DEPARTMENT OF ENERGY

Since 2001, the Administration:

- Strengthened America's energy security by increasing the amount of oil stored in the Strategic Petroleum Reserve from 550 million barrels to 700 million barrels;
- Launched international partnerships to accelerate development of clean energy technologies at home and abroad, including the International Partnership for the Hydrogen Economy, FutureGen, the Carbon Sequestration Leadership Forum, and the International Thermonuclear Experimental Reactor fusion energy project;
- Provided grants to States that improved the energy efficiency of 409,000 homes of low-income families;
- Accelerated cleanup of 20 Department of Energy legacy nuclear waste sites, including completing the physical cleanup of Rocky Flats, Colorado, more than a year ahead of schedule; and
- Took major steps to prevent nuclear terrorism by securing weapons in the former Soviet Union; deploying radiation detection equipment in key overseas ports; removing or securing high-risk, vulnerable nuclear and radiological materials around the world; and retraining foreign weapons experts in non-military pursuits.

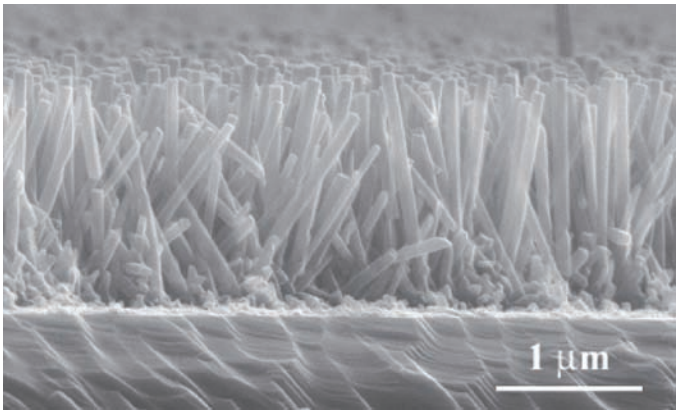
The President's Budget:

- Proposes major new investments—as part of the President's American Competitiveness Initiative—in the basic research and world-leading facilities that will enable future breakthroughs in nanotechnology, information technology, and related fields of science that promise significant economic benefits;
- Advances a new Global Nuclear Energy Partnership to support an expansion of nuclear power generation, while addressing nuclear waste and proliferation issues;
- Proposes solar and biomass technology initiatives that support energy independence; and
- Provides national security funding that continues the transformation of the nuclear weapons complex.

FOCUSING ON THE NATION'S PRIORITIES

Doubling Research Investment Under the American Competitiveness Initiative

America's economic strength depends in part on our Nation's rich tradition of scientific and technological innovation and leadership. Because investment in fundamental research in the physical sciences provides the foundation for such innovation, the President's American Competitiveness Initiative proposes a significant, sustained investment in the areas of the basic research portfolio of the Department of Energy (DOE) that promise to deliver the scientific breakthroughs that will transform our future. DOE supports an array of basic research and operates a variety of unique scientific facilities to support its energy and national security missions. These scientific facilities host roughly 18,000 researchers each year and broadly benefit users supported by other agencies, other countries, and the private sector. DOE's Office of Science provides more than 40 percent of total Federal funding for basic research in the physical sciences, and it serves as the principal Federal funding agency for research in high energy physics, nuclear physics, and fusion energy sciences. It also supports research in areas such as climate change, environmental remediation, genomics, computer science, and applied mathematics. In the past decade alone, 14 Nobel Prizes in physics and chemistry have been awarded to scientists supported by the Office of Science.



Tiny nanoscale rods and wires—such as those shown in this image, which as a whole is less than one tenth of the width of a human hair—have a wide variety of potential applications, including the development of the next generation of solar cells and high-efficiency lighting. The new DOE-funded methods for growing these structures simply and inexpensively represent a significant step toward commercial viability.

The 2007 Budget proposes $4.1 billion for DOE's Office of Science—a $505 million increase over 2006 funding. These additional funds, which represent the first installment of a 10-year doubling plan under the American Competitiveness Initiative, will be focused on the areas of research most likely to sustain and enhance U.S. economic competitiveness. The Budget will enable cutting-edge research across a wide expanse of scientific endeavors, from understanding the earliest moments of the universe, to learning how to guide nature's own efficient assembly techniques to make cheaper, stronger, and lighter materials for applications like hydrogen fuel cells and more energy-efficient lighting and consumer electronics. The Budget increases research and facility support for promising energy-relevant areas such as nanotechnology, including a major new targeted effort in solar-related research and completion of the last of five nanoscience research centers. In addition to operating DOE's current large scientific user facilities near maximum capacity, the Budget funds several new facility projects. For example, the 2007 Budget provides $80 million to build the world's most powerful civilian supercomputer to enable scientific simulations that are otherwise impossible, and $45 million to begin work on what will be a world-leading $600–800 million x-ray microscope facility with the capability to study materials, chemicals, and biological matter with unprecedented clarity at the scale of individual atoms.

Fusion Energy Research

In January 2003, President Bush committed the United States to participate in negotiations on the largest and most technologically sophisticated energy research project in the world—the International Thermonuclear Experimental Reactor (ITER). The United States and its six international partners—the European Union, Japan, Russia, China, South Korea, and India—have chosen a site in France and are progressing rapidly toward completion of a draft agreement, with the signing of an approved final agreement scheduled for summer 2006. If successful, this cost-shared experiment will advance progress towards developing fusion's potential as a commercially viable and clean source of energy near the middle of this century. The 2007 Budget provides $60 million in equipment research, design, and fabrication activities for the United States' in-kind contributions to this important partnership.

Advancing Nuclear Power Development

Nuclear power offers an emissions-free, safe, and reliable source of energy and is an essential element in the Nation's energy mix. Recognizing these benefits, the President's National Energy Policy emphasized appropriate development of nuclear energy systems. The 2007 Budget continues strong support for nuclear power in several areas.

The Budget provides $54 million in 2007 for the Nuclear Power 2010 (NP 2010) initiative to make it feasible to build new nuclear power plants in the United States for the first time in three decades. Under this initiative, DOE and two private consortia, which include many of the country's major nuclear utilities and reactor vendors, have created two public-private partnerships to develop applications and obtain Nuclear Regulatory Commission licenses for new Generation III+ nuclear power plant designs. In 2005, two project implementation plans were issued for the two construction and operating licensing demonstration projects. The effort from these two projects will reduce the uncertainty of obtaining design approval, which is a major obstacle to their financial viability. If successful, this seven-year, $1.1 billion effort, 50 percent of which would be non-Federal funding, could result in a new nuclear power plant order by 2009, and a new nuclear power plant constructed by the private sector and in operation by 2014.

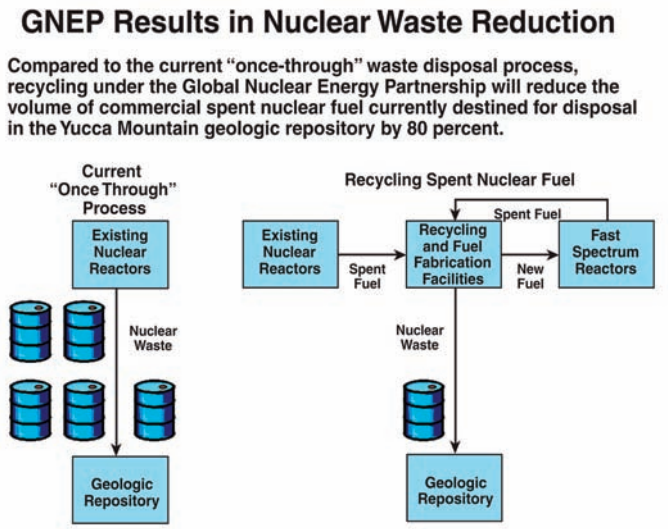
The NP 2010 program includes funds to develop regulations for nuclear power plant standby support, a program proposed by the President and authorized by the Energy Policy Act of 2005. Under the authority, DOE will be able to offer risk insurance that will protect sponsors of the first new nuclear power plants against the financial impact of certain delays during construction or in gaining approval for operation that are beyond the sponsors' control. The risk insurance will provide additional certainty to the builders of new nuclear power plants and help lead to the construction of a new nuclear power plant by the 2014 timeframe.

The 2007 Budget is also looking ahead to the next generation of nuclear power plants. The Budget provides $32 million for research and development (R&D) to support Generation IV nuclear energy systems. Generation IV technology offers the promise of a safe, economic, and proliferation-resistant source of clean nuclear power and possibly hydrogen.

The Budget reinforces the Administration's commitment to increasing nuclear power while building a more secure fuel cycle as called for by President Bush in 2004. The Budget provides $250 million in 2007 for the Global Nuclear Energy Partnership (GNEP), which will:

- enable an expansion of nuclear power in the United States and around the world;
- promote nuclear nonproliferation goals; and
- help resolve nuclear waste disposal issues.

FOCUSING ON THE NATION'S PRIORITIES—Continued



GNEP will help meet the growing demand for electricity in the developing world through an international framework that will promote emissions-free, safe nuclear energy and eliminate the need for foreign countries to build enrichment and recycling capabilities. In addition, GNEP will phase-out old recycling technologies that separate plutonium and thus create a proliferation risk.

Advanced recycling technologies can extract highly radioactive elements of commercial spent nuclear fuel and use that material as fuel in fast spectrum reactors to generate additional electricity. The extracted material, which includes all transuranic elements (e.g., plutonium, neptunium, americium, and curium), would be consumed by fast reactors to reduce significantly the quantity of material requiring disposal in a repository and to produce power. The plutonium would remain bound with other highly radioactive isotopes, thereby preserving its proliferation resistance and reducing security concerns. With the transuranic materials separated and used for fuel, the volume of waste that would require disposal in a repository would be reduced by 80 percent.

Improving the way spent nuclear fuel is managed in this manner will facilitate the expansion of civilian nuclear power in the United States and encourage civilian nuclear power in foreign countries to evolve in a more proliferation-resistant manner. Once these recycling technologies are proven, the United States and other GNEP countries having the established infrastructure could arrange to supply nuclear fuel to countries seeking the energy benefits of civilian nuclear power, and the spent nuclear fuel could be returned to other GNEP countries for eventual disposal in international repositories. In this way, foreign countries could obtain the benefits of nuclear energy without needing to design, build, and operate uranium enrichment or recycling technologies to process and store the waste.

Solar and Bio-Fuels Initiatives

The Budget proposes two initiatives to promote energy security for the United States by fundamentally changing the way the Nation powers its cars, homes, and businesses—the Bio-Fuels Initiative and the Solar America Initiative.

The Bio-Fuels Initiative will help displace future demand for oil by increasing funding to develop affordable, domestically produced bio-based transportation fuels (ethanol and biodiesel) and other products largely derived from oil today. The increased investment will support construction of an industrial-scale "biorefinery" to demonstrate production of fuels, chemicals, heat, and power from biomass (energy crops and crop residues); much like an oil refinery produces these products from oil. If successful, industry may begin investing in commercial-scale biorefineries, and consumers could begin buying more products—including fuel for their cars and trucks—produced in America's heartland.

The Solar America Initiative will accelerate the development of solar photovoltaics (PV), an emissions-free solution helping to meet the Nation's growing demand for electricity. Currently, solar PV

provides a very small amount of the electricity produced in the United States, largely because it is too expensive. The initiative aims to accelerate research to reduce the cost of PV technologies through industry-led partnerships. If cost goals are met and other policies to promote deployment remain in place (tax incentives and State mandates for renewable energy purchases), the initiative could result in 5–10 gigawatts of PV electrical capacity by 2015, compared with less than one gigawatt today. The increased capacity would be enough to power roughly one million homes. The increased use of solar PV also could significantly reduce demand for natural gas in the power sector.

Demonstrating the Future of Coal

The United States has 25 percent of the world's coal reserves. Coal provides a safe, secure, domestic source of affordable energy, but it comes with a challenge: how to generate power from coal while dramatically reducing the emission of air pollutants and greenhouse gases. DOE seeks to answer that challenge with its proposal to build FutureGen, a next-generation power plant cost-shared with industry and international partners. Announced by the President in 2003, FutureGen would generate electricity and hydrogen from coal with near-zero atmospheric emissions. The 2007 Budget provides $54 million toward design and construction of the project, while providing an additional $268 million for R&D on technologies that will be used in FutureGen and similar next generation coal-fueled power plants, including fuel cells, turbines, coal gasification, carbon sequestration, and hydrogen separation. The Budget also ensures that unexpended funds available from prior years' clean coal projects are available for future funding of the FutureGen project. Funding in the 2007 Budget nearly completes the President's 2000 campaign commitment to provide $2 billion over 10 years for clean coal technology research, four years ahead of schedule.

A prototype of the first fuel cell to pass the initial SECA technology hurdle.

The SECA Fuel Cell: An Innovative Competition Speeds Technology Development

The Solid State Energy Conversion Alliance (SECA) is a joint Government-industry partnership to strengthen U.S. energy security by developing fuel cells for high-efficiency generation of electricity and hydrogen from coal or natural gas. The SECA program leverages private-sector ingenuity by providing Government funding to industry teams developing fuel cells, as long as the teams continue to exceed a series of stringent technical performance hurdles. This novel incentive structure has generated a high level of competition between the teams and an impressive array of technical approaches. The SECA program also develops certain core technologies that can be used by all the industry teams to avoid duplication of effort. The program exceeded its 2005 performance targets, and it is on track to meet its goal for an economically competitive technology by 2010.

FOCUSING ON THE NATION'S PRIORITIES—Continued

Responding to Hurricanes Katrina and Rita

Natural gas processing plant in Louisiana flooded by Hurricane Katrina.

In August and September 2005, Hurricanes Katrina and Rita devastated U.S. energy supply, processing, and transportation and distribution infrastructure located in the central and western Gulf of Mexico and along the Gulf Coast of Louisiana, Mississippi, and Texas. The Nation lost 28 percent of its daily crude oil production, 16 percent of its daily natural gas production, and 29 percent of its daily refining capacity, and 2.7 million customers lost electricity service. DOE responded by lending and selling over 20 million barrels of crude oil from the Strategic Petroleum Reserve; by directing utilities to establish new electrical connections across service areas to provide power to major gasoline pipelines serving the Midwest and East Coast and to restart Houston's water pumping infrastructure; and by assisting State and local governments and the private sector to assess and repair damaged infrastructure. These actions assured the market that crude oil would continue to be available, allowed regional refiners to continue operations, helped ensure that adequate fuel supplies were maintained in the Midwest and East, and helped make power quickly available for essential regional and national needs.

Power Marketing Administrations

The Power Marketing Administrations (PMAs)—Southeastern, Southwestern, Western Area, and Bonneville—sell electricity generated at 133 multipurpose Federal dams and related facilities operated by the Army Corps of Engineers and the Department of the Interior's Bureau of Reclamation. These hydropower facilities represent about four percent of the Nation's electricity supply (37,000 MW). The PMAs also manage more than 33,000 miles of federally-owned transmission lines.

The Budget provides $229 million for the Southeastern, Southwestern, and Western Area PMAs. Bonneville Power Administration (BPA) finances its $3.0 billion annual cost of operations and investments primarily using power revenues and loans from the U.S. Treasury. The amount of BPA borrowing authority from the Treasury is currently capped by statute at $4.45 billion.

The Energy Policy Act of 2005 directs Federal agencies to remove constraints on the interstate transmission grid to help ensure that the Nation's electricity can flow more freely. BPA will continue to seek non-Federal participation and joint financing and ownership of its transmission system upgrades and other investments. In December 2005, BPA and DOE dedicated a private-public financed transmission line: the new 63-mile, $175-million Schultz-Wautoma electric transmission line in central Washington State. The line forms a key energy link to major cities along the Pacific Coast and will enhance electricity reliability in the western United States.

BPA markets its secondary electricity production to customers both inside and outside of the Pacific Northwest, such as California. Historically, BPA receives up to $500 million per year from these secondary market revenues. Due to high energy prices, future secondary revenues could be significantly higher. Beginning in 2007, and consistent with sound business practice, the Budget provides that any secondary market revenues in excess of $500 million per year will be used to repay BPA obligations to the U.S. Treasury. This will allow BPA greater financial flexibility to meet its future capital investments.

In addition, the Budget provides that the interest rate for future debt obligations owed to the Treasury by Southwestern, Southeastern, and Western for power-related investments be set at the rate governmental corporations borrow from the Treasury, similar to how current law sets the interest rates for BPA's borrowing from the Treasury. This new policy will be applied to all power-related investments whose interest rates are not specified in law.

Leveraging Science to Promote National Security

The mission of DOE's National Nuclear Security Administration (NNSA) is to:

- maintain and enhance the safety, security, reliability, and effectiveness of the Nation's nuclear weapons stockpile;
- prevent the spread of materials, information, and technology of weapons of mass destruction by eliminating or securing nuclear materials, information, and related infrastructure; and
- provide the Navy with safe and highly capable nuclear propulsion plants for warships.

The science and technology R&D underpinning this work is conducted at the DOE's national laboratories, most of which began as centers of invention and production for the Nation's nuclear deterrent.

Supporting and Maintaining the U.S. Nuclear Weapons Stockpile

The United States continues a fundamental shift in national security strategy to address the realities of the 21st Century. The Administration's Nuclear Posture Review (NPR), completed in December 2001, presents a national security environment in which threats may evolve more quickly and be less predictable and more variable than in the past. The NPR recognizes the need to transition from a threat-based nuclear deterrent with large numbers of deployed and reserve weapons to a deterrent consisting of a smaller nuclear weapons stockpile with greater reliance on the capability and responsiveness of the Department of Defense (DOD) and NNSA infrastructure to respond to threats.

The NNSA infrastructure must be able to meet new requirements in a timely and agile manner while also becoming more sustainable and affordable. Such actions as consolidating the nuclear weapons complex and placing an emphasis on practical and streamlined business practices are critical to this transformation. Efforts are underway, for example, to consolidate the facilities and infrastructure currently supporting the stockpile stewardship program. This program is the critical, science-based effort to provide confidence in the safety, reliability, and effectiveness of U.S. nuclear weapons, but it is supported by a Cold War infrastructure in need of transformation.

FOCUSING ON THE NATION'S PRIORITIES—Continued

The 2007 Budget proposal of $6.4 billion for Weapons Activities strongly supports the implementation of the responsive infrastructure and the ongoing program of work that forms the backbone of the nuclear weapons deterrent. Key programs funded in this area include Directed Stockpile Work, Science and Engineering, Readiness in Technical Base and Facilities, and Security.

A technician services a nuclear weapon component in support of the NNSA's mission to maintain the U.S. nuclear weapons stockpile.

- Directed Stockpile Work (DSW) ensures the viability of the U.S. nuclear weapons stockpile by maintaining and refurbishing warheads to ensure their safety, reliability, and effectiveness. The 2007 Budget provides a total of $1.4 billion, which will sustain DSW work while accelerating materials consolidation and weapons dismantlement.
- A total of $426 million in 2007 supports the Science and Engineering programs that develop the tools and capabilities needed to certify the continued effectiveness of the nuclear stockpile well into the future. This work will remain critical as the United States reduces the number of operationally deployed warheads to between 1,700 and 2,200 over the next 10 years.
- Readiness in Technical Base and Facilities underpins the stockpile work by providing $1.7 billion for the operation and maintenance of existing facilities and construction of new facilities that have continued to decay since the end of the Cold War. The 2007 Budget accelerates construction projects supporting the development of a responsive infrastructure.
- Security Programs protect the nuclear weapons complex, nuclear weapons and their components, and transportation of material between facilities. The 2007 Budget provides $721 million to ensure the security of NNSA facilities and $210 million for secure transportation while consolidation efforts are underway.

Preventing Nuclear Terrorism

Preventing weapons of mass destruction from falling into the hands of terrorists is a top national security priority. The 2007 Budget proposal of $1.7 billion strongly supports the international programs that deny terrorists materials, technology, and expertise needed to develop or acquire nuclear weapons.

The sprawling nuclear complex of the former Soviet Union remains a focal point of U.S. nonproliferation efforts. At the Bratislava meetings in February 2005, Presidents Bush and Putin agreed to a number of nuclear security initiatives to accelerate Russian-U.S. cooperative efforts. The Budget proposal of $129 million for these activities supports completing security upgrades at Russian nuclear warhead storage sites by 2008.

Unsecured nuclear materials throughout the world, and their attendant technology and expertise, pose a significant threat to U.S. national security. In the 2007 Budget, the Administration proposes $107 million, an increase of $10 million over 2006, for expanded and accelerated efforts to secure and/or remove at-risk nuclear and radioactive material worldwide through the Global Threat Reduction Initiative. Another $84 million, an increase of $60 million over 2006, is requested for the core program within the Second Line of Defense program, which deploys radiation detection equipment at key border security crossings overseas.

Following Libya's strategic decision in December 2003 to dismantle its nuclear program, NNSA provided critical technical expertise in support of the dismantlement effort. The photo shows a Libyan centrifuge casing.

NNSA implements a number of additional critical programs that support the overall effort to deny terrorists nuclear weapons, materials, technology, and expertise. The 2007 Budget provides:

- $269 million for cutting-edge nonproliferation R&D for improved technologies to detect and monitor nuclear proliferation and nuclear explosions worldwide;
- $207 million for shutting down three Russian nuclear reactors still producing 1.2 metric tons of plutonium per year and replacing them with conventional fossil fuel power plants; and
- $290 million for construction of the U.S. Mixed Oxide fuel fabrication plant in Savannah River, South Carolina. The facility will dispose of 34 metric tons of U.S. surplus plutonium.

Cooperating foreign countries continue to participate in these activities through the G-8 Global Partnership against the Spread of Weapons of Mass Destruction, which was established in 2002. G-8 countries have committed $20 billion over 10 years to nonproliferation programs in Russia and other Newly Independent States. The United States intends to provide half of the $20 billion of G-8 funding, including over $1 billion in the 2007 Budget in the combined nonproliferation programs of NNSA, DOD, and the Department of State.

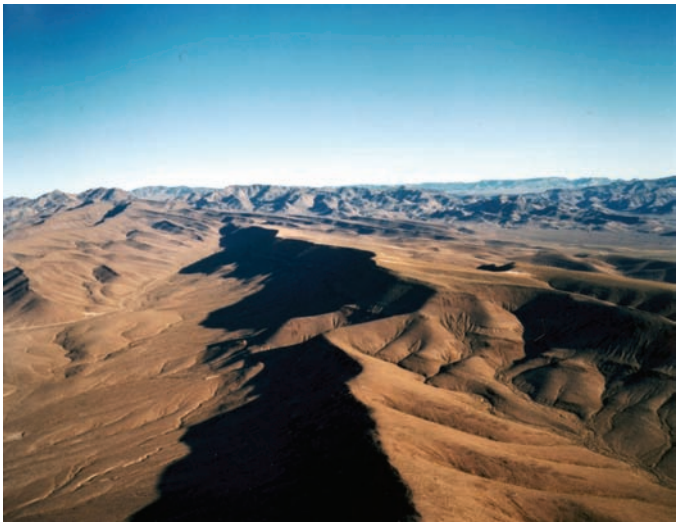
Powering the Nuclear Navy

The Naval Reactors Program is responsible for the environmentally sound and militarily effective execution of all nuclear propulsion work for the Navy, beginning with technology development, through reactor operations, and, ultimately, to reactor plant disposal.

The 2007 Budget of $795 million for Naval Reactors supports the continued safe and effective operation of 104 reactor plants and development of the Transformation Technology Core for VIRGINIA class submarines and the CVN 21 aircraft carrier reactor design. This program, in collaboration with the DOE Office of Nuclear Energy, Science and Technology, also funds testing efforts at the Advanced Test Reactor at the Idaho National Laboratory.

FOCUSING ON THE NATION'S PRIORITIES—Continued

Yucca Mountain Project


Yucca Mountain, Nevada.

The Yucca Mountain Project is critical to national and homeland security and for the future of the Nation's electric energy supply, as well as for nuclear nonproliferation and protecting our environment. High-level radioactive wastes have accumulated for 50 years and are currently stored in temporary facilities at some 122 sites in 39 States. In 1982, the Congress passed the Nuclear Waste Policy Act that adopted geologic disposal as the Nation's long-term strategy for safe isolation of radioactive wastes. The Act confirmed the Federal Government's responsibility for disposing of spent nuclear fuel (SNF) and high-level radioactive waste resulting from the Nation's commercial reactors and atomic energy defense activities. In 1987, the Congress focused efforts to develop a nuclear waste repository on Federal land at Yucca Mountain, Nevada. In February 2002, the Secretary of Energy recommended Yucca Mountain for a repository. After listening to representatives of the State of Nevada and consulting with science and environmental advisers, the President notified the Congress that Yucca Mountain is qualified for a construction permit application to the Nuclear Regulatory Commission (NRC). In July 2002, the Congress approved the President's recommendation.

The 2007 Budget provides $544.5 million to maintain steady progress toward opening the repository. This funding includes:

- preparing a license application to the NRC based on a safer and simpler approach to handling SNF and operating the repository, otherwise known as the canister approach;
- improving decaying site infrastructure at Yucca Mountain to ensure worker, regulator, and visitor safety, and operational efficiency;
- planning the facilities needed for receipt of SNF and High Level Waste for emplacement in the repository; and
- developing transportation infrastructure necessary to move the waste safely and securely from where it is today to the repository for disposal.

The project will benefit from the steps taken under GNEP, as waste will be recycled and transmuted prior to disposal in Yucca Mountain. These efforts will reduce the volume, long-term radiotoxicity, and thermal heat load of nuclear waste, consequently delaying the need for additional geologic repositories.

In addition, the Administration intends to submit to the Congress a legislative proposal to address regulatory, funding, and other issues to allow DOE to move forward with this critical project.

RESTRAINING SPENDING AND MANAGING FOR RESULTS

Terminating the University Nuclear Energy Program

The University Nuclear Energy Program was designed to address declining enrollment levels among U.S. nuclear engineering programs. Since the late 1990s, enrollment levels in nuclear education programs have tripled. In fact, enrollment levels for 2005 have reached upwards of 1,500 students, the program's target level for the year 2015. In addition, the number of universities offering nuclear-related programs also has increased. These trends reflect renewed interest in nuclear power. Students will continue to be drawn into this course of study, and universities, along with nuclear industry societies and utilities, will continue to invest in university research reactors, students, and faculty members. Consequently, Federal assistance is no longer necessary, and the 2007 Budget proposes termination of the University Nuclear Energy Program. The termination is also supported by the fact that the program was unable to demonstrate results from its activities when reviewed using the Program Assessment Rating Tool (PART), supporting the decision to spend taxpayer dollars on other priorities.

Terminating Federal Support for Oil and Gas R&D

During consideration of the energy bill in 2005, the President stated that "energy companies do not need taxpayers'-funded incentives to explore for oil and gas." The 2007 Budget proposes to terminate DOE's Oil and Gas R&D programs, as in the 2006 Budget, because these R&D activities are more appropriate for the private sector to perform and the programs have not demonstrated results, as identified in the PART review. The programs focus on incremental and evolutionary technology advances that oil and gas companies have the incentive to conduct, which is not in accord with the Administration's R&D Investment Criteria. The 2007 Budget also recommends repealing provisions in the Energy Policy Act of 2005 for a new mandatory $50 million per year (2007–2017) oil and gas R&D program funded with Federal revenues from oil and gas leases, which would be similar to the discretionary programs proposed for termination. Industry has the incentives and resources to do such R&D on its own.

Refocusing the Clean Coal Power Initiative

The Clean Coal Power Initiative (CCPI) has had difficulty implementing demonstration projects that achieve the best results for the American taxpayer. As identified in the PART review, CCPI projects have a history of significant delays, which has slowed the use of funds and created a backlog of over $500 million in unused balances. Furthermore, some CCPI projects do not directly support the program's purpose. The 2007 Budget restricts the addition of new funds to CCPI, while DOE works to improve the use of existing funds.

RESTRAINING SPENDING AND MANAGING FOR RESULTS—Continued

Regaining Momentum in Cleaning Up Legacy Sites

The Environmental Management (EM) program is responsible for cleaning up the 114 sites involved with nuclear research and weapons production, which resulted in vast amounts of radioactive contamination and hazardous waste. The EM program performs various cleanup activities, such as soil and water remediation, to comply with environmental laws and settlement agreements that are legally enforceable. The 2002 PART rated this program Ineffective, and in February 2002, the Administration proposed an initiative to provide additional resources to sites agreeing to implement revised, risk-informed cleanup strategies to accelerate completion from 2070 to 2035 and reduce program costs. The EM program developed revised cleanup plans at 19 of 39 sites in 2002 that remained to be cleaned up. The peak year of funding for this initiative was 2005. The 2007 Budget proposes $5.8 billion for the EM program. The funding reduction from 2006 primarily reflects the accelerated completion of the Rocky Flats site in Colorado. The 2003 PART rating for the EM program improved from Ineffective to Adequate.

In 2002, DOE began implementing recommendations from its program review and revised cleanup strategies. Despite the promise of these cleanup and management reforms, performance has been mixed and the long-term results are very uncertain. DOE has identified significant project management, regulatory, and legal challenges, which it is working aggressively to address. For example:


Construction of the Hanford Waste Treatment Plant in Washington State.

- The Hanford Waste Treatment Plant in Washington State was supposed to be completed in 2011 at a cost of $5.8 billion. DOE's contractor estimated in April 2005 that the project will be delayed by four years and cost an additional $3 billion. DOE is working to validate cost and schedule estimates of the overrun by summer 2006.
- The Bulk Vitrification System at Hanford is a demonstration project for an alternative treatment technology for low-activity tank waste. If the technology proves successful, a full-scale, follow-on plant would treat about 50 percent of the low-activity tank waste, with the remainder vitrified in the Waste Treatment Plant. Because its costs have increased from $46 million to $159 million, DOE has suspended the project until it can determine how to get costs under control.
- At the Savannah River site, the cost of the Salt Waste Processing Facility, which will treat radioactive tank waste, has increased from $440 million to $680 million, and the completion schedule has slipped from 2009 to 2011.
- DOE has agreed to seek a permit modification for the Waste Isolation Pilot Plant (WIPP)—a defense transuranic waste disposal facility in New Mexico—before disposing of radioactive tank waste classified as transuranic waste. New Mexico opposes disposal of tank waste at WIPP.
- Voters in Washington passed Initiative 297, which purports to prohibit DOE from bringing any more waste to the Hanford site until all the waste there is cleaned up. Litigation is ongoing regarding the constitutionality of the initiative.

EM Contracting Reforms Pay Off

Performance-based incentive contracts to accelerate closure of the Rocky Flats, Colorado, site and the Mound and Fernald sites in Ohio are starting to pay off. Rocky Flats closed in 2005 to become a wildlife refuge. The Ohio sites are scheduled to close in 2006 at significant savings from original estimates. These savings and early closure are a direct result of performance objectives, incentives, and balanced risk integrated into the EM contracts, which held both DOE and its contractors accountable for results. Understanding the work to be accomplished before a contract is written is critical. These lessons learned should be transferred to other EM cleanup efforts.

DOE is committed to regaining the momentum of accelerated cleanup. To develop a high-performance organization, the EM program plans to:

- develop credible project baselines with realistic schedules and costs;
- identify and effectively manage risk;
- select the most appropriate contracts for the work and uncertainties involved;
- communicate frequently with regulators, communities, and stakeholders;
- improve skills for acquisition, project management, and technical staff; and
- share feedback with other sites on lessons learned as soon as possible.

DOE Contract Management and Administration

Since 1990, the Government Accountability Office (GAO) has found that inadequate DOE contract management practices pose a "high risk" to the effectiveness and efficiency of its program missions. Prior to 2000, OMB worked with DOE to develop the Rocky Flats closure contract as a pilot for contract reform implementation. Its success should serve as an incentive to expand those contract concepts and approaches to other large environmental cleanup programs.

In 2005, DOE worked with OMB and GAO to identify goals with short- and long-term strategies for improving DOE's performance in managing its contracts and capital projects. DOE has identified metrics and established baselines and targets for demonstrating progress over the next several years. DOE also developed a series of quarterly action plans to strengthen contract performance, administration, and project management. The Administration will establish a path to success and improve DOE's overall performance in contract and project management.

RESTRAINING SPENDING AND MANAGING FOR RESULTS—Continued

Update on the President's Management Agenda

The table below provides an update on DOE's implementation of the President's Management Agenda as of December 31, 2005.

	Human Capital	Competitive Sourcing	Financial Performance	E-Government	Budget and Performance Integration
Status					
Progress					

Arrows indicate change in status rating since the prior evaluation as of September 30, 2005. Double arrows indicate that the status rating was downgraded from green to red.

DOE has identified mission-critical occupations, e.g., project, contract, and information technology management and scientific and technical occupations, for which it needs increased levels of human capital skills, competence, and/or knowledge, and it continues to make investments to reduce or eliminate deficiencies in these areas. In 2005, DOE cancelled a large competitive sourcing study because of concerns over its ability to provide adequate contract management and oversight, and it is now reviewing its plan for future public-private competitions. DOE did not receive a clean audit opinion in 2005 because of problems associated with implementing a new financial accounting system and the start-up of a new finance and accounting services organization. DOE will work in 2006 to improve accounting system performance, data quality, and training, as well as operations and controls. DOE has secured 99 percent of its operational information technology systems. DOE is developing consistent approaches to defining, measuring, and achieving efficiencies for its applied R&D programs, which are needed to allow comparisons across similar programs. DOE also is increasing the use of PART measures in its performance plans.

Initiative	Status	Progress
Real Property Asset Management		

DOE has inventoried its real property, developed an asset management plan, and is collecting performance data on its inventory. DOE is working to develop a rolling implementation strategy to realize the goals outlined in its asset management plan.

Department of Energy
(In millions of dollars)

	2005 Actual	Estimate	
		2006	2007
Spending			
Discretionary Budget Authority:			
National Defense:			
National Nuclear Security Administration	9,205	9,105	9,316
Other Defense Activities	485	429	552
Energy Resources	2,816	3,092	2,949
Science and Technology	3,636	3,597	4,102
Environmental Management	7,280	6,590	5,827
Nuclear Waste Disposal	572	494	544
Corporate Management	263	231	268
Total, Discretionary budget authority	24,257	23,538	23,558
Memorandum: Budget authority from enacted supplementals	*84*	—	—
Total, Discretionary outlays	24,307	24,248	24,417
Mandatory Outlays:			
Existing law	−1,686	−1,423	−1,808
Legislative proposal	—	—	30
Total, Mandatory outlays	−1,686	−1,423	−1,778
Total, Outlays	22,621	22,825	22,639