amount is offset by a Government contribution of $376.6 million and a collection of foreign fee receipts of $45.9 million which will be deposited into the Uranium Enrichment D&D Fund. Legislation is needed for authority to charge a fee on foreign enrichment customers. Therefore, the total net FY 1997 budget request for the Office of Environmental Management program is $5,878.4 million. An additional $182 million is being proposed in the government-wide General Provisions in the *Appendix* volume of the President's FY 1997 Budget to provide up-front funding for additional Environmental Management privatization efforts. This request is part of an initiative to improve planning and budgeting for the acquisition of fixed assets and similar procurements. This additional funding authority would result in an FY 1997 program of $6,060.4 million.

The FY 1997 budget request for Non-Defense Environmental Management of $651.4 million, is a $53.5 million (9 percent) increase over the comparable amount for FY 1996. Of this amount, approximately 55 percent is for Environmental Restoration, 30 percent is for Waste Management, 14 percent is for Nuclear Material and Facility Stabilization, and 1 percent for Site Operations.

This budget aggressively addresses and minimizes risk to workers, the public and the environment, effectively prioritizes and sequences work covered by Federal and State agreements to incorporate relative risk, and focuses on obtaining measurable results.

FY 1997 Budget Request - Of the $651.4 million requested for Non-Defense EM in FY 1997, $358.2 million is for Environmental Restoration activities. The Environmental Restoration program continues efforts in FY 1997 to identify the sources, nature and extent of contamination to more accurately determine relative risk, scope and cost of projects. The program will also increase the cost-effectiveness of assessment efforts by establishing objectives before characterization. However, emphasis is placed on doing fewer studies and accomplishing more actual cleanup in FY 1997.

The Waste Management program's request of $199.0 million continues ongoing regulatory compliance efforts in FY 1997 in line with environmental, safety and health requirements. Priority efforts included in the FY 1997 request include continuing high-level waste treatment at the West Valley Demonstration Project in New York to reduce risk associated with the storage of liquid high-level waste and implementing site treatment plans as negotiated through the Federal Facilities Compliance Act.

The Nuclear Material and Facility Stabilization (NMFS) program's request is $91.4 million in FY 1997. This request provides for the deactivation and stabilization of surplus facilities and materials, as well as any surveillance and maintenance necessary to protect the public and the environment. These facilities include the Fast Flux Test Facility at Richland, the Rover Facility at Idaho and various surplus buildings at Idaho, Richland and Oak Ridge. The NMFS program reduces risk by deactivating surplus, contaminated facilities and by stabilizing radioactive materials. As NMFS deactivates facilities and transfers them to the Environmental Restoration program, the mortgage cost of doing business is reduced due to the elimination of surveillance and maintenance requirements. NMFS also manages the Department's Spent Nuclear Fuel program with a focus on placing all spent fuel into interim dry storage and preparing the fuel for permanent disposition in a geologic repository.

The $2.8 million request for Site Operations supports activities at Mound. It also includes $1.6 million for pollution prevention activities within non-defense funded programs and activities.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Environmental Restoration (-$3.2 million)	
• The Uranium Mill Tailings Remedial Action (UMTRA) Surface program was reduced from $66 million in FY 1996 to $43 million in FY 1997 in accordance with its planned completion in FY 1998.	-$23.0
• As a result of the shift from the D&D phase to the Surveillance & Maintenance phase at the Battelle Columbus Laboratory, funding has been reduced from $11.6 million in FY 1996 to $3.5 million in FY 1997.	-$8.1
• Increase in Formerly Utilized Sites Remedial Action Project (FUSRAP) cleanup activities from $74 million in FY 1996 to $83.1 million in	

FY 1997 as part of Environmental Restoration's strategy to accelerate remediation completions at small sites which includes completing FUSRAP by FY 2016. +$9.1

- Weldon Spring site cleanup activities increase from $58.5 million in FY 1996 to $67.5 million in FY 1997 because construction of the full-scale Chemical Stabilization/Solidification Facility will begin. +$9.0
- Increased decontamination and decommissioning activities at Oak Ridge National Laboratory from $29.7 million in FY 1996 to $36.7 million in FY 1997 will be used to stabilize and deactivate the Molten Salt Reactor Experiment (MSRE). +$7.0

Waste Management (+25.5 million)

- Funding for the West Valley Demonstration Project increases from $115.4 million in FY 1996 to $123.6 million in FY 1997. The Project will vitrify about 120 canisters of high level waste (HLW) in FY 1997. This is an increase of 90 canisters over our FY 1996 plan. Our goal is to treat half of the West Valley HLW inventory (660,000 gallons, 300 canisters) by the end of FY 1997. +$8.2
- Funding for the Chicago Operations Office increases from $21.6 million in FY 1996 to $30.7 million in FY 1997. The increase at Chicago reflects initiation of new Waste Handling Facility at Argonne National Laboratory and ramp-up of two ongoing projects that have begun physical construction. This increase also supports beginning to operate the Sodium Processing Facility at Argonne-West to treat hazardous waste and an increase at Chicago laboratories for disposal of annually generated low-level waste. +$9.1
- Funding for the Oak Ridge Operations Office increases from $11.2 million in FY 1996 to $14.4 million in FY 1997. This increase largely reflects the resumption of offsite shipment and treatment of waste. +$3.2
- Funding for the Oakland Operations Office increases from $10.3 million in FY 1996 to $13.3 million in FY 1997. The increase is driven by operation of Waste Facilities at Berkeley, operation of new Waste Storage Facility at Stanford, and pursuit of treatment of sodium contaminated waste at Energy Technology Engineering Center. +$3.0
- Funding for the Idaho Operations Office increases from $2.9 million in FY 1996 to $5.0 million in FY 1997. The increase is required for the National Low-Level Waste Program which the Idaho Operations Office manages. +$2.1

Nuclear Material and Facility Stabilization (+$12.8 million)

- Funding for the Oakland Operations Office increases from $2.9 million in FY 1996 to $16.1 million in FY 1997. This increase is due to surveillance and maintenance (S&M) , and stabilization/deactivation activities associated with the Energy Technology Engineering Center (ETEC) which transfers

from Nuclear Energy. S&M also increases due to the commencement of efforts to transfer bulk sodium to an offsite user. +$13.2

- The Richland Operations Office funding level is reduced from $49.3 million in FY 1996 to $47.5 million in FY 1997. The completion of the Sodium Storage Facility construction project for the off-load of liquid sodium results in lowering surveillance & maintenance activities. -$1.8

Site Operations (-$1.5 million)

- The funding for the Mound and Pinellas Project Office increases from $1.0 million in FY 1996 to $1.2 million in FY 1997. This increase supports the development of a model at Mound for integration of all Environmental Management Program aspects at smaller DOE sites to manage and expedite the closeout and disposition of activities and facilities. +$0.2
- Funding for pollution prevention activities decreases from $2.6 million in FY 1996 to $1.6 million in FY 1997. -$1.0

Uranium Supply and Enrichment Activities

Mission - The Office of Nuclear Energy, Science & Technology provides expertise pertaining to uranium to address critical domestic and international nuclear issues and enhances U.S. competitiveness and security by providing nuclear products and services.

Program Overview - After the transfer of the Department's uranium enrichment enterprise to the U.S. Enrichment Corporation (USEC), Nuclear Energy continued to work with USEC as owner of the diffusion plants that USEC leased to ensure their safe and effective operation; managed facilities not leased; initiated an aggressive program for the management of depleted uranium hexafluoride to ensure the continued safe storage of cylinders and to develop a long-term management strategy for this material; initiated a program to work with the Nuclear Regulatory Commission (NRC) to assist in the NRC certification of the diffusion plants; began overseeing efforts to revitalize the domestic uranium industry; initiated a program to assure that low enriched uranium purchased by the USEC from Russia is derived from highly enriched uranium from dismantled nuclear weapons; and continued a technology transfer program to provide U.S. industry with a competitive edge in the global marketplace.

Over the last few years, the Transparency Measures program has grown increasingly important. This effort, which is the Department's mechanism for ensuring that low enriched uranium purchased by USEC is derived from highly enriched uranium from dismantled Russian weapons, is a key part of the Administration's non-proliferation strategy. Another high priority program is the management of depleted uranium hexafluoride, which is the material left over after uranium is enriched. The Department has over 560,000 metric tons of this material at current and former diffusion plants in Paducah, KY, Portsmouth, OH, and Oak Ridge, TN. The results of the Environmental Impact Statement currently underway will help the Department to develop a long-term management strategy for this material. The Department is continuing to work with NRC by updating the DOE compliance plan in support of annual recertification by NRC for USEC operation of the leased diffusion plants. This annual update will continue until all non-compliances are fixed. Environmental corrective actions identified in prior years have mostly been completed, as has the shutdown of the highly enriched uranium production facility.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Uranium Supply and Enrichment Activities					
Highly enriched uranium shutdown & inventory disposition	6,824	5,005	3,370	-1,635	-33%
Nuclear safety compliance corrective actions	1,493	11,100	2,100	-9,000	-81%
Maintenance of leased & non-leased facilities	17,039	13,140	11,934	-1,206	-9%
Technology partnerships	6,936	2,000	1,000	-1,000	-50%
Pre-existing liabilities	11,056	13,740	16,903	3,163	23%
Transparency Measures	7,706	7,050	13,890	6,840	97%
Depleted uranium hexafluoride cylinders & maintenance	16,979	29,965	26,883	-3,082	-10%
Large scale classification review	249	300	429	129	43%
Corrective actions	12,935	1,000	1,000	—	—
Program management services	3,667	2,490	4,085	1,595	64%
Program direction	4,374	4,110	5,672	1,562	38.0%
Subtotal, Uranium Supply and Enrichment Activities	89,258	89,900	87,266	-2,634	-3.0%
Revenues - Sales	—	-34,903	-42,200	-7,297	-21.0%
Use of prior year balances	-16,135	-25,703	-17,266	8,437	33.0%
Total, Uranium Supply and Enrichment Activities	73,123	29,294	27,800	-1,494	-5.0%

Budget Overview - The FY 1997 Uranium Supply & Enrichment Activities appropriation request is $27.8 million, a $1.5 million decrease from FY 1996, due to a slightly lower level of program activity. This request complements Nuclear Energy's request for $248.1 million in the Energy Supply R&D appropriation for high priority activities such as the termination of unnecessary reactors and new design R&D, the enhancement of the current light water reactor design, and the production of power sources for NASA's missions. An additional $72.2 million is requested in the Other Defense Activities appropriation for international nuclear safety activities. The total FY 1997 funding requested by Nuclear Energy, excluding the $644.1 million for Naval Reactors, is $348.1 million.

FY 1997 Budget Request - The FY 1997 activity level in this appropriation is $87.3 million. Of this amount, $26.9 million is requested for the Depleted Uranium Hexafluoride Cylinders & Maintenance program to inspect the cylinders for corrosion; to clean and paint cylinders as necessary; to complete construction of new cylinder yards; and to restack the cylinders in the new yards to prevent accelerated corrosion and to make them more accessible for inspection. Another high budget priority is the payment of pre-existing Departmental liabilities. $16.9 million is requested to provide for post-retirement life and health benefits for former contractor employees and litigation stemming from operations prior to transfer to the USEC. $13.9 million will cover the Transparency Measures program, funding inspections of Russian plants where highly enriched uranium from dismantled weapons is blended down into low enriched uranium. Support will also be given to U.S. facilities that will be monitored by the Russians, and special non-intrusive monitoring equipment will be developed and deployed as necessary. The FY 1997 Transparency Measures funding request is substantially higher than previous years due to the Russian addition of the Krasnoyarsk facility for converting highly enriched uranium to low enriched uranium. The Krasnoyarsk facility will require a permanent monitoring office as well as periodic special monitoring trips by high level U.S. transparency policy experts. $11.9 million will fund routine maintenance activities at the DOE-managed portions of the gaseous diffusion plants, including

inspection for and repair of safety-related deficiencies and management and control of low enriched uranium oxide. Various activities shown in the table above make up the remaining $17.7 million requested in this appropriation. Use of prior year balances and offsetting collections from the sale of natural uranium from the Department's inventory brings the net budget down to $27.8 million.

Highlights of Program Changes	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Nuclear Safety Compliance Corrective Actions (FY 1996 - $11.1 million, FY 1997 - 2.1 million) Decrease is due to completion of diffusion plant safety analysis reports that support Nuclear Regulatory Commission certification of the plants. Annual report updates will be required in the future.	-$9.0M
Transparency Measures (FY 1996 - $7.0 million, FY 1997 - $13.9 million) Increase is due to initiation of material and process monitoring at a second Russian site, which will entail establishment of a permanent monitoring office at Krasnoyarsk and periodic monitoring trips by U.S. officials.	+ $6.8M

Uranium Enrichment Decontamination and Decommissioning Fund

Mission - As part of the Environmental Management (EM) program for Environmental Restoration, the mission of the Uranium Enrichment D&D Fund is to protect human health and the environment from risks posed by inactive and surplus Department of Energy (DOE) facilities and contaminated areas, by remediating and decontaminating and dismantling sites, facilities and contaminated areas in the most cost-efficient and responsible manner possible in order to provide for future beneficial use. The specific mission of the D&D Fund provides for the cleanup of the Department's three gaseous diffusion plants located in Paducah, KY, Portsmouth, OH, and Oak Ridge, TN and for the administration of a reimbursement program for active uranium and thorium processing sites which sold uranium and thorium to the United States Government.

Program Overview - The Uranium Enrichment Decontamination and Decommissioning (D&D) Fund, established by the Energy Policy Act of 1992, supports D&D, remedial actions, waste management, K-25 landlord requirements and surveillance and maintenance (S&M) activities associated with pre-existing conditions at the Department's gaseous diffusion plants. The Energy Policy Act authorizes annual deposits into the D&D Fund of up to $480 million adjusted for inflation. Domestic utilities are to be assessed up to $150 million per year (adjusted for inflation) for 15 years based on their purchase of uranium enrichment services from the Federal Government. The remainder of the annual deposit was authorized to come from annual appropriations, and the program will seek legislation granting authority in FY 1997 to collect foreign fee receipts.

The Energy Policy Act also requires the DOE to develop and administer a reimbursement program for active uranium and thorium processing sites which sold to the United States Government. This program assists site owners by compensating them on a per-ton basis for the restoration costs resulting from the sale of materials to the Federal Government.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Uranium Enrichment Decontamination and Decommissioning Fund	301,327	278,807	240,200	-38,607	-13.8%

Budget Overview - The FY 1997 budget request of $240.2 million from the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund is 4 percent of the total FY 1997 budget request for the Environmental Management program of $5,878.4 million.

In addition to the budget request from the Uranium Enrichment D&D Fund, $5,409.3 million is being requested under the Defense Environmental Restoration and Waste Management appropriation, and $651.4 million is being requested under the Energy Supply Research and

Development appropriation. This amount is offset by a Government contribution of $376.6 million and a collection of foreign fee receipts of $45.9 million which will be deposited into the Uranium Enrichment D&D Fund. The total FY 1997 budget request for the Environmental Management program is $5,878.4 million. An additional $182 million is being proposed in the government-wide General Provisions in the *Appendix* volume of the President's FY 1997 Budget to provide up-front funding for additional Environmental Management privatization efforts. This request is part of an initiative to improve planning and budgeting for the acquisition of fixed assets and similar procurements. This additional funding authority would result in an FY 1997 program of $6,060.4 million.

The government contribution from the Defense Environmental Restoration program of $376.6 million will be deposited into the Uranium Enrichment D&D Fund. In addition, the assessment to domestic utilities of approximately $163 million and a collection of foreign fee receipts of $45.9 million are also planned to be deposited into the Fund. The FY 1997 budget request of $240.2 million will be used to fund current work scope, while the balance deposited into the Fund will remain in the Fund for future cleanup at the gaseous diffusion plants.

FY 1997 Budget Request - The FY 1997 budget request of $240.2 million includes $198.2 million to fund activities through the Oak Ridge (OR) Operations Office and $42 million through Headquarters. The OR Operations Office manages, tracks, and assists in the implementation of the Environmental Restoration program among the three sites. The program managed at Headquarters provides for partial payment of approved uranium and thorium reimbursement claims.

Highlights of Program Changes

FY 1996 - FY 1997
Amount (Dollars in Millions)
(Increase/Decrease)

The Uranium Enrichment D&D Fund budget request was reduced from FY 1996 to FY 1997 by $39 million to allow for funding of higher priority Environmental Management activities.

Oak Ridge - The following activities are managed through the Oak Ridge Operations Office:

- Remedial Actions decreased from $155.8 million in FY 1996 to $136.2 million in FY 1997. -$19.6
- Decontamination & Decommissioning decreased from $68.2 million in FY 1996 to $44 million in FY 1997. -$24.2
- Compliance Oversight increased from $3.2 million in FY 1996 to $8.5 million in FY 1997. +$ 5.3

General Science and Research

Mission - The Office of Energy Research has a dual mission. The first element of the mission involves basic research in energy related areas, including research on fusion energy, a potential major energy source, and provides the science that triggers and drives technological development within the Department. The second element of the mission involves the High Energy and Nuclear Physics programs which conduct fundamental research in energy, matter, and the basic forces of nature. Research in both missions is conducted primarily at DOE National Laboratories by laboratory and university researchers, and the mission includes operation, maintenance and construction of new scientific facilities.

Program Overview - Office of Energy Research programs in energy related areas are funded by the Energy Supply Research and Development appropriation, and were described earlier. The General Science and Research Appropriation funds the High Energy and Nuclear Physics programs. These programs, which are described below, provide insight into the nature of energy and matter, and support large, world class scientific facilities for physics research. High energy and nuclear physics research is performed primarily at the Department of Energy National Laboratories using large particle accelerators. The research is conducted by over 3,000 researchers and over 1,000 graduate students from more than 100 universities and the National Laboratories. The Department of Energy funds approximately 90 percent of all Federal research in High Energy and Nuclear Physics.

High Energy Physics seeks an understanding of the nature of matter and energy at the most fundamental level, and the basic forces which govern all processes in nature. The research program is dependent upon the DOE state-of-the-art particle accelerators, fixed target and colliding beam facilities, and particle detectors. The major facilities are the Alternating Gradient Synchrotron at Brookhaven National Laboratory, the Tevatron at FermiLab with both fixed and colliding beam facilities, and the Stanford Linear Accelerator Center (SLAC). Two large construction projects are nearing completion, the B-Factory at SLAC and the FermiLab Main Injector, and the program is negotiating to be a partner in research and design activities for the Large Hadron Collider (LHC) at CERN. The program also supports the technology base required to develop the advanced concepts and technologies for new high energy physics facilities.

The Nuclear Physics program conducts research activities needed to understand the structure of atomic nuclei and the fundamental forces required to hold nuclei together. The experimental research program supports particle accelerators and several other research facilities located at National Laboratories and universities. A Nuclear Theory program complements experimental activities. The program supports the operation and maintenance of facilities and the construction of new facilities. Currently under construction is the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory, a colliding beam accelerator which will study nuclear matter as it undergoes a phase transition to a plasma of gluons and quarks.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
General Science and Research					
High energy physics	632,163	667,000	679,125	12,125	1.8%
Nuclear physics	326,776	304,500	318,425	13,925	4.6%
Program direction	11,400	10,650	11,600	950	8.9%
Subtotal, General Science and Research	970,339	982,150	1,009,150	27,000	2.7%
Use of prior year balances	-10	—	—	—	—
Total, General Science and Research	970,329	982,150	1,009,150	27,000	2.7%

Budget Overview - The FY 1997 budget request for the Office of Energy Research is $2,548.6 million. Of this, $1,539.4 million is for energy-related programs in the Energy Supply Research and Development account. The FY 1997 budget request for the General Science and Research programs in the Office of Energy Research maintains research activities at slightly below FY 1996 levels after inflation. In High Energy Physics the FY 1997 budget request continues to reflect the guidance contained in the FY 1994 report "Subpanel on the Vision for the Future of High Energy Physics." In Nuclear Physics emphasis continues to be placed on increased use of existing facilities and completing the Relativistic Heavy Ion Collider project.

In addition, $203 million is requested in FY 1997 in a separate, government-wide allowance (proposed in the government-wide General Provisions in the *Appendix* volume of the Budget of the United States Government) to fully-fund construction and construction-related activities of three General Science projects form FY 1998 through project completion. The allowance requests that $131 million for RHIC, $37 million for the FermiLab Main Injector, and $35 million for the B-Factory at SLAC be transferred to the Department of Energy. These amounts are not attributed to the Department's budget totals.

FY 1997 Budget Request - The FY 1997 budget request for General Science is $1,009.1 million. The FY 1997 budget request for High Energy Physics maintains two notable responses to cancellation of the Superconducting Super Collider in FY 1994. First, the U.S. will formally negotiate its involvement in the CERN Large Hadron Collider (LHC) project, with funding for the LHC increasing from $6 million in FY 1996 to $15 million in FY 1997. The other response involves continued utilization of existing accelerators for the U. S. High Energy Physics program. Operations and research at the three large laboratories are held essentially to FY 1996 levels. Funding is increased to support the detector for the B-factory ($+7.0 million), and FermiLab detectors ($+4.8 million). Construction stays on schedule for the Fermi Main Injector (TEC $229.6 million, FY 1996-$52.0 million, FY 1997 $52.0 million, complete in FY 1999) and B-Factory at Stanford Linear Accelerator Center (TEC $177.0 million, FY 1996-$52.0 million, FY 1997 $45.0 million, complete in FY 1997), and there is a new start for an electrical substation upgrade at SLAC (TEC $12.4 million, FY 1997-$3.0 million, complete FY 1998).

Enhanced FY 1997 funding for Nuclear Physics will permit the Continuous Electron Beam Accelerator Facility in Newport News, Virginia and Bates Linear Accelerator at MIT to increase operations slightly over FY 1996. Small funding enhancements are also provided for CEBAF

research and pre-operations for the Relativistic Heavy Ion Collider project at Brookhaven, which is still under construction and scheduled for completion in FY 1999. Other research programs and facility operations remain relatively flat. Construction funding for RHIC is at the planned FY 1997 level (TEC $486.9 million, FY 1996-$65.0 million, FY 1997-$65.0 million, completion FY 1999). The TEC reflects an increase of $11.6 million and completion delayed by one quarter as a result of funding reductions made by Congress in FY 1996.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
High Energy Physics	
• Large Hadron Collider increases for research/design activities (FY 1996-$4.8 million, FY 1997-$12.0 million) and equipment (FY 1996-$1.2 million, FY 1997-$3.0 million)	+$9.0
• Increases to support the B-Factory detector ($7.0 million) and CDF and D-zero detectors at FermiLab ($4.8 million).	+$11.3
• Construction: Final year funding for B-Factory (TEC $177.0 million, FY 1996-$52.0 million, FY 1997-$45.0 million), initiate SLAC Master Substation Upgrade (TEC $12.4 million, FY 1997-$3.0 million)	-$4.0
• All other programmatic changes	-$4.2
Nuclear Physics	
• Increased funding in Medium Energy Nuclear Physics for research (+$3.0 million) and operations of CEBAF and Bates (+$4.3 million).	+$7.3
• Heavy Ion Nuclear Physics has enhanced funding for RHIC research staff and pre-operations.	+$3.6
• Accelerator Improvement Project funding at CEBAF and Bates increased to enhance the performance of these machines	+$3.4
• Other programmatic changes.	-$0.4
General Science Program Direction	
• Increase for staff, support services and working capital fund.	+$0.9

Weapons Activities

Mission - The mission of Defense Programs is to maintain the safety, security, and reliability of the nation's enduring nuclear weapons stockpile within the constraints of a comprehensive test ban, utilizing a science-based approach to stockpile stewardship and management in a smaller, more efficient weapons complex infrastructure. The future weapons complex will rely on scientific understanding and expert judgement, rather than on underground nuclear testing and the development of new weapons, to predict, identify and correct problems affecting the safety and reliability of the stockpile. Enhanced experimental capabilities and new tools in computation, surveillance, and advanced manufacturing will become necessary to recertify weapon safety, performance, and reliability without underground nuclear testing. Weapons will be maintained, modified, or retired and dismantled as needed to meet arms control objectives or remediate potential safety and reliability issues. As new tools are developed and validated, they will be incorporated into a smaller, more flexible and agile weapons complex infrastructure for the future.

Program Overview - The Defense Programs Stockpile Stewardship and Management Program is a single, highly integrated technical program for maintaining the safety and reliability of the U.S. nuclear stockpile in an era without underground nuclear testing and without new nuclear weapons development and production. Traditionally, the activities of the three weapons laboratories and the Nevada Test Site have been regarded separately from those of the weapons production plants. However, although there remain separate budget decision units within Defense Programs, all stockpile stewardship and management activities have achieved a new, closer linkage to each other as evidenced in the ongoing Programmatic Environmental Impact Statement (PEIS) which is scheduled for a Record of Decision (ROD) in late 1996. The preferred alternative addresses all sites and functions, meets requirements within policy constraints, optimizes program objectives, and identifies actions to be taken over the next ten years, including downsizing and consolidation actions.

There are three primary goals of the Stockpile Stewardship and Management Program: (1) Provide high confidence in the safety, security and reliability of the U.S. stockpile to ensure the continuing effectiveness of the U.S. nuclear deterrent while simultaneously supporting U.S. arms control and nonproliferation policy; (2) Provide a small, affordable and effective production complex to provide component and weapon replacements when needed, including limited lifetime components and tritium; and (3) Provide the ability to reconstitute U.S. nuclear testing and weapon production capacities, consistent with Presidential Directives and the Nuclear Posture Review, should national security so demand in the future. The Defense Programs budget request is comprised of three decision units: Stockpile Stewardship, Stockpile Management, and Program Direction.

The Stockpile Stewardship program will address issues of maintaining confidence in stockpile safety and reliability without underground nuclear testing through a technically challenging science-based stockpile stewardship program utilizing upgraded or new experimental and

computational capabilities. The Stewardship budget continues initiatives in dynamic radiography, lasers and pulsed power, and the Accelerated Strategic Computing Initiative (ASCI) to acquire and use data to improve predictive capabilities which will be the foundation of the science-based stewardship approach.

The Stockpile Management program supports the maintenance, evaluation, dismantlement, transportation, and disposal of nuclear weapons in accordance with the quality, quantity, and schedule requirements approved by the President in the Nuclear Weapons Stockpile Plan. The program continues with its historical responsibilities to address issues of near-term and long-range support for the enduring stockpile, and for ensuring an adequate supply of tritium. Along with routine stockpile surveillance, this includes corrective maintenance and system replacement, as well as weapon dismantlement.

Program Direction provides funds for personnel-related expenses, capital equipment, and contractual services for Defense Programs. The statutory Community Assistance Program at Los Alamos, New Mexico, is also funded in Program Direction.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Weapons Activities					
Stockpile stewardship	1,407,520	1,495,969	1,576,767	80,798	5.4%
Stockpile management	1,587,001	1,844,080	1,798,831	-45,249	-2.5%
Program direction	365,242	326,933	334,404	7,471	2.3%
Subtotal, Weapons activities	3,359,763	3,666,982	3,710,002	43,020	1.2%
Use of prior year balances	-147,416	-210,744	—	210,744	100.0%
Total, Weapons Activities	3,212,347	3,456,238	3,710,002	253,764	7.3%

Budget Overview - The Defense Programs request for FY 1997 is $3.7 billion, an increase of $254 million or 7 percent above the FY 1996 net appropriation. FY 1997 will be a year of stabilization for Defense Programs in which the program will begin to look forward to what needs to be done, as opposed to the last four to five years in which the focus has been on responding to major policy shifts, such as the implementation of the moratorium on underground nuclear testing. In Stockpile Stewardship, there continues to be a near-term investment cost for the new tools required to maintain confidence in the safety, security, and reliability of the stockpile in the absence of underground nuclear testing. The Stockpile Management program will continue ongoing activities required to manage the stockpile, such as adherence to the current Stockpile Plan, related dismantlement schedules, and Limited Life Component Exchange (LLCE) schedules.

FY 1997 Budget Request - The Stockpile Stewardship program is requesting $1,576.8 million in FY 1997, an increase of $80.8 million or 5 percent above the comparable FY 1996 program level which includes the appropriation and use of prior year balances. The request includes second year funding for: (1) the high priority Accelerated Strategic Computing Initiative (ASCI) (FY 1997 $121.6 million); (2) the National Ignition Facility (NIF) (FY 1997 Operating $59.2 million; Construction $131.9 million); (3) the Contained Firing Facility (FY 1997 $17.1 million);

(4) the Processing and Environmental Technology Laboratory (FY 1997 $14.1 million); and (5) ATLAS (FY 1997 $15.1 million). The request also continues to transition the Technology Transfer program from cooperative research and development agreements motivated to enhance the Nation's industrial competitiveness to partnerships as a means to accomplish Stockpile Stewardship mission objectives.

The Stockpile Management program is requesting $1,798.8 million in FY 1997, a decrease of $45.2 million or 2 percent below the comparable FY 1996 program level which includes the appropriation and use of prior year balances. The Core Stockpile Management Program will maintain, evaluate, modify, improve, and dismantle warheads, bombs, and shells in accordance with the nuclear weapons stockpile plan. The Enhanced Surveillance initiative will be continued and production capabilities maintained. The Radiological/Nuclear Accident Response Program continues maintenance of DOE's technical and operational capabilities for responding to radiological accidents/incidents worldwide. The Reconfiguration Program continues consolidation of nonnuclear manufacturing activities. The Tritium Source Program includes funding to support the Department's dual-track strategy to provide an assured source of tritium. The Materials Surveillance Program provides funding for ongoing materials processing and recovery activities at Oak Ridge facilities; and materials surveillance and disposition activities at former Defense Programs sites.

The Program Direction account is requesting $334.4 million in FY 1997, an increase of $7.5 million or 2 percent above the comparable FY 1996 program level which includes the appropriation and use of prior year balances. In FY 1997, all federal staffing costs and associated contractual support funding have been moved from Stockpile Stewardship and Management into Program Direction. (FY 1996 FTEs 2,126; FY 1997 FTEs 1,997)

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Stockpile Stewardship	
• *Accelerated Strategic Computing Initiative (ASCI)* will request second year funding to accelerate the development of computer simulation for nuclear weapons test, manufacture, and surveillance. Increases will be used to accelerate full-development of safety and performance codes, and initiation of computer models for selected high priority aging issues of concern for the current stockpile; and support three vendor partnerships for hardware and software. (FY 1996 $85.0 million; FY 1997 $121.6 million).	+$36.6
• *National Ignition Facility (NIF)* will request second year construction funding, reflecting the shift to final detailed design and site specific activities. Site selection is expected to follow the Record of Decision of the Stockpile Stewardship and	+$130.1

Management Programmatic Environmental Impact Statement. NIF will provide, upon completion, weapon-related physics data, needed for the computational simulations that will underpin the Department's Stockpile Stewardship efforts. (FY 1996 $23.6 million operating and $37.4 million construction; FY 1997 $59.2 million operating and $131.9 million construction).

- *Technology Transfer* -$99.6
  reduction allows the program to continue transition from cooperative research and development agreements which contributed to the Nation's industrial competitiveness to direct support of fundamental Stockpile Stewardship and Management needs, focusing on advanced computing and manufacturing. FY 1997 funding is requested to support ongoing agreements and the Small Business Initiative. (FY 1996 $149.0 million; FY 1997 $49.4 million).

Stockpile Management

- *Reconfiguration* -$81.6
  completes the majority of activities to transfer the nonnuclear component roles of the Mound, Pinellas, and Rocky Flats sites to the Kansas City and Savannah River sites, as well as the Los Alamos and Sandia National Laboratories.
- *Tritium Source* +$25.0
  supports Secretary's dual-track strategy to provide a new assured source of tritium. This strategy encompasses activities supporting the purchase of an existing commercial LWR or irradiation services and the design and development of a linear accelerator. The most promising alternative will be selected and designated as the primary method of tritium production at a later date.

Program Direction

- *The FY 1997 budget* +$7.5
  reflects a combining of Federal support expenditures for all Headquarters and Field activities in the Program Direction decision unit. The increase funds the costs associated with staff downsizing per Strategic Alignment Initiative (SAI). Program Direction supports 1,997 FTEs in FY 1997.

Defense Environmental Restoration and Waste Management

Mission - The Environmental Management (EM) program identifies and reduces environmental, health and safety risks at sites where the Department previously carried out nuclear energy or weapons research and production activities through waste management and environmental restoration. The EM program's goals are to: 1) eliminate and manage the urgent risk in the system; 2) emphasize health and safety for workers and the public; 3) establish a system that increases managerial and financial control; 4) demonstrate tangible results; 5) focus technology development efforts on identifying and overcoming obstacles to progress; and 6) establish a stronger partnership between DOE and its stakeholders.

Program Overview - The Department's Cold War legacy includes radioactive, hazardous and mixed waste contamination now requiring remediation, stabilization or some other type of corrective action. This section discusses the Environmental Management activities supported under the Defense Environmental Restoration and Waste Management appropriation. Environmental Management efforts supported by other appropriations is discussed separately. The other appropriations include the Energy Supply Research and Development appropriation, which funds the non-defense portion of the program, and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund.

The Defense Environmental Restoration and Waste Management appropriation supports Environmental Restoration activities, Waste Management functions, Nuclear Material and Facility Stabilization efforts, Science and Technology activities, and Site Operations activities and privatization efforts, as well as program direction and administrative activities, including management and evaluation, and planning, policy and budget.

The Environmental Restoration program conducts cleanup activities to stabilize radioactive waste, carries out remediation efforts and perform decommissioning and decontamination work at contaminated DOE sites. Other Environmental Restoration activities include performing assessments and characterizations to determine potential radioactive and hazardous waste releases and to reduce and remove the potential risks to the environment, human health, and safety resulting from past defense-related Departmental activities.

The Waste Management program minimizes, characterizes, stores, transports, treats and disposes of radioactive, hazardous, mixed, and sanitary waste generated by past and ongoing operations at DOE facilities.

The Nuclear Material and Facility Stabilization program reflects the change in the Department's mission from production of nuclear weapons to the clean up of the former production complex. The activities of this program reduce the level of potential risks to people and the environment and drive down the cost of maintaining surplus facilities. Nuclear Material and Facility Stabilization

activities that reduce risk include stabilizing nuclear materials (i.e., suitable for longer-term storage) and deactivating surplus production facilities. As EM completes many of the stabilization and deactivation activities, the cost of implementing other Nuclear Material and Facility Stabilization activities (program integration and surveillance & maintenance) associated with those facilities, should decrease.

Technology Development efforts involve the development and demonstration of new or improved technologies to reduce risks and the cost of cleanup at the Department's facilities and contaminated areas that have resulted from decades of weapons production. The Technology Development program conducts an aggressive national research and development program that addresses five major focus areas: Mixed Waste Characterization; Treatment and Disposal; Radioactive Tank Waste Remediation; Contaminant Plume Containment and Remediation; Landfill Stabilization; and Decontamination and Decommissioning.

The Environmental Science Program, which was initiated in FY 1996 with a $50 million Congressional appropriation add, will continue efforts in FY 1997 to establish and conduct strategic basic research in concert with national laboratories and universities. In addition, risk management and analysis activities will ensure that risk analysis is integrated into the decision making process.

Site Operations serves as the focal point and champion for crosscutting activities and responsibilities within the EM program such as environmental and regulatory analysis and Transportation and Pollution Prevention. Site Operations provides Headquarters policy direction for landlord planning and budgeting including reducing site infrastructure costs and managing workforce restructuring. The Mound and Pinellas Project Office's mission is to cleanup, transition to safe shutdown, and guide the disposition of the Mound and Pinellas sites.

The EM Privatization program provides funding to meet the termination liability clause for a tank waste treatment service contract at Hanford. Using this approach, which is part of the Vice President's Reinventing Government initiative and the Department of Energy's (DOE) Contract Reform Initiative, DOE would buy a service on a competitive fixed price basis. DOE would pay for treated waste meeting contract performance specifications and the contractor would design the plant, obtain the permits, construct, finance, and operate the plant.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Defense Environmental Restoration & Waste Management					
Environmental restoration	1,669,380	1,804,052	1,762,194	-41,858	-2.3%
Waste management	2,194,356	1,916,946	1,536,653	-380,293	-19.8%
Technology development	277,521	297,881	303,771	5,890	2.0%
Nuclear materials and facilities stabilization	943,535	915,744	903,821	-11,923	-1.3%
Policy and management	50,388	25,682	48,155	22,473	87.5%
Site operations	454,948	383,173	329,469	-53,704	-14.0%
Environmental science program	23,650	63,875	52,136	-11,739	-18.4%
Environmental management privatization	—	—	185,000	185,000	—
Subtotal, Defense environmental management	6,111,940	5,881,104	5,567,710	-313,394	-5.3%
Savannah river pension refund	-40,000	-37,000	-8,000	29,000	78.4%
Use of prior year balances	-667,280	-377,709	-150,400	227,309	60.2%
Total, Defense Environmental Rest. & Waste Mgmt.	5,404,660	5,466,395	5,409,310	-57,085	-1.0%

Budget Overview - In addition to the budget request of $5,409.3 million for the Defense Environmental Restoration and Waste Management, $651.4 million is requested under the Energy Supply Research and Development appropriation and $240.2 million is requested under the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund. This amount is offset by a Government contribution of $376.6 million and, through enactment of new legislation, a collection of foreign fee receipts of $45.9 million, both of which will be deposited into the Uranium Enrichment D&D Fund. The total FY 1997 budget request for the Environmental Management program is $5,878.4 million. An additional $182 million is being proposed in the government-wide General Provisions in the *Appendix* volume of the President's FY 1997 Budget to provide up-front funding for additional Environmental Management privatization efforts. This request is part of an initiative to improve planning and budgeting for the acquisition of fixed assets and similar procurements. This additional funding authority would result in an FY 1997 program of $6,060.4 million.

The EM FY 1997 budget request under the Defense Environmental Restoration and Waste Management appropriation aggressively addresses and minimizes risk to workers, the public and the environment; effectively prioritizes and sequences work covered by Federal and State agreements to incorporate relative risk; and focuses on obtaining measurable results.

The FY 1997 budget request for Defense Environmental Restoration and Waste Management appropriation of $5,409.3 million is $57.1 million (1 percent) less than the comparable amount for FY 1996. The program's current plan of doing more with less will be accomplished by focusing on essential activities needed to meet program goals and by reducing overhead and infrastructure costs. Of the $5,409.3 million, approximately 32 percent is for Environmental Restoration, 28 percent is for Waste Management, 16 percent is for Nuclear Material and Facility Stabilization and 5 percent is for Technology Development. In addition, 1 percent is for the Environmental Science Program, 6 percent is for Site Operations, 8 percent is for Program Direction, 1 percent is for Policy and Management, and 3 percent supports the EM Privatization

initiative. These percentages are based on EM's goals to reduce risk, maintain compliance and achieve measurable results.

An additional $182 million is being proposed in the government-wide General Provisions in the *Appendix* volume of the President's FY 1997 Budget to provide up-front funding for additional Environmental Management privatization efforts.

FY 1997 Budget Request - Of the $5,567.7 million (offset by $8.0 million for the Savannah River Pension Fund and $150.4 million of prior year balances for a net request of $5,409.3 million) requested in FY 1997 for the Defense Environmental Restoration and Waste Management appropriation, $1,762.2 million is for Environmental Restoration. This amount for Environmental Restoration is a $41.9 million (2 percent) decrease below the comparable amount for FY 1996. The Environmental Restoration program continues efforts in FY 1997 to identify the sources, nature and extent of contamination to allow a more accurate determination of relative risk, scope and cost of projects. It also increases the cost-effectiveness of characterization efforts by establishing objectives beforehand. However, emphasis is placed on doing fewer studies and accomplishing more actual cleanup in FY 1997.

The Waste Management program request of $1,536.6 million is $380.3 (20 percent) less than the FY 1996 comparable amount and continues ongoing regulatory compliance efforts in FY 1997 to bring the DOE complex in line with environmental, safety and health requirements. Priority activities supported by this request include continuing high-level waste treatment at the Defense Waste Processing Facility to reduce risk associated with the storage of liquid high-level waste; restart of calcine operations at Idaho for high-level waste treatment and storage; implementing site treatment plans as negotiated through the Federal Facilities Compliance Act; meet the conditions of the Idaho agreement for transuranic (TRU) waste storage, treatment and shipment when the Waste Isolation Pilot Plant (WIPP) opens; and continue improving high-level waste storage tank safety at Richland.

The $903.8 million request for the Nuclear Material and Facility Stabilization (NMFS) program is $11.9 million (1 percent) less than the FY 1996 comparable amount. A major portion of NMFS's FY 1997 request is related to the Department's spent nuclear fuel program. This program receives and stores Naval spent nuclear fuel and other DOE assigned spent nuclear fuel. The focus of the program is on placing all spent fuel into interim dry storage and preparing fuel for permanent disposition in a geologic repository. The remaining portion of the program will focus on reducing environmental, health and safety risks identified by the Defense Nuclear Facilities Safety Board (DNFSB). NMFS aims to complete the mission of the NMFS program in the FY 2005-2010 time frame. As these goals are achieved, the surplus facilities will be transferred to the Environmental Restoration program for decontamination and decommissioning.

The Technology Development request of $303.8 million is a $6.0 million (2 percent) increase over the comparable amount for FY 1996. It provides $166.9 million for the five focus areas which address treatment, disposal, containment and remediation technology systems; $62.2 million

for industry, university and Small Business Innovative Research programs; $21.7 million for technology integration activities to ensure the application of needed advanced technologies, resulting in increased commercial availability and acceptance of needed advanced technologies; and $53 million to continue crosscutting programs related to Characterization and Sensors, Efficient Separations, Robotics and program support for the five focus areas.

The Environmental Science program request of $52.1 million provides $38.1 million to continue a strategic basic research program that will strengthen EM's basic science and engineering activities through a competitive process offered to the DOE national laboratories, academic and industrial organizations. This program will lead to long-term, reduced cleanup costs and risks to workers and the public. The Science program was initiated in FY 1996 and responds to the Galvin Commission Report as well as other recent recommendations. Funding in the amount of $14 million is included to address risk management and analysis activities in decision making processes such as budget formulation.

The Site Operations program request of $329.5 million is $53.7 million (14 percent) below the FY 1996 comparable amount. The request includes $130.7 million directly related to landlord and infrastructure requirements at EM sites and $145.3 million to support the mission at Mound and Pinellas to clean up, transition to safe shutdown and dispose of the sites. $23.9 million supports the national pollution prevention activities throughout the complex, $19.5 million supports the national transportation and emergency management activities, $.8 million supports environmental and regulatory analysis and $9.3 million supports Program Integration and the national Hazardous Waste Operations (HAZWOPER) program. The primary goal of the Site Operations program is to integrate EM cross cutting activities at all sites while working to reduce site infrastructure costs, to mange workforce restructuring, and to be an advocate at Headquarters for the field.

The Policy and Management budget request of $48.2 million supports development of Training and Education of contractors at $8.6 million, Public Accountability at $10.5 million, information management activities at $10.0 million, and $7 million for Strategic Planning.

The FY 1997 budget request of $446.5 million for Program Direction supports 618 full time equivalents (FTEs) at headquarters (employees based in the Washington D.C. area) and 2,481 FTEs at the major operations offices located throughout the country. In accordance with the Department's Strategic Alignment Initiative, EM has undertaken an effort to reduce the workforce from the FY 1995 allocations. The workforce will continue to decline through FY 2000, leveling off with a headquarters staff of 485 and a field staff of 2,188.

The request for the EM Privatization program includes $185 million to privatize the Tank Waste Remediation System (TWRS) at Hanford. The funds are budgeted to allow the Department to reimburse contractors in the event the Government incurs liabilities for termination of privatization contracts. It will also provide for the compensation of contractors for Phase I (Part A) design efforts.

Highlights of Program Changes	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Environmental Restoration (-$41.9 million)	
• Decrease from $112 million in FY 1996 to $82.9 million in FY 1997 at Albuquerque due to reprioritization and deferrment of cleanup activities at Los Alamos and Sandia National Labs and due to completions at the Pantex Plant.	-$29.1
• Reduction from $157.4 million in FY 1996 to $130.8 million in FY 1997 to refocus the budget at Richland on higher risk activities.	-$26.6
• The government contribution to the Uranium Enrichment D&D Fund is increased from $350 million in FY 1996 to $376.6 million in FY 1997 for inflation as required by the Energy Policy Act of 1992.	+$26.6
• The transition to full scale remediation at Pit 9 requires an increase from $48.1 million in FY 1996 to $58.7 million in FY 1997 at Idaho.	+$10.6
• Increase from $274.8 million in FY 1996 to $287.2 million in FY 1997 to support the acceleration of cleanup activities at Ohio which will lead to lower landlord costs in the outyears.	+$12.4
• Increase from $47.9 million in FY 1996 to $53.2 million in FY 1997 to support the acceleration of cleanup activities at Nevada which will lead to lower landlord costs in the outyears.	+$ 5.3
• Rocky Flats funding decreased from $532.9 million in FY 1996 to $504.3 million in FY 1997 to shift site priorities to emphasize materials stabilization activities.	-$28.6
Waste Management (-$380.3 million)	
• Savannah River funding decreased from $532.2 million in FY 1996 to $485.4 million in FY 1997. The deferral of the next generation of low level waste vaults made possible by achieving a greater volume reduction of low level waste, full transition of the Consolidated Incineration Facility (CIF) and a reduction in start-up personnel and activities due to the fact that DWPF will be in full operation account for most of the decrease at Savannah River.	-$46.8
• Oak Ridge funding decreased from $191.9 million in FY 1996 to $164.0 million in FY 1997. Efforts to reduce and avoid costs while maintaining safe and regulatory waste management operations account for a large part of the decrease at Oak Ridge.	-$27.9
• Richland funding decreased from $678.3 million in FY 1996 to $465.0 million in FY 1997. Decrease reflects removal of Privatization from the Waste Management Program ($50 million); reduction to tank farm operations and maintenance and upgrades ($45 million); removal of support	

services from the Waste Management Program ($23 million); reductions in the Tank Waste Remediation System Program including low level waste disposal, waste retrieval, program management, characterization, storage and disposal, and high level waste programs ($64 million; and reductions in the Solid Liquid Waste Program including liquid effluents, waste disposal, PNL activities, and WRAP I ($31 million). -$213.3

- Idaho funding decreased from $163.8 million in FY 1996 to $110.8 million in FY 1997. The completion of construction of waste storage facilities, the High Level Waste Tank Farm upgrades and the Transuranic Storage Area Retrieval Enclosure in FY 1996 largely drives the decrease. -$53.0
- Albuquerque funding decreased from $277.1 million in FY 1996 to $255.8 million in FY 1997. The decrease is partially due to the completion of various efforts in FY 1996, including such things as the floodwall corrective action project, upgrades of hazardous waste bulk storage tanks at Kansas City and the characterization of radioactive waste streams at Sandia to support mixed waste treatment and LLW disposal. This decrease also reflects the completion of many of the efforts associated with preparation of the regulatory compliance packages associated with the Waste Isolation Pilot Plant (WIPP). -$21.3

Nuclear Material and Facility Stabilization (-$11.9 million)

- Funding for the Idaho Operations Office increases from $129.9 million in FY 1996 to $137.6 million in FY 1997. Part of the increase is associated with the plutonium focus area that will help identify and recommend solutions to technical and operational issues associated with Plutonium stabilization and storage identified by the Defense Nuclear Facilities Safety Board in Recommendation 94-1. An additional $3.1 million is necessary to increase the number transfers of Spent Nuclear Fuel from 200 in FY 1996 to approximately 540 in FY 1997. +$7.7
- The Richland Operations Office's FY 1997 funding is $17 million higher than the FY 1996 level of $295.6 million. This increase is due to the acceleration of the Spent Nuclear Fuel program. A front end increase (+$39 million from FY 1996 to FY 1997) is necessary to enable timely completion of new milestones. The increase is offset by a decrease in surveillance and maintenance due to the removal of hazards at the PUREX facility. +$17.0
- Funding for the Savannah River Operations Office decreases from $462.1 million in FY 1996 to $433.6 million in FY 1997. The majority of this reduction is due to the implementation of cost savings initiatives, the completion of prior year projects, the consolidation of resources, and the elimination of non-value added activities. -$28.5

- Headquarters funding is reduced from $6.4 million in FY 1996 to 2.4 million in FY 1997. The significant reduction in headquarters technical program reviews for the Nuclear Material and Facility Stabilization program accounts for the decrease. -$4.0

Technology Development (+$6.0 million)

- Funding for Treatment and Remediation Technology Systems increases from $154.1 million in FY 1996 to $166.9 million in FY 1997. The increase is in the Mixed Waste, Radioactive Tank, and Decontamination and Decommissioning Focus Areas and is related to the development of projects to define endpoints for waste forms; joint demonstration with the EM Office of Waste Management to identify the commercial capabilities for waste retrieval systems available in private industry at the pilot scale; and participation in activities with industry and national laboratories to demonstrate available technologies for decontamination and decommissioning of buildings. +$12.8
- Funding for the Innovative and Crosscutting Program increases from $42.2 million in FY 1996 to $44.2 million in FY 1997. This increase is required in the areas of Robotics, Characterization and Sensors and Efficient Separations in support of activities being conducted in the Technology Development Focus Areas. +$2.0
- Funding for Industry and University Programs increases from $61.3 million in FY 1996 to $62.2 million in FY 1997. The increase is directed towards technology development activities with universities, to meet mortgages of private industry contracts awarded through Program Research and Development Announcements (PRDAs) and Research Opportunity Announcements (ROAs); and to continue support to the Small Business Innovative Research (SBIR) program. +$0.8
- Funding for Technology Integration increases from $20.6 million in FY 1996 to $21.7 million in FY 1997. Technology integration efforts increase to ensure the application of advanced technologies within DOE which will result in increased commercial availability and acceptance of advanced technologies needed at DOE sites; to support the acquisition of foreign EM-related technologies to meet Focus Areas and Crosscutting Programs' cleanup goals; facilitate the transfer, commercialization and export of EM-developed technologies to the global environmental marketplace. +$1.1
- Program Support decreases from $19.6 million in FY 1996 to $8.8 million in FY 1997 due to completion of studies on life cycle cost analysis of thermal and non-thermal treatment systems. -$10.8

Environmental Science Program (-$11.8 million)

- The EM science activities began in FY 1996 at a level of $50 million will be reduced to $38.1 million in FY 1997 resulting in fewer new competitive solicitations for fundamental research and development projects from National and Federal labs, the private sector and universities. -$11.8

Site Operations (-$53.7 million)

- Implementation of cost savings initiatives in landlord program at Savannah River -$42.0
- Completion of line item projects, Emergency Response (Idaho) and Facility Compliance (Richland) -$7.0
- Complete accelerated shutdown and disposal activities at the Pinellas Plant -$5.0
- Emphasis shifted to achieve the overall Departmental Pollution Prevention Program objectives including establishing Operations Office Return On Investment (ROI) programs, implementing incentive programs, and achieving reduction, recycling and procurement goals. This program is funded at $20 million in FY 1996 and $24 million in FY 1997. +$4.0

Policy and Management (+$22.5 million)

- Continue Training and Education activities and initiate activities deferred in FY 1996. These activities are funded at $2.6 million in FY 1996 and at $8.6 million in FY 1997. +$6.0
- Public accountability efforts increase slightly from $8.8 million in FY 1996 to $10.5 million in FY 1997. +$1.7
- Increase in information management requirements from $7 million in FY 1996 to $10 million in FY 1997 is necessary to fund the consolidation and infrastructure upgrades of EM offices into the Germantown building in FY 1997. +$3.0
- Strategic planning and analysis efforts are increased from $.7 million in FY 1996 to $7 million in FY 1997. +$6.3

EM Privatization (+$185.0 million)

- Provides funding to be set aside to meet the termination liability clause of the Waste Tank Treatment service contract at Richland, should the Government decide to terminate for its own convenience. Setting aside these funds meets requirements of the Anti-Deficiency Act while demonstrating the Department's serious commitment to signing a contract for this service. +$185.0

Other Defense Activities

The Other Defense Activities appropriations account includes a variety of defense-related programs managed by different organizations: the Office of Nonproliferation and National Security; the Office of Nuclear Energy; the Office of Environment, Safety and Health; the Office of Materials Disposition; and the Office of Worker and Community Transition.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Other Defense Activities					
Nonproliferation and National Security	504,750	552,579	586,972	34,393	6.2%
Environment, Safety and Health	70,877	69,656	63,800	-5,856	-8.4%
Worker and Community Transition	124,144	81,688	67,000	-14,688	-18.0%
Fissile materials control and disposition	50,246	70,269	93,796	23,527	33.5%
Nuclear Energy	60,400	30,000	72,200	42,200	140.7%
Naval Reactors	726,290	682,198	663,932	-18,266	-2.7%
Subtotal, Other defense activities	1,536,707	1,486,390	1,547,700	61,310	4.1%
Use of prior year balances	-91,822	-12,463	—	12,463	100.0%
Total, Other Defense Activities	1,444,885	1,473,927	1,547,700	73,773	5.0%

Nonproliferation and National Security

Mission - To utilize the Department's unique technical and analytical resources in support of the Administration's arms control and nonproliferation and other national security-related objectives.

Program Overview - The President has made nonproliferation one of the nation's highest priorities. The Office of Nonproliferation and National Security is the preeminent United States agency providing technological and analytical support to guard against the spread of weapon-usable materials. These activities enable the Department of Energy to be a major participant in the international efforts to prevent the proliferation of nuclear weapons. In 1993, the Department of Energy consolidated the intelligence activities, security, arms control and nonproliferation, emergency activities, and research and development programs under a new office, the Office of Nonproliferation and National Security. This restructuring has enabled the Department to be more capable of a coordinated and effective response to the danger posed by the spread of nuclear weapons and the means to deliver them.

Stable long-term research and development and the maintenance of core competencies must be maintained to support increasing demands in such critical policy areas as arms control, nonproliferation, energy security, and science and technology. Current research and development efforts include the design and fabrication for actual deployment of sensor systems needed for treaty verification, proliferation detection, nuclear warhead dismantlement initiatives, and intelligence activities. The arms control and nonproliferation program pursues the following

major priorities: (1) secure Former Soviet Union nuclear materials and expertise at their source; (2) control weapons-usable fissile materials; (3) establish transparent and irreversible nuclear reductions; (4) strengthen the nuclear nonproliferation regime; and (5) control nuclear exports. The last several years have seen the growth of government-to-government and laboratory-to-laboratory cooperation programs between U.S. nuclear weapons experts and their Former Soviet Union counterparts to improve materials protection, control and accountability.

Increased safeguards and security technical support will need to be provided to field elements in light of increasing demands on facilities from the implementation of arms control accords as well as the continued requirement for more cost-efficient and effective security. Compliance with automatic declassification of Executive Order 12958 will require the Department to thoroughly review documents which may be marked as containing only National Security Information, but which also may contain unmarked Restricted Data and Formerly Restricted Data concerning nuclear weapons design and the military utilization of nuclear weapons. If this review is not done, such documents could be inadvertently released under the automatic declassification provisions of the Executive Order.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Nonproliferation and National Security					
Verification and control technology					
Nonproliferation and verification R&D	216,353	210,718	194,919	-15,799	-7.5%
Arms control	72,437	145,057	181,244	36,187	24.9%
Intelligence	31,729	30,957	29,185	-1,772	-5.7%
Total, Verification and control technology	320,519	386,732	405,348	18,616	4.8%
Nuclear safeguards and security	52,761	46,172	47,208	1,036	2.2%
Security investigations	32,799	20,000	22,000	2,000	10.0%
Emergency management	13,224	16,866	16,794	-72	-0.4%
Program direction	85,447	82,809	95,622	12,813	15.5%
Subtotal, Nonproliferation and National Security	504,750	552,579	586,972	34,393	6.2%
Use of prior year balances	-32,410	—	—	—	—
Total, Nonproliferation and National Security	**472,340**	**552,579**	**586,972**	**34,393**	**6.2%**

Budget Overview - Nonproliferation activities with the newly independent states (NIS) of the Former Soviet Union (FSU) remain a high priority in the FY 1997 budget request. As international cooperation increases with the NIS, additional budgetary resources are required to expedite the expansion and enhancement of NIS nonproliferation activities in critical areas such as export controls, nuclear materials control and accounting, and physical protection. The Office of Nonproliferation and National Security program funding level has increased from $504.8 million in FY 1995 to $552.6 million in FY 1996 to provide additional budgetary resources for arms control and nonproliferation activities within the NIS. The FY 1997 budget request increases to $587.0 million, providing additional budgetary resources for urgently required nonproliferation activities in the NIS and increased resources to perform the required declassification activities to ensure that classified information will not be released by the implementation of Executive Order

12958. These requirements are partially offset by the reduction of lower priority nonproliferation and verification research and development activities.

FY 1997 Budget Request - The FY 1997 Other Defense Activities budget request for the Office of Nonproliferation and National Security is $587.0 million, a $34.4 million increase over FY 1996, primarily due to an increase for Arms Control Activities in the Newly Independent States (NIS).

The nonproliferation and verification research and development program FY 1997 budget request of $194.9 million maintains the remote sensing and regional monitoring systems activities while the onsite systems Airborne Multisensor Pod System (AMPS) program is being proposed for termination and effluent research activities are being reduced to provide for higher priority arms control and nonproliferation activities. Current research and development activities continue to provide the technology and tools to assist in arms control treaty verification, technical intelligence collection and processing technologies, and the technologies to detect the proliferation of weapons of mass destruction. The research and development program has assumed directed responsibility for all Comprehensive Test Ban research and development for underground, underwater, atmospheric, and space nuclear detonation detection.

The arms control FY 1997 budget request of $181.2 million increases our efforts to implement nonproliferation activities within the NIS to improve materials protection, control and accountability; assist former Soviet republics in establishing and enhancing nuclear material export control systems; develop technologies and systems to detect the proliferation of weapons of mass destruction, to monitor existing nuclear related treaties, and to prepare for the Comprehensive Test Ban Treaty; and to provide technical support for long-term monitoring of Iraqi facilities and other nuclear safeguards and emergency programs of the International Atomic Energy Agency (IAEA).

The Office of Arms Control negotiated and implemented an agreement to secure 581 kg of weapons-useable highly enriched uranium (HEU) formerly located in Kazakhstan. Arms control international program consists of the International Nonproliferation Prevention activities in the NIS of the FSU and Spent fuel activities with the Democratic Peoples Republic of Korea (North Korea). Analytical support and technical expertise is provided for the Nuclear Nonproliferation Treaty; Comprehensive Test Ban Treaty and Fissile Material Cutoff Treaty negotiations; Biological Weapons Convention; IAEA inspection of excess U.S. fissile materials at DOE facilities; Mutual Reciprocal Inspection agreements with Russia on plutonium and highly enriched uranium; and reciprocal dismantlement, transparency and irreversibility agreements with Russia.

The Office of Arms Control has also initiated the implementation of Reduced Enrichment Research & Test Reactor (RERTR) program in Russia, FSU, China and South Africa. The RERTR program is developing low enriched uranium targets that would continue molybdenum-99 production in South Africa.

The Intelligence budget remains constant at about $29.2 million and continues to assess the activities of emerging nuclear weapon states and nuclear supplier states or other sources, such as theft and smuggling of nuclear materials internationally in support of the Department's policy makers and intelligence community. DOE provides technical, analytical, policy and implementation support to the efforts of the nation's policy community to deal with such complex issues as denuclearization of the Korean peninsula, the protection of fissile material in the FSU and the achievement of arms control objectives, such as the Comprehensive Test Ban Treaty, Nuclear Nonproliferation Treaty, and Fissile Materials Cutoff Treaty.

The Nuclear Safeguards and Security program is requesting $47.2 million in FY 1997. The request includes funding to provide effective policy and training for protection of the Department of Energy's (DOE) nuclear weapons, nuclear materials, classified information, and facilities. The program also provides technology development, technical direction and support to domestic safeguards and security at DOE facilities. The declassification program implements effective classification and declassification information policies.

The Security Investigations program is requesting $22 million in FY 1997. The request funds background investigations for DOE and contractor personnel who, in the performance of their official duties, require security clearance permitting access to Restricted Data, National Security Information, or Special Nuclear Material.

The Emergency Management program is requesting $16.8 million in FY 1997. The request will provide comprehensive, integrated emergency planning, and response programs throughout DOE. The FY 1997 request also includes funding previously requested under the Emergency Preparedness Account, consistent with FY 1996 Congressional action.

Finally, the FY 1997 budget is requesting $95.6 million for a new Program Direction account which will consolidate all the federal staffing costs for the Nonproliferation and National Security program.

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Nonproliferation & Verification R&D terminates the Airborne Multisensor Pod System (AMPS) and reduces effluent research activities to provide for higher priority arms control and nonproliferation activities in the NIS of the FSU	-$15.8
Arms Control NIS nonproliferation activities continue to increase as cooperation increases for Materials Protection, Control, and Accounting activities to expedite the	+$36.2

installation of systems, procedures, controls, facilities, and equipment to prevent the spread of nuclear weapon fissile materials

Program Direction +$12.8

In addition to supporting core staffing requirements for the Office of Nonproliferation and National Security, FY 1997 funding supports additional requirements for the Declassification Initiative ($5.1 million), 20 FTEs for Hearings and Appeals ($2.0 million), and 10 FTEs transferred during the Strategic Alignment Initiative ($1.0 million).

Defense Environment, Safety and Health

Mission - The Office of Environment, Safety and Health is dedicated to the protection of the workers, the public, and the environment. This commitment is demonstrated by striving for continuous improvement; developing meaningful programs and policies; conducting independent oversight of environment, safety, health, and safeguards and security performance; and providing information to DOE management.

Program Overview - The Department budgets for environment, safety and health activities in two appropriations accounts, Energy Supply Research and Development and Other Defense Activities. The non-defense programs funded in the Energy Supply Research and Development account are described under that appropriation. The Other Defense Activities programs of the Office of Environment, Safety and Health will strive to continually provide improved Department-wide environment, safety and health support through: (1) consistent, multidisciplinary credible oversight processes for evaluating the effectiveness of environment, safety, health, and safeguards and security programs; and (2) epidemiologic studies that examine possible linkages between exposures or conditions at DOE sites and adverse health effects among groups of workers and off-site populations; overseeing epidemiologic studies on the health and population groups in the Marshall Islands who have been exposed to ionizing radiation; and promoting high quality workplace medical services to DOE and contractor employees.

The Defense Environment, Safety and Health activities are focused on Oversight and Health Studies, with a separate decision unit for Program Direction. The Oversight program provides the information and analysis needed to ensure that the Secretary of Energy, Assistant Secretary for Environment, Safety and Health, Department and contractor management, Congress, stakeholders, and the public have an accurate and comprehensive understanding of the effectiveness, vulnerabilities, and trends of the Department's environment, safety, health, and safeguards and security policies and programs.

The Health studies program promotes the health and safety of Department of Energy workers and communities surrounding Department sites, and supports research to understand the effects of radiation on humans. Health studies is comprised of three programs: (1) International Health Studies, which includes support for the Marshall Islands program and health studies in the former Soviet Union; (2) Occupational Medicine, which focuses on medical surveillance and exposure assessments; and (3) Epidemiologic Studies, which includes the State Health Agreement program, epidemiologic surveillance, and management of a Memorandum of Understanding with the Department of Health and Human Services.

Program Direction provides for the centralized management and direction of the Office of Environment, Safety and Health personnel performing Oversight and Health Study activities. This encompasses employees salaries, benefits, travel, print and reproduction and any other personnel benefits.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Environment, Safety and Health					
Office of environment, safety and health (defense)	60,067	57,890	53,094	-4,796	-8.3%
Program direction	10,810	11,766	10,706	-1,060	-9.0%
Subtotal, Environment, Safety and Health	70,877	69,656	63,800	-5,856	-8.4%
Use of prior year balances	-6,600	—	—	—	—
Total, Environment, Safety and Health	64,277	69,656	63,800	-5,856	-8.4%

Budget Overview - The FY 1997 budget structure for the Office of Environment, Safety and Health has been divided into two major accounts (Non-Defense and Defense). The Defense account focuses on Oversight activities and the Health Studies program. Oversight evaluates the effectiveness of DOE's environment, safety, health, and safeguards and security programs. The Health Studies program promotes the health and safety of DOE's workers and communities surrounding Department sites, and supports research to understand the effects of radiation on humans. In addition, the Defense account includes a separate decision unit for Program Direction.

The FY 1997 budget request for the Defense Environment, Safety and Health programs is $63.8 million, a decrease of $5.9 million or 8 percent below the FY 1996 comparable appropriation amount. Of the FY 1997 request, 23 percent is for Oversight, 60 percent is for Health Studies, and approximately 17 percent is for Program Direction.

FY 1997 Budget Request - The Defense Environment, Safety and Health Oversight program is requesting $14.5 million in FY 1997, a decrease of $1.7 million or 11 percent under the FY 1996 comparable appropriation amount. The program will continue to promote effective line management performance, identify issues appropriate for the attention of senior managers, provide updates on the progress of corrective actions, and improve utilization of personnel by increased use of Federal staff and reduction of contractual support.

The Health Studies program is requesting $38.6 million in FY 1997, a decrease of $3.1 million or 7 percent below the FY 1996 comparable appropriation amount. The program will continue: the Marshall Islands medical surveillance program (FY 1997 $6.8 million); U.S.-Russian studies of contaminated regions; analysis of working conditions across multiple sites; identification of occupational health concerns; support for State Health Agreements; and epidemiological surveillance of DOE workers.

The Program Direction account for the Defense Environment, Safety and Health program is requesting $10.7 million in FY 1997, a decrease of $1.1 million or 9 percent below the FY 1996 comparable appropriation amount. The program will reduce Federal staff and streamline contractor support.

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Defense Environment, Safety and Health	
• *Oversight* decreases due to the reduction and streamlining of contractor utilization to achieve cost savings.	-$1.7
• *Health Studies* decrease due to reductions in epidemiologic studies and support for Chernobyl and Russian Federation.	-$3.1
• *Program Direction* decreases due to reductions and streamlining of Federal staff. Reduction of 11 FTEs from 117 in FY 1996 to 106 in FY 1997.	-$1.1

Worker and Community Transition

Mission - The Office of Worker and Community Transition was formed from Defense Program funded activities in September 1994 to assure the fair treatment of workers and communities affected by changing Department of Energy missions through the Worker and Community Transition Assistance program in accordance with Section 3161 of the Defense Authorization Act of 1993.

Program Overview - The transition program mitigates the impacts on workers and communities from contractor work force restructuring at defense sites, and assists community planning for defense conversion, while humanely and cost-effectively managing the transition to the reduced work force that will better meet ongoing mission requirements. The Worker Transition program provides assistance to any employee of the Department of Energy employed at a Department of Energy defense nuclear facility, including any employee of a contractor or subcontractor of the Department of Energy employed at such a facility, that is being restructured. Transition program activities peaked in FY 1994 and FY 1995 and are being phased down, with program termination scheduled in FY 2000.

The Office of Worker and Community Transition provides overall program coordination including final recommendation to the Secretary on approval of Work Force Restructuring Plans that address all initiatives and funding requirements. Activities ensure effective work force planning that identifies and retains critical skills, knowledge and abilities; and provides appropriate public notice for work force restructuring. Strategies include providing preference to displaced workers for new hiring by the Department, and provide retraining for the Environmental, Restoration, and Waste Management program. The program develops effective and efficient initiatives that limit involuntary layoffs and through appropriate voluntary separation incentives, including severance enhancement, retraining assistance, outplacement assistance, relocation assistance, and extension of medical benefits.

The program successfully managed the reduction of over 12,000 contractor personnel between the end of fiscal year 1992 and 1994. From the beginning of FY 1995 through February 1996, over 18,000 prime contractor and over 3,000 subcontractors personnel have been eliminated. Annual savings from these reductions are estimated to exceed $3 billion. The community transition activities have created 310 jobs to date in FY 1996 with an additional 700 jobs created by the end of the year. An additional 1,900 jobs will be created by the community transition program in FY 1997.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Worker and Community Transition					
Worker and community transition	119,876	77,359	62,659	-14,700	-19.0%
Program direction	4,268	4,329	4,341	12	0.3%
Subtotal, Worker and Community Transition	124,144	81,688	67,000	-14,688	-18.0%
Use of prior year balances	-818	—	—	—	—
Total, Worker and Community Transition	**123,326**	**81,688**	**67,000**	**-14,688**	**-18.0%**

Budget Overview - As the Department's Nuclear Weapons Complex completes its significant downsizing and restructuring to reflect the end of the Cold War, the requirement to fund the Transition program will be reduced with program termination scheduled in FY 2000.

The FY 1997 budget request for Worker and Community Transition is $67 million, which is $14.7 million less than FY 1996. This reduction is consistent with the profile of displaced workers. Remaining funding estimates include $50 million in FY 1998; $25 million in FY 1999; concluding with $25 million in FY 2000.

FY 1997 Budget Request - The Other Defense Activities budget request for the Worker and Community Transition program is $67 million. An increased emphasis will be placed on assistance for local economic development authorities, to promote rapid and effective defense conversion with new private sector jobs for displaced workers and new businesses for the community.

Highlights of Program Changes

FY 1996 - FY 1997
Amount (Dollars in Millions)
(Increase/Decrease)

Worker and Community Transition -$14.7

phases down reflecting the completion of major restructuring of the defense complex. The program is scheduled for termination in FY 2000.

Fissile Materials Control and Disposition

Mission - The Fissile Materials Disposition Program is responsible for the Department's technical and management activities to provide for the safe, secure, environmentally sound future storage of all weapons-usable fissile materials and the disposition of fissile materials declared surplus to national defense needs.

Program Overview - The end of the Cold War created a legacy of weapons-usable fissile materials both in the United States and the former Soviet Union. Significant quantities of these materials, including plutonium (Pu) and highly enriched uranium (HEU) are no longer needed for defense purposes. Further agreements on disarmament between the two nations may increase the surplus quantities of these materials. The global stockpiles of weapons-usable fissile materials pose a danger to national and international security in the form of potential proliferation of nuclear weapons and potential environmental, safety, and health consequences if the materials are not properly safeguarded and managed.

Current Fissile Materials Disposition Program efforts are directed toward research and development and technical demonstrations of plutonium disposition technologies, and the design phase for site-specific long-term storage configurations involving a coordinated approach to the Department's inventory of weapons-usable fissile materials. Program efforts also include technical and industrial activities associated with the conversion of surplus weapons-usable highly enriched uranium to non-weapons usable low enriched uranium suitable for use in commercial power reactors. The efforts of this Program directly contribute to advancing U.S. and global nonproliferation interests involving Russia and other nations and to improving the cost effectiveness of the Department's management of stockpiles of surplus fissile materials.

The program is completing engineering, design, cost, schedule, nonproliferation, and environmental analyses of storage and disposition alternatives being considered in order to support a decision process resulting in a Record of Decision (ROD) for the disposition of highly enriched uranium (second quarter of 1996) and future long-term storage actions and disposition technologies for plutonium (late 1996). Highly enriched uranium disposition alternatives include: (1) continued storage as highly enriched uranium, (2) blend-down to low enriched uranium (LEU) for use in commercial reactors, and (3) blend-down and disposal as waste. Currently, the Department's plutonium inventory is located at numerous sites across the DOE complex which are not suitable for long-term storage. Storage alternatives include: (1) continued storage in existing facilities (no action), (2) upgrade of current storage facilities, and (3) consolidation in a new facility at DOE sites(s). Plutonium disposition alternatives include: (1) burn in reactors as mixed oxide fuel, (2) immobilize in glass or ceramic forms, and (3) deep geologic disposal.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Fissile Materials Control and Disposition					
Fissile materials control and disposition	48,820	66,687	90,163	23,476	35.2%
Program direction	1,426	3,582	3,633	51	1.4%
Total, Fissile Materials Control and Disposition	50,246	70,269	93,796	23,527	33.5%

Budget Overview - The budget request precedes upcoming programmatic decisions that will define the scope of the specific long-term storage and disposition activities. As a result, funds requested for implementation of long-term storage decisions were based on a set of assumptions for expected first year's expenditures for Title I design that can be applied to all storage alternatives under consideration. This will allow the Department to act promptly at Record of Decision on the implementation of storage decisions. Other FY 1997 funding is directed toward continuing tests and experiments to validate disposition technology options under consideration prior to implementation, completing the Advanced Recovery and Integrated Extraction System (ARIES) prototype designed to disassemble nuclear weapon pits and convert plutonium to unclassified forms, initiating conceptual design of a full-scale plutonium pit disassembly and conversion system, and disposition of surplus highly enriched uranium and other surplus uranium materials.

FY 1997 Budget Request - The FY 1997 Other Defense Activities budget request for Fissile Materials Disposition is $93.8 million, an increase of $23.5 million over FY 1996. The FY 1997 Storage budget increase is for Title I design for a consolidated storage facility(s) option(s) to be selected at the Record of Decision. The Disposition budget increase will continue tests and experiments required to validate disposition technology options prior to implementation. Technical Integration, Support and Associated Technologies includes funding for the completion of the pit disassembly and conversion prototype, conceptual design of a full scale facility, and research and development activities associated with non-pit conversion. National Environmental Policy Act (NEPA) activities will include a site-specific Environmental Impact Statement (EIS) for the long-term storage facility and the pit disassembly and conversion facility.

Highlights of Program Changes

FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)

Storage Options +$17.8

Net increase is primarily due to Title I design of a site-specific long-term storage facility(s) option(s) selected in the Record of Decision (ROD). Increase from $6.8 million to $24.6 million.

Disposition Options +$10.6

Net increase is due to research and development and testing of disposition alternatives to validate technology options prior to implementation..

Technical Integration, Support and Associated Technologies -$1.95

Net decrease is primarily due to completion of common technologies evaluations and analyses required to support the Record of Decision. Beginning conceptual design of a pit disassembly and conversion facility and research and development associated with the conversion of non-pits is also included here.

National Environmental Policy Act Compliance -$3.0

Decrease is due to the completion of the Environmental Impact Statement for highly enriched uranium disposition and the Programmatic Environmental Impact Statement (PEIS) for long-term storage for all weapons-usable fissile materials and plutonium disposition.

Nuclear Energy

Mission - The Office of Nuclear Energy, Science & Technology provides technical leadership for domestic and international nuclear security and safety issues and strives to maintain nuclear energy as a viable source to meet future energy requirements in the United States and other countries.

Program Overview - To fulfill its mission, Nuclear Energy manages efforts to improve the safety of nuclear reactors in the U.S. and abroad; supports development of advanced nuclear power reactors; provides nuclear power systems and related technologies to space and national security customers; helps to ensure a reliable supply of medical, industrial and research isotopes; and supports the U.S. nuclear education infrastructure. The activities provided for in the Other Defense Activities appropriation are discussed in this section. Programs supported by the Energy Supply R&D and the Uranium Supply & Enrichment Activities appropriations were discussed earlier.

The collapse of the former Soviet Union left many Russian nuclear reactors without the technical and financial support necessary to operate safely. Since 1992, Nuclear Energy has led the Department's efforts to develop a nuclear safety infrastructure and establish a safety culture at powerplants in Russia, Ukraine, and other central and eastern European countries. The goal of the Department's International Nuclear Safety program is to reduce the health and environmental threats posed by aging nuclear reactors in these nations and to prevent the occurrence of another Chernobyl-type accident. Pacific Northwest National Laboratory is the technical manager of this effort.

A second Departmental initiative in FY 1997 is to assist Russia in shutting down its plutonium-producing reactors, as directed by the Gore-Chernomyrdin agreement of June 1994. The Office of Nuclear Energy leads the United States' effort to replace the heat and electricity that would be lost by stopping the production of weapons-grade plutonium. One of the program's most immediate efforts is to support the conversion of the current reactor cores to non-weapons-grade plutonium producing cores, which would allow the affected communities to continue receiving much-needed energy while a long-term strategy is developed. The Department will also address other nuclear safety and proliferation issues related to breeder reactors in the republics of the former Soviet Union, as well as develop spent fuel management plans to reduce the need for fuel reprocessing in these countries. All these activities are designed to alleviate proliferation concerns related to the use of nuclear reactors by the nations of the former Soviet Union.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Nuclear Energy					
International nuclear safety	60,400	30,000	66,200	36,200	120.7%
Nuclear security	—	—	6,000	6,000	—
Total, Nuclear Energy	60,400	30,000	72,200	42,200	140.7%

Budget Overview - The FY 1997 Nuclear Energy budget request within the Other Defense Activities appropriation is $72.2 million, which appears to be a dramatic increase over the FY 1996 appropriation. However, the FY 1996 level is supported by prior year balances of $15.4 million that were transferred from the Agency for International Development (AID) too late in FY 1995 to be used in that year. The Department also anticipates that AID will transfer an additional $15.4 million during the current fiscal year. The FY 1996 programmatic level, then, is higher than it appears and more in line with the FY 1997 request. The Department is requesting full funding for the International Nuclear Safety program in FY 1997 because it must rely primarily on its own funding, rather than funds from outside sources. Initiation of Departmental funding for the Nuclear Security program also makes the FY 1997 request higher than the current appropriation.

In addition to funding in this Other Defense Activities appropriation, the Office of Nuclear Energy is requesting $248.1 million in the Energy Supply R&D appropriation for high priority activities such as the termination of unnecessary reactors and new reactor design R&D, the enhancement of current light water reactor designs, and the production of power sources for NASA missions. $27.8 million is also requested in the Uranium Supply & Enrichment Activities appropriation to carry out the Department's residual uranium program activities. The total funding requested by Nuclear Energy in FY 1997, excluding $663.9 million for Naval Reactors, is $348.1 million.

FY 1997 Budget Request - Almost one half of the FY 1997 International Nuclear Safety request is for Engineering & Technology Upgrades at the various reactor sites ($26.3 million). Funding provides for physical plant improvements such as revamped safety control panels, better confinement mechanisms, emergency power supply systems, etc. Another large portion of the budget is dedicated to Management and Operational Safety Improvements ($14.9 million). This program focuses on training plant managers and employees in safety practices. The Chernobyl Shutdown effort is another important part of this program ($9.0 million). Other key aspects of the program are the Plant Safety Evaluations ($4.0 million), International Nuclear Safety Centers ($3.0 million), Nuclear Safety Legislative & Regulatory Support ($1.0 million), Cooperation with Other Countries ($0.5 million) and Program Management ($7.5 million).

The FY 1997 Nuclear Security budget request of $6 million will support reactor Core Fuel Conversion & Safety Analysis ($2.5 million), Spent Fuel Management ($1.5 million), Breeder Reactor Safety and Nonproliferation efforts ($1.0 million), and Nuclear Safety and Nonproliferation Cooperation with International Agencies and Foreign Countries ($1.0 million).

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
International Nuclear Safety (FY 1996 - $30.0 million, FY 1997 - $62.2 million) The FY 1996 appropriation is supported by prior year carryover and anticipated transfers from AID, therefore programmatic differences are slight.	+$32.2
• *Engineering & Technology Upgrades* (FY 1996 - $16.5 million, FY 1997 - $26.3 million - An additional $3.5 million of unobligated FY 1995 carryover supported this effort in FY 1996)	+ $9.8
• *Management & Operational Safety Improvements* (FY 1996 - $5.2 million, FY 1997 - $14.9 million - An additional $8.5 million of unobligated FY 1995 carryover supported this activity in FY 1996)	+ $9.7
• *Chernobyl Shutdown Initiative* (FY 1996 - $0, FY 1997 - $9.0 million - Also, $6.0 million of FY 1995 carryover provided for this effort in FY 1996)	+ $9.0
Nuclear Security (FY 1996 - $0, FY 1997 - $6.0 million) Initiate DOE funding of core-conversion efforts at plutonium production reactors, spent fuel management, breeder reactor safety and non-proliferation efforts and other international cooperation efforts.	+ $6.0

Naval Reactors

Mission - Naval Reactors mission is to provide the Navy with safe, long-lived, militarily-effective nuclear propulsion plants in keeping with the Nation's defense requirements, and to ensure their continued safe and reliable operation.

Program Overview - Naval Reactors responsibility extends to all aspects of Naval nuclear propulsion - from technology development through reactor operations to, ultimately, reactor plant disposal. The Program's efforts are critical to the continued success of over 120 reactors in operating submarines and surface ships, comprising 40 percent of the Navy's warships, and to the New Attack Submarine class under development.

The program will maintain an integrated, comprehensive, and far-sighted analytical, development and testing effort for existing and future reactor plants. This will be accomplished in a number of ways, to include: continuously test, verify, and refine reactor technology-- and integrate new technologies and techniques into existing system and component designs -- to improve overall reactor plant performance, reliability and longevity; rigorously test materials, fuel, cores, components and systems; and develop simplified, more affordable reactors with improved power capabilities, increased endurance, and added dependability.

Continuing development efforts are yielding greater capabilities. Major efforts for the near future include upgrades to existing components and equipment to help extend operating ship lifetimes and improve overall reactor plant performance, and development/testing of the next generation reactor components and systems for the Navy's New Attack Submarine class -- including the first true life-of-the-ship core, which will obviate the need for expensive refuelings, and the new concept steam generator, which should greatly reduce corrosion concerns.

The Program's cost-saving initiatives include shutting down six of eight land-based test/research and development prototype plants by the end of FY 1996. Though this will create a substantial initial cost savings, full realization of savings is dependent upon completion of a substantial, multi-year inactivation servicing effort on the shut-down plants. The inactivation work is funded in the Evaluation & Servicing category of the Budget.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Naval Reactors					
Naval reactors development					
Reactor technology and analysis	228,613	212,851	192,000	-20,851	-9.8%
Materials development and verification	100,000	102,000	110,000	8,000	7.8%
Plant technology	142,000	120,700	116,000	-4,700	-3.9%
Evaluation and services	154,000	155,517	162,130	6,613	4.3%
Capital equipment	28,200	43,000	43,000	—	—
General plant projects	6,200	6,600	8,200	1,600	24.2%
Construction	16,700	23,000	13,700	-9,300	-40.4%
Total, Naval reactors development	675,713	663,668	645,030	-18,638	-2.8%
Enriched materials	32,000	—	—	—	—
Program direction	18,577	18,530	18,902	372	2.0%
Subtotal, Naval Reactors	726,290	682,198	663,932	-18,266	-2.7%
Use of prior year balances	-51,835	—	—	—	—
Total, Naval Reactors	674,455	682,198	663,932	-18,266	-2.7%

Budget Overview - The FY 1997 budget request for the Naval Reactors program reflects the above described activities. Naval Reactors major priorities, in order, include: 1) Support the current operating fleet (location of the majority of the funds); 2) Continue development of the New Attack Submarine; and 3) Evaluation & Servicing work - operating two prototypes and inactivating six shutdown prototypes.

FY 1997 Budget Request - The FY 1997 Other Defense Activities budget request for Naval Reactors is $663.9 million. Beginning with FY 1997, the Naval Reactors Development operating categories are realigned to more accurately reflect future activities and simplify the structure. The change highlights the increasing importance of materials efforts as the age of the nuclear fleet increases, and shifts the emphasis on the test/research & development prototype plants from operations to the servicing effort which will be required now that six of the eight plants are shut down.

The budget request represents the minimum level necessary to continue efforts to support the fleet with over 120 operating reactors across nine different classes; continue development of the New Attack Submarine class required by the Navy to maintain a viable submarine force and industrial base; and perform test plant (prototype) inactivation in the most responsible and efficient manner. The prototype plant inactivation effort accomplishes environmental remediation, enables Naval Reactors to obtain important core performance data, and reduces caretaker and manning costs.

Highlights of Program Changes

FY 1996 - FY 1997
Amount (Dollars in Millions)
(Increase/Decrease)

Reactor Technology & Analysis -$20.9

The decrease reflects progress on the next generation reactor design.

Materials Development & Verification +$8.0

The increase reflects increased materials analysis and testing required to support the long life of Navy ships.

Plant Technology -$4.7

The decrease reflects progress on new plant development efforts.

Evaluation & Servicing +$6.6

The growth reflects increasing prototype plant inactivation efforts.

Program Direction +$0.4

Net increase is for salary adjustment in accordance with prescribed economic assumptions.

Defense Nuclear Waste Disposal

Mission - The goal of the Defense Waste Disposal Program is to dispose of high-level waste generated from atomic energy defense activities. The primary focus of this program is to find a long term geological repository for Defense Nuclear Waste. This effort supports the Yucca Mountain Site Characterization Project and is described in greater detail in the Nuclear Waste Disposal Fund Section of the Budget Highlights.

Departmental Administration

Mission - The offices funded in the Departmental Administration appropriation account provide headquarters guidance and support benefitting all operating elements of the Department in such areas as human resources, administration, accounting, budget, legal services, workforce diversity, policy, congressional liaison and public affairs. Their mission is to provide internal and external customers with timely, quality service which facilitates achievement of the Department's goals.

Program Overview - Organizations supported in this appropriation include the Office of the Secretary; Human Resources and Administration; Chief Financial Officer; Congressional, Public, and Intergovernmental Affairs; General Counsel; Policy; Economic Impact and Diversity; and the Board of Contract Appeals. In addition, the account budgets for the Cost of Work for Others, which provides for the cost of products and services provided by the Department's laboratories and other contractors to non-Departmental users. Finally, this account also receives offsetting revenues from the goods ands and services associated with the Cost of Work for Others program as well as miscellaneous revenues from a variety of other sources.

There are two major changes proposed in this budget. First, to better manage the costs of administrative needs, management developed a number of options involving critical operations and services to Departmental programs. It was determined that the preferred method of financing such needed activities was by establishing a Working Capital Fund. Additional details concerning the rationale and additional benefits of establishing a Working Capital Fund are provided in the budget overview section below.

The second change concerns funding for Operations Offices. The Departmental Administration account has been responsible for financing essential operations at four Field Operations Offices located in Oakland, Idaho, Oak Ridge and Chicago. The Department is proposing a budget structure change for the FY 1997 budget to remove this activity from this appropriation and locate it in the Energy Supply, Research and Development Appropriation. The new account would also include the Office of Field Management which has oversight responsibility over all of the Department's Field Operations Offices. This proposed change will more clearly display the level of field operations, as opposed to headquarters' staff functions, in keeping with good management practices and Congressional intent. Funding requirements are discussed in the Energy Supply Research and Development section of this document.

As a result of this change, the Departmental Administration Account will be limited to funding headquarters organizations. Additional details will be discussed in the budget overview section below.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Departmental Administration					
Administrative operations					
Office of the Secretary	3,416	3,352	2,850	-502	-15.0%
Human resources and administration	129,984	113,547	120,538	6,991	6.2%
Chief financial officer	25,828	24,192	26,137	1,945	8.0%
Board of contract appeals	763	569	578	9	1.6%
Congressional, public, and intergovermental affairs	11,471	10,129	11,229	1,100	10.9%
General counsel	18,165	18,877	20,837	1,960	10.4%
Policy	28,579	25,254	28,622	3,368	13.3%
Economic impact and diversity	8,020	7,264	7,736	472	6.5%
Total, Administrative operations	226,226	203,184	218,527	15,343	7.6%
Cost of work for others	24,356	22,826	26,336	3,510	15.4%
Subtotal, Departmental Administration (gross)	250,582	226,010	244,863	18,853	8.3%
Use of prior year balances and other adjustments	-36,739	-16,971	—	16,971	100.0%
Total, Departmental administration (gross)	213,843	209,039	244,863	35,824	17.1%
Revenues	-121,202	-122,306	-125,388	-3,082	-2.5%
Total, Departmental Administration (net)	92,641	86,733	119,475	32,742	37.8%

Budget Overview - In support of the Department's overall mission this account provides funding for nine, main Department-wide management organizations. The primary functions of these organizations encompass such diverse activities as policy and planning, finance and personnel, legal and procurement, data processing, congressional and public liaison, civil rights, training and all headquarters building services. The total on-board head count projected for FY 1997 is **1,553** and reflects a **19 percent** decrease from the FY 1995 baseline of **1,920**. This decrease is right in line with the guidance provided in the FY 1996 Energy and Water Development Conference which directed the Department to reduce employment levels by 15 percent in this account and also closely approximates reduced staffing targets provided as part of the Secretary's Strategic Alignment Initiative. Additionally Departmental Administration provides for non-personnel costs such as rent, utilities, printing and reproduction, office supplies, contractual support, telecommunications, furniture, capital equipment, energy and environmental policy studies, minority education, business/community support and assistance and Department-wide technical training development.

Headquarters - The DOE programs funded in this account are the Office of the Secretary; Policy; the Chief Financial Officer; General Counsel; Human Resources and Administration; Congressional, Public and Intergovernmental Affairs; Economic Impact and Diversity; and the Board of Contract Appeals. The FY 1997 Congressional request provides $119.2 million for related salary and benefit expenses for 1,553 full-time equivalent employees. It provides approximately $3.0 million for buy out costs for 65 employees that are scheduled to leave the rolls by March 31, 1997. The request also includes travel funding of $3.0 million which continues the downward trend since FY 1993. Funding for contracts of $80.8 million is requested and reflects a decrease of 29 percent. Finally, the request also includes funding of $12.4 million for program

support. Examples of significant program support activities are advance U.S. policies to facilitate U.S. private sector investment, analyze and assess emerging clean air issues as they impact the Administration's Climate Change Action Plan, public service announcement, news wire service, minority education/business community support and assistance, and DOE technical training development.

Working Capital Fund - The proposed Working Capital Fund will finance business-type, expense-related activities funded in the Departmental Administration appropriation in the past. These activities in FY 1997 include building rent, telephone services, postage, printing and graphics supplies, copiers, contract closeouts and contract audits which are consumed by programs which have program staffing at headquarters. These activities total approximately $93.3 million and are to be financed by user organizations, with charges set using a variety of methods including actual usage, space utilization and percentage of employee population. (See Table below.)

DEPARTMENT OF ENERGY
WORKING CAPITAL FUND
FISCAL YEAR 1997

ACTIVITIES	BUDGET ($000) _1/
Building Rent & Operations	$55,374
Office Automation (AOSS)	$5,130
Telephone Services	$8,355
Postage	$5,120
Printing and Graphics	$4,000
Supplies	$3,225
Copiers	$1,829
Contract Closeouts	$421
Contract Audits	$9,869
Total	$93,323

_1/ Working Capital Fund (WCF) requirements are budgeted for by user organizations in FY 1997. In FY 1996, WCF requirements were budgeted in the Departmental Administration account.

A number of other federal agencies use working capital funds to finance common administrative services. If the Department's proposal is successful it will reduce administrative costs. Fees for goods and services will yield savings because they will no longer be perceived as "free" by those who consume them. By letting program managers choose the type and quantity of goods and

services they consume, a more efficient allocation of resources will be promoted, and waste will be reduced.

Cost of Work for Others - The budget request of $26.3 million provides for the cost of products and services provided by the field offices and national laboratories for non-DOE users. Work results from revenue programs related to DOE's mission or its reimbursable work for state and local entities which are precluded by law from making advance payments. Costs are offset with revenues received from the sale of products or services. Examples of proposed FY 1997 revenue generating products or services are timber sales, utility sales (from water, seismic monitoring and the operation of the Superconductivity Information System), and research and development activities conducted for state and local governments.

Revenues- Revenue estimates of $29.8 million are associated with the Cost of Work for Others program and supports the products and services described above. Miscellaneous revenues of $95.6 million are derived from the sale of by-products that have no cost associated with the Departmental Administration appropriation, but which offset the appropriation. Examples are: lease of Los Alamos National Laboratory facilities (gas and electric) to a utility company, lease of Oak Ridge Operations facilities (Gaseous Diffusion Plant) by the U.S. Enrichment Corporation, handling and basin storage of spent fuel cores from Navy ships, residual material (uranium) in the spent fuel cores, and added factor and depreciation from the DOE Reimbursable Work for Others program.

FY 1997 Budget Request -

Office of the Secretary - Provides $2.6 million for compensation and benefits, and other services; travel funded at the $0.3 million level. (24 FTEs)

Human Resources and Administration - Provides $56.3 million for compensation and benefits, travel funds of $1.8 million, and contractual services funding of $59.3 million. In the FY 1997 request this office will budget $22.1 million in Working Capital Fund activities, $39.4 million for contractual support service activities and program support. Funding of $1.0 million for Scientific and Technical Training. (775 FTEs)

Chief Financial Officer - Provides $17.5 million for compensation and benefits, travel funds of $0.2 million, and contractual services funding of $8.2 million. (249 FTEs)

Board of Contract Appeals - Provides $0.6 million for compensation and benefits. (6 FTEs).

Congressional, Public and Intergovernmental Affairs - Provides $9.0 million for compensation and benefits, travel funds of $0.1 million, funding for contractual services of $2.0 million, and program support funding of $0.1 million. (99 FTEs)

General Counsel - Provides $16.4 million for compensation and benefits, travel funds of $0.1 million and contractual services funding of $4.3 million. (178 FTEs)

Office of Policy - Provides $15.8 million for compensation and benefits, travel funds of $0.5 million, contractual services funding of $3.8 million, program support funding of $4.9 million in support of environmental policy studies, and policy analysis and system studies funding of $3.5 million. (173 FTEs plus 3 Foreign Service Nationals).

Economic Impact and Diversity - Provides $4.0 million for compensation and benefits, travel funds of $0.1 million, contractual services funding of $0.7 million and program support funds of $2.9 million for minority and economic impact assistance activities. (49 FTEs)

Cost of Work for Others - Provides $26.3 million for the cost of products and services provided by field offices and national laboratories for non-DOE users. Work is primarily revenue programs associated with DOE federal reservations, e.g., timber and water sales, or is reimbursable work for non-federal governmental entities where advance funding is precluded by law.

Revenues - Revenue estimates associated with the Cost of Work for Others program are $29.8 million. Miscellaneous revenues are estimated at $95.6 million and come from the sale of by-products that have no cost associated with the Departmental Administration Appropriation but which offset this appropriation.

Highlights of Program Changes

FY 1996 - FY 1997
Amount (Dollars in Millions)
(Increase/Decrease)

Departmental Administration requests $119.5 million, an increase of $32.7 million over FY 1996 comparable net appropriation of $86.7 million.

Office of Secretary -$0.5

Decrease is due to fewer FTEs and other office efficiencies.

General Management

- Personnel Compensation and Benefits +$4.7

  Increase is due to payraise of 4.2 percent ($4.5 million) and restoration of awards, overtime and furlough days ($7.0 million), offset by reduced FTEs ($6.1 million) and buyouts ($0.7 million).

- Other Expenses +$4.0
  Increase is due to inflation of 3.2 percent ($2.4 million) and growth in working capital fund expenses ($1.6 million).

Program Support - Environmental Policy Studies ($0.9 million), Policy Analysis and System Studies ($0.6 million) +$1.5
Increases due to increased use of expertise for National laboratories and the private sector to more effectively carry out assigned functions with reduced staffing level. Specific requirements are driven by the planned regulatory activities of other agencies and the previously established schedule for negotiating new climate change commitments, both of which have significant energy implications and the requirements to revise the DOE Strategic Plan in FY 1997.

Cost of Work +$3.5
Increase is due to additional requirements for Federal work at Oakland.

Revenues -$3.1
Associated revenues increase as relates to Cost of Work changes above, offset by $1.0 million decrease to added factor for depreciation in Miscellaneous Revenues.

Prior Year Balances +$18.0
One time reduction in BA requirements in FY 1996 related to use of unobligated balances.

Other Adjustment +$4.0
Represents unallocated residual associated with Working Capital Fund activities.

Office of Inspector General

Mission - Major statutory responsibilities are to detect and prevent fraud, abuse and violations of law and to promote economy, efficiency and effectiveness in the programs and operations of the Department of Energy. In addition, the Office of the Inspector General (OIG) is required by the Federal Acquisition Streamlining Act of 1994 to investigate certain reprisal complaints of contractor employees.

Program Overview - The goal of the OIG is to facilitate positive change in the Department by promoting effective, efficient and economical operation of its programs through audits, inspections, investigations and other reviews and by inquiries into whistle-blower complaints of reprisal by contractor employees.

The OIG's actions in identifying attainable economies and efficiencies in Departmental operations have recently provided a monetary impact of approximately $3.4 million per audit employee per year. In the past few years, several new statutory mandates and additional responsibilities which require significant additional resources have been placed upon the OIG, including implementation of the Chief Financial Officers (CFO) Act of 1990 and the Government Management Reform Act (GMRA) of 1994, transfer of responsibilities of the Office of Contractor Employee Protection to the OIG, and implementation of availability pay for investigative salaries which represents an increase of 25 percent. Resource constraints have required the OIG to redirect its efforts to meet these new requirements. Completion of all currently planned OIG activities could be impacted by requirements to absorb additional responsibilities without additional resources.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Office of Inspector General					
Office of Inspector General	33,996	28,516	30,502	1,986	7.0%
Use of prior year balances	-5,960	-1,915	-897	1,018	53.2%
Total, Office of Inspector General	28,036 a/	26,601 b/	29,605	3,004	11.3%

a/ Actual FY 1995 comparable program obligations were $29,736.
b/ Amount reflects FY 1996 Congressional appropriation and does not include an estimated use of $6,817 in prior year unobligated balances.
c/ Reflects the transfer of 14 FTEs from the Office of Contractor Employee Protection in FY 1996 and 12 FTEs in FY 1997.

Budget Overview - The FY 1997 budget request for the Office of the Inspector General (OIG) focuses resources on implementing the requirements of the Chief Financial Officers (CFO) Act, the Government Management Reform Act (GMRA) and the Federal Acquisition Streamlining Act. Implementation of the CFO Act requires the submission of financial statements to the Director of the Office of Management and Budget for each Departmental revolving fund and trust fund, as well as activities which performed substantial commercial functions. The GMRA expanded the provisions of the CFO Act by requiring the OIG to audit financial statements covering all accounts and associated activities of the Department and submit them to OMB annually. The first set of

audited financial statements is due no later than March 1, 1997. Implementation of the requirements of the GMRA has led to a reprioritization of OIG's resources to staff for the organization, planning and training associated with this effort.

FY 1997 Budget Request - The FY 1997 budget request for the OIG is $30.5 million for the salaries, benefits, travel and support services associated with 331 FTEs. Reviews will continue to be conducted including the following areas: those highlighted as a result of financial statement audits; Department property maintenance practices; mixed waste construction projects; areas that significantly impact the Department's streamlining objectives; complex investigations of alleged waste, fraud and abuse (with focus on significant violations of Federal criminal and civil statutes); responses to Hotline complaints (including the referral of Hotline allegations to DOE management or other agencies for appropriate action); administrative allegation inspections (focused, highly-visible, and limited to responses of allegations of waste or mismanagement); and inquiries to resolve allegations of whistle-blower reprisals against contractor employees.

Highlights of Program Changes - Although the number of FTEs is decreasing from FY 1996 to FY 1997, the FY 1997 budget request is increasing to offset unobligated balances which have been used up to fund FY 1995 and FY 1996 activities, and to help cover the costs associated with the transfer of the Office of Contractor Employee Protection to the OIG.

Power Marketing Administrations:

Mission - The Power Marketing Administrations (PMAs) market electricity generated primarily by Federal hydropower projects. Preference for the sale of power is given to public bodies and cooperatives. Revenues from selling power and transmission services of the five PMAs are used to repay to the U.S. Treasury annual operation and maintenance costs, repay the capital investments with interest, and assist capital repayment of other features of certain projects.

Program Overview - Alaska Power Administration owns, operates, maintains, and markets power from the 78 megawatt Snettisham Project near Juneau and the 30 megawatt Eklutna Project near Anchorage to four Alaskan utilities, providing approximately 5 percent of Anchorage's and 80 percent of Juneau's power requirements. Project facilities include dams, reservoirs, powerplants, transmission systems and necessary maintenance facilities. Public Law 104-58 authorizes and directs the Secretary of Energy to sell the assets of the Alaska Power Administration in accordance with previously negotiated purchase agreements and to terminate the agency. During the transition period, routine operation and maintenance of both projects will continue at a minimal level with no funding for upgrades or additions.

Southeastern Power Administration sells wholesale power generated at 23 Federal hydroelectric generating plants in eleven southeastern States primarily to publicly and cooperatively owned electric distribution utilities. Since Southeastern does not own or operate any transmission facilities, power is delivered by utilizing the transmission systems of the electric utilities in the area. This is accomplished through wheeling agreements with the region's large private utilities with transmission lines connected to the projects, to provide firm power to Southeastern's customers.

Southwestern Power Administration operates within a six-State area as a marketing agent for hydroelectric power produced at 24 U.S. Army Corps of Engineers multipurpose projects and sells power at wholesale rates primarily to publicly and cooperatively owned electric utilities. To integrate the operation of the hydroelectric generating plants and to transmit power from the dams to its customers, Southwestern maintains 2,225 kilometers (1,380 miles) of high-voltage transmission lines, 24 substations, and 44 microwave and VHF radio sites.

Western Area Power Administration markets and provides transmission of Federal and non-Federal electric power in 15 central and western States encompassing about 40 percent of the total area of the contiguous United States from 55 federally owned hydropower plants operated primarily by the Bureau of Reclamation, U.S. Army Corps of Engineers, and the International Boundary and Water Commission, and markets the United States' entitlement from the Navajo coal-fired power plant near Page, Arizona. This activity is accomplished through a combination of appropriated funds and revenue collections. Western maintains an existing infrastructure of over 16,800 circuit miles of transmission line and 257 substations. To firm up federal hydropower supplies which are needed to meet Western's contractual obligations, Western purchases electrical

resources from others and transmission services when a third party's transmission lines are needed to deliver Federal power. Western also conducts work for other Federal entities under reimbursable agreements and for non-federal entities under the Contributed Funds Act.

The Bonneville Power Administration provides electric power, transmission and energy services to a 300,000 square mile service area in the Pacific Northwest. Bonneville sells the power produced at 21 Corps of Engineers and 9 Bureau of Reclamation projects and from certain non-Federal hydro and thermal generating facilities. Bonneville provides about 80 percent of the Pacific Northwest region's electric power transmission capacity utilizing over 23,800 circuit kilometers (14,800 circuit miles) of transmission lines and 400 substations. Operating on a self financed revolving fund basis, Bonneville does not require appropriations to finance its day to day operations. However, Bonneville requires borrowing authority for its capital investment activities. Bonneville funds the expense portion of its budget and repays the Federal investment with revenues from electric rates.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Power Marketing Administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	30,533	29,902	27,445	-2,457	-8.2%
Southwestern power administration	30,548	30,748	27,804	-2,944	-9.6%
Western Area Power Administration					
Western area power administration	323,896	276,676	248,691	-27,985	-10.1%
Transfer of current authority from DOI	1,800	4,556	3,774	-782	-17.2%
Total, Western Area Power Administration	325,696	281,232	252,465	-28,767	-10.2%
Falcon and Amistad Operating and Maintenance Fund	—	1,000	970	-30	-3.0%
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	98,066	129,414	120,431	-8,983	-6.9%
Offsetting collections	-98,066	-129,414	-130,431	-1,017	-0.8%
Total, Colorado River Basin Fund	—	—	-10,000	-10,000	—
Subtotal, Power Marketing Administrations:	393,269	347,142	302,684	-44,458	-12.8%
Use of prior year balances and other adjustments	-158,694	-29,710	-38,249	-8,539	-28.7%
Total, Power Marketing Administrations	234,575	317,432	264,435	-52,997	-16.7%

Budget Overview - Overall, the budget requests for the Power Marketing Administrations, excluding Bonneville, decrease by $53.0 million in FY 1997. This decrease is driven primarily by a significant decrease in the budget of the Western Area Power Administration. Bonneville Power Administration proposes to obligate $287 million of its borrowing authority in fiscal year 1997, and will have net outlays of $35 million.

The FY 1997 budget requests for the Power Marketing Administrations generally reflect the priorities as described above. All the Power Marketing Administrations seek to continue their commitments of service to their customers at the lowest possible rates while maintaining repayment to the Treasury. The Program Direction decision unit includes the majority of funding for the Alaska, Southwestern and Western Area Power Administrations. Although Southeastern Power Administration's mission activities are contained in the Program Direction decision unit,

over 90 percent of funding is included in the Purchase Power and Wheeling decision unit. With the capital side of the Bonneville Power Administration, Bonneville meets its capital investment requirements for transmission, fish and wildlife, marketing, conservation and production, associated projects and capital equipment. Bonneville's fish and wildlife program implements the Administration's agreement on Bonneville Power Administration fish and wildlife support.

FY 1997 Budget Request - The Alaska Power Administration budget requests $4.0 million, which is the minimal amount necessary for routine operations and maintenance activities of both projects prior to the transfer of all assets to the purchasers and closure of the agency. Under the terms of the Act and its referenced purchase agreements, the Alaska Power Administration must complete several items in order to prepare its assets for sale and terminate its activities. Some of these items include: preparation of lands for transfer; correction of engineering, environmental, safety and health items; provision of benefits for displaced employees; and implementation of transition plans for final termination after transfer of the projects to the new owners. The law also requires that the transition plans for both the Eklutna and Snettisham projects be completed within six months of the enactment.

The Southeastern Power Administration FY 1997 program level is $27.4 million. Of this amount, $20.9 million is new budget authority and $6.5 million is use of prior year balances. The majority of this funding level provides payment for purchases of pumping energy and wheeling charges which are required for the delivery of power to customers. The FY 1997 budget assumes greater use of alternative financing mechanisms such as bill crediting and reimbursable work to fund Purchase Power and Wheeling requirements of the Southeastern Power Administration; communication links between Southeastern , the Corps of Engineers, and its powerplants; a generation unit control systems and rehabilitation of certain Corps of Engineers' projects.

The Southwestern Power Administration FY 1997 program level is $27.8 million. Of this amount, $26.9 million is new budget authority and $.9 million is use of prior year balances. The majority of funding is dedicated to program direction for 192 FTEs to conduct all activities connected with the marketing and delivery of Federally generated hydroelectric power to customers; transmission line, substation and communication system maintenance; and for equipment replacements at facilities associated with the transmission system.

The Western Area Power Administration Construction, Rehabilitation, Operation and Maintenance program level is $252.5 million. Of this amount, $221.7 million is new budget authority of which $3.8 million is permanent budget authority transferred from the Department of Interior, and $30.8 million is use of prior year balances. Nearly half of the total funding, $109.0 million covers program direction for 1,190 FTEs who perform all operations, maintenance and construction activities associated with Western's transmission system and all other power marketing activities. Another significant portion of Western's funding ($74.2 million), provides for the purchase power and wheeling program which obtains electrical resources and transmission capability that is needed to firm up Federal hydroelectric power supplies to meet Western's contractual obligations.

The remaining funding includes $34.0 million for Western's operation and maintenance program which provides materials, supplies, equipment and technical services used in direct support of the operation and maintenance of the interconnected power system, and $29.8 million for the construction and rehabilitation activities which includes replacements and upgrades of Western's existing infrastructure. A total of $1.0 million is requested for the operation and maintenance of the hydroelectric facilities at the Falcon and Amistad dams. Operation of the Colorado River Basins Power Marketing program on a revolving fund basis continues at an estimated FY 1997 level of $120.0 million in spending authority from offsetting collections.

In FY 1997, the Bonneville Power Administration budget includes $287 million in borrowing authority. Bonneville plans to obligate $287 million for capital investments. Capital investments provide electric utility and general plant associated with the Federal Columbia River Power System's transmission services, capital equipment, hydroelectric projects, conservation and capital investments in environment, fish and wildlife. Approximately one half of the capital investments in FY 1997 ($163 million) are for the transmission services element to provide for additions, upgrades and replacements to the federal transmission system. A total of $54 million is included for the conservation programs. Funding of $40 million is allocated to resource protection, enhancement and mitigation of Columbia River Basin fish and wildlife losses attributed to the development and operation of Federal hydroelectric projects on the Columbia River and its tributaries, and for pollution prevention and abatement activities in compliance with environmental laws and regulations and to mitigate environmental risks associated with operation of the power system.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Alaska Power Administration The program direction increases $0.8 million to fund termination and transition requirements associated with the sale of APA and operation and maintenance decreases from $1.1 million to zero since it includes no funding for scheduled upgrades or additions in FY 1997 due to the pending sale of APA.	-$0.3
Southeastern Power Administration The purchase power and wheeling program decreases due to a greater use of alternative financing.	-$2.5
Southwestern Power Administration The operation and maintenance program decreases by $1.0 million due to decreases as a result of reductions in service contracts, technical studies and equipment. The construction program decreases by $1.5 million due to a reduction in equipment and vehicle replacements. The purchase power	-$3.0

and wheeling program decreases $.5 million due to changes in some power sales contracts that no longer require Southwestern to wheel power and energy to certain customers.

Western Area Power Administration -$28.9

The decreases are due primarily to a decrease of $10.5 million in program direction attributed to aggressive implementation of its transformation objectives to reorganize, restructure, and reengineer the organization and its processes. In addition, the purchase power and wheeling requirement is decreasing by $20.3 million due to good water conditions in all Western's service areas and lower customer loads arising from the increased competitiveness in the California energy market.

Bonneville Power Administration -$68.0

Capital obligations decrease due to efficiencies and costs reduction efforts being applied to all BPA capital programs.

Federal Energy Regulatory Commission

Mission - The Federal Energy Regulatory Commission is responsible for overseeing the operations of key parts of America's energy industries: electric utilities, hydropower facilities, and natural gas and oil pipelines. The Commission seeks to ensure that consumers receive adequate, reliable supplies of energy at the lowest possible price, and to provide energy suppliers and transporters a just and reasonable return on capital investment and the opportunity to adjust to rapidly changing market conditions.

Program Overview - In FY 1997, the Commission will continue to protect the public by encouraging competitive markets where appropriate, while maintaining more traditional forms of regulation where competitive markets do not exist or market forces do not work to protect the public interest. This will be accomplished through further implementation of the Energy Policy Act of 1992, and reducing barriers to competition and generation in the electric power industry. To promote competition in the electric power industry, we have proposed an open-access rulemaking that is designed to eliminate anticompetitive and discriminatory practices in transmission services and to increase consumer benefits by fostering a competitive wholesale bulk power market for electricity. The Commission also will maintain its focus and efforts on environmental issues and compliance in all program areas, and make regulation work better through improved automation and efficiency.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Federal Energy Regulatory Commission					
Federal energy regulatory commission	166,173	159,514	164,397	4,883	3.1%
Use of prior year balances	—	-28,224	-5,000	23,224	82.3%
FERC revenues	-166,173	-131,290	-159,397	-28,107	-21.4%
Total, Federal Energy Regulartory Commission	—	—	—	—	—

Budget Overview - The Commission has determined its total funding requirement to be $164.4 million for FY 1997, of which $5 million will be derived from prior-year unobligated balances, thereby reducing the request for new budget authority to $159.4 million. We will recover the full cost of our operations through a system of annual charges and fees, resulting in a net appropriation of $0.

Highlights of Program Changes - The budget request reflects the Commission's changing regulatory priorities resulting from two factors: (1) the need to respond to the changing needs of the electric power industry as we begin to deal with restructuring and open-access issues; and (2) the successful implementation and ongoing industry transition under Order No. 636, which restructured the natural gas pipeline industry. This shift in priorities results in a shift in resources, with an increase budgeted for electric power regulation and less budgeted for the natural gas and oil pipeline program.

Nuclear Waste Disposal Fund

Mission - The mission of the Office of Civilian Radioactive Waste Management is to manage and dispose of the Nation's spent nuclear fuel and high-level radioactive waste and to implement strategies that ensure public and worker health and safety, protect the environment, merit public confidence, and are economically viable.

Program Overview - The office was established by the Nuclear Waste Policy Act of 1982 to dispose of spent nuclear fuel and high-level radioactive waste from commercial and defense activities in a permanent geologic repository. The Nuclear Waste Policy Amendments Act of 1987 designated the Yucca Mountain, Nevada, site for detailed scientific investigation to evaluate the site's suitability for a geologic repository. Activities performed by this office include core science work and excavation of the exploratory tunnel at Yucca Mountain, waste package and repository design, and planning for the transfer and transportation of waste to the Federal Government from the owners and generators of spent fuel and high-level radioactive waste.

In FY 1995, the program was driven by the "Program Approach" which streamlined the work efforts within the Waste Program and was supported by a large increase in both funding and staffing levels. The Program Approach was based on the following major milestones: technical site suitability determination in 1998; if the site were found suitable, submittal of a repository license application to the Nuclear Regulatory Commission in 2001; and the start of repository operations in 2010.

The Fiscal Year 1996 Appropriations did not, however, permit us to continue with our Program Approach. Our Fiscal Year 1996 Appropriations provided $400 million for the Program, but reserved $85 million of that amount pending possible future enactment of interim storage authority. The available funding level of $315 million is 40 percent below our Fiscal Year 1995 level of effort. Since the plan we were on in Fiscal Year 1995 was no longer sustainable at this funding level, we have adjusted the Program accordingly.

We have restructured the near-term repository program to address the major unresolved technical questions regarding the conceptual design of the repository and its expected performance in the geological setting. Consistent with this objective, we have defined a new milestone for the Yucca Mountain Project in the form of a set of deliverables that are consistent with the instructions in the Conference Report accompanying the Appropriations Act. Together, they will constitute a Viability Assessment which will be completed in the FY 1998 - FY 1999 time frame and will assess the prospects for continuing with actions leading to the licensing of a geological repository at the Yucca Mountain site.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Civilian Radioactive Waste Management - Financing					
Nuclear Waste Disposal Fund	392,630	151,626	200,028	48,402	31.9%
Defense Nuclear Waste Disposal	129,430	248,400	200,000	-48,400	-19.5%
Total, Civilian Radioactive Waste Management	522,060	400,026	400,028	2	0.0%
Civilian Radioactive Waste Management - Activities					
Yucca mountain site characterization	375,270	250,000	339,364	89,364	35.7%
Waste acceptance, storage and transportation	56,729	13,600	10,000	-3,600	-26.5%
Congressional Reserve a/	—	85,000	—	-85,000	-100.0%
Program Integration	62,702	22,105	20,155	-1,950	-8.8%
Program Direction	27,359	29,321	30,509	1,188	4.1%
Total, Civilian Radioactive Waste Management - Activities	522,060	400,026	400,028	2	0.0%
FTEs	258	248	230	-18	-7.2%

Budget Overview - The Civilian Radioactive Waste Management Program has been funded through two appropriations: the Nuclear Waste Disposal Fund, and Defense Nuclear Waste Disposal. This program is funded such that the creators of spent fuel and high level radioactive waste contribute funding to cover all of the costs associated with the permanent storage of the waste. Commercial utilities pay fees into the Nuclear Waste Fund and the Defense appropriation covers the disposal costs of waste resulting from Atomic Energy Defense Activities.

The FY 1996 appropriations provide for a total of $400 million dollars, of which $85 million is reserved for Interim Storage activities. Further, the $85 million will be available for expenditure only upon enactment of future statutory authorization. This limits the funds available to carry out programmatic activities in FY 1996 to $315 million, of which $250 million is allocated to Yucca Mountain Site Characterization efforts. The FY 1997 budget requests a total of $400 million in discretionary funding from two appropriations; the Nuclear Waste Disposal Fund ($200 million), and Defense Nuclear Waste Disposal ($200 million).

The FY 1997 funding level supports efforts to complete the Viability Assessment in the FY 1998 - FY 1999 time frame and continues efforts, at a reduced level, of waste acceptance, storage and transportation initiatives. The majority of licensing and NEPA activities will be delayed until after a repository site is deemed viable. If the Yucca Mountain site is determined to be viable, the program will restart licensing and NEPA activities and will consider specific options for developing an interim storage facility.

FY 1997 Budget Request - The FY 1997 request provides $339.3 million to continue characterization of the Yucca Mountain candidate repository site. The $89.3 million increase in funding from FY 1996 will allow for increased underground excavation and tunneling of the Exploratory Studies Facility (ESF), as well as underground testing in the ESF. Ongoing surface-based testing program is also supported. Testing and design programs will focus on activities that are necessary to support DOE decisions on site viability. Objectives for FY 1997 include:

completion of the repository and waste package conceptual design and the production of scientific models of geologic, hydrologic, geochemical and geomechanical processes.

In addition, the request provides $10.0 million for generic waste acceptance, storage and transportation activities. This includes advancement of a market-driven initiative to create a national transportation capability to remove spent nuclear fuel from reactor sites and plans for awarding contracts to the private sector for canister, transport cask and storage module production, and waste acceptance and transportation services. The request also provides $20.2 million for program integration activities, which include quality assurance, systems and regulatory integration, strategic planning, and program and information management, and $30.5 million for program direction activities. Program direction includes federal salaries, benefits, travel, and other related services.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Yucca Mountain Site Characterization	+$ 89.3

- Complete 5 mile exploratory tunnel.
- Drill boreholes for study of fault lines and hydrologic movement.
- Increase core science activities - surveys, drilling, mineral sampling, geologic mapping, thermal testing, investigate water movement, and environmental data gathering.
- Complete cost effective repository design.
- Investigate needs of waste emplacement and equipment concepts.
- Integrate scientific, design and engineering program elements into report for Viability Assessment.

Fossil Energy Research and Development

Mission - The mission of the Fossil Energy (FE) Research and Development (R&D) program is to stimulate sustainable development and utilization of the nation's fossil fuel resources and technologies to assure an ample, secure, clean and low cost domestic supply of energy. This mission will be executed in a way that assures U.S. global leadership in fossil energy technology; protects the local, regional and global environment; merits public trust; promotes public-private partnerships; creates U.S. jobs; and contributes to a stronger economy.

Program Overview - The U.S. is reliant on fossil fuels for about 85 percent of the energy it consumes. A key goal of the Department's fossil energy activities is to ensure that economic benefits from low-priced fossil fuels, a strong domestic industry, and export-related jobs do not come with unacceptable environmental costs or energy security risks.

The programs in this budget include a variety of activities to respond to this goal. For electric power generation the primary "threats" are related to environmental protection. Post-2000 sulfur dioxide ($S0_2$) emissions will be capped; permissible nitrogen oxide (NOx) emissions will be in the single digit parts per million levels for much of the country; allowable particulate emissions may be further constrained due to air toxic and other health considerations; land constraints will increase pressure to reduce disposal of solid residue resultant from power generation systems; and international pressure to reduce greenhouse gas emissions, principally carbon dioxide (CO_2), will likely increase. R&D addressing these concerns is funded under the Gas and Coal Programs, and includes R&D on: gas power systems that will achieve 60 percent efficiency and reduce electricity busbar costs by 10-20 percent; and coal systems that can reduce regulated emissions to one-tenth of current requirements and CO_2 emissions by over 40 percent.

The Natural Gas Program also includes R&D in the areas of exploration, production, processing, storage and environment, to help ensure that long-term supply of our cleanest, lowest-cost domestic fossil fuel is adequate to meet the increased demand for power and other applications over the next two decades.

Energy security "threats" focus primarily on the availability of reliable oil supplies. The U.S. currently depends on exports for about half of its oil supplies, and by 2015 this dependence is projected to increase to over 60 percent, with incremental supplies increasingly centered in historically unstable regions. In the meantime, U.S. production is declining as the domestic resource matures, and marginally economic wells with high remaining resource potential are being abandoned at an alarming rate. The Oil Program addresses these problems through R&D in the areas of exploration, production, processing, downstream operations, and environment. It is estimated that these activities can lead to increased U.S. production of one million barrels per day by 2015. R&D is also carried out on technologies to convert gas and coal to liquid fuels.

The Materials Partnership program was transferred to the Department of Energy in Fiscal Year 1996 from the Bureau of Mines. This program seeks to determine the factors that limit service life of materials in industrial, structural, or engineering applications and to provide solutions to service-life problems through new materials technology. The program seeks to establish and maintain mutually beneficial partnerships with industry and other agencies to share the costs, tasks and national benefits of research.

Other support activities for the Fossil Energy Research and Development appropriation include, Program Direction, Plant and Capital Equipment, Environmental Restoration, Cooperative Research, and Fuels Program.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Fossil Energy Research and Development					
Coal					
Advanced clean fuels research	31,844	19,628	15,954	-3,674	-18.7%
Advanced clean/efficient power systems	87,656	80,284	66,807	-13,477	-16.8%
Advanced research and technology development	24,961	21,353	19,868	-1,485	-7.0%
Total, Coal	144,461	121,265	102,629	-18,636	-15.4%
Petroleum	75,211	55,714	52,537	-3,177	-5.7%
Gas					
Natural gas research	62,517	59,722	57,091	-2,631	-4.4%
Fuel cells	46,955	52,464	46,617	-5,847	-11.1%
Total, Gas	109,472	112,186	103,708	-8,478	-7.6%
Program direction and management support					
Headquarters program direction	17,725	15,649	14,901	-748	-4.8%
ETC program direction	59,206	55,276	45,214	-10,062	-18.2%
Total, Program direction & management support	76,931	70,925	60,115	-10,810	-15.2%
Plant and capital equipment	5,010	4,005	3,304	-701	-17.5%
Fossil energy environmental restoration	15,301	14,919	15,027	108	0.7%
Cooperative research and development	8,855	6,295	4,000	-2,295	-36.5%
Fuels conversion, natural gas and electricity	2,995	2,687	2,188	-499	-18.6%
Mining	—	40,000	5,000	-35,000	-87.5%
Subtotal, Fossil Energy Research and Development	438,236	427,996	348,508	-79,488	-18.6%
Use of prior year balances	-16,866	-6,499	—	6,499	100.0%
Total, Fossil Research And Development	421,370	421,497	348,508	-72,989	-17.3%

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

Budget Overview - The FY 1997 request for Fossil Energy Research and Development is $348.5 million, which is a 10.5 percent reduction from FY 1996 level and a 20 percent reduction from FY 1995. This is consistent with Congressional guidance to reduce Fossil Energy Research and Development funding 10 percent per year. In FY 1997 many of DOE's gas and coal-fueled power systems are entering their final phase of development. Evidence of near-term pay-off will be seen in the availability of a number of attractive systems by the year 2000. This will permit us to pursue within existing fiscal constraints an affordable redirection of funding into longer-term high

pay-off R&D. The proposed budget retains a commitment to technology advancement, in most cases, highly leveraged by joint funding with the private sector.

In domestic natural gas and oil exploration the FY 1997 DOE program seeks to enhance the value to the nation's oil and gas resource base by focusing on environmental technology and regulatory streamlining to reduce compliance costs without compromising environmental protection, and advanced exploration and production technology, including converting defense technologies developed by the national laboratories to private sector applications. Special emphasis will be placed on long-term R&D on high technology efforts where the benefits are well beyond industry's investment time frame, which is typically about five years.

Of the programs transferred to Fossil Energy Research and Development in FY 1996, only the materials effort at Albany, Oregon will remain with DOE in FY 1997. The health and safety functions are proposed for transfer to the Department of Health and Human Services.

FY 1997 Budget Request - The FY 1997 request for coal is $102.6 million, a 15 percent reduction from FY 1996. The major share of this funding will focus on developing progressively higher efficiency systems that significantly reduce CO_2 and exceed environmental compliance requirements through processes that prevent, rather than control, pollutant emissions. Also funded in the Coal budget is the Advanced Clean Fuels program, which demonstrates advanced concepts for the clean production of coal-based transportation fuels, chemicals and other products that can compete with petroleum products at a cost of less that $25 per barrel in 1990 dollars. Also funded in the coal R&D budget is the Advanced Research Program, which fosters revolutionary innovations that could dramatically improve efficiencies, environmental performances, and afford ability of advanced fossil fuel technologies.

The FY 1997 request for Gas is $103.7 million, a reduction of eight percent from the FY 1996 level of $112.2 million. FY 1997 will continue a strong emphasis on development of advanced high efficiency power generation cycles capable of utilizing both natural gas and coal resources. In FY 1997 under the advanced turbine program DOE will continue development of critical technologies and components leading to a decision to initiate pre-commercial demonstration during 1998. Under the Fuel Cell Program system and stack improvements and cost reduction through improved components and new concepts will continue.

The FY 1997 request for petroleum activities is $52.5 million, a six percent reduction from the FY 1996 level of $55.7 million. Funding is reduced for field demonstrations and emphasis is placed on long-term R&D. The supporting research program includes the development of advanced technologies for exploration, drilling, reservoir characterization, and extraction. The technologies are conveyed to industry users through an aggressive technology transfer program.

The budget request for Mining R&D (transferred from Bureau of Mines) is $5 million. In FY 1997, only the materials effort at Albany, Oregon will remain with DOE and the health and safety functions are proposed for transfer to the Department of Health and Human Services. The

program will continue research in FY 1997 focused on conservation of natural resources through extending the service life of materials and/or finding substitute materials and processing paths for those that are environmentally hazardous.

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Coal	-$19
• Decrease is the result of many coal-fueled systems entering their final phase of development and the elimination of some of the advanced research work in control technologies and combustion technologies to focus on environmental technologies.	
Oil	-$3
• Decrease funding for Recovery Field Demonstration Program from an FY 1996 level of $11.0 million.	
Gas	-$8
• Stretch out fuel cell market entry program and continue Advanced Turbine Program.	
Mining R&D	-$35
• Transfer of programs other than Materials Partnerships from this account.	
All Other	-$10
• Program Direction; reduction of contract services as a result of field consolidation activities as part of the Strategic Alignment Initiative.	

Naval Petroleum & Oil Shale Reserves

Mission - The Naval Petroleum and Oil Shale Reserve's mission is to manage, operate, protect, maintain and produce the gas and oil from the Reserves in order to achieve the greatest value and benefits to the United States with consideration of the interests of joint owners until the facilities are sold, beginning with Elk Hills by February 10, 1998.

Program Overview - The Defense Authorization Act, Public Law 104-106, requires the sale of Elk Hills, Reserve number 1, located in Bakersfield, California within 2 years. The Act requires that five independent experts in the valuation of oil and gas fields be retained to conduct separate assessments of the value of the Government's interests in the field, as well as one independent petroleum engineer to prepare a reserve report and one petroleum engineer to finalize equity with Chevron. Administration of the sale shall be performed by an investment banker or equivalent financial advisor.

Section 3416 of Public Law 104-106 requires the Secretary of Energy to conduct a study to determine the future regarding the naval petroleum reserves other than Elk Hills no later than June 1, 1996.

The Act also requires that production be maintained at the maximum daily oil or gas rate which will permit maximum economic development until the sale is completed.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Naval Petroleum & Oil Shale Reserves	186,993	148,786	149,500	714	0.5%

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

FY 1997 Budget Overview - The FY 1997 budget request for the Naval Petroleum and Oil Shale Reserves of $149.5 provides for a level of effort consistent with FY 1996 to keep the oil fields productive at their maximum economic rate and generating revenue while the divestiture process is underway. Based on the schedule for conducting the sale established by P.L. 104-106, management has requested a full year of funding to provide adequate time to carry out the strategy that provides maximum benefits to the taxpayer. Available prior year funds will be invested in the current year to conduct the sales activities.

Budget Request - The FY 1997 budget request for Elk Hills provides for continued operation, maintenance and regulatory compliance (environment and safety) while the provisions of the National Defense Authorization Act for Fiscal Year 1996 are being implemented. Capital investment activities have been reduced to a minimum to help maintain production and the value of the assets pending the outcome of the sales effort. The FY 1997 budget provides for a level

of effort which assumes continued Government operations throughout the fiscal year. Operation and Maintenance is significantly higher in FY 1997 ($67.6 vs $53.5) due to increased maintenance requirements and the use of prior year funding in FY 1996 which is not available in FY 1997. The FY 1997 budget provides for a level of effort in Development Facilities ($10.0 vs $16.9), (the FY 1996 budget is supplemented by the use of $6.0 million in prior year funds). The Development Drilling program reflects a decrease which provides for the drilling of only 6 production wells ($12.0 million vs $26.0 million).

The FY 1997 budget request for Casper, NPR 3, has been reduced by approximately 46 percent. Development Drilling has been eliminated ($0 vs $5.7 million), with completion of the drilling program in FY 1996. Cost reduction measures have been implemented in management and administration and technical services to continue to have profitability at the site.

Due to the retained revenue provision for the gas protection program, funds are available in FY 1996 and FY 1997 to meet current drilling and communitization requirements (FY 1995 $2.3 million, FY 1996 $0, FY 1997 $1.4 million).

Operation of the reserves generates revenues for the Federal Government from the sale of petroleum and related products, sale of excess electricity from the cogeneration facility, and reimbursement from Chevron for its share of costs at Naval Petroleum Reserve No. 1. Reserves are deposited in the Miscellaneous Reciepts account at the U.S. Treasury. Current revenue estimates are:

FY 1995	$412 million
FY 1996	$463 million
FY 1997	$407 million

Energy Conservation

Mission - The mission of the Office of Energy Efficiency and Renewable Energy is to work with our customers to lead the nation to a stronger economy, a cleaner environment, and a more secure future by developing and deploying sustainable energy technologies that meet the needs of the public and the marketplace.

Program Overview - U.S. energy efficiency, as measured by energy consumption per dollar of gross domestic product remains well below that of Japan and Germany. Perhaps the best indicator of our nation's need to conserve and develop alternative energy resources, is the current record high level of U.S. oil imports, 51 percent, which continues to grow and is projected to reach 60 percent by the year 2005. These imports contribute significantly to our trade deficit and threaten our economic security, as the Persian Gulf countries are projected to control 70 percent of the global oil market by the year 2010.

To fulfill its mission, the Office of Energy Efficiency and Renewable Energy addresses four main energy usage areas: transportation; industrial; utility; and buildings technologies, including coordinated state and community energy programs. A separate office also manages the Federal Energy Management Program to assure public sector leadership in the application of energy efficiency and solar and renewable energy technologies. The Solar and Renewable Energy programs of this office are funded under the Energy Supply Research and Development appropriations account in the Energy and Water Appropriations Bill and are discussed separately. The Energy Conservation programs are discussed here.

The Transportation Sector programs support the development and commercialization of transportation technologies which have the potential to significantly reduce the projected U.S. and world demand for energy, particularly oil, and reduce the associated environmental impacts such as greenhouse gas emissions. The objectives are to improve vehicle fuel economy; and increase the production and use of cost-effective alternative transportation fuels. The program priorities reflect efforts towards achieving a tripling of light duty vehicle fuel economy: a primary goal of the President's public Partnership for a New Generation of Vehicles (PNGV) initiative to develop such a prototype vehicle by the year 2004 without compromises in safety, performance, or affordability.

In the Industrial Sector, adequate energy supplies at competitive prices have reduced energy concerns for most industries. However, for certain industries, these energy costs coupled with rising waste-related costs can be significant. To preserve these domestic industries and reap economic and environmental benefits, the Industry Sector has initiated "Industries of the Future" partnership strategies with seven energy and waste intensive industries: the steel, aluminum, metal casting, chemical, refining, forest products, and the glass industries. These seven industries account for about 80 percent of all manufacturing energy use and 80 percent of the sectors' waste.

In the Buildings Sector, energy consumption is roughly equal to that of the transportation and the industrial sectors. Dramatic building technology advancements have mitigated the increase in energy usage in this sector against a significantly larger increase in the number of households since 1970. Historically, these energy conservation opportunities have been hard to capture as: 1) buildings are often designed and built to the lowest first cost, 2) the eventual energy user is often not a decision maker in the building design, and 3) new buildings represent a small portion of the existing building stock. The Administration's Climate Change Action Plan (CCAP) offers cost-effective, voluntary solutions and incentives to restore the nation's greenhouse gas emissions to 1990 levels, consistent with our nation's commitment at the U.N. Earth Summit in 1992. The Office of Building Technologies, State and Community Programs has a dominant role in this initiative, as do other Energy Efficiency and Renewable Energy programs.

The Buildings Technologies programs are organized into three technical areas: 1) Building Systems Design which improves building performance as systems, and accelerates the deployment of new technologies and practices; 2) Building Equipment and Materials which develops improved equipment, appliances, components and materials; 3) Codes and Standards which develops and implements energy efficiency standards for appliances, equipment, and complete buildings. Within the State and Local Partnership Program, the Weatherization Assistance Program provides cost-effective energy conservation services to constituencies who cannot afford the investment, nor the high cost of inefficient energy use. This program partners with State and local service organizations to perform energy audits and to weatherize low-income residences, particularly the homes of the elderly. The State Energy Program, which combines the State Energy Conservation Program and the Institutional Conservation Program, now allows States added flexibility through a consolidated grant program to deliver energy services and support market acceptance of energy efficiency technologies.

The Utility Sector programs funded under the Energy Conservation appropriation executed the Integrated Resource Planning (IRP) program to assist States in evaluating cost-effective resource allocation options for utility supply and demand processes. The IRP program has been in existence since 1986 and has substantially completed its mission. In FY 1996, the program is being phased out.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Conservation					
Energy Conservation R&D					
Transportation sector	191,065	176,568	221,308	44,740	25.3%
Industry sector	138,007	115,655	159,434	43,779	37.9%
Federal energy management program	19,105	18,523	31,900	13,377	72.2%
Building tech., state, & community sector—non-grant	95,284	77,826	125,171	47,345	60.8%
Policy and management	34,319	29,641	28,350	-1,291	-4.4%
Utility sector	8,642	—	—	—	—
Total, Energy conservation R&D	486,422	418,213	566,163	147,950	35.4%
Building technology, state, & community sector—grants	267,868	137,700	193,900	56,200	40.8%
Subtotal, Energy Conservation	754,290	555,913	760,063	204,150	36.7%
Use of nonappropriated escrow funds-PODRA-in SLAP	-20,876	-17,000	-29,700	-12,700	-74.7%
Use of prior year balances	-15,932	—	-15,000	-15,000	—
Total, Energy Conservation	**717,482**	**538,913**	**715,363**	**176,450**	**32.7%**

Budget Overview - The FY 1997 Congressional Budget Request of $760.1 million for the Energy Conservation appropriation reflects the program's priorities as described above. This is approximately 37 percent over the expected FY 1996 funding level. This increase results largely from continued Administration support for Energy Conservation R&D in general, and high-priority Presidential initiatives (such as the Climate Change Action Plan, and the Partnership for a New Generation of Vehicles) in particular, despite Congressional reductions to these areas in FY 1996.

FY 1997 Budget Request: The gross FY 1997 Energy Conservation request of $760.1 million represents an increase of $204.2 million or 37 percent above the anticipated FY 1996 conference mark of $555.9 million, and re-affirms the Administrations commitment to the energy conservation area. By the year 2000, this budget will generate 1.8 Quads of primary energy savings and the associated benefits of $11 billion in savings, 38 MMTons of carbon reductions, and displace 79 million barrels of oil per year.

The Administration's initiatives are the main driver for the increase in Energy Conservation: the Partnership for a New Generation of Vehicles (PNGV) increases $50 million to $152 million; the Energy Conservation portion of the Climate Change Action Plan (CCAP) increases $52 million to $88 million; the Weatherization Assistance Program increases $43.7 million to $155.5 million; and the Federal Energy Management Program increases $13.4 million to $31.9 million. These increases were funded in part by reductions in other waning or lower priority areas such as the Integrated Resource Planning (IRP) program and the industrial Municipal Solid Waste program, for which no funding is requested.

Highlights of Program Changes

FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)

Energy Conservation (+$204.2 million)

Transportation Sector +$44.7

Essentially all increases are for PNGV which increases $49.0 million to $149.0 million mainly in the areas of Hybrid Vehicles R&D (+$28.3 million) to develop and incorporate second generation advance components into "mule" vehicles for testing, Fuel Cell (+$8.6 million) supporting PNGV's longer-term goals, Lightweight Materials (+$8.7 million), and Light Duty Engine (+$4.8 million) R&D.

Industrial Sector +$43.8

Increase largely restores cost-effective CCAP-related activities from for Motor Challenge, ClimateWise, Industrial Assessment Centers, NICE3 (National Industrial Competitiveness through Energy, Environment and Economics) partnerships. Other non-CCAP increases mainly provide funding for public-private partnerships in the "Industry Vision of Future" strategies (+$24.3 million). Support for the Advanced Turbine Systems (ATS) program is maintained (+$3 million).

Buildings Technologies, State and Community Sector +$103.6

Increases restore reductions to CCAP activities (Rebuild America, joint HUD-DOE affordable housing initiative, and Codes and Standards activities) from $34 million in FY 1996 to $55.0 million. The increases provide for advanced lighting and windows development. Funds for the Weatherization Assistance Program and the State Energy Programs increase $43.7 million and $14.0 million over FY 1996, respectively.

Federal Energy Management Program (FEMP) +$13.4

Increases provide the resources to centrally coordinate and assist agencies in utilizing non-federal, "alternative" financing resources, such as Energy Saving Performance Contracts, to install energy and water conservation measures. Other increases allow CCAP-savings practices (such as energy efficient motors) to be incorporated into the Federal facilities.

Policy and Management -$1.3

Modest reduction to salaries and contractual services. International Market Development and Information programs are maintained at FY 1996 levels.

Economic Regulation

Mission - Offices financed in the Economic Regulatory Administration Appropriation are undergoing changes in their mission resulting in significant reductions in their activity related to Petroleum Overcharge and related legislation. The Compliance activity organized within the Office of General Counsel has declined to a level which requires no new appropriations. Prior year balances are adequate to finance shutdown activity. The follow on regulatory activities administered in the Office of Hearings and Appeals lag the Compliance activity by two years. As a result appropriations, though declining, will continue to be necessary in FY 1997.

Program Overview - Office of General Counsel - Compliance; this program administers the enforcement activities resulting from a wide spectrum of oil pricing and allocation regulations that governed the petroleum industry throughout most of the 1970's. The program currently consists of litigating and negotiating settlements of those cases previously developed of which approximately twenty still remain unresolved. The Office of Hearings and Appeals (OHA) is responsible for all of the Department's adjudicatory processes other than those administered by the Federal Energy Regulatory Commission. OHA's enforcement work is nearly concluded. However, OHA continues to conduct refund proceedings that return petroleum overcharge funds that are collected by the Department to parties who were injured by those overcharges, and to the states and federal government for indirect restitution. Over the years, OHA has gained jurisdiction over a wide variety of other matters including: Freedom of Information Act and Privacy Act Appeals, evidentiary hearings to determine an employee's eligibility for a security clearance, and request for exception from DOE regulations and orders, such as reporting requirements to the Energy Information Administration.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Economic Regulation					
Economic regulatory administration/Compliance	5,689	3,625	—	-3,625	-100.0%
Office of hearings and appeals	6,739	2,672	2,725	53	2.0%
Subtotal, Economic Regulation	12,428	6,297	2,725	-3,572	-56.7%
Use of prior year balances and other adjustments	-20	—	—	—	—
Total, Economic Regulation	12,408	6,297	2,725	-3,572	-56.7%

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

Budget Overview - Office of General Counsel - Compliance; the FY 1997 request of $0 indicates the near completion of this program. Shutdown activities in FY 1997 will be financed with prior year funds. And any remaining activity will be handled by residual staff within the Office of General Counsel. This action by the Department is consistent with testimony provided to Congress during the FY 1996 appropriations process.

Office of Hearings and Appeals - The budget request of $2.7 million is limited to funding to process and resolve applications for refund requests and related activity arising from the regulatory program initiated under the Emergency Petroleum Allocation Act of 1973. Excess monies from refund processing are transferred to the Treasury Department for deficit reduction and to the States to fund energy conservation programs. In addition, approximately $2 million of services will be provided to other offices on a reimbursable basis. This work includes: Freedom of Information Act (FOIA) and Privacy Act Appeals, evidentiary hearings to determine an employee's eligibility for a security clearance, and requests for exception from DOE regulations and orders, such as reporting requirements to the Energy Information Administration. Appeals to determinations of an employee's security clearance were formerly contracted for by the Office of Security Affairs. That office will be charged beginning in fiscal year 1996 for appeals administered by OHA, as well as other activities, cited above, related to its mission.

FY 1997 Budget Request

Office of Hearings and Appeals is seeking $2.7 million of new authority to conduct its regulatory program. Most expenses are related to its professional staff with Personnel Compensation and Benefits expenses equal to $1.9 million, travel expenses equal to $10K, and Support Services equal to $0.8 million. Support services are provided within the Department's Working Capital Fund, and include rent, supplies, printing and communication and information technology.

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Economic Regulation (-$3.6 million)	
Compliance Activity	-$3.6
Decrease due to virtual completion of the compliance program which was the last remaining activity of the Economic Regulatory Administration.	
Office of Hearings and Appeals	+$0.053
Increase due to inflation offset by minor employee reductions.	

Strategic Petroleum Reserve

Mission - The Strategic Petroleum Reserve (SPR) mission is to reduce U.S. vulnerability to economic, national security, and foreign policy consequences of petroleum supply interruptions by discouraging supply disruptions as a tool of other nations, and by adding to crude oil supplies in the United States, in the event of a disruption due either to political, military or natural causes.

Program Overview - The program requires that each SPR site and terminal be capable of transitioning from operational readiness to full drawdown within 15 days. The SPR maintains a continual readiness posture through its programs, initiatives and tests. The SPR facilities and systems have been designed and constructed to achieve high levels of both reliability and availability. The SPR has implemented a Life Extension Program that will maintain its high reliability and availability and extend the life of the Reserve through the year 2025. The Life Extension Program will also result in a streamlining of site configurations and standardization of equipment across the Reserve. The Weeks Island storage facility developed a geologic fissure which poses a significant risk to continued oil storage. The relocation of the Weeks Island oil inventory to Big Hill and Bayou Choctaw sites started in November 1995 and is expected to be completed by December 1996. When the oil is removed and the National Environmental Protection Act (NEPA) process is complete, the site will be decommissioned. The decommissioning process is expected to take three to four years.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Strategic Petroleum Reserve					
SPR - Facilities development	243,663	287,000	221,300	-65,700	-22.9%
SPR petroleum account	-107,764	-187,000	—	187,000	100.0%
Proceeds from sale of Weeks Island Oil, SPR decommissioning	—	-100,000	—	100,000	100.0%
Total, Strategic Petroleum Reserve	135,899	—	221,300	221,300	—

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

Budget Overview - The FY 1997 budget request of $221.3 provides for storage site maintenance, security, drawdown testing, and drawdown readiness; continues mitigation of operational problems associated with the gas-in-oil; provides for long term replacement of critical physical systems to assure the capability of the SPR to effectively perform its mission through the year 2025; and continues decommissioning of Weeks Island storage facility. There is no oil acquisition planned in FY 1997; only payment of fixed terminaling costs which maintains capability to resume crude oil fill operations.

FY 1997 Budget Request - The FY 1997 budget request for the SPR is $221.3 million, which is $65.7 million lower than the pending FY 1996 Conference level of $287 million. This

reduction reflects decreases in terminaling for the pipeline transportation services for Weeks Island inventory (from $22.9 million to $4.1 million); mitigation of excess gas in oil (from $18.6 million to $1.8 million); reduced level of activities associated with the Life Extension Program (from $64.0 million to $25.7 million); streamlining savings in Management (from $16.8 million to $16.5 million); and an offsetting increase in Weeks Island decommissioning activities (from $8.5 million to $26.0 million) to complete oil relocation, skim oil clingage and begin brine refill.

The FY 1997 budget continues to maintain operational readiness and facilities maintenance activities consistent with Level I performance criteria; continues the Drawdown Readiness Program and perform annual exercises; continues the environmental safety & health (ES&H) program; as well as continues the management of the SPR program.

Prior year balances in the SPR Petroleum Account have been depleted to a level of $28 million which is being used to support fixed terminaling costs to maintain capability to distribute and to resume crude oil fill operations. Therefore, the FY 1997 facilities operations and maintenance program is proposed to be financed without a budget offset as in the two previous fiscal years.

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Strategic Petroleum Reserve (-$65.7 million)	
• Reduction in pipeline transportation services associated with the transfer of oil from Weeks Island site.	-$18.8
• Reduction in level of activities for mitigation of gas-in-oil problems.	-$16.8
• Reduction in level of projects scheduled for the Life Extension Program.	-$38.3
• Offsetting increase in other Weeks Island decommissioning activities (skim oil, clingage, begin brine refill, etc.)	+$17.5

Energy Information Administration

Mission - The mission of the Energy Information Administration (EIA) is to be the Nation's primary source of comprehensive energy information; providing high quality energy data, analyses and forecasts to customers in Government, industry and the public in a manner that promotes sound policy making, efficient markets and public understanding.

Program Overview - As an independent statistical/analytical agency, EIA has two primary roles. First, is to conduct functions required by statute. This consists of the development and maintenance of a comprehensive energy database and publication of reports and analyses for a wide variety of customers and specific reports which are required by law. Second, EIA satisfies inquires for energy information, from policy makers primarily in the Department and the Congress and from other Government entities, the energy industry and the general public. To fulfill these roles, EIA collects, analyzes, and disseminates information on energy reserves, production, consumption, distribution, prices, technology and related international, economic and financial markets.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Information Administration					
National energy information system	84,845	72,379	66,120	-6,259	-8.6%
Use of prior year balances and other adjustments	-200	—	—	—	—
Total, Energy Information Administration	84,645	72,379	66,120	-6,259	-8.6%

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

Budget Overview - The FY 1997 budget request for EIA is $66.1 million, 9 percent below the FY 1996 level of $72.4 million and 22 below the FY 1995 appropriation of $84.6 million. The FY 1997 total program is $70.9 million, comprised of $66.1 million in direct appropriations and $4.8 million in activities to to be conducted on a reimbursable basis with the Office of Energy Efficiency and Renewable Energy. The total program is 2 percent below the FY 1996 level and 16 percent below the FY 1995 level. These funds are required to support the core EIA data and modeling activities needed to set energy efficiency program needs and measure program results. Over the course of FY 1996 and FY 1997, the depth and scope of EIA's traditional energy program will be significantly altered; these reductions include: elimination or reduction in the scope of ten publications, reduction of mid-term forecasting and related analysis by 35 percent, elimination or reduced frequency of data collections and elimination of computer disaster recovery capability by reprioritization of funding priorities.

FY 1997 Budget Request - Survey and Data Collection. EIA will continue with most EIA sponsored surveys and data collections. Products planned for elimination include: the Annual Oxygenate Capacity Report and specific data collections in areas of fuel switching data collection

in the Manufacturing Energy Consumption Survey, financial information for the electricity generation report, uranium resource reporting, capital costs involved in electric power plant total generation costs and ad-hoc data collections during coal and electric energy emergencies.

Analysis and Forecasting. Funding is included only for model enhancements which will result in greater efficiencies and lower costs. Short-term forecasting will continue to be centered around EIA's Short-Term Energy Outlook and the continued development of the natural gas deliverability model. The FY 1997 budget funds limited analytical capability.

Product Preparation and Dissemination. The budget continues EIA's main product lines with the discontinuation of the printing of eight publications and the significant revision of several others. EIA's product line will be marked by a shift towards the creation of electronic products and away from traditional printed publications.

Technological Support. In the area of ADP services, basic services operation of the computer center will continue.

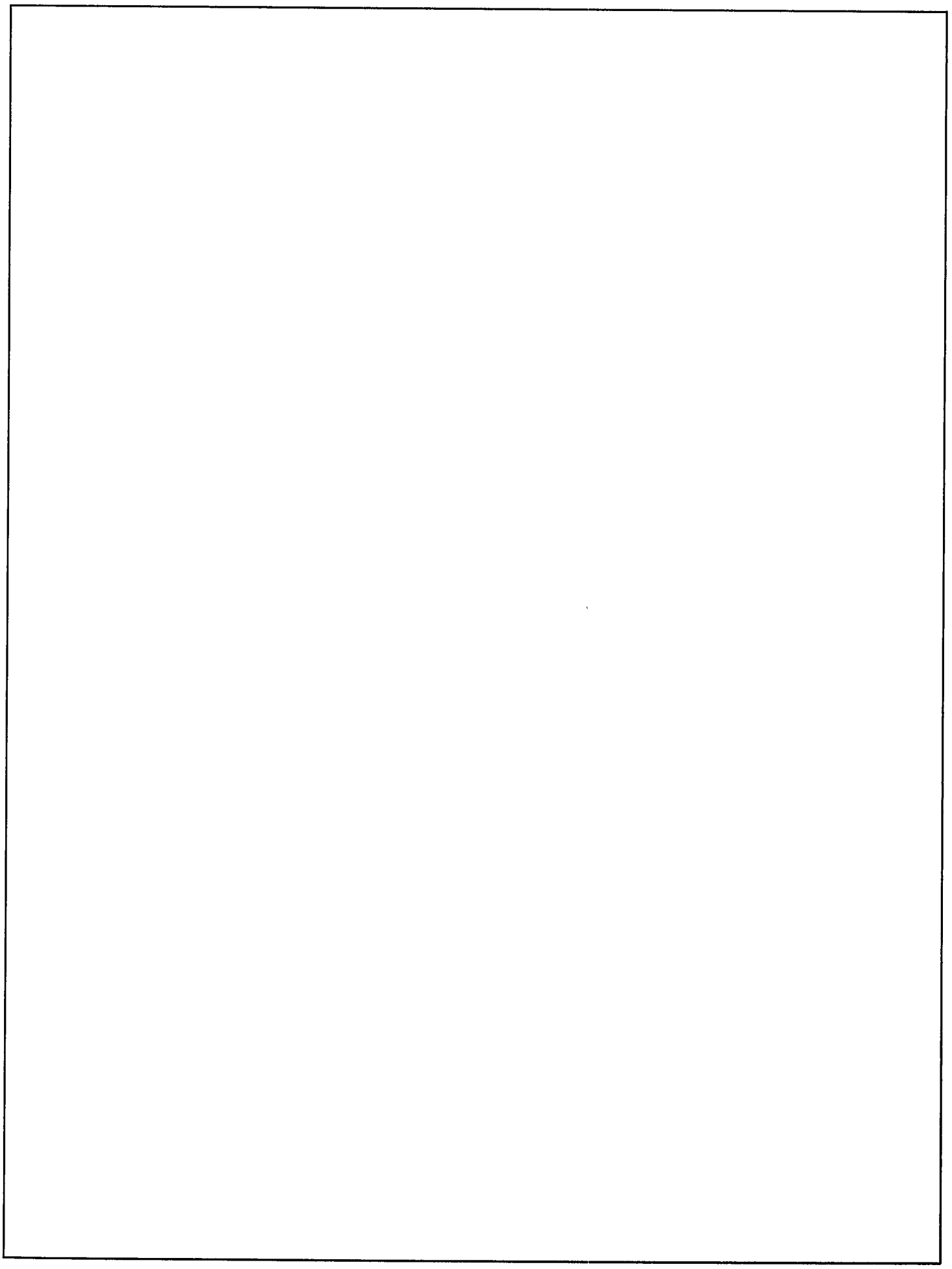
Support for External Organizations. EIA will continue to provide support to the Department's Historically Black Colleges and Universities program, along with support to various other Offices within the Department, other Federal Departments and Agencies, and State and local governments.

Staffing. The FY 1997 budget includes $33.1 million in direct appropriations for salaries and benefits for 404 FTEs. Included in this amount is $1.1 million to cover the costs of buyouts and potential reductions-in-force. Although Federal staffing levels for EIA are expected to decline from 486 to 384 between the FY 1995 authorized level and the FY 1997 end of year target, costs for salaries and benefits are declining by only 2 percent because staff reductions will take place in late FY 1997 and include separation costs for voluntary buyouts and reductions-in-force.

Highlights of Program Changes

	FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)
Energy Information Administration (-$6.3 million)	
• Funding for renewables data collection and analysis, end-use energy consumption surveys, greenhouse gas data collection studies, mid-term energy demand modeling and integrated end-use energy data compilation is provided by the Office of Energy Efficiency and Renewable Energy on a reimburseable basis in FY 1997, thereby reducing the requirement for new budget authority for EIA.	-$4.8

- Program Direction decreases by a net of $1.5 million which is reflected by a combination of a $1.5 million increase in salaries and benefits due to the Federal pay raise and a decrease of $2.5 million in salaries and benefits due to Federal staffing reductions and a decrease of $.5 million in overhead expenses. -$1.5



Clean Coal Technology

Mission - The Clean Coal Technology Program is a technology development effort jointly funded by Government and industry to demonstrate the most promising advanced coal-based technologies and to generate the data needed for the marketplace to judge their commercial potential, with the most promising technologies being moved into the domestic and international marketplace. Underlying this objective is the recognition that the vast, and relatively inexpensive U.S. coal reserves represent a critical energy resource which can provide a significant economic advantage to the Nation. However, these benefits can only be realized when coal can be used in ways which are environmentally responsible and when advanced technology can achieve significantly higher efficiencies than existing commercial power plants.

Program Overview - The program began in 1985 with the objective of accelerating the pace at which advanced coal-based utilization technologies would enter commercial service. The program is of limited duration --entailing five rounds of competition. Industry, by law must fund at least 50 percent of each project. Today the five rounds have been awarded and the average industry cost share is 68 percent of the program's $7.2 billion funding. Most of the projects from the early rounds have been completed and several are being used to meet Clean Air Act requirements. The more complex power generating systems are just beginning to move into construction and operation. These technologies will be ready for repowering or green-field applications in the 2000 -2010-time frame. The technologies being demonstrated in the Program are grouped into four primary market applications: (a) Advanced Electric Power Generation Systems, which offer the prospect of much higher efficiency coal-based power plants to meet the energy demand requirement of the nation well into the next century; (b) Environmental Control Devices, which offer more attractive ways to reduce emissions for existing powerplants and industrial facilities both domestically and in international markets; (c) Coal processing for Clean Fuels, which offer coal feedstock conversion to produce a stable fuel of high energy density that can be used to produce steam electricity, or that can be used as a transportation fuel; and (D) Industrial Applications, which offer superior ways to competitively manufacture key commodities such as steel in an environmentally responsive manner.

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Clean Coal Technology					
Advance appropriation - round 4	99,622	—	—	—	—
Advance appropriation - round 5	274,599	—	—	—	—
Advance appropriation	—	150,000	137,879	-12,121	-8.1%
Appropriation	-337,945	—	-637,879	-637,879	—
Total, Clean Coal Technology	**36,276**	**150,000**	**-500,000**	**-650,000**	**-433.3%**

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

Budget Overview - For FY 1997 the Clean Coal program operates with previously appropriated funding. The Administration's policy calls for limiting the program to existing projects which have been selected or are currently under contract. This policy permits reductions in FY 1997 to prior-year appropriations. Therefore, the FY 1997 request for Clean Coal is $-500 million compared to the FY 1996 level of $150 million.

FY 1997 Budget Request - The Department is proposing a rescission of $325 million from the program in FY 1997. The proposed rescission would reduce the total amount appropriated from $2.550 billion to $2.225 billion. In addition, a provision of the request would delay the obligation of $313.0 million available in FY 1997 until FY 1998. The Department plans to review the current suite of projects and intends to make project decisions on a schedule which will allow the proposed rescission to occur with minimum impact on overall program objectives. Decisions regarding specific projects are expected to be made by the end of FY 1996 to achieve the savings in the rescission proposal. In addition, $17 million will be available from prior year balances for administrative oversight of the Clean Coal Technology Program.

Highlights of Program Changes	**FY 1996 - FY 1997 Amount (Dollars in Millions) (Increase/Decrease)**
Clean Coal (-$500 million)	
• Advance Appropriation	+$138
• Recission	-$325
• Deferral of Advance Appropriation until FY 1998	-$138
• Deferral of unobligated balances until FY 1998	-$175

Appendix

Department of Energy Field Facilities Map

Major DOE Field Facilities