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Department of Energy

FY 2009 Congressional Budget Request

Budget Highlights

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Office of Chief Financial Officer

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SETTING THE DIRECTION FOR SCIENTIFIC DISCOVERY AND ENERGY SECURITY

The strength and prosperity of America's economy is built on the security of our nation and the reliability of energy sources. Since 2001, the administration has committed $183 billion through the Department of Energy (DOE) to help drive America's economic growth, provide for our national security, and address the energy challenges that face our nation. The Department of Energy's fiscal year (FY) 2009 budget request of $25 billion stays on course to address the growing demand for affordable, clean and reliable energy; preserve our national security; and enable scientific breakthroughs that could have significant impacts on our quality of life and the health of the American people. The FY 2009 budget was developed to continue to meet these goals.

In FY 2009, the Department will advance the President's American Competitiveness Initiative aimed at ensuring U.S. technological competitiveness and economic security, and implement the Advanced Energy Initiative, to accelerate the research, development and deployment of clean energy technologies to diversify our nation's energy supply. These efforts, combined with investments to meet our commitment to protect the United States as stewards of our nation's nuclear weapons stockpile and to environmental cleanup, will foster continued economic growth and promote a sustainable energy future.

This budget, while focused on delivering results to meet the nation's priorities, also serves as the roadmap for the future of America's energy security. The FY 2009 budget request translates into investments that will:

- Support deployment and expand research of cost-effective carbon capture and storage,
- Accelerate technological breakthroughs with the Advanced Energy Initiative,
- Provide additional energy security expansion of the Strategic Petroleum Reserve,
- Foster scientific leadership with the American Competitiveness Initiative,
- Advance environmental cleanup and nuclear waste management,
- Maintain the safety and reliability of the nuclear weapons stockpile and continue transforming the weapons complex, and
- Work with other countries to prevent the spread of weapons of mass destruction.

To highlight, in FY 2009 the Department of Energy continues to meet the vision and strengthen the framework built over the last eight years to ensure our national energy security and reliability. The FY 2009 budget request:

- **Invests in Climate Change Technologies**
  In support of the administration's climate change technology initiatives and to implement the U.S. Climate Change Technology Program's Strategic Plan, the

FY 2009 budget emphasizes a two-pronged strategy for its climate change technology programs: invest in long-lead, high-risk, high carbon dioxide (CO_2) mitigation technologies in coal with carbon capture and storage (CCS) and in nuclear power, and invest in near-term, lower risk, high CO_2 mitigation technologies focused on improving energy efficiency. The budget provides $407 million to research and $241 million to demonstrate technologies for cost-effective CCS for coal-fired power plants. At the same time, $1.65 billion in investment tax credits will accelerate commercial deployment of technologies that are central to carbon capture and storage.

Through international collaboration, the United States strives to maintain a leadership role in promoting and deploying clean energy technology domestically and around the world. President Bush believes that the greatest progress will be assured by working together with other nations to advance the related objectives of improving economic and energy security, alleviating poverty, improving human health, reducing harmful air pollution, and reducing the growth of greenhouse gases. The United States, Australia, China, India, Japan, Canada, and South Korea work to implement the objectives of the **Asia-Pacific Partnership** (APP) on Clean Development and Climate. This Partnership is helping to advance the President's goal of developing and accelerating the deployment of cleaner and more efficient technologies and practices. It builds on existing multilateral climate initiatives including the Carbon Sequestration Leadership Forum, the International Partnership for a Hydrogen Economy, and Methane to Markets. In FY 2009, the Department in its fourth year is requesting $15.0 million, evenly divided between the Fossil Energy Program and the Energy Efficiency and Renewable Energy Program, to continue to support this important initiative.

- **Advances the American Competitiveness Initiative**
  In 2007, President Bush launched the American Competitiveness Initiative (ACI) to encourage innovation throughout the economy and to give America's children a firm grounding in math and science. A request of $4.7 billion in FY 2009, $748.8 million above the FY 2008 enacted level, will increase basic research in the physical sciences that will have broad impacts on future energy technologies and environmental solutions. ACI funding will support the construction and operation of world-class scientific facilities and will support literally thousands of scientists and students -- our current and future scientific and technical workforce. Scientific and technological discovery and innovation are the major engines of increasing productivity -- indispensable to ensuring growth, job creation, and rising incomes for American families in the technologically driven twenty-first century. The investment is essential if the United States is to maintain its world-class, scientific leadership and global competitiveness.

- **Accelerates the Advanced Energy Initiative**
  At a request of $3.2 billion, $623 million above the FY 2008 enacted appropriations of $2.5 billion, the President's Advanced Energy Initiative (AEI)

will continue to support clean energy technology breakthroughs that will help improve our energy security through diversification and could help to reduce our dependence on oil. The FY 2009 budget for AEI includes funding to promote the licensing of new nuclear power plants and research on an advanced nuclear fuel cycle. Also, AEI's diverse energy portfolio includes investment in making solar power cost-competitive with conventional sources of electricity by 2015 and supports a robust vehicle technology program that includes developing lithium-ion batteries, plug-in hybrids, and drive-train electrification.

- **Expands the Resurgence of Nuclear Energy**
  Nuclear energy is an important source of energy in the United States and is a key component of the AEI portfolio. Nuclear energy is free of GHG emissions, safe, and reliable, and already supplies about 20 percent of the nation's electricity. The Department leads the administration's efforts to spur a nuclear renaissance in the United States to meet energy and climate goals. We continue to work with industry partners to promote the near term licensing and deployment of the first new nuclear plants in over 30 years, as well as to extend the life of current plants. Furthermore, the Department is developing advanced, more proliferation-resistant nuclear fuel technologies that will maximize energy from nuclear fuel. These technologies will further support the expansion of nuclear power as a safe, efficient, and cost-effective source of energy capable of supporting continued economic growth in the 21st century. In FY 2009, a total of $1.4 billion is requested for nuclear energy activities.

  It is critical to note that the growth of nuclear power is only possible if we continue to develop a responsible path for disposing of spent nuclear fuel. Therefore, $494.7 million is requested in FY 2009 for the continued development of the geologic waste repository at **Yucca Mountain**, Nevada, and to support the defense of the License Application that we will submit in 2008 to the Nuclear Regulatory Commission for authorization to construct the repository.

- **Transforms Our Nuclear Weapons Complex**
  The FY 2009 budget reconfirms the Department of Energy's steadfast commitment to the national security interests of the United States through stewardship of a reliable and responsive nuclear weapons stockpile and by advancing the goals of global non-proliferation. Through the National Nuclear Security Administration (NNSA), the Department directs $6.6 billion in this request for **Weapons Activities**, a $320.6 million increase from the FY 2008 enacted appropriation, to meet the existing requirements for stewardship of the nation's nuclear weapon stockpile, technologies and facilities, as well as to continue to transform the nuclear weapons complex with the goal of a much smaller size by 2030. This transformation effort is structured to achieve President Bush's vision to create a more efficient and less expensive nuclear weapons complex of the future that is able to respond to changing national and global security challenges.

- **Reduces the Risk of Weapons of Mass Destruction (WMD) Worldwide**
  The Department has provided $1.8 billion in this request for detecting, securing, eliminating and disposing of dangerous nuclear materials around the world. The amount includes $1.2 billion within Defense Nuclear Nonproliferation, $487 million within the Office of Nuclear Energy, and $117 million funded in Weapons Activities. The Mixed Oxide (MOX) Fuel Fabrication Facility project remains a key activity of the nation's nuclear nonproliferation efforts. Although the FY 2009 request for MOX is $152.5 million less than the FY 2008 enacted appropriation, the request reflects the completion of major efforts and the FY 2008 enacted level reflects an emphasis by Congress above planned levels for several program elements. Further, the request provides significant out-year growth to fulfill our international agreements and accelerate our work to reduce the risk of (WMD) threats. Among many advances, the FY 2009 budget provides for the installation of radiation detection equipment at an additional 49 foreign sites in 14 countries and at 9 additional Megaports; continues to implement an aggressive, prioritized work schedule to complete all shipments of Russian origin spent highly-enriched uranium (HEU) fuel stored outside reactor cores by the end of 2010; and maintains a schedule allowing completion of the construction of the second of two fossil-fueled power plants located in Zheleznogorsk, Russia, in 2010. The Seversk project is scheduled for completion by the end of December 2008.

- **Meets Our Commitments to Public Health and Safety and the Environment**
  Secretary Bodman, during his first days at the Department of Energy, announced safety as his top priority and the number one operating principle of the Department. To implement his vision, the Secretary created a new **Office of Health, Safety and Security**. Secretary Bodman said, "As Secretary of Energy, ensuring the safety of workers across the DOE complex is my top priority and this new office will go a long way in strengthening our safety and security organization. We must be world class not only in how we carry out our mission, but in the safe, secure, and environmentally responsible way in which we manage operations at our facilities across the country." The organization's FY 2009 budget request of $446.9 million, builds on a number of actions the Department has taken over the past two years to increase safety of DOE workers.

  The FY 2009 budget includes $5.5 billion for the **Environmental Management** program to protect public health and safety by cleaning up hazardous, radioactive legacy waste left over from the Manhattan Project and the Cold War. This budget allows the program to continue to make progress towards cleaning up and closing sites and focuses on activities with the greatest risk reduction. By the end of 2009, cleanup projects at Sandia National Laboratory and Argonne National Laboratory will be finished.

As the Department continues to make progress in completing clean-up, the FY 2009 budget request of $186 million for **Legacy Management** supports the Department's long-term stewardship responsibilities and payment of pensions and benefits for our former contractor workers after site closure.

In light of the increased number of sophisticated cyber attacks directed at all facets of our communities, from military to civilian to private users, the Department is taking significant steps to secure the virtual pathways and mitigate the threat from cyber intrusions. Implementing these steps will be seamless and will not interrupt the availability of information systems resources while preserving the confidentiality and integrity of the information and their contents. A budget request of $157 million in FY 2009 supports the Department's efforts to defend against emerging, complex cyber attacks. Through these efforts, the Department will be in a better position to effectively manage and monitor cyber risk across the complex. In FY 2009, DOE will increase support on a Department-wide basis to deploy new cyber security tools and cyber security management activities to detect, analyze, and reduce the threat across the complex.

PROMOTING AMERICA'S ENERGY SECURITY THROUGH RELIABLE, CLEAN, AND AFFORDABLE ENERGY

The FY 2009 request will deliver a balanced and diverse portfolio of solutions to strategically address the urgent energy and environmental challenges facing our country today. Our goal can be met by: 1) accelerating the development of clean and renewable energy technologies to dramatically increase the amount of clean energy produced in the United States; 2) advancing energy efficient technologies and practices that use less energy; and 3) providing the information for capital investment tools and the improved business climate necessary to stimulate choices that will result in rapid mega-scale change in energy systems. DOE's Applied Energy programs are taking pro-active steps to catalyze the advancement of these critical technologies through research and development, innovative partnerships, international cooperation through the **Asia Pacific Partnership**, and collaboration with states, industry leaders, and other stakeholders.

The budget lays the groundwork for implementing key elements of the Energy Independence and Security Act of 2007 (EISA). It contains elements that are unprecedented in size, scope and timeframe for increasing our energy security, diversifying our energy system and making America's energy systems stronger, safer and cleaner for future generations. We can further advance the U.S. commitments made at the U.N. Climate Change Meeting in Bali and the Major Economies Meetings to employ clean energy technologies in the global effort to reduce greenhouse gas emissions.

Consistent with the President's initiatives and the EISA, the FY 2009 budget contributes to key elements of the Industrial Competitiveness and Advanced Energy Initiatives that are essential to breaking our addiction to oil, lessening dependence on foreign resources, and changing the way we power our homes, businesses, and automobiles. The proposed

Office of Energy Efficiency and Renewable Energy (EERE) budget of $1.255 billion provides a diverse portfolio of solutions to our challenges, including:

Fuels and Vehicle Solutions (Biomass, Vehicles, and Hydrogen programs: $592.3 million)

- Advancing essential RD&D projects to achieve cost competitive, commercial scale cellulosic ethanol production by 2012, in keeping with the EISA;
- Conducting RD&D on lithium-ion batteries, plug-in hybrids, and drive-train electrification to diversify and make our nation's vehicles more efficient to reduce petroleum dependency;
- Continuing to research and develop critical hydrogen technologies that enable a commercialization decision in 2015; and
- Supports fuel testing and validating codes and standards that will accelerate all new fuel and vehicle solutions to the market.

Renewable Power Solutions (Wind, Solar, Geothermal, and Water Power programs: $241.6 million)

- Integrating renewable energy technologies with energy storage technologies to resolve the intermittency challenge;
- Supporting wind power RD&D to enable wind turbines to produce an increasing amount of the nation's electricity;
- Investing in solar power to make photovoltaics widely available nationwide and commercially cost-competitive with conventional electricity by 2015;
- Accelerating a refocused geothermal program that conducts enhanced geothermal systems RD&D; and
- Pursuing water power technologies as part of EERE's R&D portfolio.

Efficiency Solutions (Buildings and Industrial Technologies programs: $185.9 million)

- Reducing energy consumption and transforming the carbon footprint of the built environment through zero energy buildings; and
- Supporting the advancement of clean and efficient industrial technologies and processes that will drive a 25-percent increase in U.S. industrial energy productivity by 2017 and contribute to an 18-percent reduction in carbon footprint by 2012.

Our energy portfolio also recognizes the abundance of coal as a domestic energy resource and remains committed to research and development to promote its clean and efficient use. Because coal in the U.S. accounts for 25 percent of the world's coal reserves, the FY 2009 request focuses on carbon capture and storage.

- Integration of advanced **Integrated Gasification Combined Cycle** (IGCC) coal technology with **Carbon Capture and Storage** remains the foundation of the Department's clean coal research program to establish the capability of producing electricity from coal with near-zero atmospheric emissions. The administration remains strongly committed to **FutureGen** and is requesting $156 million in FY

2009. An additional $407 million is requested within the **Coal** program to support research and development on technologies needed to realize the concept.

- The Coal program continues to fund large-scale demonstrations through the **Clean Coal Power Initiative** (CCPI) with $85 million requested in FY 2009 to support a Round 3 solicitation which will focus on demonstrating carbon capture and storage technologies.
- As part of the greenhouse gas mitigation strategy, the Department continues the **Carbon Sequestration** program through its large-scale field testing, and will inject carbon dioxide into several types of geological formations. The Department is requesting $149 million for continued work in this area.

Consistent with the FY 2006, 2007, and 2008 budget requests, the FY 2009 budget request continues to shift resources away from oil and gas research and development programs, which have sufficient market incentives for private industry support, to other energy priorities. Federal staff, paid from the program direction account, will work toward an orderly termination of the program in FY 2009.

The Energy Policy Act of 2005 (EPAct05) established a mandatory oil and gas research and development (R&D) program, called the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research program, which is funded from federal revenues from oil and gas leases beginning in FY 2007. These R&D activities are more appropriate for the private-sector oil and gas industry to perform. Therefore, the FY 2009 budget proposes to repeal the program through a separate legislative proposal.

To further assure against oil supply disruptions that could harm our economy, this budget also proposes $171.4 million for expanding the Strategic Petroleum Reserve to an ultimate capacity of 1.5 billion barrels by 2029. In FY 2008, DOE will use available balances for the purchase of additional SPR oil and will continue to fill using federal royalty oil until 727 million barrels is achieved in FY 2009. Capacity expansion from 727 million barrels to 1.0 billion barrels will begin in FY 2008 with land acquisition activities. The request also funds National Environmental Policy Act (NEPA) activities associated with the further expansion of SPR capacity to 1.5 billion barrels.

The EPAct05 authorized the establishment of a new **Loan Guarantee Program**. The Department requests $19.9 million in funding in FY 2009 for administrative expenses to operate the Office and support personnel and associated costs. This request will be offset by collections in the same amount as authorized under EPAct05. In addition, during fiscal years 2008 through 2011, commitments to guarantee loans under Title XVII of the EPAct05 will total $38.5 billion. In the Energy and Water Development and Related Agencies Appropriations Act of 2008, Congress authorized the Department to issue loan guarantees under the Title XVII program until September 30, 2009. The FY 2009 budget now seeks to extend that authorization through FY 2010 and 2011 and specifies amounts and uses of loan guarantee authority for those periods consistent with Congressional guidance accompanying the FY 2008 appropriations act. Of the total provided, $20.0 billion will be available through fiscal year 2010 to support projects such as Uranium

Enrichment, Coal Based Power, Advanced Coal Gasification, Renewables, and Electricity Delivery. The remaining $18.5 billion will be available through FY 2011 to support nuclear power facilities. The $38.5 billion provided in FY 2008 through 2011 will be in addition to the $4.0 billion in authority provided in FY 2007 under P.L. 110-05 Section 20320(a) for a total loan volume limitation of $42.5 billion.

Reliable energy information plays a critical role in promoting efficient energy markets and informing the public and policy makers. This budget requests a total of $110.6 million for the **Energy Information Administration** to improve energy data and analysis programs, reflecting a 5-percent increase over the FY 2008 budget request.

The Department of Energy's **Power Marketing Administrations** (PMAs), consisting of the Southeastern (SEPA), Southwestern (SWPA), Western Area (WAPA), and Bonneville (BPA) Power Administrations, play an important role in meeting energy demands and powering our economy. The electricity generated at federal hydroelectric facilities and marketed and delivered by the PMAs, represents approximately four percent of the nation's electricity supply. In FY 2009, $232 million in appropriations is requested for SEPA, SWPA, and WAPA to continue their activities.

BPA, unlike the other three PMAs, is "self-financed" by the ratepayers of the Pacific Northwest and receives no direct annual appropriations from Congress. Under the Federal Columbia River Transmission System Act of 1974, BPA funds the expense portion of its budget and repays the federal investment and debt owed to the Treasury with revenues from electric power and transmission rates.

The FY 2009 budget requests $301.5 million for the **Advanced Fuel Cycle Initiative**, the technology development element of the Global Nuclear Energy Partnership (GNEP). The request supports research and development activities focused on methods to reduce the volume and long-term toxicity of high-level waste from spent nuclear fuel, reduce the long-term proliferation threat posed by civilian inventories of plutonium in spent fuel, and provide for proliferation-resistant technologies to recover the energy content in spent nuclear fuel.

Recognizing the potential of nuclear energy, the President announced GNEP in February 2006. GNEP seeks to bring about significant, wide-scale use of nuclear energy through the development of better, more efficient and proliferation-resistant nuclear fuel cycles while reducing the volume of nuclear waste requiring ultimate disposal.

GNEP will build upon the administration's commitment to develop nuclear energy technology and systems and enhance the work of the United States and our international partners to strengthen nonproliferation efforts. The GNEP strategy will accelerate efforts to:

- Provide abundant energy without generating carbon emissions or greenhouse gases (GHG);
- Recycle spent nuclear fuel to minimize waste and reduce proliferation concerns;

- Enable developing nations to safely and securely deploy nuclear power to meet their energy needs;
- Increase energy recovery from spent nuclear fuel; and
- Reduce the number of required U.S. geologic waste repositories to one for the remainder of this century.

Through GNEP, the United States will work with key international partners to develop new recycling technologies. Improving the way spent nuclear fuel is managed will facilitate the expansion of civilian nuclear power in the United States and encourage civilian nuclear power internationally to evolve in a more proliferation-resistant manner. The United States and other 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 supplier 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.

GNEP would also help resolve America's nuclear waste disposal challenges. By recycling spent nuclear fuel, the heat load and volume of waste requiring permanent geologic disposal would be significantly reduced, delaying the need for another repository in addition to the one at proposed Yucca Mountain for the remainder of this century.

Beginning in FY 2008 in accordance with the Consolidated Appropriations Act, 2008, the Office of Nuclear Energy is funding the MOX Fuel Fabrication Facility, which was previously funded by the National Nuclear Security Administration (NNSA). In FY 2009, the Department funds the **MOX Fuel Fabrication Facility** program within the Office Nuclear Energy under the Other Defense activities account at a request of $487 million.

To support the near-term domestic expansion of nuclear energy, the FY 2009 budget seeks $241.6 million for the **Nuclear Power 2010** program to support industry cost-shared, near term technology development and licensing demonstration activities focused on enabling an industry decision by 2010 to build a new nuclear plant. To this end, the program will continue to support industry interactions with the Nuclear Regulatory Commission on new plant license applications, as well as first-of-a-kind design finalization for standardized reactor designs.

The technology focus of the Nuclear Power 2010 program is on Generation III+ advanced light water reactor designs, which offer advancements in safety and economics over older designs. If successful, this 7-year, 50-50 industry cost-shared program could result in a new nuclear power plant order by 2010 and a new nuclear power plant constructed by the private sector and in operation by 2015.

EPAct 2005 authorizes DOE to enter into contracts with the first six sponsors that are issued a license and begin construction of new nuclear facilities and meet all contractual

conditions to provide risk insurance for certain regulatory and litigation delays in the full power operation of their facility. Up to $500 million in coverage is available for the initial two licensed plants for which construction is started and up to $250 million is available for the next four plants. The program will allow DOE to offer **standby support/risk insurance** to protect sponsors of the first new nuclear power plants against the financial impact of certain delays that are beyond the sponsors' control. In FY 2009, the Department will issue conditional agreements for standby support to sponsors of new nuclear power plants.

The FY 2000 budget request includes $70 million to continue the development of next-generation nuclear energy systems known as "**Generation IV** (GenIV)." These next-generation technologies will enhance the safety, cost-effectiveness, and proliferation-resistance of nuclear power, while harnessing its potential to generate hydrogen for use as a fuel. Resources in FY 2009 for GenIV will be primarily focused on long-term research and development of a gas-cooled very-high temperature reactor, the reactor technology of choice for the Next Generation Nuclear Plant (NGNP) project.

STRENGTHENING U.S. SCIENTIFIC DISCOVERY, ECONOMIC COMPETITIVENESS, AND IMPROVING QUALITY OF LIFE THROUGH INNOVATIONS IN SCIENCE AND TECHNOLOGY

Today our nation's ability to sustain a growing economy and a rising standard of living for all Americans depends on continued advances in science and technology. Scientific and technological discovery and innovation are the major engines of increasing productivity and are indispensable to ensuring economic growth, job creation, and rising incomes for American families in the technologically driven 21st century. Today it is especially vital that nations around the globe -- not only the developed nations but also the largest developing ones -- increase their strategic national investments in scientific research with an eye to global economic competition.

The Science program at the Department of Energy delivers discoveries and scientific tools that transform our understanding of energy and matter and advance the national, economic, and energy security of the United States. Science is a primary sponsor of basic research in the United States, leading the nation in supporting the physical sciences in a broad array of research subjects in order to improve our energy security and in addressing issues ancillary to energy, such as climate change, genomics, and life sciences. In FY 2009, the Department requests $4.7 billion, an increase of 18.8 percent over the enacted FY 2008 appropriation, to continue to invest in science research that supports the American Competitiveness Initiative.

The **High Energy Physics** ($805.0 million) program conducts basic research on the nature of matter and energy at its most fundamental level, seeking to understand the universe by investigating the most basic constituents of matter and energy and exploring the nature of space and time, and probing the forces that bind them together. Support is provided for operation of the Tevatron and Neutrinos at the Main Injector (NuMI) beam

line which are both located at Fermi National Accelerator Laboratory (Fermilab). In addition, the request supports the research of U.S. scientists at the Large Hadron Collider in Switzerland ($72.5 million) and the U.S. involvement in the global research and development effort for a potential International Linear Collider ($187.1 million). The program also funds non-accelerator physics to investigate dark energy and dark matter, supernovae, solar neutrinos, black holes, and other topics, including support for the Joint Dark Energy Mission (JDEM) in partnership with NASA.

The **Nuclear Physics** ($510.1 million) program conducts research to understand the structure and interactions of atomic nuclei and the fundamental forces and particles of nature in nuclear matter in terms of their fundamental constituents. Support is provided for operations of the Relativistic Heavy Ion collider ($161.00 million), which enables us to glimpse conditions of the very early universe, and the Continuous Electron Beam Accelerator Facility (CEBAF) ($28.6 million) which provides insight into the quark structure of matter.

The **Biological and Environmental Research** (BER) ($568.5 million) program provides the environmental and biological knowledge that promotes national security through improved energy production and use, supports the President's National Energy Plan, and conducts research to protect our environment. This research is focused in two areas: **Biological Research** and **Climate Change**. BER supports the **Genomics: GTL** program supports the most advanced biotechnology tools and techniques to probe for biological and biologically inspired solutions to Department mission challenges in energy, carbon sequestration, and environmental remediation. The FY 2009 request includes $75 million for three innovative **Bioenergy Research Centers** that will bring together multi-disciplinary teams of some of the nation's leading researchers in a mission-driven laboratory setting to probe plants and microbes at all levels (molecular, cellular, system) in an effort to crack nature's code and achieve the breakthroughs that will make biofuels production truly cost-effective on a national scale. Climate change research includes the study of the scientifically-based predictions and assessments of the potential effects of greenhouse gas on climate and the environment, and funds DOE participation in the nation's **Climate Change Science Program** ($154.9 million).

The **Basic Energy Sciences** ($1.568 billion) program supports research and operates facilities to provide the foundation for new and improved energy technologies and for understanding and mitigating the environmental impacts of energy use. The **Materials Sciences and Engineering** subprogram supports basic research to explore the scientific foundations for the development of materials that improve their efficiency, economy, environmental acceptability, and safety for energy generation, conservation, transmission, and use. Applications include lighter, stronger materials to increase fuel economy in automobiles, alloys and ceramics that improve the efficiency of combustion engines, and more efficient photovoltaic materials for solar energy conversion. **Chemical Sciences**, **Geosciences**, and **Energy Biosciences** support research crucial for improving combustion systems, solar photoconversion processes, and for applications to renewable fuel resources, environmental remediation, and photosynthesis. BES supports the Advanced Energy Initiative with solar conversion and biomass production research. A

major part of the BES mission is to build and operate world-class user facilities including the Spallation Neutron Source at ORNL, the world's most powerful neutron scattering facility. All five of the Nanoscale Science Research Centers, part of the **National Nanotechnology Initiative**, will be fully operational in FY 2009 with a total request of $101.2 million.

The **Advanced Scientific Computing Research** ($368.8 million) program delivers forefront computational and networking capabilities to scientists nationwide that enable them to extend the frontiers of science. Leadership in scientific computation is a cornerstone of the Department's strategy to ensure the security of the nation, and to succeed in its science, energy, environmental quality, and national security missions.

Fusion is the energy source of stars, including our own sun. The **Fusion Energy Sciences** ($493.0 million) program is the national research effort to advance plasma science, fusion science, and fusion technology -- the knowledge base required for an economically and environmentally friendly, carbon free energy. DOE is also one of seven international parties participating in the **ITER** project, an international burning plasma fusion experiment to be built in Cadarache, France. The FY 2009 request provides $214.5 million for the U.S. contribution to this international effort.

ENSURING AMERICA'S NUCLEAR SECURITY

The **National Nuclear Security Administration** (NNSA) continues significant efforts to meet administration and secretarial priorities, leveraging science to promote national security. The FY 2009 President's budget request is $9.1 billion, essentially level with the FY 2008 appropriation, to meet defense and homeland security-related objectives:

- Transforming the nuclear weapons stockpile and infrastructure while meeting Department of Defense requirements;
- Conducting innovative programs in the nations of the former Soviet Union and other countries to address nonproliferation priorities;
- Supporting naval nuclear propulsion requirements of the U.S. Navy;
- Maintaining comprehensive physical and cyber security for facilities, employees and information by implementing and sustaining upgrades throughout the complex;
- Providing nuclear counter-terrorism and emergency response assets in support of homeland security;
- Reducing the deferred maintenance backlog and achieving facility footprint reduction goals; and,
- Providing corporate management and oversight for NNSA program operations.

The United States continues a fundamental shift in national security strategy to address the realities of the 21st century. The FY 2004-directed reductions to the U.S. nuclear weapons stockpile were completed in 2007, five years early. Today's nuclear weapons stockpile is now the size envisioned for 2012, and by 2012 it will be almost 15 percent

less than that -- a total that is just 25 percent of what it was at the end of the Cold War. Consistent with the administration's Nuclear Posture Review, the Department of Energy has created a vision for a revitalized nuclear weapons complex that is significantly more agile and responsive, and will allow further reductions in the nuclear stockpile by providing an industrial hedge against geopolitical or technical problems.

In compliance with the National Environmental Policy Act, NNSA is preparing a Complex Transformation supplement to the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. In January 2008, NNSA announced a *preferred alternative* for the future nuclear weapons complex infrastructure that identifies the proposed major facilities, and consolidations of missions, capabilities, and special nuclear materials. The FY 2009 budget includes funding to pursue a program consistent with the preferred alternative, with NNSA planning to promulgate a Record of Decision in 2008.

The FY 2009 budget request of $6.6 billion for **Weapons Activities** includes programs to meet the immediate national security requirements of the stockpile, including stockpile surveillance, annual assessment, life extension programs, and warhead dismantlement. The Campaigns are focused on long-term vitality in science and engineering, and on R&D supporting current and future stockpile stewardship and DoD requirements. Readiness in Technical Base and Facilities supports facilities and operations across the government-owned, contractor-operated nuclear weapons complex. A number of these NNSA programs and facilities also support scientific research users from other elements of the Department, federal government, and the academic and industrial communities.

Growth areas in the Weapons Activities appropriation include **Cyber Security** and **Nuclear Weapons Incident Response**. The Cyber Security activities increase to support a major five-year effort focused on revitalization, certification, accreditation and training across the NNSA complex. The Nuclear Weapons Incident Response program increases due to functional transfers of emergency management and counterterrorism-related activities. Defense Nuclear Security activities focus on maintaining and implementing security upgrades needed to address the DOE Design Basis Threat. A new Transformation Disposition program is proposed at $77.4 million to begin to eliminate excess NNSA facilities in concert with transformation activities.

The FY 2009 budget request for the **Defense Nuclear Nonproliferation** appropriation totals $1.2 billion. The appearance of a significant decrease is due to the final FY 2008 enacted appropriations that added about $480 million in funding above the President's request to programs in this account. In addition, the Consolidated Appropriations Act, 2008, (P.L. 110-161) shifted the funding for the Mixed Oxide (MOX) Fuel Fabrication Facility to DOE's Office of Nuclear Energy and funding for the related Pit Disassembly and Conversion Facility/Waste Solidification Building (PDCF/WSB) project to the Weapons Account. This shift represents over $670 million in funding that would have been requested within the Defense Nuclear Nonproliferation appropriation in FY 2009. These shifts do not change or diminish in any way the importance of these projects to the nation's nuclear nonproliferation efforts, and in total, the funding commitment to DOE's

nonproliferation activities is $1.8 billion in FY 2009. The budget describes a shift in emphasis from work completed under the Bratislava agreement to additional **Second Line of Defense** sites, including Megaports, and continued expansion of nuclear and radiological material removal under the **Global Threat Reduction Initiative**.

In FY 2009, NNSA's nonproliferation programs will complete major activities in the **Elimination of Weapons Grade Plutonium Production** program, as well as complete upgrades associated with the agreement from the Bratislava Summit. Our focus shifts to sustainability support to Russian warhead and material sites with completed upgrades, and acceleration of projects to assist the Russian Federation and other partner countries in establishing the necessary infrastructure to sustain effective material control operations. The budget request also provides for the installation of radiation detection equipment at an additional 49 foreign sites in 14 countries and at 9 additional Megaports, for a total of 32 ports completed.

The FY 2009 request also supports research and development on detection technology, and a new **Next Generation Safeguards Initiative** (NGSI), which aims to strengthen international safeguards and revitalize the U.S. technical base. The budget request supports continued significant expansion of nuclear and radiological material removal under the Global Threat Reduction Initiative; and initiates support of disablement, dismantlement, and verification of nuclear programs in North Korea.

NNSA continues to support the U.S. Navy's nuclear propulsion systems. The FY 2009 request for **Naval Reactors** of $828 million is an increase of about 6.9 percent over the FY 2008 appropriation. These programs ensure the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers, and fulfill the Navy's requirements for new nuclear propulsion plants that meet future requirements.

The FY 2009 request for the **Office of the Administrator** account is $404 million, essentially level with FY 2008 and reflecting a decrease in the rate of staff growth.

PROTECTING THE ENVIRONMENT BY PROVIDING RESPONSIBLE SOLUTIONS TO THE ENVIRONMENTAL LEGACY OF NUCLEAR WEAPONS PRODUCTION

The federal government has the dual responsibilities of addressing the nuclear weapons production legacy of our past and providing the necessary environmental infrastructure for today that will ensure a clean, safe and healthy environment for future generations. As such, the Department is committed to strategic acquisitions for long-term waste treatment projects and the implementation of sound project management principles to meet our long-term cleanup commitments. In FY 2009, a total of $6.2 billion is dedicated to supporting three key pillars that set the framework for the Department to reach these goals. The first pillar is to continue the **environmental cleanup** ($5.5 billion) of contaminated Cold War sites across the country. The second pillar is to continue to provide **long-term stewardship** and to carry out our responsibilities ($186

million) to our former contractor workforce. The third pillar completes the framework by working to construct a permanent nuclear waste repository at **Yucca Mountain** ($494.7 million) to address long-term nuclear waste disposal and to defend the License Application that we will submit in 2008 to the Nuclear Regulatory Commission for authorization to construct the repository. Secretary Bodman's core principle of safe operations throughout the Department will be dynamically applied within this framework.

To deliver on the Department's obligations stemming from 50 years of nuclear research and weapons production during the Cold War, the **Environmental Management** program (EM) continues to focus its resources on those activities that will yield the greatest risk reductions, with safety as the utmost priority. To achieve a balance of risk reduction and environmental cleanup, the FY 2009 request of $5.5 billion supports the following activities, in priority order:

- Stabilizing radioactive tank waste in preparation for treatment (about 34 percent of the FY 2009 request);
- Storing and safeguarding nuclear materials and spent nuclear fuel (about 20 percent of the FY 2009 request);
- Disposing of transuranic, low-level and other solid wastes (about 14 percent of the FY 2009 request);
- Remediating major areas of our sites and decontaminating and decommissioning excess facilities (about 23 percent of the FY 2009 request).

The administration recognizes that EM's FY 2009 budget request of $5.528 billion is based on, and would implement, an environmental management approach under which the Department would not meet some of the milestones and obligations contained in all of the environmental agreements that have been negotiated over many years with regulators. It is also important to recognize that some upcoming milestones will be missed regardless of the approach that is chosen and its associated level of funding. Moreover, some of the relevant agreements were negotiated many years ago, with incomplete knowledge by any of the parties of the technical complexity and magnitude of costs that would be involved in attempting to meet the requirements. This incomplete knowledge, coupled with other issues including contractor performance, overly optimistic planning assumptions, and emerging technical barriers, also have impeded the Department in meeting all milestones and obligations contained in the environmental compliance agreements.

In planning its environmental cleanup efforts and developing the budget for those activities, the Department seeks to focus on work that will produce the greatest environmental benefit and the largest amount of risk reduction. The Department strongly believes that setting priorities and establishing work plans in this way is the most effective use of taxpayer funds and will have the greatest benefit, at the earliest possible time, to the largest number of people. In determining these priorities, the Department works closely with federal and state regulators, and will seek the cooperation of those entities in helping evaluate needs and focus work on the highest environmental priorities

based on current knowledge, particularly where doing so necessitates modification of cleanup milestones embodied in prior agreements with DOE.

In FY 2009, EM is aggressively pursuing the consolidation and disposition of surplus plutonium and other special nuclear materials to enhance national security and to minimize the storage risks and costs associated with these materials. In addition, EM continues to make significant progress on the construction and operation of waste treatment and immobilization facilities across the complex. The budget continues shipments of remote-handled transuranic waste to the Waste Isolation Pilot Plant.

The EM program has made great strides in achieving cleanup results. Since 2001, EM has cleaned up and closed 14 sites, including three former weapons production sites -- Rocky Flats and Fernald, with Mound to be completed in FY 2008, -- as part of its risk-reduction cleanup strategy. In the Fall of 2007, DOE transferred nearly 4,000 acres of its former Rocky Flats nuclear weapons production site to the Department of Interior's U.S. Fish and Wildlife Service for use as a National Wildlife Refuge. Additionally, the Rocky Flats Cleanup Team received the 2007 Service to America Medal for Science and Environment for completing the first successful cleanup of a former nuclear weapons facility. In 2007, DOE's Waste Isolation Pilot Plant in New Mexico celebrated its 6000th safely received shipment, reached a milestone for disposal of over 50,000 cubic meters of waste and began disposing of remote-handled transuranic waste. DOE's Closure Project at Fernald, a 900-acre former uranium processing facility located in southwest Ohio -- was named the 2007 Project of the Year by the Project Management Institute.

Recognizing that cleanup completion dates at the majority of EM sites extend beyond 2013, EM is working to improve project and program management in a number of areas. EM is strengthening its project baselines, verifying the reasonableness of scope, cost and schedule of all environmental projects. These baselines will provide the basis for conducting credible analyses to better assess existing priorities and identify opportunities to accelerate cleanup work. Working collaboratively with the sites, EM is also continuing to seek aggressive but achievable strategies for accelerating cleanup of discrete sites or segments of work. In addition, functional and cross-site activities such as elimination of specific groundwater contaminants, waste or material processing campaigns, or achievement of interim or final end-states are being evaluated. Developing robust life-cycle planning capabilities, realistic near-term baselines, as well as a focused technology program, a best-in-class project management system, an acquisition strategy that promotes performance and efficiency, and a proactive human capital plan allows EM to build a reliable, high-performing organization that will continue to advance risk reduction and cleanup across all EM sites.

After the Environmental Management program completes cleanup and closure of sites that no longer have an ongoing DOE mission, post closure stewardship activities are transferred to the **Office of Legacy Management** (LM). Post closure stewardship includes long-term surveillance and maintenance activities such as groundwater monitoring, disposal cell maintenance, records management, and management of natural resources at sites where active remediation has been completed. At some sites the

program includes management and administration of pension and benefit continuity for contractor retirees.

Over the last 50 years, our country has benefited greatly from nuclear energy and the power of the atom. We need to ensure a strong and diversified energy mix to fuel our nation's economy, and nuclear power is an important component of that mix. Currently more than 50,000 metric tons of spent nuclear fuel is located at over 100 above-ground sites in 39 states, and every year reactors in the United States produce approximately 2,000 additional metric tons of additional spent fuel. In order to ensure the future viability of our nuclear generating capacity, we need a safe, permanent, geologic repository for spent nuclear fuel (SNF) and high-level nuclear waste (HLW) at **Yucca Mountain**. The FY 2009 budget of $494.7 million sets us on the path to meet that goal. The funding will support continued development of a repository including:

- Robustly defending the License Application (LA) that we plan to submit to the Nuclear Regulatory Commission in 2008;
- Progression of preliminary designs for facilities required for the receipt of SNF and HLW;
- Continuing essential interactions with state, local, and tribal governments needed to support national transportation planning;
- Completing the horizontal layout of the Right-of-Way application for the Nevada Rail Line;
- Enhancing the design, staffing, and training of the OCRWM organization so that it has the skills and culture to design, license, and manage the construction and operation of the Yucca Mountain Project with safety, quality, and cost effectiveness;
- Addressing the federal government's mounting liability associated with unmet contractual obligations to move SNF from commercial nuclear plant sites; and
- Planning a compliant and well-integrated safeguards and security, safety, and emergency management program for the disposal, transportation, and management of SNF and HLW.

Designing, licensing and constructing a permanent geologic repository for spent nuclear fuel and high level waste will resolve the challenge of safe disposal of these materials and make construction of new nuclear power plants through the President's **Global Nuclear Energy Partnership** (GNEP) more feasible, helping to expand our energy options and secure our economic future. In addition, a repository is necessary to support nuclear nonproliferation goals, contributing to national security objectives.

In late 2006, the Department announced its "best-achievable schedule" to initiate repository operations was in 2017. The opening date of 2017 was predicated upon enactment of pending legislation and was developed without regard to budget constraints. Given the funding levels in FY 2007 and FY 2008, the "best-achievable schedule" of 2017 for the initial operating capability date is no longer possible. There is an immediate and strong need to address the funding of the repository construction program now for FY 2009 and beyond. To ensure program success it is critical that the administration's

legislative proposal, the Nuclear Fuel Management and Disposal Act, be enacted to provide stability, clarity, and predictability to the Yucca Mountain repository project. Without funding reform, development of a credible schedule for the program is not possible.

ENABLING THE MISSION THROUGH SOUND MANAGEMENT

The Department of Energy is committed to continuing the transformation of its management culture and increasing its focus on results. The Department has continued its efforts to improve in key functional areas and is using its strategic plan as the roadmap to instill management excellence.

The Department's human capital management efforts are focused on an integrated approach that ensures human capital programs and policies are linked to the Department's missions, strategies, and strategic goals, while providing for continuous improvement in efficiency and effectiveness. The Department has revised its human capital management strategic plan to address future organizational needs, workforce size, skill gaps, performance management systems and diversity. In FY 2009, the Department will implement key components of this strategic plan, especially critical efforts to ensure the Department's workforce has the necessary skills to carry out its critical mission. To accomplish this goal, the Department will continue to implement strategies to attract, motivate and retain a highly skilled and diverse workforce to meet the future needs of the nation in such vital areas as scientific discovery and innovation.

To continue to improve the Department's stewardship of taxpayer dollars, the Department will continue to issue audited financial statements in an accelerated timeframe and provide assurance that the Department's financial management meets the highest standards of integrity. The Department's fiscal year 2007 financial statements were reviewed by independent auditors and received an unqualified "clean" opinion. This was made possible by implementing an aggressive plan to mitigate and remediate a number of financial management challenges that were identified by the Department and its independent auditors. The Department in FY 2009 will continue its effort to build and improve its integrated business management system, I-MANAGE, with the deployment of budget execution and formulation modules.

The Department continues to make strides in improving performance. The Department and OMB have worked collaboratively to complete a Program Assessment Rating Tool (PART) review for 51 of the Department's 56 programs (91 percent). Since 2002, the Department's average PART score has steadily improved from Adequate to Moderately Effective. The Department is also leading the government in the number of Effective and Moderately Effective programs.

In FY 2007, the Department improved the quality of its performance measures. This was accomplished by evaluating 30 percent of the Department's FY 2008 performance measures against a standard set of criteria. This analysis identified a need for the

Department to improve some of its performance measures to make them more outcome focused and trendable. The results of this analysis were used to make improvements to 34 of the FY 2008 performance measures in this budget, particularly the energy programs.

In FY 2008, DOE will work with OMB to improve the quality of PART performance and efficiency goals. This initiative will support implementation of Executive Order 13450, Improving Government Program Performance. The quality review will result in improved goals, more consistency between performance information in the PART and the budget submission, and improved performance measures.

To improve financial performance in project management, the Department enhanced the use of Earned Value Management (EVM) techniques that objectively track physical accomplishment of work and provide early warning of performance problems. A certification process was instituted for contractors' EVM systems to improve the definition of project scope, communicate objective progress to stakeholders and keep project teams focused on achieving progress. Currently, 70 percent of the Department's capital asset projects have certified EVM systems. In FY 2009, the Department will continue toward our goal of ensuring all projects have certified systems which will make projects far more likely to stay within planned cost and schedule.

The Department continues to strengthen information technology management by consistent execution of robust IT Capital Planning and Investment Control oversight and reporting processes designed to ensure successful investment performance, including the use of EVM Systems as appropriate, and the remediation of poorly performing investments. Through the establishment and use of an Enterprise Architecture that aligns to the Federal Enterprise Architecture, DOE has ensured that all IT investments follow a comprehensive Modernization Roadmap.

The Department continues to take significant actions to improve its cyber security posture by implementing its **Cyber Security Revitalization Plan** to address long-standing, systemic weaknesses in DOE's information and information systems. Specifically, the Department seeks to ensure that 100 percent of operational information technology systems are certified and accredited as secure and that the Department's Inspector General has rated the certification and accreditation process as "satisfactory." Additional steps will be taken to ensure that electronic classified and personally identifiable information are secure.

To manage the Department's large real property portfolio requires reliable data. The Department has improved its Facility Information Management System and satisfied the Federal Real Property Council's goal of 100 percent reporting of all data elements. Further, the Department implemented a statistical validation program to ensure the integrity of real property data and better support real property decision-making. To make continuous improvements, the Department will invest in its infrastructure to reduce overall facility square footage, improve energy efficiency and sustainability, and

implement an active asset management plan to align resource needs with key Departmental goals.

A more detailed summary description of the Department of Energy's FY 2009 budget request follows.

Department of Energy
Budget by Organization
(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Discretionary Summary By Organization					
National Security					
Weapons	6,258,583	6,297,466	6,618,079	+320,613	+5.1%
Defense Nuclear Nonproliferation	1,824,202	1,335,996	1,247,048	-88,948	-6.7%
Naval Reactors	781,800	774,686	828,054	+53,368	+6.9%
Office of the Administrator	358,291	402,137	404,081	+1,944	+0.5%
Total, National Nuclear Security Administration	9,222,876	8,810,285	9,097,262	+286,977	+3.3%
Energy and Environment					
Energy					
Energy Efficiency and Renewable Energy	1,457,241	1,722,407	1,255,393	-467,014	-27.1%
Electricity Delivery & Energy Reliability	134,363	138,556	134,000	-4,556	-3.3%
Fossil Energy	774,669	904,202	1,126,929	+222,727	+24.6%
Nuclear Energy	612,230	1,033,923	1,419,463	+385,540	+37.3%
Total, Energy	2,978,503	3,799,088	3,935,785	+136,697	+3.6%
Environment					
Environmental Management	6,185,533	5,694,963	5,528,000	-166,963	-2.9%
Civilian Radioactive Waste Management	445,706	386,440	494,742	+108,302	+28.0%
Office of Legacy Management	64,122	188,833	185,981	-2,852	-1.5%
Total, Environment	6,695,361	6,270,236	6,208,723	-61,513	-1.0%
Total, Energy and Environment	9,673,864	10,069,324	10,144,508	+75,184	+0.7%
Science					
Science	3,836,613	3,973,142	4,721,969	+748,827	+18.8%
Corporate Management					
Office of the Secretary	5,429	5,751	5,700	-51	-0.9%
Competitive Sourcing	2,464	——	——	——	——
Cost of Work and Revenues	-54,646	-69,827	-68,780	+1,047	+1.5%
Chief Information Officer	105,072	110,135	115,500	+5,365	+4.9%
Chief Financial Officer	38,044	41,998	45,048	+3,050	+7.3%
Innovative technology loan guarantee program	——	4,459	——	-4,459	-100.0%
Loan guarantee program	7,000	——	——	——	——
Management	54,161	65,033	67,000	+1,967	+3.0%
Human Resources	22,107	27,986	31,436	+3,450	+12.3%
Board of Contract Appeals	147	——	——	——	——
Hearings and Appeals	4,349	4,565	6,603	+2,038	+44.6%
Congressional and Intergovernmental Affairs	4,813	4,733	4,700	-33	-0.7%
Public Affairs	4,493	3,339	3,780	+441	+13.2%
General Counsel	23,202	29,889	31,233	+1,344	+4.5%
Policy and International Affairs	16,502	21,039	23,000	+1,961	+9.3%
Economic Impact and Diversity	6,154	6,443	4,400	-2,043	-31.7%
Inspector General	41,819	46,057	51,927	+5,870	+12.7%
Security and Safety Performance Assurance	313,895	——	——	——	——
Environment, Safety and Health	108,221	——	——	——	——
Health, Safety and Security	——	424,471	446,868	+22,397	+5.3%
Energy Information Administration	90,653	95,460	110,595	+15,135	+15.9%
Power Marketing Administrations	270,591	244,953	209,139	-35,814	-14.6%
Total, Corporate Management	1,064,470	1,066,484	1,088,149	+21,665	+2.0%
Federal Energy Regulatory Commission	-43,595	-34,411	-36,932	-2,521	-7.3%
Total, Discretionary Funding	**23,754,228**	**23,884,824**	**25,014,956**	**+1,130,132**	**+4.7%**

Department of Energy
Budget by Appropriation
(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Discretionary Summary By Appropriation					
Energy And Water Development, And Related Agencies					
Appropriation Summary:					
Energy Programs					
Energy efficiency and renewable energy	——	1,722,407	1,255,393	-467,014	-27.1%
Electricity delivery and energy reliability	——	138,556	134,000	-4,556	-3.3%
Nuclear energy	——	961,665	853,644	-108,021	-11.2%
Legacy management	——	33,872	——	-33,872	-100.0%
Energy supply and Conservation	2,145,149	——	——	——	——
Fossil energy programs					
Clean coal technology	——	-58,000	——	+58,000	+100.0%
Fossil energy research and development	580,946	742,838	754,030	+11,192	+1.5%
Naval petroleum and oil shale reserves	21,316	20,272	19,099	-1,173	-5.8%
Strategic petroleum reserve	164,441	186,757	344,000	+157,243	+84.2%
Northeast home heating oil reserve	7,966	12,335	9,800	-2,535	-20.6%
Total, Fossil energy programs	774,669	904,202	1,126,929	+222,727	+24.6%
Uranium enrichment D&D fund	556,606	622,162	480,333	-141,829	-22.8%
Energy information administration	90,653	95,460	110,595	+15,135	+15.9%
Non-Defense environmental cleanup	349,687	182,263	213,411	+31,148	+17.1%
Science	3,836,613	3,973,142	4,721,969	+748,827	+18.8%
Nuclear waste disposal	99,206	187,269	247,371	+60,102	+32.1%
Departmental administration	147,943	148,415	154,827	+6,412	+4.3%
Inspector general	41,819	46,057	51,927	+5,870	+12.7%
Innovative technology loan guarantee program	——	4,459	——	-4,459	-100.0%
Total, Energy Programs	8,042,345	9,019,929	9,350,399	+330,470	+3.7%
Atomic Energy Defense Activities					
National nuclear security administration:					
Weapons activities	6,258,583	6,297,466	6,618,079	+320,613	+5.1%
Defense nuclear nonproliferation	1,824,202	1,335,996	1,247,048	-88,948	-6.7%
Naval reactors	781,800	774,686	828,054	+53,368	+6.9%
Office of the administrator	358,291	402,137	404,081	+1,944	+0.5%
Total, National nuclear security administration	9,222,876	8,810,285	9,097,262	+286,977	+3.3%
Environmental and other defense activities:					
Defense environmental cleanup	5,731,240	5,349,325	5,297,256	-52,069	-1.0%
Other defense activities	636,271	754,359	1,313,461	+559,102	+74.1%
Defense nuclear waste disposal	346,500	199,171	247,371	+48,200	+24.2%
Total, Environmental & other defense activities	6,714,011	6,302,855	6,858,088	+555,233	+8.8%
Total, Atomic Energy Defense Activities	15,936,887	15,113,140	15,955,350	+842,210	+5.6%
Power marketing administrations:					
Southeastern power administration	5,602	6,404	7,420	+1,016	+15.9%
Southwestern power administration	29,998	30,165	28,414	-1,751	-5.8%
Western area power administration	232,326	228,907	193,346	-35,561	-15.5%
Falcon & Amistad operating & maintenance fund	2,665	2,477	2,959	+482	+19.5%
Colorado River Basins	——	-23,000	-23,000	——	——
Total, Power marketing administrations	270,591	244,953	209,139	-35,814	-14.6%
Federal energy regulatory commission	——	——	——	——	——
Subtotal, Energy And Water Development and Related Agencies	24,249,823	24,378,022	25,514,888	+1,136,866	+4.7%
Uranium enrichment D&D fund discretionary payments	-452,000	-458,787	-463,000	-4,213	-0.9%
Excess fees and recoveries, FERC	-43,595	-34,411	-36,932	-2,521	-7.3%
Total, Discretionary Funding	**23,754,228**	**23,884,824**	**25,014,956**	**+1,130,132**	**+4.7%**

SECTION 1. ENERGY SECURITY

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Energy Security					
Energy Efficiency and Renewable Energy	1,457,241	1,722,407	1,255,393	-467,014	-27.1%
Electricity Delivery & Energy Reliability	134,363	138,556	134,000	-4,556	-3.3%
Fossil Energy	774,669	904,202	1,126,929	+222,727	+24.6%
Nuclear Energy	612,230	1,033,923	1,419,463	+385,540	+37.3%
Innovative technology loan guarantee program	——	4,459	——	-4,459	-100.0%
Loan guarantee program	7,000	——	——	——	——
Energy Information Administration	90,653	95,460	110,595	+15,135	+15.9%
Power Marketing Administrations	270,591	244,953	209,139	-35,814	-14.6%
Total, Energy Security	**3,346,747**	**4,143,960**	**4,255,519**	**+111,559**	**+2.7%**

Energy Security Strategic Theme: Promoting America's energy security through reliable, clean, and affordable energy

Goal 1.1 Energy Diversity – Increase our energy options and reduce dependence on oil, thereby reducing vulnerability to disruption and increasing the flexibility of the market to meet U.S. needs

Goal 1.2 Environmental Impacts of Energy – Improve the quality of the environment by reducing greenhouse gas emissions and environmental impacts to land, water, and air from energy production and use

Goal 1.3 Energy Infrastructure – Create a more flexible, more reliable, and higher capacity U.S. energy infrastructure

Goal 1.4 Energy Productivity – Cost-effectively improve the energy efficiency of the U.S. economy

Energy Efficiency and Renewable Energy

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Assistant Secretary For Energy Efficiency And Renewable Energy					
Energy Efficiency and Renewable Energy					
Hydrogen technology	——	211,062	146,213	-64,849	-30.7%
Biomass and biorefinery systems R&D	——	198,180	225,000	+26,820	+13.5%
Solar energy	——	168,453	156,120	-12,333	-7.3%
Wind energy	——	49,545	52,500	+2,955	+6.0%
Geothermal technology	——	19,818	30,000	+10,182	+51.4%
Water power	——	9,909	3,000	-6,909	-69.7%
Vehicle technologies	——	213,043	221,086	+8,043	+3.8%
Building technologies	——	108,999	123,765	+14,766	+13.5%
Industrial technologies	——	64,408	62,119	-2,289	-3.6%
Federal energy management program	——	19,818	22,000	+2,182	+11.0%
Facilities and infrastructure	——	76,176	13,982	-62,194	-81.6%
Weatherization and intergovernmental activities	——	282,217	58,500	-223,717	-79.3%
Program direction	——	104,057	121,846	+17,789	+17.1%
Program support	——	10,801	20,000	+9,199	+85.2%
Congressionally directed projects	——	186,664	——	-186,664	-100.0%
Use of prior year balances and other adjustments	——	-743	-738	+5	+0.7%
Total, Energy Efficiency and Renewable Energy	——	1,722,407	1,255,393	-467,014	-27.1%
Energy Supply and Conservation					
Energy Efficiency and Renewable Energy					
Hydrogen technology	189,511	——	——	——	——
Biomass and biorefinery systems R&D	196,277	——	——	——	——
Solar energy	157,028	——	——	——	——
Wind energy	48,659	——	——	——	——
Geothermal technology	5,000	——	——	——	——
Vehicle technologies	183,580	——	——	——	——
Building technologies	102,983	——	——	——	——
Industrial technologies	55,763	——	——	——	——
Federal energy management program	19,480	——	——	——	——
Facilities and infrastructure	107,035	——	——	——	——
Weatherization and intergovernmental activities	281,731	——	——	——	——
Program direction	99,264	——	——	——	——
Program support	10,930	——	——	——	——
Total, Energy Efficiency And Renewable Energy	**1,457,241**	**1,722,407**	**1,255,393**	**-467,014**	**-27.1%**

The **Office of Energy Efficiency and Renewable Energy** (EERE) conducts research, development, and deployment activities in partnership with industry to advance a diverse supply of energy efficiency and clean power technologies and practices. The FY 2009 budget request continues to support research on alternatives that will decrease our nation's dependence on foreign oil and accelerate development of clean electricity supply options.

PROGRAM DESCRIPTION

EERE's activities promote the development and use of clean, reliable, and cost-effective energy efficiency and renewable energy technologies to meet growing national energy needs, reduce dependence on foreign energy sources, and enhance energy security. The FY 2009 budget request is $1,255.4 million, a decrease of $467.0 million, or 27.1 percent below the FY 2008 appropriations.

The **Hydrogen Technology** program focuses on hydrogen and fuel cell technologies to reduce dependence on oil in the transportation sector, and to enable clean, reliable energy for stationary and portable power generation. The program is being realigned in FY 2009, investing more strategically in its critical technology pathways and deferring hydrogen

production and delivery efforts within EERE. In FY 2009 research is focused on the technology barriers of hydrogen storage to enable a driving range of more than 300 miles and low cost, durable fuel cells. The Technology Validation, Education, and Safety and Codes and Standards activities will be moved to the Vehicle Technologies program in FY 2009, where analogous efforts currently exist for other fuels and technologies. The overall request for the Hydrogen Fuel related efforts in FY 2009 is $267.5 million (EERE's portion is $177.7 million, including $146.2 million in Hydrogen Technology and $31.5 million in Vehicle Technologies). Other organizations also contribute to this funding crosscut including DOE Offices of Science, Fossil Energy and Nuclear Energy, and hydrogen safety-related activities at the U.S. Department of Transportation.

The **Biomass and Biorefinery Systems R&D** (Biomass) program focus is on research and development to help transform our domestic, renewable, and abundant biomass resources into cost-competitive, high performance biofuels, bioproducts, and biopower through targeted RD&D leveraged by public and private partnerships. The Biomass program's FY 2009 request supports the President's *Biofuels Initiative* and helps support achievement of the *"Twenty in Ten"* plan to make cellulosic ethanol cost competitive and to reduce our dependence on oil. In FY 2009, the Biomass program will continue research, development and demonstrations to improve and validate the technical, economic, and environmental viability of the nascent U.S. biofuels industry. The FY 2009 request also strengthens Departmental RD&D throughout the biofuels supply chain. The Biomass program's key activities include feedstock resource assessment and infrastructure development, conversion R&D, commercial scale and 10 percent of commercial scale biorefinery demonstration projects, and addressing biofuels distribution and end use barriers. In addition to EERE's Biomass program, the Department is also making substantial investments in fundamental research to support the goals of the initiative through the Office of Science's three Bioenergy Research Centers.

The **Solar Energy** program focuses on research and deployment of solar power that will reduce our demand for natural gas and promote a cleaner environment. Through the **Solar America Initiative** (SAI), the Solar program is accelerating the market competitiveness of solar electricity as industry-led teams compete to deliver photovoltaic (PV) systems that are less expensive, more efficient, and highly reliable. By focusing on PV manufacturing and systems integration issues, the program estimates that cost reductions in these areas could aid in the deployment of 5-10 gigawatts of new grid-connected electricity generating capacity by 2015. In FY 2009, the Solar program continues strong emphasis in concentrating solar power technologies, with a similar goal of making large-scale concentrating solar cost competitive in intermediate power markets by 2015. The Solar program is also working with industry to lower the cost of concentrating solar power technologies and develop advanced thermal energy storage that will enhance their value to utilities and allow solar to compete in large-scale centralized generation markets. The Solar program will continue market transformation efforts to promote adoption of market-ready solar technologies by providing targeted tools and assistance to important stakeholders such as states, utilities, cities, the building industry, and the federal sector. The program will also facilitate continued growth of the domestic solar market by addressing key market barriers such as fragmented interconnection and net metering practices.

The **Wind Energy** program leads the nation's effort to accelerate the market penetration of wind energy by improving the performance and reliability of wind technology, reducing risks to project development, enhancing critical energy infrastructure, and advancing policies in support of wind energy. The program is aggressively working to remove wind energy barriers through government and private sector stakeholder collaboration and improve wind technology through industry partnerships and applied research and testing.

The **Geothermal** program's new mission is to conduct research and development on Enhanced Geothermal Systems (EGS) to advance the technology as an economically

competitive contributor to the U.S. energy supply. The technologies developed by this program are expected to provide a new source of electricity that are clean, reliable and cost competitive. This new program focuses on EGS, which are engineered reservoirs created to produce energy from geothermal resources deficient in natural water levels and/or permeability. The EGS is a new pathway for producing geothermal energy by drilling wells into hot rock, fracturing the rock between the wells, and circulating a fluid through the fractured rock to extract the heat.

The **Water Power** program is focused on enabling the development and deployment of water power technologies that will increase water-based electric generation in the United States. Funding will be used to conduct resource assessments and technology characterizations, and to initiate Cooperative Research and Development Agreements to advance water power technology development.

The **Vehicle Technologies** (VT) program supports R&D to make cars, trucks, and buses more efficient and capable of operating on non-petroleum fuels. These strategies can lead to environmental benefits, reduce oil use, and can help improve America's energy security. Most of the program's R&D is performed in conjunction with two government-industry partnerships: the FreedomCAR and Fuel Partnership ($238.9 million total, $157.7 million from Vehicle Technologies) and the 21st Century Truck Partnership ($ 25.2 million). VT R&D includes lightweight materials, advanced batteries, power electronics, and electric motors for hybrid and plug-in hybrid vehicles, and advanced combustion engines and fuels. The FY 2009 budget emphasizes technologies for cost effective plug-in hybrid vehicles (i.e., those that can be recharged from an electric outlet or operated on liquid fuels) and deployment activities to accelerate the use of maturing technologies such as alternative fuels. The FY 2009 effort includes three activities (Safety and Codes and Standards; Technology Validation; and Education) formerly in Hydrogen Technology, bringing them together with analogous efforts for other fuels and technologies within VT.

The **Building Technologies** (BT) program develops and promotes deployment of technologies to make new and existing homes and buildings less energy intensive. BT is promoting energy savings potential that is achievable today, with even greater future savings in the pipeline, to help cost-effectively reduce energy consumption and the carbon footprint of the built environment. BT research for Residential and Commercial Buildings Integration is focused on reducing building energy requirements and integrating renewable energy systems to enable commercial production of Net-Zero Energy Homes and Buildings by 2020 and 2025, respectively. The portfolio of energy efficiency component research, aligned to reduce building electrical loads, includes solid state lighting**,** more affordable efficient windows, and more efficient heating, ventilation, air conditioning, and refrigeration. The program pursues market transformation activities by developing Energy Star labels for major appliances such as windows, refrigerators, dishwashers and compact fluorescent lights. The BT is also working on the establishment of building codes that are 30 percent more efficient than the current codes in both the residential and commercial sector. The Department will continue to clear the backlog of rulemakings for appliances and commercial equipment.

The **Industrial Technologies** program (ITP) works to reduce the energy intensity of the U.S. industrial sector through a coordinated program of research and development, validation, and dissemination of energy-efficiency technologies and operating practices. ITP supports the Secretary of Energy's "Easy Ways to Save Energy" campaign and has completed 450 "Save Energy Now" industrial energy saving assessments in 2006 and 2007, which have identified significant potential energy cost savings through cost-effective energy efficient technologies and practices, with a special focus on natural gas consumption.

The **Federal Energy Management** program (FEMP) enhances energy security, environmental stewardship and cost reduction within the federal government through reductions of energy intensity in federal facilities, increased use of renewable energy and greater conservation of water. These goals are accomplished by facilitating alternatively

financed energy conservation measures, other technical assistance, coordination of federal reporting and evaluation, and support for alternative fuel use in the federal vehicle fleet.

The **Facilities and Infrastructure** activity enables the acquisition and maintenance of the scientific capabilities and support infrastructure at the National Renewable Energy Lab (NREL). NREL is EERE's primary national laboratory and its central mission is to support the nation's efforts in developing a portfolio of energy efficiency and renewable energy technologies.

The **Weatherization and Intergovernmental Activities** utilize technical and financial assistance to accelerate the adoption of energy efficiency and renewable energy technologies and practices by state and local governments, Native American tribal governments, and international partners. The State Energy program supports state, local, and utility energy projects, programs, and policies. FY 2009 objectives include the implementation of clean energy initiatives and provisions of EPAct05 and the Energy Independence and Security Act of 2007. The Tribal Energy activities encourage clean energy project planning and construction on Native American tribal land. The Asia Pacific Partnership, whose members are Australia, Canada, China, India, Japan, South Korea, and the United States, facilitates the deployment of clean energy technologies. In 2009, the Department is terminating the Weatherization Assistance program to focus EERE on its core mission of advanced energy efficiency and renewable energy R&D.

The **Program Support** account provides for program measurement and strategic direction, as well as for technology advancement and outreach. Planning, Analysis, and Evaluation activities provide timely information to inform portfolio investment decisions. Technical Advancement and Outreach activities provide the public with accurate information on energy efficiency and renewable energy technologies to help the public make better energy choices.

The **Program Direction** account provides personnel and operational resources for executive and technical direction and oversight for the programs described above. These include operations at headquarters and the field Project Management Center (PMC). The PMC responsibilities include project management of R&D partnerships, NREL contract administration, and financial assistance administration. Headquarters activities include knowledge, information and business systems supporting the Presidential e-Gov initiative and compliance with Departmental policy for functional accountability.

PROGRAM HIGHLIGHTS

The FY 2009 request continues to support a balanced and diverse portfolio of solutions to address the nation's urgent energy and environmental challenges facing our country today by: 1) researching and developing renewable energy technologies to dramatically increase the amount of clean energy produced in the United States; 2) advancing energy efficient technologies and practices that use less energy; and 3) providing information necessary to help stimulate choices that will result in large and rapid changes in energy systems. Consistent with the President's initiatives, the FY 2009 budget continues key elements of the "Advanced Energy Initiative that are essential to breaking our addiction to oil, lessening dependence on foreign resources, and changing the way we power our homes, businesses, and automobiles. The proposed Office of Energy Efficiency and Renewable Energy budget of $1,255.4 million provides a diverse portfolio of activities, including:

Fuels and Vehicle Solutions

- Advancing essential RD&D projects to achieve cost competitive, commercial scale cellulosic ethanol production by 2012;
- Conducting RD&D on, plug-in hybrids, and drive-train electrification to diversify and make our nation's vehicles more efficient to reduce petroleum dependency;

- Continuing to research and develop critical hydrogen storage and fuel cell technologies that enable near term commercialization pathways; and
- Supporting fuel testing and validating fuel infrastructure, vehicle testing, and codes & standards activities that will help accelerate fuel and vehicle solutions to the market.

Renewable Power

- Integrating renewable energy technologies and energy storage technologies to resolve the intermittency challenge;
- Investing in solar power to make photovoltaics widely available nationwide and commercially cost-competitive with conventional electricity by 2015;
- Supporting a refocused geothermal RD&D program that conducts R&D on enhanced geothermal systems; and
- Pursuing water power technologies as part of EERE's R&D portfolio.

Efficiency

- Reducing energy consumption and transforming the carbon footprint of the built environment through zero energy buildings; and
- Supporting the advancement of clean and efficient industrial technologies and processes.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Hydrogen Technology (FY 2008 $211.1; FY 2009 $146.2) .....-$64.8
Funding for Hydrogen Technology is reduced by $64.8. Approximately $32.0 is due to the transfer of three activities (Technology Validation; Safety and Codes and Standards; and Education) to Vehicle Technologies. The remaining reduction reflects the deferral of hydrogen production and hydrogen/fuel-cell manufacturing R&D in order to focus on critical-path barriers in hydrogen storage and fuel-cell components. Hydrogen Storage R&D increases by $15.7 (36.1 percent) compared to FY 2008 and Fuel Cell Stack Component R&D increases by $19.1 (43.8 percent).

Biomass and Biorefinery Systems R&D (FY 2008 $198.2; FY 2009 $225.0) .....+$26.8
Biomass and Biorefinery Systems R&D funding is increased by 13.5 percent. The funding increase in Feedstock Infrastructure is for the Regional Biomass Feedstock Development Partnerships to establish a regional Geographic Information Systems-based feedstock atlas (+$3.1). Platform Research and Development funding decreases (-$13.9) due to a shift in funding within the program to support the EPAct05 Section 932 commercial scale integrated biorefinery demonstration projects and the 10 percent of commercial scale demonstration projects under the Integration of Biorefinery Technologies sub-element initiated in FY 2007 (+$36.4). Products R&D funding increase supports projects for fermentation organism (aka ethanologen) development selected for award in FY 2007 (+$6.1). No funds are requested in FY 2009 for a Cellulosic Ethanol Reverse Auction (-$5.0), as it is not considered to be as critical of an enabler for this nascent industry.

Solar Energy (FY 2008 $168.5; FY 2009 $156.1) .....-$12.3
Solar Energy is decreased 7.3 percent. The decrease in funding within Concentrating Solar Power and Solar Heating and Cooling Systems reflects the down-selection of industry contracts (-$10.7) and the transfer of Solar Heating and Cooling to Buildings Technology (-$2.0).

Wind Energy (FY 2008 $49.5; FY 2009 $52.5).....+$3.0
Supporting Research and Testing is increased to fund additional Cooperative Research and Development Agreements to help spur wind technology advancements and improvements, support improved testing, and enhance collaboration with partners on the design of large wind turbine blade test facilities (+$7.4). Systems Integration is kept at a similar level as FY 2008 to maintain the focus on facilitating the integration of large amounts of wind energy into electric power systems.

Geothermal Technology (FY 2008 $19.8; FY 2009 $30.0) .....+$10.2
The funding for Geothermal Technology increases by 51.4 percent. A program plan will be developed in 2008. Program activities will focus on EGS R&D needed to reduce technical barriers and improve cost effectiveness of EGS technologies. An initial focus will be building the base understanding of EGS reservoirs. The program will promote the advancement of the EGS through an integrated portfolio of cost-shared research and development activities.

Water Power (FY 2008 $9.9; FY 2009 $3.0).....-$6.9
Overall funding for Water Power decreases by 69.7 percent. Funds provided by Congress in FY 2008 are sufficient to initiate resource and technology assessments and to establish an RD&D framework. Funds requested for FY 2009 are sufficient to support priority activities as this new program gets underway and a program roadmap is established.

Vehicle Technologies (FY 2008 $213.0; FY 2009 $221.1).....+$8.0
Overall funding for Vehicle Technologies increases by 3.8 percent. This reflects the net effect of the transfer of three activities from Hydrogen Technology to Vehicle Technologies and a focusing of VT's core activities on R&D that supports accelerated development of plug-in hybrid-electric vehicles.

Building Technologies (FY 2008 $109.0; FY 2009 $123.8).....+$14.8
Additional funding restores critical elements of the Building Codes program (+$ 4.3), and increase Energy Star (+$1.3), Residential Buildings Integration (+$2.4), Commercial Buildings Integration (+$1.1) and Net-Zero Energy Building program components (+$2.1). The additional funding also supports activities to accelerate the adoption of clean, efficient, and domestic energy technologies in schools, hospitals and commercial buildings and promotes residential energy efficient retrofits (+ $2.2).

Federal Energy Management (FY 2008 $19.8; FY 2009 $22.0) .....+$2.2
New activities include the promotion of opportunities for petroleum displacement through increased use of alternative fuel in the federal vehicle fleet ($2.0) and funding for DOE Specific Investments ($6.0). Funding for Technical Guidance and Assistance was decreased by $4.2 to redirect funds to new activities.

Facilities and Infrastructure (FY 2008 $76.2; FY 2009 $14.0) .....-$62.2
The request for Facilities and Infrastructure represents a $62.2 decrease from the FY 2008 Appropriation. In FY 2007, Congress provided an additional $83.0 in construction funds for the Research Support Facility and the Integrated Biorefinery Research Facility. In FY 2008, Congress provided funding to begin two new construction projects: 1) $54.5 for Phase I (design/construction) of the Energy Systems Integration Facility (ESIF); and 2) $6.8 for the South Table Mountain Infrastructure (STM) project. Congress also provided $7.9 to continue outfitting the Science & Technology Facility (STF) with new and replacement capital equipment and to replace outdated equipment at the Solar Energy Research Facility (SERF). The FY 2009 request of nearly $14.0 includes a $3.1-increase for General Plant Projects and General Capital Equipment on the NREL research campus, and $4.0 needed to complete ESIF Phase I. In FY 2009, funds for STF and SERF equipment are included within the Solar Energy program budget, where program-specific capital equipment needs are traditionally requested.

Weatherization and Intergovernmental Activities
(FY 2008 $282.2; FY 2009 $58.5).....-$223.7
The FY 2009 request for Weatherization and Intergovernmental Activities is $223.7 less than the FY 2008 appropriation. Significant funding changes include: increases for the State Energy (+$5.9) and the Asia Pacific Partnership (+$7.5); a decrease for Tribal Energy Activities (-$4.9); and in the elimination of the Weatherization Assistance program at DOE (-$227.2) and Renewable Energy Production Incentive (-$5.0). The overall reduction allows resources to be invested in advancing core mission-specific applied R&D in EERE that are expected to provide greater benefits.

Program Support (FY 2008 $10.8; FY 2009 $20.0).....+$9.2
The Planning, Analysis, and Evaluation increase will support the provisions of Section 134 of EPAct05 (Energy Efficiency Public Information Initiative) and the President's Advanced Energy Initiative to promote clean energy technologies and alternative fuels (+$3.7). The increase to Technology Advancement and Outreach will maintain resources that provide information to the general public and other stakeholders through web-based, toll-free telephone services and partnerships with industry, state and local governments, and non-government organizations that leverage replication and use of energy savings techniques and technologies (+$5.5).

Program Direction (FY 2008 $104.1; FY 2009 $121.8).....+$17.8
Increase in funding will allow EERE to hire staff to address technical workload increases among the programs, enhance DOE and EERE business management systems, cover mandatory pay increases and inflation, and fulfill project management oversight requirements.

Electricity Delivery and Energy Reliability

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Electricity Delivery & Energy Reliability					
Electricity Delivery & Energy Reliability					
Research and development	——	109,502	100,200	-9,302	-8.5%
Operations and analysis	——	11,451	14,122	+2,671	+23.3%
Program direction	——	17,603	19,678	+2,075	+11.8%
Total, Electricity Delivery & Energy Reliability	——	138,556	134,000	-4,556	-3.3%
Energy Supply and Conservation					
Research and development	96,506	——	——	——	——
Operations and analysis	20,500	——	——	——	——
Program direction	17,357	——	——	——	——
Total, Energy Supply and Conservation	134,363	——	——	——	——
Total, Electricity Delivery & Energy Reliability	**134,363**	**138,556**	**134,000**	**-4,556**	**-3.3%**

PROGRAM DESCRIPTION

The **Office of Electricity Delivery and Energy Reliability** (OE) leads a national effort to modernize the electric grid, enhance security and reliability of the energy infrastructure, and facilitate recovery from disruptions to energy supply. OE's programmatic focus consists of two programs: **Research and Development**, and **Operations and Analysis**. To accomplish these efforts, OE **requests $134.0 million** for **FY 2009**.

The **Research and Development** program has the following subprograms:

The **High Temperature Superconductivity R&D** subprogram pursues improvements to the efficiency and reliability of the nation's electric delivery system. The goal of this research is to develop operational wire and power prototypes that are half the size and deliver half the energy losses of conventional equipment of the same power rating by 2016.

The **Visualization and Controls** subprogram develops communication and control systems which support adaptive, intelligent grid operations, and which integrate distributed energy devices. These advances will improve the reliability and efficiency of the electric delivery system and increase the utilization of transmission and distribution assets.

The **Energy Storage and Power Electronics** subprogram is working to develop energy storage technologies and power switches that reduce power disturbances and peak electricity demand, and improve system flexibility to reduce adverse effects to users.

The **Renewable and Distributed Systems Integration** subprogram develops a diverse array of cost-competitive, integrated distributed-generation and thermal energy technologies. It also supports the use of these technologies in residential, business, and industrial applications to improve electricity reliability and reduce conventional environmental effects.

The **Operations and Analysis** program has the following activities:

The **Permitting, Siting, and Analysis** subprogram uses education, outreach, and analysis to help states, regional electric grid operators, and federal agencies to develop and improve policies, market mechanisms, regulations, state laws, and programs that

assist modernization of the electric grid. Increased infrastructure investment by transmission owners and utilities should result as this activity implements the mandatory requirements in corridor designation and line permitting of the National Energy Policy Act of 2005.

The **Infrastructure Security and Energy Restoration** subprogram coordinates the Department's response to energy emergencies, prevents unauthorized use of the energy infrastructure, and helps all levels of government and the private sector recover from energy supply disruptions. The President has designated DOE as the lead Sector Specific Agency responsible for protecting the nation's critical energy infrastructure. This element of OE is responsible to the Secretary of Energy for coordinating and carrying out these DOE responsibilities.

PROGRAM HIGHLIGHTS

The R&D subprogram will demonstrate several major new systems in FY 2008, including superconducting cable operating at greater than 10KV within a utility system, a first of a kind phasor measurement-based system for reactive power control, several energy storage devices in grid settings, and a packaged Cooling, Heating, and Power system exhibiting 70 percent efficiency.

The Permitting, Siting and Analysis subprogram is leading federal efforts to implement several sections of the Energy Policy Act of 2005 (EPAct05), including a national analysis of electric transmission congestion, the designation of national interest electric transmission corridors, and the designation of multi-purpose energy corridors on federal lands.

Working with the Department of Homeland Security, the Infrastructure Security and Energy Restoration subprogram assists states with energy security activities and distribution plans, conducts exercises and educational activities to improve energy security practices, and develops models and simulations to track emerging energy sector problems.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Electricity Delivery and Energy Reliability (FY 2008 $138.6; FY 2009 $134.0) ..... -$4.6
Decrease in funding reflects no funds requested in FY 2009 to support congressionally directed activities.

Research and Development

High Temperature Superconductivity R&D (FY 2008 $27.9; FY 2009 $28.2) ..... +$0.3
In FY 2009, the program will continue to support core research in second-generation (2G High Temperature Superconductivity wire development, as well as research on dielectrics, cryogenics, and cable systems (including fault current limiters).

Visualization and Controls (FY 2008 $25.1; FY 2009 $25.3) ..... +$0.2
Program will continue support for the development/verification of advanced security visualization tools for wide area monitoring, and market mechanisms for power system planning and operations under competitive markets.

Energy Storage and Power Electronics (FY 2008 $6.7; FY 2009 $13.4) ..... +$6.7
Funding in FY 2009 doubles to support development of new and improved energy storage devices and systems at utility scale, compared to existing devices, which will be incorporated in DOE's Basic Energy Science program's basic research results. Increase also supports substantial improvements in seeking lifetime, reliability, energy density, and cost of energy storage devices. Highly leveraged prototype testing and utility demonstration projects will be expanded with state energy office participation focusing on areas of greatest utility need.

Renewable and Distributed Systems Integration (FY 2008 $25.5; FY 2009 $33.3)..... +$7.8
The increase supports renewable energy grid integration activities to facilitate additional deployment of renewables and other clean energy sources to power the nation through the next century. This work will be coordinated with renewable technology development in the Office of Energy Efficiency and Renewable Energy. It also initiates implementation of smart grid concepts for an integrated, intelligent electric transmission and distribution network.

Operations and Analysis

Permitting, Siting, and Analysis (FY 2008 $5.6; FY 2009 $6.5) ..... +$0.9
Increase will satisfy the requirement for public participation and implement the major electricity infrastructure provisions of EPAct05, including Sections 368 and 1221(a), which directs the Department to designate energy right-of-way corridors on federal lands and national interest electric transmission corridors, respectfully. The increased funding also supports additional analysis and documentation for the required second national transmission congestion study to be issued in August 2009. In addition, technical assistance will be provided to state electricity regulatory agencies and to electric utilities as they implement their National Action Plan for Energy Efficiency.

Infrastructure Security and Energy Restoration (FY 2008 $5.8; FY 2009 $7.6)..... +$1.8
Increase provides for dedicated capability to conduct vulnerability assessments, analysis, and training for other countries with which we share a mutual interest in the protection of their energy infrastructure. The increased funding is targeted to ensure the program can assign the proper resources and expertise to meet this country's need for enhanced protection from and response to damages to the energy assets of other countries that we rely on for supply.

Program Direction

Program Direction (FY 2008 $17.6; FY 2009 $19.7) ..... +$2.1
Increase reflects an additional 10 FTEs for a total of 67 FTEs. The additional FTEs will ensure the program's compliance with the EPAct05, Section 368(b) requirements with regards to designation of corridors for oil, gas, and hydrogen pipelines, and electricity transmission and distribution on federal land. The funding increase also covers all costs associated with the 67 FTEs, including salaries/benefits, travel, support services and other related expenses. In addition, the increased funds provides for all program direction costs for 13 FTEs located at NETL that are counted within Fossil Energy that perform work for OE.

Fossil Energy

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Fossil Energy Programs					
Fossil Energy Research and Development	580,946	742,838	754,030	+11,192	+1.5%
Clean coal technology	——	-58,000	——	+58,000	+100.0%
Naval petroleum and oil shale reserves	21,316	20,272	19,099	-1,173	-5.8%
Strategic petroleum reserve	164,441	186,757	344,000	+157,243	+84.2%
Northeast home heating oil reserve	7,966	12,335	9,800	-2,535	-20.6%
Total, Fossil Energy Programs	**774,669**	**904,202**	**1,126,929**	**222,727**	**+24.6%**

The **Office of Fossil Energy** (FE) manages the Fossil Energy Research and Development, Clean Coal Technology, the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund, and the Elk Hills School Lands Fund. FE also manages and operates the Strategic Petroleum Reserve, the Northeast Home Heating Oil Reserve, and the Naval Petroleum Reserves. Each of these activities is in separate appropriation accounts.

PROGRAM DESCRIPTION

Fossil Research and Development

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Fossil Energy Research and Development					
Coal	414,438	493,382	623,732	+130,350	+26.4%
Natural gas technologies	11,709	19,818	——	-19,818	-100.0%
Petroleum - Oil technologies	2,625	4,954	——	-4,954	-100.0%
Program direction	129,803	148,597	126,252	-22,345	-15.0%
Plant and capital equipment	12,000	12,882	5,000	-7,882	-61.2%
Fossil energy environmental restoration	9,715	9,483	9,700	+217	+2.3%
Special recruitment programs	656	650	656	+6	+0.9%
Cooperative research and development	——	4,954	——	-4,954	-100.0%
Congressionally directed projects	——	48,118	——	-48,118	-100.0%
Use of prior year balances and other adjustments	——	——	-11,310	-11,310	N/A
Total, Fossil Energy Research and Development	**580,946**	**742,838**	**754,030**	**+11,192**	**+1.5%**

The mission of the **Fossil Research and Development** (FER&D) program is to create public benefits by enhancing U.S. economic, environmental, and energy security. This mission is achieved by developing technological capabilities which will reduce emissions from coal-fueled electricity generation plants resulting in dramatic reductions of carbon emissions to achieve near-zero atmospheric emissions power production. FER&D supports many Presidential initiatives and priorities including the Coal Research Initiative, Hydrogen Fuel Initiative, and FutureGen. FER&D also supports the Climate Change Technology Program which is a priority for the Department.

FutureGen promotes advanced, full-scale integration of integrated gasification combined cycle (IGCC) and CCS technology to produce electric power from coal, while capturing and sequestering carbon dioxide (CO_2) resulting in near-zero atmospheric emissions coal energy systems. FER&D is restructuring FutureGen in a way that accelerates the commercial use of near-zero emissions clean coal technologies. The new approach proposes multiple 300-600 megawatt commercial-scale demonstration clean coal power plants that will operate as demonstration facilities -- as opposed to a single, 275-megawatt R&D facility -- each producing electricity and capturing and safely sequestering at least 1 million metric tons each of CO_2 annually.

CCPI is a cooperative, cost-shared program between the government and industry which will demonstrate advanced coal-based power generation technologies including carbon capture and sequestration. CCPI projects can help accelerate development and deployment of coal technologies that could economically meet environmental standards and increase the efficiency and reliability of coal power plants.

The **Fuels and Power Systems** program directly supports the mission of FER&D by providing R&D that could help dramatically reduce coal power plant emissions (including CO_2) and significantly improve efficiency, which would also reduce carbon emissions.

The **Innovations for Existing Plants (IEP)** activity supports the economic post-combustion capture, separation, and compression of CO_2 from coal-fired utility boilers.

The **Integrated Gasification Combined Cycle (IGCC)** activity develops advanced gasification-based technologies which will reduce the cost of coal-based IGCC plants, improve thermal efficiency, and achieve near-zero atmospheric emissions of all pollutants. These technologies will be an integral part of the carbon capture and storage demonstration projects.

The **Advanced Turbines** activity develops technologies for advanced turbines that will operate with near-zero atmospheric emissions and higher efficiency when fueled with coal-derived hydrogen fuels.

The **Carbon Sequestration** activity develops economical ways to separate and permanently store (sequester) and offset greenhouse gas emissions from the combustion of fossil fuels. The technologies will help existing and future fossil fuel power generating facilities by reducing the cost of electricity impacts and also providing protocols for carbon capture and storage demonstrations to capture, transport, store, and monitor the CO_2 injected in geologic formations.

The **Fuels** activity is a key component of the President's Hydrogen Fuel Initiative. This activity focuses on developing technologies to produce ultra-pure hydrogen derived from coal for both stationary and mobile applications.

The **Fuel Cells** activity enables the generation of highly efficient, cost-effective electricity from domestic coal with near-zero atmospheric emissions of carbon and air pollutants in central station applications. This activity also provides the technology base to permit grid-independent distributed generation applications.

Serving as a bridge between basic and applied research, **Advanced Research** projects foster the development and deployment of innovative systems which improve efficiency and environmental performance while reducing the costs of advanced fuels and power systems. The projects include applied research to develop technologies for high-efficiency, coal-based power and coal-based fuel systems with near-zero atmospheric emissions. The Advanced Research activity also addresses crosscutting issues, including environmental and technical/economic analyses, coal technology export, and integrated program support.

Consistent with the FY 2006, FY 2007, and FY 2008, budget requests, the **Petroleum – Oil Technology** and **Natural Gas Technologies** R&D programs are being terminated in FY 2009.

Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund

The Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund was created by the Energy Policy Act of 2005 (Public Law 109-58) as a mandatory

program beginning in FY 2007. The program is funded from mandatory federal revenues from oil and gas leases. Consistent with the FY 2007 and FY 2008 budget requests, the FY 2009 budget proposes to repeal the program through a legislative proposal.

Clean Coal Technology (CCT)

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Clean Coal Technology					
Deferral of unobligated balances, FY 2008	-257,000	257,000	——	-257,000	-100.0%
Deferral of unobligated balances, FY 2009	——	-149,000	149,000	+298,000	+200.0%
Deferral of unobligated balances, FY 2007	257,000	——	——	——	——
Transfer to Fossil R&D (CCPI)	——	-70,000	——	+70,000	+100.0%
Transfer to Fossil R&D (FutureGen)	——	-75,000	-149,000	-74,000	-98.7%
Transfer to Fossil R&D (F&PS)	——	-21,000	——	+21,000	+100.0%
Total, Clean Coal Technology	**——**	**-58,000**	**——**	**+58,000**	**+100.0%**

The **Clean Coal Technology** (CCT) program is jointly funded by the U.S. Government and industry to demonstrate promising advanced coal-based technologies which will use coal cleanly and efficiently (including reducing CO_2 emissions) and help meet domestic energy needs affordably. The program is helping develop the next-generation of technologies to provide near-zero atmospheric emissions and generate efficiencies nearly twice that of the existing coal fleet. CCT also generates data for the marketplace to judge the commercial potential of these technologies.

Strategic Petroleum Reserve

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Strategic Petroleum Reserve					
SPR - Facilities development	164,441	186,757	346,923	+160,166	+85.8%
Use of prior year balances and other adjustments	——	——	-2,923	-2,923	N/A
Total, Strategic Petroleum Reserve	**164,441**	**186,757**	**344,000**	**+157,243**	**+84.2%**

As the linchpin of the U.S. energy security program, **Strategic Petroleum Reserve** (SPR) provides strategic and economic security against disruptions in oil supplies via an emergency stockpile of crude oil. The program also fulfills International Energy Agency commitments which include coordinated energy emergency response plans and deterrence against intentional energy supply disruptions. To further insure against supply disruptions, the FY 2009 budget proposes to double the current capacity of 727 million barrels to 1.5 billion barrels thus increasing the drawdown capability from 4.4 million barrels per day to beyond 6 million barrels per day. Increasing the inventory requires expanding two existing sites and adding one new site. Land acquisition begins in FY 2008. The FY 2009 budget request continues activities for expansion.

Northeast Home Heating Oil Reserve

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Northeast Home Heating Oil Reserve					
Northeast Home heating oil reserve	5,000	12,335	9,800	-2,535	-20.6%
Receipts from the sale of NEHHOR	2,966	——	——	——	——
Transfer from balances	1,734	——	——	——	——
Subtotal, Northeast Home Heating Oil Reserve	9,700	12,335	9,800	-2,535	-20.6%
Use of prior year balances and other adjustments	-1,734	——	——	——	——
Total, Northeast Home Heating Oil Reserve	**7,966**	**12,335**	**9,800**	**-2,535**	**-20.6%**

On July 10, 2000, the President directed DOE to establish a Northeast heating oil reserve which is capable of assuring a short-term supplement to private home heating oil supplies during times of very low inventories or in the event of significant threats to immediate energy supplies. The 2-million-barrel Reserve protects the Northeast against a supply

disruption for up to ten days, which is the time required for ships to carry heating oil from the Gulf of Mexico to New York Harbor.

Naval Petroleum and Oil Shale Reserves

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Naval Petroleum & Oil Shale Reserves					
Production operations	13,079	20,272	8,185	-12,087	-59.6%
Management	8,237	——	10,914	+10,914	N/A
Total, Naval Petroleum & Oil Shale Reserves	**21,316**	**20,272**	**19,099**	**-1,173**	**-5.8%**

The Naval Petroleum and Oil Shale Reserve (NPOSR) mission is to complete environmental remediation activities and determine the equity finalization of NPR-1 and to operate NPR-3 until its economic limit is reached, while maintaining the Rocky Mountain Oil Field Test Center as a field demonstration facility. Since the NPOSR no longer served the national defense purpose envisioned in the early 1990s, the National Defense Authorization Act for FY 1996 (P.L. 104-106) required the sale of the government's interest in Naval Petroleum Reserve 1 (NPR-1). To comply with this requirement, the Elk Hills field in California was sold to Occidental Petroleum Corporation in 1998, two of the Naval Oil Shale Reserves (NOSR-1 and NOSR-3) were transferred to the Department of the Interior's (DOI) Bureau of Land Management, and the NOSR-2 site was returned to the Northern Ute Indian Tribe. The Energy Policy Act of 2005 transferred administrative jurisdiction and environmental remediation of Naval Petroleum Reserve 2 (NPR-2) in California to the Department of the Interior. DOE retains the Naval Petroleum Reserve 3 (NPR-3) in Wyoming (Teapot Dome field). Environmental remediation is performed on those facilities which no longer have value to either of the missions.

Elk Hills School Lands Fund

The **Elk Hills School Lands Fund** provides a source of funding to fulfill the settlement agreement between DOE and the State of California with respect to its longstanding claims to two parcels of land within ("school lands") the Reserve (NPR-1) which was sold in 1998. Under the settlement agreement and provided that funds are appropriated, payments would be made over a seven-year period (without interest), commencing in 1999. To date, the fund has paid out $300 million. The timing and levels of any future budget requests are dependent on the schedule and results of the equity finalization process.

PROGRAM HIGHLIGHTS

Fossil Energy Research and Development

The goal of the President's Coal Research Initiative is to conduct research and development on coal-related technologies that will improve the competitiveness of domestic coal in future energy supply markets. The administration strongly supports coal as an important part of our energy portfolio. This request expands on the President's commitment to invest $2 billion on clean coal research over ten years, which was completed in 2008, three years ahead of schedule.

In FY 2009, the Coal program significantly increases activities in "Coal with Carbon Capture and Storage (CCS)." At the centerpiece of CCS are multiple demonstration projects through FutureGen and the Clean Coal Power Initiative, which will provide early commercial-scale experience with near-zero atmospheric emission coal technologies and issues to facilitate commercial deployment. The Coal program also continues large-scale demonstration of injection and storage of CO_2 in geologic formations.

Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund

Consistent with prior-year budget requests, the FY 2009 budget proposes to repeal this mandatory program through a legislative proposal. This policy is consistent with the decision to terminate the discretionary Oil and Natural Gas programs.

Clean Coal Technology

All project funding commitments have been fulfilled and only project closeout activities remain. The FY 2009 budget request proposes to transfer $149 million in prior-year balances to the FutureGen (funded within the FER&D appropriation) because these balances are no longer needed to complete active CCT projects.

Elk Hills School Lands Fund

A total of $300 million has been paid to-date. The first installment payment was appropriated in FY 1999. In FY 2000, no appropriation was provided, but the Interior and Related Agencies Appropriations Act provided an advance appropriation of $36 million, which was paid in FY 2001 (second installment). The third, fourth and fifth installments of $36 million were paid at the beginning of FY 2002, FY 2003, and FY 2004 respectively. The Interior and Related Agencies Appropriations Act, 2004, included an advance appropriation for the sixth installment payable on October 1, 2004; and the FY 2005 amended request added an additional $36 million. The seventh installment of $83.52 million was paid made in FY 2006. The amount of the final payment cannot be determined until the equity determination process is completed and all associated costs are known. There is no request for funding in FY 2009.

Strategic Petroleum Reserve

The FY 2009 budget request continues expansion efforts which were initiated in FY 2008, including the acquisition of real estate for the proposed new facility in Richton, MS. In FY 2009, the request supports expansion of the existing sites in Bayou Chaoctaw, LA, (20 million barrels) and Big Hill, TX (80 million barrels).

Northeast Home Heating Oil Reserve

The FY 2009 budget request continues operation of the Reserve, including lease of commercial storage space.

Naval Petroleum Oil Shale Reserves

In FY 2009, the NPOSR program will continue Elk Hills environmental closeout efforts plus activities related to the settlement of ownership equity shares with the former unit partner in the NPR-1 field, Chevron U.S.A., Inc. The FY 2009 budget request also continues operation and maintenance of roughly half of the oil wells in NPR-3 and initiates remediation of facilities that are no longer of value to either production operations or RMOTC testing operations. Funding for RMOTC continues support of testing partners who use the facility for development and demonstration of new technologies.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Fossil Energy Research and Development

Coal (FY 2008 $493.4; FY 2009 $623.7).....+$130.3
An additional $19.9 million for coal research by federal employees at the National Energy Technology Laboratory is provided under Program Direction.

FutureGen ((FY 2008 $74.3; FY 2009 $156.0)..... +$81.7
In FY 2009, FutureGen activities include completing review and restructuring of strategic FutureGen approach, announcing project selection, and negotiating with industry partners.

Clean Coal Power Initiative ((FY 2008 $69.4; FY 2009 $85.0) ..... +$15.6
CCPI will complete the Round 3 solicitation, proposal evaluations, and project selections of advanced technology systems that capture CO_2 for sequestration or beneficial reuse.

Innovations for Existing Plants (IEP) (FY 2008 $36.1; FY 2009 $40.0)..... +$3.9
The increase raises the number of projects included in the Carbon Capture and Storage activity, which will develop post-combustion technologies to capture CO_2 emissions.

Integrated Gasification Combined Cycle ((FY 2008 $53.5; FY 2009 $69.0)..... +$15.5
The increase supports construction and commissioning of the 150-ton/day integrated gas turbine/Ion Transport Membrane (ITM) air separation unit which will provide engineering design data for scale-up and demonstration. The increase also supports scale-up of the ITM membrane fabrication process to support membrane development.

Advanced Turbines (FY 2008 $23.8; FY 2009 $28.0)..... +$4.2
The increase supports high-priority hydrogen turbine development for near-zero emission coal plants, including refinement of combustor designs and the development and testing of the turbine expander section of the machine to reduce leakage, improve efficiency, and increase power output.

Carbon Sequestration ((FY 2008 $118.9; FY 2009 $149.1)..... +$30.2
The increase supports site selection and characterization, regulatory permits, community outreach, and completion of site operations plan for large-scale, geologic, carbon storage tests. It also funds large-scale injections needed to continue towards injection and remaining infrastructure development. The additional funding also permits work on capture projects and initiates an effort to prepare for and augment the monitoring, mitigation, and verification which are being conducted in the Phase III tests.

Fuels (FY 2008 $24.8; FY 2009 $10.0)..... -$14.8
The decrease reflects the elimination of integrated coal-biomass processing for carbon emissions research, elimination of substitute natural gas and coal-to-liquids production research, and a right-sizing the level of effort in early engineering and design studies on hydrogen production modules near-zero emission coal plants.

Fuel Cells (FY 2008 $55.5; FY 2009 $60.0)..... +$4.5
The increase enables four Solid State Energy Conversion Alliance (SECA) Teams to develop systems to support delivery of $400/kW fuel cell systems capable of capturing greater than 90 percent carbon in an integrated near-zero emissions coal plant.

Advanced Research (FY 2008 $37.2; FY 2009 $26.6) ..... -$10.6
The primary decrease reflects completion of a report on liquefied natural gas ($8 million). Reductions in Sensors and Controls Innovations projects and suspension of projects focused on membrane development for hydrogen and air separation are partially offset by increases in several areas, including studies which support multi-year strategic planning and studies to identify challenges to technologies and advanced concepts that are applicable to fossil energy systems.

Natural Gas Technologies/Petroleum- Oil Technology (FY 2008 $24.8; FY 2009 $0)... -$24.8
Because these technologies are mature and can be continued by private industry, these programs are being terminated in FY 2009.

Program Direction (FY 2008 $148.6; FY 2009 $126.3)..... -$22.3
The decrease in due to efficiencies in support services activities, including facility, operations, maintenance, finance, information automation, administrative, and management/technical support. The decreased is also attributable to efficiencies in Other Related Expenses, such as supplies and materials, communications, utilities, and maintenance/service agreements.

Clean Coal Technology

Clean Coal Technology (FY 2008 -$58.0; FY 2009 $0)..... +$58.0
The FY 2009 budget request proposes to transfer $149 million in prior-year balances to the FutureGen and CCPI projects (both of which are funded within the FER&D appropriation) because these balances are no longer needed to complete active CCT projects.

Strategic Petroleum Reserve

Strategic Petroleum Reserve (FY 2008 $186.8; FY 2009 $344.0) ..... +$157.2
The change reflects completion of land acquisition activities for the Richton, MS site in FY 2008 and the addition of expansion activities at the two existing sites and the new site in FY 2009.

Naval Petroleum Reserve

Naval Petroleum and Oil Shale Reserves (FY 2008 $20.3; FY 2009 $19.1)..... -$1.2
The decrease is due to the completion of the Risk Assessment and Corrective Active Studies to determine the cleanup requirements of the Elk Hills site (NPR-1) and reductions in operating and facility maintenance costs at NPR-3.

Northeast Home Heating Oil Reserve

Northeast Home Heating Oil Reserve (FY 2008 $12.3; FY 2009 $9.8) ..... -$2.5
The decrease reflects the FY 2008 repurchase of heating oil sold in FY 2007 to finance the new storage contracts. The quantity will depend on the price at the time of bid solicitation.

Nuclear Energy

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Nuclear Energy					
Nuclear Energy					
Research and development	——	258,597	629,700	+371,103	+143.5%
Fuel cycle research and facilities	——	458,142	——	-458,142	-100.0%
Infrastructure	——	239,315	143,400	-95,915	-40.1%
Program direction	——	80,872	80,544	-328	-0.4%
Subtotal, Nuclear Energy	——	1,036,926	853,644	-183,282	-17.7%
Funding from other defense activities	——	-75,261	——	+75,261	+100.0%
Total, Nuclear Energy	——	961,665	853,644	-108,021	-11.2%
Energy Supply and Conservation					
University reactor infrastructure and education assistance	16,547	——	——	——	——
Research and development	300,452	——	——	——	——
Infrastructure	236,417	——	——	——	——
Program direction	62,600	——	——	——	——
Transfer from state department	12,500	——	——	——	——
Subtotal, Energy Supply and Conservation	628,516	——	——	——	——
Funding from other defense activities	-122,634	——	——	——	——
Funding from Naval Reactors	-13,365	——	——	——	——
Total, Energy Supply and Conservation	492,517	——	——	——	——
Other Defense Activities					
Infrastructure	91,872	75,261	78,811	+3,550	+4.7%
Mixed oxide fuel fabrication facility	——	——	487,008	+487,008	N/A
Program direction	30,844	——	——	——	——
Subtotal, Other Defense Activities	122,716	75,261	565,819	+490,558	+651.8%
Use of prior year balances and other adjustments	-3,003	-3,003	——	+3,003	+100.0%
Total, Other Defense Activities	119,713	72,258	565,819	+493,561	+683.1%
Total, Nuclear Energy	**612,230**	**1,033,923**	**1,419,463**	**+385,540**	**+37.3%**

The **Office of Nuclear Energy** (NE) is funded in two accounts within the Energy and Water Development Appropriation: Nuclear Energy and Other Defense Activities. All funding for research and development and landlord activities for the Idaho National Laboratory is requested in the Nuclear Energy account. Funding for Safeguards and Security and the Mixed Oxide Fuel Fabrication Facility is requested within Other Defense Activities. Within the two accounts, DOE is **requesting** a total of **$1.419 billion** for NE activities in **FY 2009**.

PROGRAM DESCRIPTION

NE leads the government's efforts to develop, in cooperation with industry, new nuclear energy generation technologies to meet energy and climate goals; develop advanced, proliferation-resistant nuclear fuel technologies that maximize energy from nuclear fuel; and maintain and enhance the national nuclear infrastructure. NE serves the present and future energy needs of the country by managing the safe operation and maintenance of our critical nuclear research infrastructure that provides nuclear technology goods and services. A key mission of DOE's nuclear energy research and development program is to lead the U.S. and international research community in planning and conducting applied research in next generation nuclear technologies. The aim of these efforts and those of our industrial and international partners is to enable nuclear energy to be used as a safe, advanced, cost-effective source of reliable energy that will help reverse climate change by reducing greenhouse gas emissions.

The programs within NE support development of new nuclear generation technologies that provide significant improvements in sustainability, economics, safety and reliability, proliferation resistance, and physical protection.

Through the **Advanced Fuel Cycle Initiative**, the technology development element of the **Global Nuclear Energy Partnership,** DOE seeks to develop advanced, proliferation-resistant nuclear fuel technologies that maximize the energy produced from nuclear fuel while minimizing wastes. The **Global Nuclear Energy Partnership** supports expansion of nuclear power plants in the United States and around the world, in addition to promoting nuclear nonproliferation goals and helping resolve nuclear waste disposal issues. The **Nuclear Power 2010** program partners with industry to support technology development and licensing demonstration activities. This work advances the President's National Energy Policy goals to enhance long-term U.S. energy independence by expanding the contribution of nuclear power to the nation's energy production portfolio. In addition, the **Generation IV Nuclear Energy Systems Initiative** establishes a basis for expansive cooperation with international partners to develop next-generation reactor systems that seek to improve the economic performance, safety, and proliferation-resistance of these next-generation systems. Finally, the **Nuclear Hydrogen Initiative** will develop advanced technologies that can be used in tandem with next-generation nuclear energy plants to generate economic, commercial quantities of hydrogen to support a sustainable, clean energy future for the United States.

PROGRAM HIGHLIGHTS

The FY 2009 request supports innovative applications of nuclear technology to develop new nuclear generation technologies and advanced energy products, develop advanced proliferation-resistant nuclear fuel technologies that maximize energy output, and maintain and enhance national nuclear capabilities to meet future challenges.

The **Advanced Fuel Cycle Initiative,** the technology development element of the **Global Nuclear Energy Partnership** is requesting $302 million in FY 2009 within research and development. This research and development program focuses on methods to reduce the volume and long-term toxicity of high-level waste from spent nuclear fuel, reduce the long-term proliferation threat posed by civilian inventories of plutonium in spent fuel, and provide for proliferation-resistant technologies to economically recover the energy content in spent nuclear fuel.

Advanced recycling technologies can extract highly radioactive elements of commercial spent nuclear fuel and use that material as fuel in nuclear reactors to generate additional electricity. The extracted material, including 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. 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 will facilitate the expansion of civilian nuclear power in the United States and encourage civilian nuclear power internationally to evolve in a more proliferation-resistant manner. The United States and other 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 partner 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.

Beginning in FY 2008, funding for the Mixed Oxide (MOX) Fuel Fabrication Facility, both construction and other project costs, was provided under the Nuclear Energy appropriation. Previously, all MOX funding was included in Defense Nuclear Nonproliferation appropriation. The Mixed Oxide Fuel Fabrication Facility program is requesting $487 million in FY 2009 within the Other Defense Appropriation.

The **Nuclear Power 2010** program is requesting $241.6 million in FY 2009 to continue industry interactions with NRC on the new plant license applications; issue Safety Evaluation Reports and Final Environmental Impact Statements; continue first-of-a-kind design finalization activities for the standardized AP1000 and Economic Simplified Boiling Water Reactor (ESBWR) designs; accelerate design finalization activities to complete vendor component/equipment procurement specifications and allow utilities to issue contracts to initiate long lead equipment; lower the risk of new plant construction by ensuring better price stability and cost control; resolve open ESBWR certification items to allow the NRC to issue Final Design approval; and initiate the design certification rulemaking.

The **Generation IV Nuclear Energy Systems Initiative** (Gen IV) program is requesting $70 million for important gas reactor R&D activities that will help achieve the desired goals of sustainability, economics, and proliferation resistance for next generation nuclear energy technologies. NGNP R&D includes broader activities conducted in support of the VHTR concept and benchmarking methodologies in conjunction with the Generation IV International Forum (GIF). Continued investigation of technical and economical challenges and risks are needed to support NGNP design and licensing basis development. Beginning in FY 2009, Gen IV R&D cross cutting technology areas will focus specifically on component and material aging and degradation where results will directly benefit existing nuclear plants by developing technologies that may allow extension of their current operating licensing period and by designing advanced reactor concept plants with a longer operating life.

The **Nuclear Hydrogen Initiative** (NHI) program is requesting $16.6 million to conduct research and development on enabling technologies, demonstrate nuclear-based hydrogen production technologies, and develop technologies that will apply heat from Generation IV nuclear energy systems to produce hydrogen. DOE's Offices of Nuclear Energy, Fossil Energy, Science, and Energy Efficiency and Renewable Energy are working together to provide the technological underpinnings of the **Hydrogen Fuel Initiative**.

The **Radiological Facilities Management** program is requesting $38.7 million to maintain important DOE nuclear technology facilities in a safe, secure, environmentally compliant and cost-effective manner. to support national priorities, including the provision of radioisotope power systems that can generate electrical power in remote harsh environments for space exploration. Beginning in FY 2009, the Medical Isotope Program will transfer to the Office of Science.

The **Idaho Facilities Management** program ($104.7) provides Idaho National Laboratory (INL) with the site-wide infrastructure required to support the laboratory's research and development programs by ensuring that the Department's unique facilities, required for advanced nuclear energy technology research and development, are maintained and operated such that they are available to support national priorities. Key activities conducted under this program include ensuring that all NE facilities meet essential safety and environmental requirements and are maintained at user-ready levels. Other key activities include managing all special nuclear materials contained in these facilities and the disposition of DOE materials under NE ownership. In FY 2005, the Department developed a detailed INL Ten-Year Site Plan which is updated annually that guides its investments in INL's infrastructure over the next decade.

The **Idaho Site-Wide Safeguards and Security** program protects DOE interests from theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts, which could adversely impact national security, program continuity, the health and safety of INL employees, the public, or the environment.

Program Direction provides the federal staffing resources and associated costs required to provide overall direction and execution of the Department's Nuclear Energy program.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Nuclear Power 2010 (FY 2008 $133.8; FY 2009 $241.6) ..... +$107.8
Additional funds are requested to maintain the overall schedule to complete the reactor design certifications and continue two cost-shared licensing demonstrations NRC to support utility decisions by 2010 to build new nuclear plants. The increase further supports the acceleration of first-of- a-kind-engineering to support long-lead procurement, decisions by state regulators, and construction decisions in support of 2015 operation.

Generation IV Nuclear Energy Systems Initiative
(FY 2008 $114.9; FY 2009 $70.0)..... -$44.9
Decrease reflects elimination of Russian gas reactor work and work on deep burn characteristics of gas-cooled reactors, and a refined focus on important R&D as informed by design activities conducted in FY 2007 and FY 2008.

Nuclear Hydrogen Initiative (FY 2008 $9.9; FY 2009 $16.6)..... +$6.7
Increase reflects the need to obtain additional operational performance data from the Integrated Laboratory Scale experiments that were deferred in FY 2008.

Advanced Fuel Cycle Initiative (FY 2008 $179.4; FY 2009 $301.5)..... +$122.1
In FY 2009, funding for this program is being requested in Research and Development as opposed to Fuel Cycle Research and Facilities. Increase reflects enhanced R&D activity to support separations technology development (+$21.4); expanded fuels research (+$17.7); expanded longer-term activities for the advanced recycling reactor such as nuclear physics data, advanced materials research and advanced integrated or compact components and incorporates grid appropriate reactor research (+$37.5); expanded activities for the Advanced Computing and Modeling and Simulation program to improve the safety, performance and economics of nuclear reactors (+$32.9); expanded conceptual design activities for the Advanced Fuel Cycle Facility (+$6.4); continued efforts with industry on deployment studies for the Consolidated Fuel Treatment Center and the Advanced Burner Reactor (+$11.3); expanded work with other nations to implement the global aspects of GNEP (+$4.5); continued development of a fast neutron test source (+$10.0). These increases are offset by decreases in the transmutation education program line (-$3.0) that reflect a new approach for funding GNEP activities at universities that involve competitive solicitations under specific AFCI research and development program activities; and a reduction in U.S. government-provided GNEP technology development activities in support of industry design concepts (-$16.5).

Radiological Facilities Management (FY 2008 $48.1; FY 2009 $38.7)..... -$9.4
Decrease is primarily due to the transfer of the Medical Isotope Program to the Office of Science (-$14.8). Decrease is offset by an increase in the Space and Defense Infrastructure program for capital equipment purchases and maintenance activities deferred from FY 2008 (+$4.6); and an increase in fuel conversion activities for the Research Reactor Infrastructure program (+$0.8).

Idaho Sitewide Safeguards and Security (FY 2008 $72.3; FY 2009 $78.8)..... +$6.5
Increase reflects escalation with no FTE increase associated with the contract negotiated with the protective forces and the necessary improvements to cyber security infrastructure and classified and unclassified programs to ensure the proper identification and protection of electronically processed, transmitted, and stored information.

MOX Fuel Fabrication Facility (FY 2008 $278.8; FY 2009 $487.0)..... +$208.2
In FY 2009, funding for this program is being requested in the Other Defense Appropriation as opposed to the Nuclear Energy Appropriation. Increase supports the continuation of activities to prepare reactors for the use of MOX fuel, prepare feedstock for production of

MOX fuel, and material transportation; continuation of feed material characterization for the MOX Project; installation of additional floors in the fabrication facility, installation of procured equipment, mechanical and electrical utilities, and procurement of processing equipment; and management oversight, design reviews, facility start-up test, and review of the operating license application.

Energy Information Administration

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Energy Information Administration					
National energy information system	90,653	95,460	110,595	+15,135	+15.9%

PROGRAM DESCRIPTION

The **Energy Information Administration** (EIA) is an independent statistical agency that collects, analyzes, produces, and disseminates policy-neutral energy data, analyses, and forecasts covering the full range of fuels and a wide variety of energy issues. Topics include energy reserves, production, consumption, distribution, prices, technology, and related international economic and financial markets. Many of EIA's activities are required by statute.

PROGRAM HIGHLIGHTS

The EIA **FY 2009 request** is **$110.6 million**, which is a $15.1 million increase over the FY 2008 current appropriation of $95.5 million. EIA's base program includes the maintenance of a comprehensive energy database fully supported by a secure data transmission, access, and processing capability; the operation of modeling systems for both near- and mid-term energy market analysis and forecasting; and dissemination of its energy data and analyses to a wide variety of customers in the public and private sectors through the National Energy Information Center.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

Energy Information Administration (FY 2008 $95.5; FY 2009 $110.6).....+$15.1
Increased funding improves EIA's capability to close energy information gaps, strengthen analysis, and address growing energy data quality issues. Provides for the resumption of the petroleum and natural gas data quality initiative as authorized in the Energy Independence and Security Act of 2007 (+$2.7), provides continued support to develop and begin initiating monthly EPAct 2005 ethanol and biofuels data collections (+$3.4), resumes development and testing of the next generation National Energy Model (+$3.2), enhances EIA's global oil, gas, and coal markets data, analysis, and forecasting capabilities (+$1.9), provides increased support for the energy consumption surveys to maintain operating the surveys on a quadrennial basis (+$0.6), and resumes collecting the environmental data essential to EPA and States that was previously collected by the EIA-767, *Steam-Electric Plant Operation and Design Report* (+$0.3). Provides for increases in Other Related Expenses related to Working Capita Fund, training, supplies and materials, and mandatory IT certifications and cyber security requirements (+$1.7), as well as, for general pay increases, promotions, and within-grade increases (+$1.3).

Power Marketing Administrations

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Power Marketing Administrations					
Southeastern Power Administration					
Southeastern power administration	52,800	68,619	70,942	+2,323	+3.4%
Less alternative financing (for PPW)/Offsetting collection	-47,198	-62,215	-63,522	-1,307	-2.1%
Total, Southeastern Power Administration	5,602	6,404	7,420	+1,016	+15.9%
Southwestern Power Administration					
Southwestern power administration	42,398	83,215	89,186	+5,971	+7.2%
Less alternative financing/Offsetting collection	-12,400	-53,050	-60,772	-7,722	-14.6%
Total, Southwestern Power Administration	29,998	30,165	28,414	-1,751	-5.8%
Western Area Power Administration					
Western area power administration	688,251	753,788	826,634	+72,846	+9.7%
Less alternative financing/ Offsetting collection (P.L. 108-477/109-103)	-452,220	-520,944	-629,922	-108,978	-20.9%
Offsetting collections (P.L. 98-381)	-3,705	-3,937	-3,366	+571	+14.5%
Total, Western Area Power Administration	232,326	228,907	193,346	-35,561	-15.5%
Falcon and Amistad Operating and Maintenance Fund					
Operation and maintenance	2,665	2,477	2,959	+482	+19.5%
Colorado River Basins Power Marketing Fund					
Spending authority from offsetting collections	186,221	232,145	240,284	+8,139	+3.5%
Offsetting collections	-186,221	-255,145	-263,284	-8,139	-3.2%
Total, Colorado River Basins	——	-23,000	-23,000	——	——
Total, Power Marketing Administrations	**270,591**	**244,953**	**209,139**	**-35,814**	**-14.6%**

PROGRAM DESCRIPTION

The four **Power Marketing Administrations** (PMAs) sell electricity primarily generated by hydropower projects located at federal dams, contributing to the reliability of the nation's electricity supply and grid. Preference in the sale of power is given to public entities and electric cooperatives. Revenues from the sale of federal power and transmission services are used to repay all related power costs.

The **Southeastern Power Administration** (Southeastern) markets and delivers all available federal hydroelectric power from 22 U.S. Army Corps of Engineers (Corps) multipurpose projects to preference customers in an eleven-state area in the southeastern United States. Southeastern does not own or operate any transmission facilities, and contracts with regional utilities that own electric transmission systems to deliver the federal hydropower to Southeastern's customers.

The **Southwestern Power Administration** (Southwestern) markets and delivers all available federal hydroelectric power from 24 Corps hydroelectric power projects and participates with other water resource users in an effort to balance diverse interests with power needs. To deliver power to its customers, Southwestern maintains 1,380 miles of high-voltage transmission lines, 24 substations, and 47 microwave and VHF radio sites. The President's budget request for Southwestern provides for maintenance, additions, replacements, and interconnections assuring a clean, affordable and reliable federal power system, which is an integral part of the nation's electrical grid.

The **Western Area Power Administration** (Western) markets and transmits federal power to a 1.3-million-square-mile service area in 15 central and western states from 56

Federally-owned hydroelectric power plants primarily operated by the U.S. Department of the Interior's Bureau of Reclamation (Bureau), the Corps, and the International Boundary and Water Commission. Western also markets the United States' entitlement to power from the Navajo coal-fired power plant near Page, Arizona.

The **Bonneville Power Administration** (Bonneville) provides electric power, transmission, and energy services to a 300,000-square-mile service area in eight states in the Pacific Northwest. Bonneville wholesales the power produced at 31 federal projects operated by the Corps and the Bureau and from certain non-federal generating facilities. Bonneville, which is self-financed with revenues, funds the expense portion of its budget, and the power operations and maintenance costs of the Bureau and the Corps in the Federal Columbia River Power System. The capital portion of the budget is funded mostly through borrowing from the U.S. Treasury with some non-federal financing and is repaid with market-determined interest from its revenues.

PROGRAM HIGHLIGHTS

The PMAs' FY 2009 budgets do not assume Net Zero appropriations for the PMAs' annual expenses because there was no agreement between the Administration and Congress to reclassify PMA receipts from mandatory to discretionary for annual operating expenses. Nevertheless, the Administration supports this reclassification and Net Zero appropriations and will continue to pursue both for the annual expenses of these PMAs.

The Bonneville Power Administration (Bonneville), unlike the three other PMAs, is "self-financed" by the ratepayers of the Pacific Northwest and receives no direct, annual appropriations from Congress. Under the Federal Columbia River Transmission System Act of 1974, Bonneville funds the expense portion of its budget and repays the federal investment and bonds issued to the Treasury with revenues from electric power and transmission rates. In some recent years, Bonneville has received substantial amounts from net secondary revenue sales – in FY 2006, Bonneville's net secondary market revenues were in excess of $700 million, the highest amount ever.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

Southeastern Power Administration (FY 2008 $6.4; FY 2009 $7.4) ..... +$1.0

Program Direction (FY 2008 $6.4; FY 2009 $7.4) ..... +$1.0
Increase reflects the full effect of the FY 2009 salaries and benefits increase as well as mission related travel and other operating expenses. The FY 2009 funding level allows Southeastern to maintain its current level of 44 FTEs in FY 2009.

Purchase Power and Wheeling (FY 2008 $62.2; FY 2009 $63.5) ..... +$1.3
(FY 2008 alternative financing $13.8; use of receipts $48.4; FY 2009 alternative financing $14.0; use of receipts $49.5). The FY 2009 request provides for higher pumping energy costs to support the Richard B. Russell, Carters projects and power

purchase at the Jim Woodruff project. Increased pumping expenses reflect overall higher fuel expenses incurred by utilities that provide pumping energy and increased transmission expenses. This funding level will allow Southeastern to purchase and deliver energy to meet limited peaking power contractual obligations. Federal power receipts as well as alternative financing methods, including net billing, bill crediting, and customer advances will be used to fully offset the costs of system operations. Customers provide other resources and/or purchases for the remainder of their firm loads.

Alternative Financing (FY 2008 -$13.8; FY 2009 -$14.0)..... -$0.2
In FY 2009, alternative financing will be used to offset Purchase Power and Wheeling expenses, which enables Southeastern to continue to meet their annual operation and maintenance requirements and purchase power and wheeling needs.

Southwestern Power Administration (FY 2008 $30.2; FY 2009 $28.4) ..... -$1.8

Operations and Maintenance (FY 2008 $11.9; FY 2009 $12.9) ..... +$1.0
Increase reflects funding for the control area boundary projects; transmission line sag survey, installation of substation grounding and drainage; substation equipment replacements, including power circuit breakers, disconnect switches, relays, and a transformer; and the replacement of special purpose vehicles used in the maintenance and repair of the transmission system and facilities.

Program Direction (FY 2008 $22.1; FY 2009 $24.3) ..... +$2.3
Increase in salaries and benefits reflect wage survey-based, union-negotiated, Administratively determined pay adjustments, and mission related travel to maintain the transmission system. The FY 2009 level of funding allows Southwestern to maintain its current level of 179 FTEs.

Purchase Power and Wheeling (FY 2008 $45.0; FY 2009 $46.0) ..... +$1.0
(FY 2008 alternative financing $10.0; use of receipts $35.0; FY 2009 alternative financing $11.0; use of receipts $35.0 (+1.0)). Increase supports Southwestern's anticipated needs to ensure adequate funding to fulfill its 1200-hour peaking power contractual obligations based on volatile market prices, limited availability of energy banks, and all but the most severe hydrological conditions. The amount of alternative financing will offset the costs of purchase power and wheeling, system support and other contractual obligations. When hydro generation is below normal, Southwestern will utilize the Continuing Fund to defray emergency expenses to ensure continuity of electric service.

Construction (FY 2008 $4.3; FY 2009 $6.0) ..... +$1.7
Increase supports high priority upgrade of the station bus and associated equipment at the Bull Shoals Dam switchyard.

Alternative Financing (FY 2008 -$18.1; FY 2009 -$25.8)..... -$7.7
In FY 2009, alternative financing will be used to offset Program Direction (-$2.2); Operations and Maintenance (-$9.4); Construction (-$3.2 and Purchase Power and wheeling (-$11.0) to allow Southwestern to continue to meet their annual operation and maintenance requirements.

Western Area Power Administration (FY 2008 $228.9; FY 2009 $193.3)..... -$35.6
FY 2009 Construction, Rehabilitation, Operation, and Maintenance program level is $826.6 (compared to $753.8 in FY 2008) and will be funded by $193.3 in budget authority; and $328.1 in offsetting collections for Purchase Power and Wheeling; $3.4 through a

reimbursable agreement with the Bureau of Reclamation using offsetting collections from P.L. 98-381 from the Colorado River Dam Fund; and $301.8 of alternative financing.

Purchase Power and Wheeling (FY 2008 $475.3; FY 2009 $526.0).....+$50.7
(FY 2008 alternative financing $166.6; use of receipts $308.7; FY 2009 alternative financing $197.8; use of receipts $328.1). FY 2009 increase in purchase power and wheeling reflects continued long-term drought conditions in the Pick-Sloan Missouri River Basin, and increase in energy services provided by the Central Valley Project, the majority of which are alternatively financed. As a result, purchase power and requirements are expected to increase from 7,529 GWhs in FY 2008 to 8,975 GWhs in FY 2009. Offsetting this however, is a decrease in the average purchase power prices budgeted for FY 2009 based on prior year market conditions.

Program Direction (FY 2008 $156.1; FY 2009 $166.4) .....+$10.3
Increase reflects the full effect of Western's FY 2009 pay raise in the base, to include those salaries determined by prevailing rates in the electric utility industry. Increase also reflects additional workscope in support of Western's mission for services in communication, engineering, power billing system support, and the Market Redesign Technology Upgrade.

Construction and Rehabilitation (FY 2008 $62.4; FY 2009 $74.5).....+$12.7
Increase provides for the initiation of a number of substation rehabilitation projects across Western's service area, and several new transmission line rebuild projects. The Budget also continues funding of several transmission line rebuild and substation rehabilitation projects initiated in prior years. The projects help to support the reliability and security of Western power deliveries, and the interconnected transmission system within which we operate. The FY 2009 budget relies significantly on alternative customer financing for the capital program requirements.

Operation and Maintenance (FY 2008 $52.9; FY 2009 $52.4) .....-$0.5
The decrease reflects fewer replacements and additions of electrical equipment which is a result of a decrease in purchases of specialized test equipment, steel pole replacement program and in reactor cap bank replacements. This decrease is offset by a slight increase in regular O&M activities, and is based on cyclical maintenance activity to Western's transmission system.

Utah Reclamation Mitigation & Conservation (FY 2008 $7.1; FY 2009 $7.3) .+$0.2
FY 2009 request provides for Western's annual transfer of funding to the Utah Reclamation Mitigation and Conservation account from the Construction Rehabilitation, Operations and Maintenance account.

Offsetting Collections (FY 2008 -$312.6; FY 2009 -$331.5).....-$18.9
In FY 2009, Western will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-$328.1) and use Colorado River Dam Fund receipts (-$3.4) to support Boulder Canyon Project activities.

Alternative Financing (FY 2008 -$212.2; FY 2009 -$301.8).....-$89.6
In FY 2009, alternative financing methods, primarily cash advances from customers, will be used to offset Program Direction (-$15.8); Operation and Maintenance (-$15.5); Construction (-$72.7); Purchase Power and Wheeling (-$197.8) to allow Western to continue to meet their annual operations and maintenance requirements and purchase power and wheeling needs.

Bonneville Power Administration (self financed through revenues)
Budget Obligations (FY 2008 $3,301; FY 2009 $3,550) ..... +$249.0
No direct annual appropriations are received from Congress. In FY 2009, total requirements of all Bonneville programs include estimated budget obligations of $3,550 million. This amount includes operating expenses of $2,865 million, capital investments of $560 million, and $125 million in projects funded in advance; with $276 million in capital transfers. These investments provide electric utility and general plant requirements associated with the Federal Columbia River Power System's transmission services, capital equipment, hydroelectric projects, conservation, and capital investments in environment, fish, and wildlife. Increase in operating expenses primarily reflects increases in power purchases, transmission reliability improvements, and Columbia Generating Station operations and maintenance expenses. Increase in capital investments primarily reflects changes in power and transmission services.

Power Services-Capital (FY 2008 $159.0; FY 2009 $137.0)..... -$22.0
The FY 2009 budget provides for additions, improvements, and replacements of existing U.S. Bureau of Reclamation and U.S. Army corps of Engineers' hydroelectric projects in the Pacific Northwest to improve power systems reliability. In FY 2009, slight decrease in associated project costs due to reallocation of funding requirements based on the need to maintain a minimum level of generation each year.

Transmission Services-Capital (FY 2008 $242.0; FY 2009 $294.0) ..... +$52.0
FY 2009 funding provides for planning, design and construction of transmission lines, substation, control system additions, replacements, and enhancements to the FCRPS transmission system, including initiation of design and construction of various radio replacements at accessible sites. Increase in FY 2009 reflects increase in Main Grid projects and Projects Funded in Advance.

Innovative Technology Loan Guarantee Program

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Innovative Technology Loan Guarantee Program					
Innovative Technology Loan Guarantee Program					
Administrative operations	——	5,459	19,880	+14,421	+264.2%
Loan guarantee, offsetting collections	——	-1,000	-19,880	-18,880	-1,888.0%
Total, Innovative Technology Loan Guarantee	**——**	**4,459**	**——**	**-4,459**	**-100.0%**
Loan Guarantee					
Departmental Administration					
Loan guarantee	7,000	——	——	——	——
Total, Loan Guarantee	**7,000**	**——**	**——**	**——**	**——**

The **Loan Guarantee Program Office** will consider and coordinate Departmental action on all loan guarantee applications submitted to the Department of Energy in compliance with Title XVII of the Energy Policy Act of 2005 (EPAct05). Section 1703 of that Act authorizes the Department to provide loan guarantees for renewable energy systems, advanced nuclear facilities, coal gasification, carbon sequestration, energy efficiency, and many other types of projects. These projects must avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; employ new or significantly improved technologies compared to commercial technologies in service in the United States at the time the guarantee is issued; and offer a reasonable prospect of repayment of the principal and interest on the guaranteed obligation.

The Loan Guarantee Program Office first received direct appropriations, as part of the Departmental Administration Account, in FY 2007 under Public Law 110-5, to serve as a central coordinating office for loan guarantee applications submitted pursuant to the EPAct05, Title XVII. Beginning in FY 2008, the administrative activities for the Loan Guarantee Program Office will be funded in a separate discreet appropriation account titled "Innovative Technology Loan Guarantee Program."

PROGRAM DESCRIPTION

The Loan Guarantee Program Office will centralize loan guarantee services for DOE to ensure all processes and criteria are applied uniformly in accordance with established requirements, procedures and guidelines. The projects supported by this program will complement and encourage industry efforts to bring more advanced technologies into the marketplace.

PROGRAM HIGHLIGHTS

On October 23, 2007, the Department published in the Federal Register final regulations for the Loan Guarantee Program Office as authorized by Title XVII of the EPAct05. The final rule was the culmination of a public rulemaking process, which began with a Notice of Proposed Rulemaking published on May 16, 2007. DOE is implementing this program under authorizing law that allows borrowers to pay the credit subsidy costs of these loan guarantees. DOE is not seeking appropriations for the credit subsidy costs.

On October 4, 2007, the Department invited 16 project sponsors, who submitted pre-applications under the first solicitation in the fall of 2006, to submit full applications for loan guarantees. These projects include advanced technologies involving the use of biomass, fossil energy, solar, industrial energy efficiency, electricity delivery and energy reliability, hydrogen, and alternative fuel vehicles. The decision to issue loan guarantees will depend

on the merits and benefits of particular project proposals and their compliance with statutory and regulatory requirements.

During FY 2008 through 2011, commitments to guarantee loans under Title XVII of the Energy Policy Act of 2005, will total $38.5 billion. In the Omnibus Appropriations Act, 2008, Congress authorized the Department to issue loan guarantees under the Title XVII program until September 30, 2009. The FY 2009 budget now extends that authorization through FY 2010 and 2011, and specifies amounts and uses of loan guarantee authority for those periods consistent with congressional guidance accompanying the FY 2008 Appropriations Act. Of the total provided, $20.0 billion will be available through FY 2010 to support eligible projects other than nuclear power facilities. The remaining $18.5 billion will be available through FY 2011 to support nuclear power facilities. The $38.5 billion provided in FY 2008 through 2011 will be in addition to the $4.0 billion in authority provided in FY 2007 under Section 20320 of Division B of Public Law 109-289, as amended by Public Law 110-5.

Because DOE has not yet evaluated the potential subsidy costs for any projects that might be eligible for Title XVII loan guarantees, the FY 2009 budget reflects placeholder estimates for borrower paid loan guarantee subsidy costs, based on an illustrative portfolio. These estimates are not related to any specific project proposals.

The Department requests $19.9 million in funding in FY 2009 for administrative expenses to operate the office and support personnel and associated costs. This request will be offset by collections authorized under the EPAct05.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Loan Guarantee Program Office (FY 2008 $4.5; FY 2009 $0) ..... -$4.5

Administrative Operations (FY 2008 $5.5; FY 2009 $19.9) ..... +$14.4
Increase in administrative operations supports an additional 19 FTEs from 16 FTEs in FY 2008 to 35 FTEs in FY 2009 to adequately staff the office to perform required tasking that is necessary to support the total loan guarantee authority level provided from FY 2007 through 2011.

Offsetting Collections (FY 2008 -$1.0; FY 2009 -$19.9) ..... -$18.9
The Department requests $19.9 million in funding in FY 2009 to run the Office and support personnel and associated costs. This request will be offset by estimated collections of $19.9 million as authorized under the EPAct05.

SECTION 2. NUCLEAR SECURITY

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
National Security					
Weapons	6,258,583	6,297,466	6,618,079	+320,613	+5.1%
Defense Nuclear Nonproliferation	1,824,202	1,335,996	1,247,048	-88,948	-6.7%
Naval Reactors	781,800	774,686	828,054	+53,368	+6.9%
Office of the Administrator	358,291	402,137	404,081	+1,944	+0.5%
Total, National Nuclear Security Administration	**9,222,876**	**8,810,285**	**9,097,262**	**+286,977**	**+3.3%**

Nuclear Security Strategic Theme: Ensuring America's nuclear security

Goal 2.1 Nuclear Deterrent – Transform the nation's nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st Century

Goal 2.2 Weapons of Mass Destruction – Prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction and in other acts of terrorism

Goal 2.3 Nuclear Propulsion Plants – Provide safe, militarily effective nuclear propulsion plants to the U.S. Navy

Weapons Activities – NNSA

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Weapons Activities					
Directed stockpile work	1,430,192	1,401,252	1,675,715	+274,463	+19.6%
Science campaign	267,758	287,624	323,070	+35,446	+12.3%
Engineering campaign	161,736	169,548	142,742	-26,806	-15.8%
Inertial confinement fusion and high yield campaign	489,706	470,206	421,242	-48,964	-10.4%
Advanced simulation and computing campaign	611,253	574,537	561,742	-12,795	-2.2%
Pit manufacturing and certification campaign	242,392	213,831	——	-213,831	-100.0%
Readiness campaign	201,713	158,088	183,037	+24,949	+15.8%
Readiness in technical base & facilities	1,613,241	1,637,381	1,720,523	+83,142	+5.1%
Secure transportation asset	209,537	211,523	221,072	+9,549	+4.5%
Nuclear weapons incident response	133,514	158,655	221,936	+63,281	+39.9%
Facilities and infrastructure recapitalization program	169,383	179,991	169,549	-10,442	-5.8%
Environmental projects and operations	——	8,592	40,587	+31,995	+372.4%
Transformation disposition	——	——	77,391	+77,391	N/A
Safeguards and security	761,158	899,520	859,839	-39,681	-4.4%
Congressionally directed projects	——	47,232	——	-47,232	-100.0%
Subtotal, Weapons Activities	6,291,583	6,417,980	6,618,445	+200,465	+3.1%
Use of prior year balances and other adjustments	-33,000	-120,514	-366	+120,148	+99.7%
Total, Weapons Activities	**6,258,583**	**6,297,466**	**6,618,079**	**+320,613**	**+5.1%**

PROGRAM DESCRIPTION

One of the statutory missions of the National Nuclear Security Administration (NNSA) is to maintain and enhance the safety, security, and reliability of the U.S. nuclear weapons stockpile to meet national security requirements. The mission is carried out in partnership with the Department of Defense, with NNSA providing research, development, and production activities supporting the U.S. nuclear weapons stockpile.

The **Weapons Activities request for FY 2009 is $6.6 billion**, an increase of $320.6 million or 5.1 percent above the FY 2008 funding level. The FY 2009 request allows for continued support to meet the needs of the stockpile, stockpile surveillance, annual assessment, and Life Extension Programs. The main components of the **Weapons Activities** budget request are Directed Stockpile Work; Campaigns; Readiness in Technical Base and Facilities; Secure Transportation Asset; Nuclear Weapons Incident Response; Facilities and Infrastructure Recapitalization Program; Environmental Projects and Operations; and Safeguards and Security. Program Direction activities, except for Secure Transportation Asset, are funded in the Office of the Administrator account.

Directed Stockpile Work (DSW) activities ensure the operational readiness of the nuclear weapons in the nation's stockpile through maintenance, evaluation, refurbishment, reliability assessment, weapon dismantlement and disposal, research, development, and certification activities. The FY 2009 request is organized by Life Extension Programs, Stockpile Systems, Reliable Replacement Warhead, Weapons Dismantlement and Disposition, and Stockpile Services. The request places a high priority on accomplishing the near-term workload and supporting technologies for the stockpile along with the long-term science and technology investments to ensure the capability and capacity to support ongoing missions.

Campaigns are focused on scientific and technical efforts essential for the certification, maintenance and life extension of the stockpile. The program has allowed NNSA to maintain the moratorium on underground testing, and move to "science-based" certification and assessments for stewardship by relying on experiments, modeling, simulation, surveillance

and historical underground nuclear testing experience. The **Science and Engineering Campaigns** are focused to provide the basic scientific understanding and the technologies required for the Directed Stockpile Work and the completion of new scientific and experimental facilities. In the **Inertial Confinement Fusion Ignition and High Yield Campaign**, the **National Ignition Facility** will focus on the 2010 ignition goal. The **Advanced Simulation and Computing Campaign** will continue to improve capabilities through development of faster computational platforms in partnership with private industry, and with state of the art techniques for calculations, modeling and simulation, and analysis of highly complex weapons physics information. The **Readiness Campaign** is technology-based efforts to reestablish and enhance manufacturing and other capabilities needed to meet planned weapon component production.

Readiness in Technical Base and Facilities (RTBF) supports the underlying physical infrastructure and operational readiness required to conduct weapons activities at the eight NNSA sites: three national weapons laboratories, four production sites, and the Nevada Test Site. $1.7 billion is allocated annually to ensure that principal government owned, contractor operated facilities are operational, safe, secure, compliant with regulatory requirements, and able to sustain a defined level of readiness to execute tasks identified in the Campaigns and Directed Stockpile Work.

Secure Transportation Asset provides for the safe, secure movement of nuclear weapons, special nuclear materials, and weapon components between military locations and nuclear complex facilities within the United States. Program direction funds, principally for the courier workforce, are also included within this activity.

Nuclear Weapons Incident Response (NWIR) funding provides for emergency management and response activities that ensure a central point of contact and integrated response to emergencies requiring DOE assistance. It also includes program funding for Render Safe Research and Development, National Technical Nuclear Forensics (NTNF) Stabilization and Implementation, International Emergency Management and Cooperation and Nuclear Counter Terrorism.

Facilities and Infrastructure Recapitalization Program (FIRP) is designed to restore, rebuild, and revitalize the physical infrastructure of the nuclear weapons complex. The FIRP program addresses an integrated, prioritized list of maintenance and infrastructure projects, separate from base maintenance and infrastructure efforts under RTBF, which will significantly increase the operational efficiency and effectiveness of the NNSA sites. It preferentially targets deferred maintenance and footprint reduction. The program is supported by the **Nuclear Posture Review**, which calls for a modernized infrastructure by upgrading key facilities with a dedicated refurbishment program.

The **Environmental Projects and Operations Program** reduces risks to human health and the environment at NNSA sites and adjacent areas, by operating and maintaining environmental cleanup systems installed by the Office of Environmental Management, and performing long-term environmental activities and analyses that assures compliance with federal, state, and local requirements.

Transformation Disposition is proposed as a new program for FY 2009 to eliminate over 10 million square feet of excess facilities across the Weapons complex. The program supports the complex transformation vision. The program will capitalize upon the management expertise and proven performance in facility disposition built through the Facilities and Infrastructure Recapitalization Program.

Safeguards and Security provides funding for all **Defense Nuclear Security** physical and personnel security, and **Cyber Security** activities at the NNSA landlord sites, specifically, the three national weapons laboratories, the Nevada Test Site, and the four production plant

sites. Funding for security investigations of management and operations contractors at NNSA landlord sites is included in the DOE Security program request.

PROGRAM HIGHLIGHTS

The FY 2009 request continues significant efforts to meet priorities to leverage science and to promote national security. Key focus areas include:

In January, 2008, NNSA announced a *preferred alternative* for the future nuclear weapons complex infrastructure that identifies the proposed major facilities, and consolidations of missions, capabilities, and special nuclear materials. The FY 2009 budget includes funding to pursue a program consistent with the preferred alternative for **Complex Transformation**, to be promulgated through a Record of Decision in 2008. Major elements found in the FY 2009 request are:

- Consolidation of Category I &II special nuclear materials from seven to five sites by 2012
- Designating Technical Area-55 at Los Alamos National Laboratory as the center for plutonium research and development and production. The Chemistry and Metallurgy Research Replacement-Nuclear Facility would be built to support production at this site.
- Y-12 National Security Complex at Oak Ridge, TN, remains the uranium R&D and production center. The FY 2009 request includes $96 million for design of a Uranium Processing Facility at Y-12.
- Pantex Plant at Amarillo, TX, remains the weapons assembly/disassembly center. Non-destructive surveillance would be consolidated at Pantex and SNM would be consolidated leading to the proposed elimination of the Zone 4 security area.
- Tonopah Test Range (TTR), NV, would cease operations and NNSA would conduct flight testing at Department of Defense facilities.
- Major environmental testing would be consolidated at Sandia National Laboratories (SNL) in New Mexico, and high-consequence testing would be consolidated at the Nevada Test Site (NTS).
- Tritium experimental operations will be consolidated at the Savannah River Site.
- Missions and capabilities across the Complex would be consolidated to facilitate elimination of numerous buildings and structures from Weapons Activity budgets.
- Pantex Plant at Amarillo, Texas, remains the weapons assembly/disassembly center. Non-destructive surveillance

The Consolidated Appropriations Act, 2008, did not contain funding for the **Reliable Replacement Warhead** (RRW). The FY 2009 request, continues work related to the Reliable Replacement Warhead (RRW) concept and design in three areas: within Directed Stockpile Work, $10 million is included in FY 2009 to enable maturation of the design in order to address questions raised by the JASON Advisory Group review; in the Science Campaign, the Advanced Certification program will continue efforts begun in FY 2008 at the direction of the Congress to review, evaluate and implement key recommendations from the JASON Advisory Group RRW study regarding approaches to establishing an accredited warhead certification plan without nuclear testing, and within Enhanced Surety, evaluation of surety options for possible future systems, whether LEPs or RRW systems

The **Pit Manufacturing and Certification Campaign** is concluded with the successful manufacturing and certification of the W88 pit. Therefore, for FY 2009 the Pit Manufacturing related activities are consolidated within the direct stockpile work stockpile

services program and Pit Certification activities are relocated within the Science Campaign.

Nuclear Weapons Incident Response receives two functional transfers, the **International Emergency Management and Cooperation** program from Defense Nuclear Nonproliferation and **Nuclear Counterterrorism** activities formerly funded within Directed Stockpile Work.

The FY 2009 request includes funding for the **Pit Disassembly and Conversation Facility** and related activities following the Consolidated Appropriation Act, 2008, which funded the project within the Weapons Activities account.

Cyber Security funding increases by 22 percent to continue urgent, high priority actions to address problem areas at the laboratories, and to continue systematic revitalization of the cyber security infrastructure. The Safeguards and Security Defense Nuclear Security will be direct-funded starting in FY 2009, eliminating the offset to the appropriation.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

Weapons Activities (FY 2008 $6,297.5; FY 2009 $6,618.1) .....+$320.6
FY 2008 request is 5.1 percent above the FY 2008. This funding will meet ongoing needs of the stockpile, stockpile surveillance, annual assessment, and Life Extension Programs as supported by the Nuclear Posture Review. Funding is consistent with planned program funding levels in the NNSA's Future Years Nuclear Security Program.

Directed Stockpile Work (FY 2008 $1,401.3; FY 2009 $1,675.7) .....+$274.5
FY 2009 request is 19.6 percent above the FY 2008 level and is to ensure that the nuclear warheads and bombs in the U.S. nuclear weapons stockpile are safe, secure, and reliable. The Directed Stockpile Work effort has been coordinated with the Department of Defense.

Life Extension Programs for the B61 and W76 (FY 2008 $234.1 $; FY 2009 $211.4). FY 2009 request is -$22.7 or 9.7 percent below the FY 2008 level. Life Extension Programs (LEP) for the B61 and W76 develop solutions to extend the life of the two warheads and correct potential technical issues. The reduction is a result of the B61 LEP completion scheduled during FY 2009.

Stockpile Systems (FY 2008 $340.1; FY 2009 $338.7). FY 2009 request is -$1.4 or 0.4 percent below the FY 2008 level. The program provides each weapon-type routine maintenance; periodic repair; replacement of limited life components; support for the annual assessment process; resolution and timely closure of significant finding investigations; and surveillance to assure continued safety, security, and reliability. The decrease is a result of decreased work on the W80, and W87 Stockpile Systems partially offset by an increase in the B61 radar/programmer refurbishment.

Reliable Replacement Warhead (FY 2008 $0; FY 2009 $10.0). The funds in the FY 2009 request are to proceed with the maturation of Reliable Replacement Warhead (RRW) design concepts to address questions raised by the JASON review of RRW feasibility study activities and documenting the Phase 2A RRW work that has been completed through FY 2007 to support future administration decisions on options for our nuclear weapons stockpile.

Weapons Dismantlement and Disposition (FY 2008 $134.7; FY 2009 $183.7). FY 2009 request is $49.0 or 36.4 percent above the FY 2008 level. This program provides for the dismantlement, characterization of

components, disposal of retired warhead systems, surveillance of retired stockpile systems, and the Pit Disassembly and Conversion Facility (PDCF). The increase reflects required Operations and Maintenance funding for Pit Disassembly and Conversion to support the continuation of ARIES testing and demonstration at the Los Alamos National Laboratory (LANL); operating support and construction funding for the Waste Solidification Building; storage of surplus plutonium at Pantex and LANL; and increased Weapons Dismantlement and Disposition activities at Pantex and Y-12.

Stockpile Services (FY 2008 $692.4; FY 2009 $931.9). FY 2009 request is $244.6 or 34.6 percent above the FY 2008 level. The program supports production activities; research and development; certification; weapon safety and security efforts; stockpile management and technology; and responsive infrastructure. The increase is a result of the transfer of the Pit Manufacturing and Certification Campaign to DSW, fabrication of advanced production of components and the Kansas City Plant, and R&D to support Quantified Margins and Uncertainties (QMU).

Campaigns (FY 2008 $1,873.8; FY 2009 $1,631.8) .....-$242.0
FY 2009 request is 12.9 percent below the FY 2008 level.

Science Campaign (FY 2008 $287.6; FY 2009 $323.1). FY 2009 request is $35.4 or 12.3 percent above the FY 2008 level. It develops improved capabilities to assess the safety, reliability, and performance of the nuclear package portion of weapons without further underground testing. It retains readiness to conduct underground nuclear testing if directed by the President and develops essential scientific capabilities and infrastructure. The increase is a result of a shift in Dynamic Plutonium Experiments and Advanced Certification Work from the pit certification program and increases in the Test Readiness program.

Engineering Campaign (FY 2008 $169.5; FY 2009 $142.7). FY 2009 request is -$26.8 or 15.8 percent below the FY 2008 level. It develops capabilities to assess and improve the safety, reliability, and performance of the non-nuclear and nuclear explosive package engineering components in nuclear weapons without further underground testing. The decrease is a result of the funding completion of the MESA and Ion Beam construction projects.

Inertial Confinement Fusion Ignition and High Yield Campaign (FY 2008 $470.2; FY 2009 $421.2). FY 2009 request is -$49.0 or 10.4 percent below the FY 2008 level. This program develops laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation approaching those in a nuclear explosion and conducts weapons related research. It supports NIF diagnostics and cryogenic target systems; provides for ignition target design and fabrication; ICF experimental support activities; operation of the Z accelerator at Sandia; and short-pulse high-intensity laser activities. The decrease is a result of the NIF reduction consistent with the approved project baseline offset by an increase of funds for Z from a transfer from RTBF.

Advanced Simulation and Computing Campaign (FY 2008 $574.5; FY 2009 $561.7). FY 2009 request is -$12.8 or 2.2 percent below the FY 2008 level. It provides leading edge, high end simulation capabilities to meet weapons assessment and certification requirements, including weapon codes, weapons science, platforms, and computer facilities. The decrease reflects the continuation of computing consolidation for the weapons complex

and the consolidation of effort on integrated codes consistent with the ASC Code Strategy.

Pit Manufacturing and Certification Campaign (FY 2008 $213.8; FY 2009 $0). All Pit Manufacturing and Certification Campaign activities are being realigned to Directed Stockpile Work (DSW) and the Science Campaign.

Readiness Campaign (FY 2008 $158.1; FY 2009 $183.0). FY 2009 request is $24.9 or 15.8 percent above the FY 2008 level. This program has the responsibility for developing or reestablishing new manufacturing processes and technologies for qualifying weapon components for reuse. The increase is a result of completion of Stockpile Readiness and Nonnuclear Readiness efforts that were deferred from FY 2008 because of higher priority work and for an increase in the cost of uranium fuel to load the reactor used to irradiate tritium source rods.

Readiness in Technical Base and Facilities
(FY 2008 $1,637.4; FY 2009 $1,720.5)..... +$83.1
FY 2009 request is 5.1 percent above the FY 2008 level and is comprised of Operations and Maintenance activities and Construction projects.

Operations of Facilities (FY 2008 $1,154.5; FY 2009 $1,212.9). FY 2009 request is $58.4 or 5.1 percent above the FY 2008 level. It provides increased funds above FY 2008 for the operation, physical infrastructure, and on-going maintenance of facilities for activities conducted in the Campaigns and Directed Stockpile Work. Approximately $298 is requested for the Los Alamos National Laboratory (+4.6%), $216.9 for the Y-12 complex (-3%), $127.8 for the Sandia National Laboratory (-17%), $122.3 for the Kansas City Plant (+44%), $85.2 for the Lawrence Livermore National Laboratory (-5%), $104.4 for the Pantex Plant (-8%), $108.1 for the Savannah River Site (+26%), $92.2 for the Nevada Test Site (+42%), and $57.8 for Institutional Site Support (+7%).

Program Readiness (FY 2008 $70.1; FY 2009 $73.8). FY 2009 request is $3.7 or 5.3 percent above the FY 2008 level. It includes selected activities that support more than one NNSA facility, Campaign or Directed Stockpile Work activity including manufacturing process capabilities required to support the stockpile; and critical skill needs. Nevada Test Site (NTS) readiness activities provide logistical support for laboratory staff permanently located in Nevada and the NTS Equipment Revitalization Program. Additional efforts are related to offsite monitoring, weather, cultural resources, hydrology and geology, legacy compliance for environmental issues and the Borehole Management Program. Increases from FY 2008 is provided for a increase in work at the DAF and to address microelectronics in support of next generation technology, systems material, and tool and process optimization in support of future electrical and optical designs.

Material Recycle and Recovery (FY 2008 $71.6; FY 2009 $72.5). FY 2009 request is $0.9 or 1.3 percent above the FY 2008 level. It provides for the recycle and recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement of weapons and components. Also funded are the Central Scrap Management Office and the Precious Metals Business Center located at Y-12 National Security Complex.

Containers (FY 2008 $21.8; FY 2009 $23.4). FY 2009 request is $1.6 or 7.5 percent above the FY 2008 level. It includes research, development, design, certification, testing and evaluation for shipping containers not directly associated with the life extension programs in DSW. The increase allows for expediting of material consolidation.

Storage (FY 2008 $34.5; FY 2009 $29.8). FY 2009 request is -$4.6 or 13.4 percent below the FY 2008 level. It provides for storage of surplus pits, highly enriched uranium, and other weapons and nuclear materials in compliance with DOE/NNSA requirements. The decrease reflects the transition into operations at HEUMF at Y-12.

Construction (FY 2008 $285.0; FY 2009 $308.0). FY 2009 request is $23.0 or 8.1 percent above the FY 2008 level. It supports line item project construction and project engineering design activities from FY 2001-2008. Funding provides for continuation of all ongoing projects. In the request there is one new line item construction project, Test Capabilities Revitalization, Phase 2 ($3.2) at Sandia National Laboratory.

Secure Transportation Asset (FY 2008 $211.5; FY 2009 $221.1) ..... +$9.6
FY 2009 request is 4.5 percent above the FY 2008 level. Funding provides personnel, equipment, and training for the scheduling and secure transport services for the nuclear weapons complex and to meet the Secretary's Environmental Management commitments for closing former sites. The increase is for salaries and benefits for additional personnel as STA staffing increases from 585 to 647 FTEs, for general site support to all STA Federal Agents, and for the procurement of escort vehicles required to meet projected workload.

Nuclear Weapons Incident Response (FY 2008 $158.6; FY 2009 $221.9) .... +$63.3
FY 2009 request is 39.9 percent above FY 2008. Funding provides for emergency management and response activities that ensure a central point of contact and integrated response to emergencies requiring DOE assistance, including the Nuclear Emergency Support Team (FY 2008 $89.8; FY 2009 $90.8), which responds to nuclear terrorist threats. The increase is for two new programs; **Nuclear Counterterrorism** ($51.8), which was transferred from Directed Stockpile Work, provides for collaborative efforts with the Department of Homeland Security and the intelligence community for improvised nuclear device concepts and; **International Emergency Management and Cooperation** ($4.7), which was transferred from the Office of Defense Nuclear Nonproliferation, provides technical assistance, conducts training, and develops programs to strengthen and harmonize emergency management systems worldwide.

Facilities and Infrastructure Recapitalization
(FY 2008 $180.0; FY 2009 $169.5) ..... -$10.4
FY 2009 request is 5.8 percent below FY 2008 and provides for recapitalization, infrastructure planning and construction of the nuclear weapons complex. The decrease is due to the planned completion of the Facility Disposition program which is scheduled to meet its goal of 3,000,000 gross feet in FY 2008. In FY 2009 there are no new line item construction projects.

Environmental Projects and Operations
(FY 2008 $8.6; FY 2009 $40.6)..... +$32.0
The increase is needed to add the Livermore National Laboratory Site 300 and the Pantex Plant to the Long-Term Stewardship program and to continue compliance with regulatory requirements at the Kansas City Plant (KCP), the Lawrence

Livermore National Laboratory (LLNL) Main Site and the Sandia National Laboratories (SNL).

Transformation Disposition (FY 2008 $0.0; FY 2009 $77.4).....+$77.4
This is a new program to eliminate excess facilities through demolition, transfer, or sale in support of NNSA's strategic goal to eliminate excess real property.

Safeguards and Security (FY 2008 $899.5; FY 2009 $859.8) .....-$39.7
FY 2009 request is 4.4 percent below FY 2008. (The FY 2008 amount was a net safeguards and security estimate reflecting adjustment for an annual security charge for reimbursable work. That adjustment has been dropped in FY 2009.) The Safeguards and Security program, which employs a comprehensive and robust security posture designed to protect national security assets at NNSA sites and facilities, consists of two separate control levels: Defense Nuclear Security and Cyber Security.

Defense Nuclear Security funding of $737.3 is a decrease of $61.9 or 7.7 percent below the FY 2008 level. Funding supports the hiring and training of protective force personnel; physical security system upgrades; materials control and accountability; application of emerging technologies; and physical security at NNSA sites. The decrease is a result of completion of one-time upgrades to existing physical security systems, reduced program management costs associated with the implementation of the 2005 DBT requirements, and the end of funding the Material Security and Consolidation Project (-$14.7) at the Idaho National Laboratory (INL).

Cyber Security funding of $122.5 is an increase of $22.2 or 22.2 percent above FY 2008 levels. Funding sustains NNSA's information infrastructure and upgrades elements to counter cyber threats from external and internal attacks using the latest available technology. The increase is for additional information infrastructure at landlord sites and support for the Enterprise Secure Computing program that provides enterprise level classified computing infrastructure for the NNSA complex.

Congressionally Directed Projects (FY 2008 $47.2; FY 2009 $0).....-$47.2
No funds are requested.

Defense Nuclear Nonproliferation – NNSA

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Defense Nuclear Nonproliferation					
Nonproliferation and verification R&D	265,197	387,196	275,091	-112,105	-29.0%
Nonproliferation and international security	128,911	149,993	140,467	-9,526	-6.4%
International nuclear materials protection and cooperation	597,646	624,482	429,694	-194,788	-31.2%
Elimination of weapons-grade plutonium production program	231,152	179,940	141,299	-38,641	-21.5%
Fissile materials disposition	470,062	66,235	41,774	-24,461	-36.9%
Global threat reduction initiative	131,234	193,225	219,641	+26,416	+13.7%
International nuclear fuel bank	——	49,545	——	-49,545	-100.0%
Congressionally directed projects	——	7,380	——	-7,380	-100.0%
Subtotal, Defense Nuclear Nonproliferation	1,824,202	1,657,996	1,247,966	-410,030	-24.7%
Use of prior year balances and other adjustments	——	-322,000	-918	+321,082	+99.7%
Total, Defense Nuclear Nonproliferation	**1,824,202**	**1,335,996**	**1,247,048**	**-88,948**	**-6.7%**

PROGRAM DESCRIPTION

NNSA's **Defense Nuclear Nonproliferation** (NN) appropriation provides funding for six programs which together provide policy and technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance technologies that detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons. It addresses the danger that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production technology, or weapons of mass destruction expertise. The total **request** for the program in **FY 2009** is **$1.25 billion**, and work will be done in the following major areas.

Nonproliferation and Verification Research and Development performs research, development, testing, and evaluation leading to prototype demonstrations and detection systems that strengthen the U.S. response to threats to national security and world peace posed by the proliferation of nuclear weapons and the diversion of special nuclear material. The program interfaces directly with operational agencies to provide innovative systems and technologies to meet their nonproliferation, counter-proliferation, and counter-terrorism mission responsibilities.

Nonproliferation and International Security strengthens the global nonproliferation regime by limiting sensitive exports, supporting international safeguards, partnering with foreign governments to implement proliferation control measures, monitoring nuclear reductions, and providing policy and technical analysis that advance U.S. nonproliferation initiatives and interests.

International Nuclear Materials Protection and Cooperation works to prevent nuclear terrorism by working in Russia and other regions of concern to secure and eliminate vulnerable nuclear weapons and weapons-usable material under the Material Protection, Control and Accounting (MPC&A) Program; and installing detection equipment at border crossings, major international seaports, and Megaports to prevent and detect the illicit transfer of nuclear material under the Second Line of Defense (SLD) Program.

Elimination of Weapons-Grade Plutonium Production works with the Russian Federation to shut down the last three weapons-grade plutonium production reactors, thus ending weapons-grade plutonium production in Russia by replacing the reactors with fossil-fueled

power plants to provide of heat and electricity to the cities of Seversk and Zheleznogorsk in Siberia.

Fissile Materials Disposition conducts activities in the United States to dispose of surplus weapons-grade fissile materials and supports disposal of Russian surplus weapon-grade plutonium.

The **Global Threat Reduction Initiative** mission is to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide. The program works to minimize the use of HEU in civilian nuclear applications worldwide by converting research reactors and targets used in the production of medical isotopes to suitable LEU fuels and targets; eliminates stockpiles of Russian-origin fresh and spent nuclear fuel and U.S.-origin spent nuclear fuel in foreign research reactors through repatriation of such material to Russia and the United States, respectively; addresses the removal of vulnerable material worldwide, including material not covered by previously existing programs; prevents proliferation of nuclear weapons by securing the weapons-grade plutonium in the spent fuel from the BN-350 fast-breeder reactor in Aktau, Kazakhstan; identifies, recovers, and stores, on an interim-basis, certain domestic radioactive sealed sources, and other radiological materials that pose a security risk to the United State and/or world community; and reduces the international threat by securing radiological materials that could be used in a radiological dispersal device (RDD) or "dirty bomb."

PROGRAM HIGHLIGHTS

The FY 2009 request includes $41.8 million for **Fissile Materials Disposition**, to support continued effort to dispose of surplus U.S. HEU including its use within the Reliable Fuel Supply Program. The Consolidated Appropriations Act, 2008, (P.L. 110-161) funded the Mixed Oxide Fuel Fabrication Facility project within the Nuclear Energy Program , and the related Pit Disassembly and Conversion Facility/Waste Solidification Building projects within Weapons Activities. These projects are nevertheless vital to the nation's nuclear nonproliferation efforts as they provide the means to dispose of U.S. plutonium declared excess to our national defense needs.

Under the MPC&A Program, **International Nuclear Materials Protection and Cooperation** (IMPC) has secured hundreds of nuclear warheads at approximately 88 percent of the Russian warhead sites of concern, including all 39 Russian Navy nuclear sites, and all 25 Strategic Rocket Forces sites. Work is underway at the balance of the warhead and material sites, most of which will be completed on an accelerated basis by the end of 2008 under the Bratislava Initiative. Under the SLD program, a total of 117 sites in Russia have been equipped with radiation detection equipment to date. The United States and Russia agreed to equip all of Russia's border crossings with radiation detection equipment for a total of 350 sites by the end of 2011, which will be funded approximately evenly between NNSA and the Federal Customs Service of Russia. Radiation detection equipment is also currently operational at ports in 12 countries. Various stages of implementation are underway at ports in 16 other locations.

For the MPC&A Program, the FY2009 request supports selective new security upgrades to buildings and areas that were added to the cooperation after the Bratislava Summit. Significant efforts will be directed towards implementing a comprehensive MPC&A sustainability effort to ensure that U.S.-funded upgrades can be maintained by Russia. For the SLD Program, the FY 2009 request provides for the installation of radiation detection equipment at an additional 49 foreign sites in 14 countries and at 9 additional Megaports.

The **Global Threat Reduction Initiative (GTRI)** addresses the global nature of the threat and to focus resources on high value, near term risk reduction activities. GTRI was

specifically highlighted in the President's March 2006 National Security Strategy of the United States of America and is an important element of the Global Initiative to Combat Nuclear Terrorism. GTRI is serving to implement part of the Bratislava Summit Statement on Nuclear Security Cooperation between the United States and the Russian Federation. In accordance with this agreement GTRI developed and is implementing an aggressive, prioritized work schedule to complete all shipments of Russian origin spent HEU fuel stored outside reactor cores by the end of 2010.

The FY 2009 budget includes $113.5 million for activities identified at the Bratislava summit including $59.3 million for security upgrades at Russian nuclear warhead sites, $39.2 million for Russia-origin fuel return, and $15 million for reactor conversions.

Elimination of Weapons-Grade Plutonium Production will continue support for the construction of fossil-fueled power plant located in Zheleznogorsk, Russia, so that heat and electricity from plutonium-producing reactors can be replaced and plutonium production eliminated. The FY 2009 funding will enable NNSA to maintain a schedule that allows completion of the Zheleznogorsk project in 2010. The Seversk project is scheduled for completion by the end of December 2008.

The **Global Partnership** against the Spread of Weapons and Materials of Mass Destruction, formed at the Kananaskis Summit in June 2002 recommitted the G8 nations (U.S., Canada, France, Germany, Italy, Japan, Russia, and the United Kingdom) to address nonproliferation, disarmament, counter-terrorism, and nuclear safety issues. The G8 countries have pledged $20 billion over 10 years to support cooperative efforts and have invited other similarly motivated countries to participate in this partnership. President Bush has committed the U.S. to provide $10 billion over 10 years to be matched by $10 billion from the other members, confirming that proliferation concerns are of the highest government priority; and that this program's work is of paramount importance for the security of the nation and the world. The FY 2009 request provides $485.6 million toward the total U.S. commitment to the Global Partnership.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Defense Nuclear Nonproliferation (FY 2008 $1,336.0; FY 2009 $1,247.0).....-$88.9
FY 2009 request is $88.9 million or 6.7 percent below the FY 2008 funding.

Nonproliferation and Verification R&D (FY 2008 $387.2; FY 2009 $275.1).....-$112.1
FY 2009 request continues research programs in Proliferation Detection, and Nuclear Detonation Detection.

Proliferation Detection (FY 2008 $224.4; FY 2009 $145.4).....-$79.0
Decrease from FY08 reflects an increase above FY07 levels and return to projected baseline budget for FY09.

Nuclear Detonation Detection (FY 2008 $132.5; FY 2009 $116.5).....-$16.0
Decrease from FY08 reflects an increase above FY07 levels and return to projected baseline budget for FY09.

Supporting Activities (FY 2008 $5.5; FY 2009 $0).....-$5.5
Decrease due to the transfer of previously funding activities to the proliferation detection and nuclear detonation detection programs.

Physical Sciences Facility at Pacific Northwest National Laboratory
(FY 2008 $24.8; FY 2009 $13.2).....-$11.6

Decrease reflects NNSA scheduled support for the construction project funded jointly with the Office of Science and the Department of Homeland Security.

Nonproliferation and International Security (FY 2008 150.0; FY 2009 $140.5) ..... -$9.5
FY 2009 request includes:

Dismantlement and Transparency (FY 2008 $45.7; FY 2009 $42.0)..... -$3.7
Decrease reflects programmatic efficiencies and supports planned activities to reduce or eliminate proliferation concerns by promoting transparent arms reductions.

Global Security Engagement and Cooperation
(FY 2008 $50.9; FY 2009 $47.4)..... -$3.5
Decrease results from completion of Global Initiatives for Proliferation Prevention activities.

International Regimes and Agreements (FY 2008 $44.4; FY 2009 $35.3)..... -$9.1
Decrease in funding for Export Control Licensing Operations, International Nuclear Security, Interdiction/Enforcement, Export Control Multi-lateral, and Global Regimes.

Treaties and Agreements (FY 2008 $3.9; FY 2009 $15.8) ..... +$11.9
Increase supports a new Next Generation Safeguards Initiative (NGSI) which aims to strengthen international safeguards and revitalize the U.S. technical base and provide technical and policy support to denuclearization and energy assistance working group discussions with North Korea.

International Emergency Management and Cooperation
(FY 2008 $5.0; FY 2009 $0)..... -$5.0
Decrease reflects the transfer of the program to the Office of Emergency Operations. FY 2009 funding of $5.0 is requested within the Weapons Activities account.

International Nuclear Materials Protection and Cooperation
(FY 2008 $624.5; FY 2009 $429.7)..... -$194.8

Navy Complex (FY 2008 $13.3; FY 2009 $16.4)..... +$3.1
Increase will provide additional site sustainability support needed for sites with completed MPC&A upgrades.

Strategic Rocket Forces (FY 2008 $121.9; FY 2009 $53.6) ..... -$68.3
Decrease reflects completion of comprehensive MPC&A upgrades to Nine 12th Main Directorate sites in 2008.

Rosatom Weapons Complex (FY 2008 $79.1; FY 2009 $32.3)..... -$46.8
Decrease reflects completion of MPC&A upgrades under the Bratislava Agreement.

Civilian Nuclear Sites (FY 2008 $54.2; FY 2009 $34.5)..... -$19.7
Decrease due to the completion of MPC&A upgrades under the Bratislava Agreement and the completion of the majority of cooperative efforts with countries outside of Russia and the Former Soviet States.

Material Consolidation and Conversion (FY 2008 $19.5; FY 2009 $20.9)..... +$1.4
Increase due to a higher projected availability of excess HEU to be downblended to LEU.

National Programs and Sustainability (FY 2008 $69.6; FY 2009 $59.3)..... -$10.3
Decrease reflects the completion of most transportation and protective force upgrades to Russian sites.

Second Line of Defense (SLD) (FY 2008 $266.9; FY 2009 $212.7) ..... -$54.2
SLD, includes the **Megaports Program** (FY 2008 $130.8, FY 2009 $134.1). Decrease in the Core program reflects the completion of accelerated installations in FY 2008.

Elimination of Weapons-Grade Plutonium Production
(FY 2008 $179.9; FY 2009 $141.3) ..... -$38.6
Decrease reflects zero funding requested for Seversk as the project approaches its December 2008 completion; and a decreased funding for the Zheleznogorsk Project as it moves toward the December 2010 completion date for plutonium production reactor shutdown.

Fissile Materials Disposition (FY 2008 $66.2; FY 2009 $41.7) ..... -$24.5
Funding supports the elimination of surplus fissile materials. In FY 2008, Congress transferred the funding for the U.S. MOX Fuel Fabrication Facility and supporting activities to the Nuclear Energy account. In FY 2009 $487.0 is requested within the Other Defense Activities account under the Nuclear Energy Program for the U.S. MOX Fuel Fabrication Facility and supporting activities and $119.0 for Pit Disassembly and Conversion is funded in Weapons Activities.

U.S. Surplus Fissile Materials Disposition
(FY 2008 $66.2; FY 2009 $40.7) ..... -$25.5
The decrease reflects the completion of packaging, sampling and handling activities associated with the 17 MT Reliable Fuel Supply project.

Russian Surplus Fissile Materials Disposition
(FY 2008 $0.0; FY 2009 $1.0) ..... +$1.0
FY 2009 funding is requested for technical support activities.

Global Threat Reduction Initiative (FY 2008 $193.2; FY 2009 $219.6) ..... +$26.4
Increase is to accelerate high value near term threat reduction components of this work in keeping with Presidential direction and associated DOE initiatives.

HEU Reactor Conversion (FY 2008 $33.8; FY 2009 $49.3) ..... +$15.5
Increase will support 8 additional reactor conversions, accelerate development of a new high density LEU and complete preliminary design work for a new fuel fabrication capability.

Nuclear and Radiological Material Removal
(FY 2008 $67.8; FY 2009 $116.6) ..... +$48.8
Increase reflects the estimated cost of returning Russian-origin HEU spent fuel from five countries, returning U.S. origin HEU from four countries, removing additional nuclear materials from other countries worldwide, and removing 80 Russian radio isotopic thermoelectric generators from the Russian Federation.

Nuclear and Radiological Material Protection
(FY 2008 $91.6; FY 2009 $53.7) ..... -$37.9
The decrease reflects the procurement in FY 2008 of the 100-ton casks needed to secure the HEU in spent fuel form the shutdown of the Bn-350 fast breeder reactor in Kazakhstan.

International Nuclear Fuel Bank Program (FY 2008 $49.5; FY 2009 $0) ..... -$49.5
The International Nuclear Fuel Bank was established in FY 2008 at the direction of Congress, no additional funds are required.

Congressionally Directed Projects (FY 2008 $7.4; FY 2009 $0) ..... -$7.4
No funds are requested to continue congressionally directed projects.

Rescission of Prior-Year Balances (FY 2008 -$322.0; FY 2009 $0)..... +$322.0
The Consolidated Appropriation Act, 2008, (P.L. 110-161) included the rescission of balances associated with the Mixed Oxide Fuel Fabrication Facility and the Russian Surplus Fissile Materials Disposition program.

Office of the Administrator – NNSA

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office of the Administrator					
Office of the administrator	358,291	379,997	404,081	+24,084	+6.3%
Congressionally directed projects	——	22,140	——	-22,140	-100.0%
Total, Office of the Administrator	**358,291**	**402,137**	**404,081**	**+1,944**	**+0.5%**

PROGRAM DESCRIPTION

The National Nuclear Security Administrator (NNSA) **Office of the Administrator** account provides the corporate direction, federal personnel, and resources necessary to plan, manage, and oversee the operation of the NNSA under the direction of DOE's Under Secretary for Nuclear Security. The workforce is comprised of a highly educated and skilled cadre of federal managers overseeing the operations of the defense mission activities and performing many specialized duties including leading emergency response teams and safeguards and security oversight. The Naval Reactors and Secure Transportation Asset programs retain separately funded program direction accounts.

The organizational structure implemented in FY 2006 relies on eight site offices reporting directly to the Deputy Administrator for Defense Programs. The federal site offices that oversee NNSA contractor operations are located at Lawrence Livermore, Los Alamos, and Sandia National Laboratories; Pantex and Kansas City plants; Y-12 National Security Complex; Savannah River Site; and the Nevada Test Site. The NNSA Service Center in Albuquerque provides procurement, human resources, and other support to the site offices. The **FY 2009 request** for this program is **$404.1 million**.

PROGRAM HIGHLIGHTS

The NNSA supports the **President's Management Agenda** with a more robust and effective NNSA organization through improved human capital and financial management. The FY 2009 request supports the following efforts: applying advanced science and nuclear technology to the Nation's defense; transforming the U.S. nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st Century; providing technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; and providing support for its Future Leaders Program and Historically Black College and Universities (HBCUs).

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Total Office of the Administrator (FY 2008 $402.1; FY 2009 $404.1) ..... +$2.0

Program Direction (FY 2008 $380.0; FY 2009 $404.1) ..... +$24.1
The FY 2009 request supports salaries and benefits and cost of living adjustments for 1,942 FTEs, which reflects an increase of 95 FTEs from the FY 2008 level of 1,847 FTEs, to meet increased requirements in Defense Nuclear Nonproliferation and Emergency Operations program goals, as well as to address NNSA workforce planning skill mix issues.

Congressionally Directed Projects (FY 2008 $22.1; FY 2009 $0).....-$22.1
The decrease reflects the shift of the HBCU program from the Congressionally Directed line item to the various appropriation accounts within the NNSA. In FY 2009, the Office of the Administrator appropriation will provide funding of $3.6 million to support HBCU activities ($2.5 million Massie Chairs of Excellence and $1.1 million HBCU). Additionally, the NNSA program will fund up to $1 million of HBCU efforts in FY 2009 in multiple research areas directly supporting program activities.

Naval Reactors

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Naval Reactors					
Naval reactors development	750,420	742,283	793,600	+51,317	+6.9%
Program direction	31,380	32,403	34,454	+2,051	+6.3%
Total, Naval Reactors	**781,800**	**774,686**	**828,054**	**+53,368**	**+6.9%**

PROGRAM DESCRIPTION

The **Naval Reactors** (NR) program has responsibility for all naval nuclear propulsion work, beginning with reactor technology development, continuing through design, construction, testing, operation, maintenance, and ultimately, reactor plant disposal. The total **request** for the program in **FY 2009** is **$828.1 million**.

The program's efforts ensure the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers, which comprise 40 percent of the Navy's combatants. The program's long-term development work ensures that nuclear propulsion technology can meet requirements to maintain and upgrade current capabilities, as well as meet future threats to U.S. security.

The NR program also fulfills the Navy's needs for new reactors to meet evolving national defense requirements. Recent and ongoing work includes the development and delivery of the next-generation reactor for the Navy's new VIRGINIA-class submarine and the design and development of a new reactor for the CVN 21-class aircraft carrier. These new plants will be more affordable and have improved power capabilities, increased endurance, and added dependability compared to current plants.

PROGRAM HIGHLIGHTS

The FY 2009 request provides $828.1 million for Naval Reactors; an increase of $53.4 million above the FY 2008 funding level. Funding supports continuing efforts to ensure the safety and reliability of the 103 operating naval reactor plants, develop new reactor plants for the VIRGINIA-class submarine and CVN 21-class aircraft carrier programs, and continue environmental stewardship and oversight of facilities.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Naval Reactors Development (FY 2008 $774.7; FY 2008 $828.1)..... +$53.4
Increase in Operations and Maintenance and overall increase in construction funding, as follows:

Operations and Maintenance (FY 2008 $732.4; FY 2009 $771.6) ..... +$39.2
Increases in Evaluation and Servicing and ATR Operations and Test Support are partially offset by a decrease in Plant Technology, Reactor Technology and Analysis, Materials Development and Verification, and Facility Operations, as follows:

Plant Technology (FY 2008 $107.0; FY 2009 $104.0) ..... -$3.0
Decrease due to completion of instrumentation and control design efforts and Reactor Protection Systems Performance Analysis for A1B; and completion of automated primary chemistry equipment installation for CVN77.

Reactor Technology and Analysis (FY 2008 $206.0; FY 2008 $204.4) ... -$1.6
Reduction reflects reduced operation of the Large Component Testing Facility.

Materials Development and Verification
(FY 2008 $106.9; FY 2009 $106.1) ..... -$0.8
Decrease due to completion of Ceramics Development Laboratory stabilization effort, testing of the Alloy 690 and efforts related to beginning operations of the Materials Development Facility.

Evaluation and Servicing (FY 2008 $203.8; FY 2009 $264.3) ..... +$60.5
Increase reflects shift in resources to support production dry storage and spent nuclear fuel processing including increased maintenance and assessment of the Expended Core Facility.

Advance Test Reactor (ATR) Operations and Test Support
(FY 2008 $56.4; FY 2009 $60.3) ..... +$3.9
Increase to support continued operations and maintenance of the Advanced Test Reactor.

Facility Operations (FY 2008 $52.4; FY 2009 $32.5) ..... -$19.9
Reduction reflects a shift in priorities to provide additional resources in support of the Expended Core Facility operations and reduction in high performance computing and general plant project requirements.

Construction (FY 2008 $9.9; FY 2009 $22.0) ..... +$12.1
Increase supports beginning construction of Materials Research and Technology Complex design at the Bettis Atomic Power Laboratory (+$12.4); design and construction of a Production Support Complex at the Naval Reactors Facility, Idaho (+$8.3); and project engineering and design for future projects (+$1.0). Funding increase are offset by the completion of the Shipping and Receiving and Warehouse Complex at the Bettis Atomic Power Laboratory (-$8.9) and project engineering and design for current projects (-$.7)

Program Direction (FY 2008 $32.4; FY 2009 $34.5) ..... +$2.1
Increase reflects salary increases for inflation and achievement of the FY 2009 target of 209 FTEs, and increased travel requirements for the management and oversight of the NR program.

SECTION 3. SCIENTIFIC DISCOVERY AND INNOVATION

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Science	**3,836,613**	**3,973,142**	**4,721,969**	**+748,827**	**+18.8%**

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

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

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

Goal 3.3 Research Integration – Integrate basic and applied research to accelerate innovation and to create transformational solutions for energy and other U.S. needs

Science

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Science					
Science					
High energy physics	732,434	689,331	804,960	+115,629	+16.8%
Nuclear physics	412,330	432,726	510,080	+77,354	+17.9%
Biological and environmental research	480,104	544,397	568,540	+24,143	+4.4%
Basic energy sciences	1,221,380	1,269,902	1,568,160	+298,258	+23.5%
Advanced scientific computing research	275,734	351,173	368,820	+17,647	+5.0%
Fusion energy sciences program	311,664	286,548	493,050	+206,502	+72.1%
Science laboratories infrastructure	41,986	66,861	110,260	+43,399	+64.9%
Safeguards and security	75,830	75,946	80,603	+4,657	+6.1%
Science program direction	166,469	177,779	203,913	+26,134	+14.7%
Workforce development for teachers and scientists	7,952	8,044	13,583	+5,539	+68.9%
Congressionally directed projects	——	123,623	——	-123,623	-100.0%
Small business innovation research (SBIR)	126,255	——	——	——	——
Subtotal, Science	3,852,138	4,026,330	4,721,969	+695,639	+17.3%
Use of prior year balances and other adjustments	-15,525	-53,188	——	+53,188	+100.0%
Total, Office Of Science	**3,836,613**	**3,973,142**	**4,721,969**	**+748,827**	**+18.8%**

PROGRAM DESCRIPTION

The mission of the **Office of Science** program is to deliver the discoveries and scientific tools that transform our understanding of energy and matter and advance the national, economic, and energy security of the United States. Science is a primary sponsor of basic research in the United States, leading the nation in supporting the physical sciences in a broad array of research subjects in order to improve our energy security and address issues ancillary to energy, such as climate change, genomics, and life sciences.

The Science program supports basic research in the following areas: fundamental research in energy, matter, and the basic forces of nature; health and environmental consequences of energy production, development, and use; fundamental science that supports the foundations for new energy technologies and environmental mitigation; a knowledge base for fusion as a potential future energy source; and advanced computational and networking tools critical to research.

The total budget request for the Office of Science is **$4,722 million** in **FY 2009**. The entire Science program, along with the National Science Foundation and National Institute of Standards and Technology, continues to play a critical role in the President's **American Competitiveness Initiative** initially proposed in FY 2007. The centerpiece of the American Competitiveness Initiative is the President's commitment to double investments over 10 years in key federal agencies that support basic research programs in the physical sciences and engineering, and the FY 2009 Science request, representing an 18.8 percent increase over the FY 2008 appropriation, is part of that commitment. The Science program also supports the President's **Advanced Energy Initiative** ($788.1 million) that is comprised of **solar** ($69.1 million), **biomass** ($42.9 million), **Hydrogen** ($75.4 million), **GTL Centers** ($75.0 million), **ITER** ($214.5 million), **Fusion Energy (not including ITER)** ($278.6 million) and **program management** ($32.6 million). Other Presidential initiatives include the **Hydrogen Fuel Initiative** ($60.4 million); the **Climate Change Science Program** ($145.9 million); the **Climate Change Technology Program** ($833.3 million); **Networking and Information Technology Research and Development** ($401.4 million); and the **National Nanotechnology Initiative** ($300.3 million).

In support of its mission, the Science program responsibilities are in three main areas: selection and management of research; operation of world-class, state-of-the-art scientific facilities; and design and construction of new facilities. Additionally, Science activities support the **President's Management Agenda** by using the research and development investment criteria in evaluating and managing its basic research portfolio. Science activities are carried out in ten programs: High Energy Physics (HEP), Nuclear Physics (NP), Biological and Environmental Research (BER), Basic Energy Sciences (BES), Advanced Scientific Computing Research (ASCR), Fusion Energy Sciences (FES), Science Laboratories Infrastructure (SLI), Science Program Direction (SCPD), Workforce Development for Teachers and Scientists (WDTS), and Safeguards and Security (S&S).

PROGRAM HIGHLIGHTS

High Energy Physics (HEP) gives priority to operation of its two major facilities, the **Tevatron Collider** and the **Neutrinos at the Main Injector** (NuMI) both at **Fermi National Accelerator Laboratory** (Fermilab) in Illinois. Fermilab will focus on investigating particles and forces at the current energy frontier, including enhanced research on neutrino physics. After a successful eight-year run, operation of the SLAC **B-factory** was completed in FY 2008 and responsibility for the operation of SLAC is transitioned to Basic Energy Sciences. HEP continues support for operation and maintenance of the U.S.-built systems at the **Large Hadron Collider** (LHC) in Switzerland and is a partner in its research program. Research and design is maintained for a potential **International Linear Collider** (ILC), an accelerator which would enable the extension of particle physics research beyond what is feasible at the LHC. HEP also has a program of non-accelerator physics, including research on neutrinos, dark matter, and dark energy, supernovae, solar neutrinos, black holes, and other topics, including support for the **Joint Dark Energy Mission** (JDEM) in partnership with NASA.

Nuclear Physics (NP) continues support for operations at four facilities including two large national user accelerator facilities, the **Continuous Electron Beam Accelerator Facility** (CEBAF) at Thomas Jefferson National Accelerator Facility (TJNAF) in Virginia, and the **Relativistic Heavy Ion Collider** (RHIC) at Brookhaven National Laboratory (BNL) in New York; and two smaller user facilities, the **Holifield Radioactive Ion Beam Facility** (HRIBF) at Oak Ridge National Laboratory (ORNL) in Tennessee and the **Argonne Tandem Linac Accelerator System** (ATLAS) at Argonne National Laboratory (ANL) in Illinois. NP also conducts research at several other facilities including both laboratories and universities. NP research strives to understand the structure and interactions of atomic nuclei and the fundamental forces and particles of nature in nuclear matter in terms of their fundamental constituents. In FY 2009, funding is requested for a Basic and Applied R&D Coordination effort in support of **characterization of radioactive waste** through the advanced fuel cycle activities. Funds are requested to initiate construction of the **12 GeV CEBAF Upgrade** and to initiate conceptual design for a facility for rare isotope beams. Construction will be completed on the **Electron Beam Ion Source** at RHIC. Starting in FY 2009, NP will support the **Isotope Production and Applications** program that was transferred from the Medical Isotopes Infrastructure activity contained in the Radiological Facilities Management subprogram within the Office of Nuclear Energy. A major objective of this program is to improve the availability and reliability of research isotopes at predictable prices needed for medical, national security, and industrial applications.

The **Biological and Environmental Research** (BER) program provides the environmental and biological knowledge that promotes national security through improved energy production and use, supports the President's National Energy Plan, and conducts research to protect our environment. There are two BER subprograms: The **Biological Research** subprogram fosters fundamental research in the biological and life sciences to underpin the Department's mission needs and includes the **Genomics: GTL** program, including the operation of three bioenergy research centers and environmental remediation research that underpins the Department's mission for environmental quality, and supports clean-up and

restoration of the nation's nuclear weapons production sites. **Climate Change Research** will enable scientifically-based predictions and assessments of the potential effects of greenhouse gas on climate and the environment. This program supports the President's **Climate Change Technology Program** and **Climate Change Sciences Program**. Enhanced emphasis on climate change modeling will utilize the Department's leadership class computing facilities to project future changes in the earth's climate. Funding also supports basic and applied R&D coordination efforts activities including **carbon dioxide capture and storage** and **characterization of radiological waste**.

The **Basic Energy Sciences** (BES) program supports research and operates facilities to extend the frontiers of knowledge and provide the foundation for new and improved energy technologies. The FY 2009 request enhances support in high priority research areas identified in a series of a dozen workshops addressing both grand challenge science and basic research needs for energy-related science. Together, the workshop reports highlighted the remarkable scientific journey that has taken place during the past few decades leading to a new era of science – an era in which materials functionalities are designed to specifications and chemical transformations are manipulated at will. One implementation strategy will be new **Energy Frontier Research Centers**, which will bring together the skills and talents of multiple investigators to enable research of a scope and complexity that would not be possible with the standard individual investigator or small group award. Support also continues for several major user facilities including the five new **Nanoscale Science Research Centers**. Funding is provided for PED and the start of construction for the **National Synchrotron Light Source II** project (NSLS II); PED and construction of the **Photon Ultrafast Laser Science and Engineering Building Renovation**, at SLAC; construction for the **Advanced Light Source (ALS) User Building**; and for construction and other project costs of the **Linac Coherent Light Source** (LCLS)**.**

The **Advanced Scientific Computing Research** (ASCR) program delivers forefront computational and networking capabilities to scientists nationwide that enable them to extend the frontiers of science. Leadership in scientific computation is a cornerstone of the Department's strategy to ensure the security of the nation, and to succeed in its science, energy, environmental quality, and national security missions. ASCR funds the **National Energy Research Scientific Computing Center** (NERSC) at Lawrence Berkeley National Laboratory (LBNL), which supports over 2,500 users; the **Energy Sciences Network** (ESnet) that links Science researchers and facilities; and the **Leadership Computing Facilities** (LCF) located at Oak Ridge and Argonne National Laboratories, which provide world leading, high performance computing capabilities to researchers on an open, competitive basis. In FY 2009, the Oak Ridge facility will begin to operate the most capable machine in the U.S. for open science, at one petaflop. Enhanced funding is also provided in applied mathematics and computer science for a new Applied Mathematics-Computer Science Institute to focus on the challenges of computing at extreme scales as well as critical ongoing research and next generation networking. Funding continues for the **National Energy Research Scientific Computer Center (NERSC)**. Funding also supports basic and applied R&D coordination effort activities including **applied mathematics for optimization of complex systems, control theory and risk assessment** and **carbon dioxide capture and storage**.

The **Fusion Energy Sciences** (FES) program is the national research effort to advance plasma science, fusion science, and fusion technology—the knowledge base required for an economically and environmentally attractive fusion energy source. Facilities include the **DIII-D Tokamak** at General Atomics in San Diego, the **Alcator C-Mod Tokamak** at the Massachusetts Institute of Technology (MIT), and the **National Spherical Torus Experiment** (NSTX) at the Princeton Plasma Physics Laboratory (PPPL). Assembly of the **National Compact Stellarator Experiment** (NCSX) is ongoing at PPPL. DOE is also one of seven international parties participating on the **ITER** project, an international burning plasma fusion experiment to be built in Cadarache, France. In FY 2009, FES will continue support for operation of the domestic facilities and research including **High Energy Density Laboratory**

Plasmas which is one of the DOE Basic and Applied R&D Coordination efforts. The United States participation in the international **ITER** project continues in FY 2009. However the reduced funding for ITER in FY 2008 will impact the schedule and increase the U.S. costs. The entire FES program supports the President's **Advanced Energy Initiative**.

The **Science Laboratories Infrastructure** (SLI) program will increase funding for construction projects under the proposed SC Infrastructure Modernization Initiative. This initiative includes the consolidation of funds for General Plant Projects (GPP), that were previously funded by the SC research programs, into SLI for Institutional General Plant Projects (IGPP). **Science Program Direction** requests additional funding to support total staffing of 1,100 FTEs at headquarters, field sites and the Office of Scientific and Technical Information. **Workforce Development for Teachers and Scientists** increases support in areas identified as critical to recruit, train, hire, and retain the best and brightest workers of the future. Finally, the **Safeguards and Security** program continues to address the highest security needs of the SC complex.

SIGNIFICANT FUNDING CHANGES – FY 2008 Appropriation to 2009 Request ($ in millions)

High Energy Physics (FY 2008 $689.3; FY 2009 $805.0)..... +$115.7

In Proton Accelerator-Based Physics the focus continues to be on facility operations and improvements at Fermilab ($221.9; +$42.8) including support for the NuMI Off-axis Neutrino Appearance (NO*v*A) Detector R&D and major item of equipment (MIE). Research funding also increases ($114.5; +$5.3) as does support for operations and research at the LHC ($72.5; +$8.8). Other activities net a small decrease (-$6.1)..... +$50.8

In Electron Accelerator-Based Physics facility funding for the B-factory at SLAC decreases as responsibility shifts to Basic Energy Sciences ($25.8; -$17.7). There is a slight increase in research activities as analysis of data continues ($23.0; +$0.9)..... -$16.8

Non-Accelerator Physics ($86.5; +$12.3) increases to support several projects focused on dark energy mission and other potential dark energy experiments including three major items of equipment. Theoretical Physics also increases ($63.0; +$2.8). The Advanced Technology R&D increases for accelerator science and development, including the research related to superconducting radiofrequency (RF) technology and the International Linear Collider ($187.1; +$66.6)..... +$81.7

Nuclear Physics (FY 2008 $432.7; FY 2009 $510.1)..... +$77.4

The Medium Energy Nuclear Physics subprogram support increases for research and operations at the TJNAF ($85.1; +$7.5) and to support other research and operations ($36.0; +$1.1). The Heavy Ion Nuclear Physics subprogram increases support for research and operations at the RHIC ($161.0; +$15.4) and maintains other research and operations ($40.6; +$1.0). The Low Energy Nuclear Physics program redirects research activities related to rare isotope beams to begin activities moving toward a facility for rare isotope beams ($7.0; +$3.2). Other activities in this subprogram, including support for the two smaller NP facilities, HRIBF and ATLAS**,** also increase ($89.6; +$9.8). Nuclear Theory activities also increase to support the program ($40.0; +$5.9)..... +$44.0

FY 2009 is the first year of NP support for the Isotope Production and Applications program which was transferred from the Office of Nuclear Energy..... +$19.9

Construction funding supports PED and the first year of construction for the 12 GeV CEBAF upgrade ($28.6; +$15.2), and the final year of construction of the Electron Beam Ion Source project ($2.4; -$1.7) ..... +$13.5

Biological and Environmental Research (FY 2008 $544.4; FY 2009 $568.5)..... +$24.1

Biological Research ($413.6) increases in support of **Genomics: GTL** foundation and bioethanol research ($162.7; +$10.0). Other increases include Low Dose Radiation research ($20.6; +$3.0) and the Environmental Molecular Sciences Laboratory ($48.4; +$5.9). Funding decreases in **Human Genome** ($70.0; -$2.7) and radiochemistry and instrumentation ($13.1; -$8.8). Other research decreases (-$1.3)..... +$6.1

Climate Change Research ($154.9) increases for climate change modeling using leadership class computing facilities to project future changes in the earth's climate ($45.4; +$14.4) and climate forcing increases ($81.2; +$3.2) and includes development of a second mobile ARM Climate Research Facility. Other climate change research increases (+$0.4)..... +$18.0

Basic Energy Sciences (FY 2008 $1,269.9; FY 2009 $1,568.2)..... +$298.3

The BES research programs for Materials Sciences and Engineering ($406.3) and Chemical Sciences, and Biosciences ($297.1) increase for several high priority areas related to a workshop report titled, "Basic Research Needs to Assure a Secure Energy Future. These increases include: hydrogen (+$24.0), solar energy utilization (+$33.4), advanced nuclear energy systems (+$17.0), complex systems or emergent behavior (+$5.0), ultrafast science (+$10.0), mid-scale instrumentation (+$19.6), chemical imaging (+$5.0), electrical energy storage (+$33.9), and carbon sequestration (+$5.0). Other research is maintained (+$19.8)..... +$172.7

Facility operations ($719.2) supports operation of all five of the nanocenters ($101.2; +$10.1), the Spallation Neutron Source ($177.6; +$13.0), and support for first full year of BES linac operations at SLAC ($96.7; +$35.2). The Intense Pulsed Neutron Source is maintained in a safe storage condition ($4.0; -$4.0) and other project costs associated with the National Synchrotron Light Source II decrease according to schedule ($10.0; -$10.0). Other major user facilities are supported ($329.7; +$29.1)..... +$73.4

Construction ($145.5) funding increases for PED and construction of the National Synchrotron Light Source II ($93.3; +$63.6) and the Advanced Light Source User Support Building ($11.5; +$6.5). Other construction ramps down as planned for PED and construction for the Photon Ultrafast Laser Science and Engineering Building Renovation at SLAC ($3.7; -$3.6), construction of the Linac Coherent Light Source ($37.0; -$13.9) and construction of the Center for Functional Nanomaterials at BNL ($0; -$0.4)..... +$52.2

Advanced Scientific Computing Research (FY 2008 $351.2; FY 2009 $368.8)..... +$17.6

Increased funding in the Applied Mathematics and Computer Science programs supports a new joint Applied Mathematics-Computer Science Institute (+$11.9). Support also increases for SciDAC activities (+$1.8) and a new effort in cyber security for open science (+$3.5). Support for the Leadership Computing Facilities at ORNL and ANL is also increased (+$4.8). Support for DARPA activities decreases (-$6.1). Other research increases (+$1.7).

Science Laboratories Infrastructure (FY 2008 $66.9; FY 2009 $110.3) ..... +$43.4

Infrastructure Support increases primarily for the demolition of Building 51 and the Bevatron at LBNL ($21.3; +$6.0). Construction funding increases to support three new FY 2009 projects which are part of the SC Infrastructure Modernization Initiative. These are: Interdisciplinary Science Building, Phase I, project at BNL ($8.2; +$8.2); the Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, project at LBNL ($12.5; +$12.5); and the Technology and Engineering Development Facility project at TJNAF($3.7; +$3.7). Construction continues according to schedule on the Physical Sciences Facility at PNNL ($41.2; +$16.4); the Modernization of Laboratory Facilities at

ORNL ($14.1; +$4.8); Seismic Safety Upgrade of Buildings, Phase I, at LBNL, ($2.6: -$6.6); and the Renovate Science Laboratory, Phase I, at BNL ($6.6; -$1.6).

Fusion Energy Sciences (FY 2008 $286.5; FY 2009 $493.0).....+$206.5
Funding for the international ITER project increases significantly consistent with the planned preliminary funding profile and restoring funding that was reduced in FY 2008 ($214.5; +$203.9). Other increases include support for research related to the new Fusion Simulation Project ($2.0; +$2.0), High Energy Density Laboratory Plasmas ($24.6; +$8.7) and the National Compact Stellarator Experiment ($20.3; +$3.6). The increases in these activities are partially offset by reductions to lower priority R&D and operations of the Fusion facilities. (-$11.7)

Science Program Direction (FY 2008 $177.8; FY 2009 $203.9) .....+$26.1
Funding for salaries and benefits for headquarters and field staffing, including support for 42 additional FTEs for total FY 2009 staffing of 1,100 FTEs (+$16.0); travel to support increased staff (+$1.4); support services (+$4.2); and other related expenses (+$4.5) including office space, communications and utilities.

Workforce Development for Teachers and Scientists (FY 2008 $8.0; FY 2009 $13.6)+$5.5
Funding increases primarily in support of educators participating in Academies Creating Teacher Scientists program (+$4.2). Funding also increases for evaluation and workforce studies (+$1.0) as well as small changes in other programs (+$0.3).

Safeguards and Security (FY 2008 $70.3; FY 2009 $80.6) .....+$10.3
Funding previously recovered through charges to reimbursable customers at the laboratories is now requested through direct appropriations ($0; +$5.6). Cyber Security ($19.5; +$2.1) increases to respond to significantly increased risks and for government-wide requirements; Protective Forces ($34.4; +$1.4) increases for cost-of-living increases; Security Systems ($7.9; +$0.9) increases to replace and upgrade aging and obsolete systems; Personnel Security ($5.6; +$0.5) increases to meet implementation and maintenance requirements of Homeland Security Presidential Directive (HSPD)-12; and all other decreases ($13.2; -$0.2).

SECTION 4. ENVIRONMENTAL RESPONSIBILITY

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Environment					
Environmental Management	6,185,533	5,694,963	5,528,000	-166,963	-2.9%
Civilian Radioactive Waste Management	445,706	386,440	494,742	+108,302	+28.0%
Office of Legacy Management	64,122	188,833	185,981	-2,852	-1.5%
Total, Environment	**6,695,361**	**6,270,236**	**6,208,723**	**-61,513**	**-1.0%**

Environmental Responsibility Strategic Theme: Protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons production

Goal 4.1 Environmental Cleanup – Complete cleanup of the contaminated nuclear weapons manufacturing and testing sites across the United States

Goal 4.2 Managing the Legacy – Manage the Department's post-closure environmental responsibilities and ensure the future protection of human health and the environment

Environmental Management

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Environmental Management					
Defense environmental cleanup	5,731,240	5,349,325	5,297,256	-52,069	-1.0%
Non-Defense environmental cleanup	349,687	182,263	213,411	+31,148	+17.1%
Uranium enrichment D&D fund	556,606	622,162	480,333	-141,829	-22.8%
Subtotal, Environmental Management	6,637,533	6,153,750	5,991,000	-162,750	-2.6%
Uranium enrichment D&D fund discretionary payments	-452,000	-458,787	-463,000	-4,213	-0.9%
Total, Environmental Management	**6,185,533**	**5,694,963**	**5,528,000**	**-166,963**	**-2.9%**

PROGRAM DESCRIPTION

The **Environmental Management** (EM) program was created in 1989 to manage safely the cleanup of the environmental legacy from 50 years of nuclear weapons production and government-sponsored nuclear energy research at sites around the country. The program includes the management of the remediation of sites contaminated by defense and civilian activities. The EM focus has been on risk reduction and on completing cleanup more efficiently and cost effectively. To continue significant progress made to date, DOE is requesting a total of **$5.53 billion** in **FY 2009**.

EM is requesting program funds in three appropriation accounts: **Defense Environmental Cleanup** (FY 2008 $5,349.3 million; FY 2009 $5,297.3 million); **Non-Defense Environmental Completion** (FY 2008 $182.3 million; FY 2009 $213.4 million); and **Uranium Enrichment Decontamination and Decommissioning Fund** (FY 2008 $622.2 million; FY 2009 $480.3 million).

PROGRAM HIGHLIGHTS

The FY 2009 budget request totals $5.53 billion, a decrease of $167 million from the FY 2008 appropriation. The FY 2009 request places a priority on balancing risk reduction and regulatory requirements within the fiscally constrained funding realities across the Federal government, while continuing the Department's commitment to the highest level of safety performance standards. The priorities reflected in this request are important not only to the success of the cleanup program, but to the communities and states in which the sites are located. Since 2001, EM has accomplished cleanup and closure of 14 sites including 3 former weapons production sites. The FY 2009 request continues this risk reduction strategy, and reflects the following priorities: requisite safety, security, and services at all sites; post closure liabilities, storage, treatment and disposition of radioactive tank waste; storage, receipt, and disposition of spent nuclear fuel; the storage, processing and disposition of special nuclear materials; high risk groundwater and soil remediation; solid waste (transuranic, low-level, and mixed low-level wastes) treatment, storage and disposal; soil and groundwater remediation; and the decontamination and decommissioning of contaminated facilities.

Defense Environmental Cleanup

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Defense Environmental Cleanup					
Closure sites	468,053	42,050	45,883	+3,833	+9.1%
Hanford site	835,316	886,498	851,787	-34,711	-3.9%
Office of River Protection	967,127	969,540	978,443	+8,903	+0.9%
Idaho National Laboratory	520,883	508,358	432,124	-76,234	-15.0%
NNSA sites and Nevada off-sites	299,345	290,264	245,084	-45,180	-15.6%
Oak Ridge Reservation	214,162	190,535	237,670	+47,135	+24.7%
Savannah River site	1,142,190	1,131,202	1,206,425	+75,223	+6.6%
Waste Isolation Pilot Plant	228,818	234,585	211,524	-23,061	-9.8%
Program direction	282,080	306,941	308,765	+1,824	+0.6%
Program support	28,031	32,844	33,930	+1,086	+3.3%
Safeguards and Security	272,520	259,332	251,341	-7,991	-3.1%
Technology development	20,715	21,194	32,389	+11,195	+52.8%
Uranium enrichment D&D fund contribution	452,000	458,787	463,000	+4,213	+0.9%
Subtotal, Defense environmental cleanup	5,731,240	5,332,130	5,298,365	-33,765	-0.6%
Use of prior year balances and other adjustments	——	——	-1,109	-1,109	N/A
Congressionally directed projects	——	17,195	——	-17,195	-100.0%
Total, Defense Environmental Cleanup	**5,731,240**	**5,349,325**	**5,297,256**	**-52,069**	**-1.0%**

PROGRAM DESCRIPTION

The **FY 2009 request** for the **Defense Environmental Cleanup** appropriation is **$5.3 billion**. This appropriation supports the largest portion of the Environmental Management mission, which is to complete the cleanup of the defense weapons research and production legacy. Upon completion, sites or portions of sites will be turned over to other DOE programs or to the Office of Legacy Management for long-term surveillance and maintenance. Defense Environmental Cleanup provides funding in accounts that are generally organized by site or location, such as the Savannah River Site. It also includes funding for Safeguards and Security, Technology Development and Deployment, Program Support, and Program Direction. This appropriation includes funding for projects at the Idaho National Laboratory, Oak Ridge Reservation, Defense Closure sites (Fernald and Miamisburg and post-closure administration activities), the Hanford Site, the Savannah River Site, the Waste Isolation Pilot Plant (WIPP), and legacy cleanup at National Nuclear Security Administration (NNSA) sites.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

Closure Sites (FY 2008 $42.1, FY 2009 $45.9)..... +$3.8
Request supports closure and post-closure activities at the **Ashtabula, Columbus, Fernald and Miamisburg (Mound) sites in Ohio, and Rocky Flats in Colorado**. These closure sites have or will have completed physical cleanup by FY 2009. While responsibility for post-closure administration at Rocky Flats, Fernald, and Columbus, including long-term stewardship of the remedy, contractor post-retirement benefits (e.g., pensions, medical benefits, life insurance), and records management transferred to the Office of Legacy Management in FY 2008, the FY 2009 request provides for ongoing litigation liabilities, contract closeout, and regulatory completion activities at completed sites managed by the Consolidated Business Center ($13.2). Request also supports post-closure activities at Miamisburg including post-retirement pensions and benefits and long-term stewardship ($30.6). Increase provides for reimbursement of the Judgment Fund for two claims awarded to a former contractor at Rocky Flats, which were paid in 2007.

Hanford Site (Richland) (FY 2008 $886.5; FY 2009 $851.8) ..... -$34.7
The Richland Operations Office manages Hanford site cleanup activities associated with the production of nuclear materials during the Cold War, including soil and groundwater remediation, facility decontamination and decommissioning (D&D), stabilization and disposition of nuclear materials and spent nuclear fuel, and disposition of waste other than high-level waste, which is managed by the Office of River Protection. Defense-related Hanford activities are funded in two control points: 2012 Completion Projects ($400.9) and 2035 Completion Projects ($450.9).

Request includes increases for **Plutonium Finishing Plant** complex to continue shipments of plutonium to the Savannah River Site to consolidate nuclear materials, including procurement of additional casks (+$16.4); and to complete demolition of K-East Basin and conceptual design for the sludge treatment project (+$23.7) at **K Basins.** Reflects an increased focus on **groundwater and vadose zone activities**, including construction of a pump-and-treat facility in 100-D Area and increased characterization drilling along the Columbia River (+$65.1).

Request includes decreases that reflect deferral of deactivation, decontamination, decommissioning, and demolition of facilities and structures in the 100 and 300 Areas and waste site and burial ground remediation in the 100 Areas in the **River Corridor Project** (-$57.9); reduced waste retrieval and treatment activities and deferral of design completion for the remote-handled waste processing capability; and completion of upgrades to the Canister Storage Building (-$69.4).

Office of River Protection (FY 2008 $969.5; FY 2009 $978.4) ..... +$8.9
Office of River Protection's primary goal is the safe management and treatment of approximately 53 million gallons of high-level radioactive liquid waste in the 177 underground storage tanks at Hanford. Funding for River Protection activities is funded in two control points: the Waste Treatment and Immobilization Project ($690) and Tank Farm Activities ($288.4).

Funds construction of the **Waste Treatment and Immobilization Plant** (WTP) consistent with the validated baseline approved in May 2007 to immobilize radioactive waste at Hanford. Design of the WTP is approximately 74 percent complete and construction is approximately 32 percent complete. The FY 2009 request continues design and construction on the five subprojects that make up the WTP facility: the Low-Activity Waste Facility ($160); Analytical Laboratory ($65); and Balance of Facilities ($75). It also supports construction of the High-Level Waste Facility ($125) and Pretreatment Facility ($265), restarted in August 2007 when the Secretary certified the final seismic and ground motion criteria.

Office of River Protection also develops waste retrieval and transfer systems to support disposition of the waste, and carries out interim closure of tanks. The FY 2009 request maintains the tank farm in a safe and compliant manner, continues evaporator and other activities to manage space in the tanks, and supports completion of one C Farm single shell tank. The request continues cold testing of supplemental immobilization technology, conceptual design and technology development of an interim pretreatment system, and other activities to support a decision on a strategy for pretreating and immobilizing low activity waste.

Idaho National Laboratory (FY 2008 $508.4; FY 2009 $432.1) ..... -$76.2
The FY 2009 request continues the safe management and disposition of high-level radioactive waste, transuranic waste and spent nuclear fuel, remediation activities and the disposal of on-site mixed low-level, hazardous, and other wastes. The request includes an increase for operations of the **Advanced Mixed Waste Treatment Facility** to allow project completion in the 2014-2015 timeframe and continues shipments of waste to the Waste Isolation Pilot Plant, including remote-handled transuranic waste. The decrease reflects

ramp down in construction of the **Sodium Bearing Waste Treatment Facility** (-$45), decreases in buried waste retrievals (-$41) and in facility decontamination and decommissioning activities (-$8), and completion of EM-owned wet-to-dry transfers in FY 2009.

NNSA Sites (FY 2008 $290.3; FY 2009 $245.1).....-$45.2
The request provides for cleanup of the legacy of environmental contamination and waste at National Nuclear Security Administration (NNSA) sites. Included are **Los Alamos National Laboratory** ($162.5), **Nevada Test Site** ($65.7), and **Separations Process Research Unit** in New York ($16.9). Cleanup will be completed at the **Lawrence Livermore National Laboratory-Site 300** (-$8.7) and **Pantex** (-$20) sites in FY 2008, and therefore there is no EM funding request for these sites in FY 2009.

Los Alamos National Laboratory reflects an increase (+$10.4) in FY 2009. The request continues shipments of contact-handled transuranic waste to the Waste Isolation Pilot Plant and the start of field work to retrieve remote-handled waste, as well as groundwater and soil investigations and remediation activities per the New Mexico Consent Order. The increase supports development of the Resource Conservation and Recovery Act Facility Investigations and begins decontamination and decommissioning of three facilities at Technical Area-21 and Material Disposal Area T.

The request for **Nevada Test Site** supports operation of the low-level waste disposal facility, and ongoing characterization and remediation activities, including closure of 20 industrial release sites. The decrease (-$14.7) reflects the deferral of decontamination and decommissioning of two facilities due to higher priority cleanup work. In addition, non-EM waste generators will fund their use of low-level and mixed low-level waste disposal services. In FY 2008 these services were funded in the EM budget (-$8.7).

The decrease for **Separations Process Research Unit** (-$11.8) reflects the performance of safety-related activities and the removal or stabilization of contaminants in soil and groundwater, with deferral of cleanup work due to other higher priorities.

Oak Ridge Reservation (FY 2008 $190.5; FY 2009 $237.7).....+$47.1
FY 2009 request supports treatment and disposal of defense-funded decommissioning, legacy waste management activities, including operation of the **Toxic Substances Control Act (TSCA) Incinerator,** processing of contact-and remote-handled waste at the **Transuranic Waste Treatment Facility**; and remediation activities. Includes increases for down-blending and disposition of uranium-233 in **Building 3019** (+$28.3) through the dismantlement of existing hot cells and laboratories in Building 3019, procurement of process equipment, and initiation of building modifications; for the start of mercury reductions activities and the expansion of the Environmental Management Waste Management Facility at **Y-12** (+$12.7); and to install equipment to mobilize remote-handled transuranic sludge and prepare the **Transuranic Waste Treatment Facility** to process the sludge to be ready for disposal in 2010 (+$6.6). Decrease in remediation offsite locations reflects the ramp-down to completion of the **Witherspoon 1630 Site** cleanup (-$4.6).

Savannah River (FY 2008 $1,131.2; FY 2009 $1,206.4).....+$75.2
Savannah River Site is responsible for stabilization, treatment and disposition of legacy nuclear materials and wastes, spent nuclear fuels, and remediation of contaminated media resulting from nuclear materials produced during the Cold War. Funding for Savannah River activities is funded in three control points: 2012 Completion Projects ($2.0), 2035 Completion Projects ($498.7) and Tank Farm Activities ($705.7).

The FY 2009 request supports Savannah River Site's critical role in the Department's efforts to consolidate spent nuclear fuel and nuclear materials across the complex, and the

management and stabilization of "at risk" spent nuclear fuel and nuclear materials. The request continues receipt of plutonium from other DOE sites at the Savannah River Site, safe storage of nuclear materials in K Area, and continued operations in the **H Canyon/H-B Line** to process legacy materials and aluminum-clad spent nuclear fuel and NNSA-funded efforts to blend highly enriched uranium to low enriched uranium. The request reflects a re-evaluation of the plutonium disposition strategy, including the 3013 Container Surveillance Capability project in Building 105-K and the proposed Plutonium Vitrification facility. Therefore, FY 2009 activities will include studies and design to support the re-evaluation. The F-Canyon complex will be maintained in a safe condition through surveillance and monitoring.

The request provides for continued progress in the management and disposition of 37 million gallons of high-level waste. It supports vitrification of high-level tank waste at the **Defense Waste Processing Facility**; continuing construction of the **Salt Waste Processing Facility** ($127.5); and safe maintenance of the high-level waste tanks, and continuation of tank waste removal activities to manage waste volume in a number of tanks.

The site continues other important management and disposition of all waste types, including transuranic waste shipped to the Waste Isolation Pilot Plant for disposal, and cleanup of contaminated soil and groundwater in support of compliance agreements.

The increase for the Savannah River Site primarily reflects increases for Salt Waste Processing Facility construction, and tank waste management activities (+$94); and the start of processing of spent nuclear fuel in H-Canyon, as well as preparation for processing of plutonium–bearing materials in H-B Line (+$23). These are offset by reduced number of drummed TRU waste shipments to the Waste Isolation Pilot Plant and offsite disposition of other waste types, and the completion of several high-cost remediation projects.

Waste Isolation Pilot Plant (FY 2008 $234.6; FY 2009 $211.5) ..... -$23.1
Funding supports the National Transuranic Waste Program, managed by Carlsbad Field Office, including the operation of the **Waste Isolation Pilot Plant** (WIPP), the national repository for defense-generated transuranic waste, near Carlsbad, New Mexico. FY 2009 request supports 21 shipments of contact-handled waste and up to 5 shipments of remote-handled waste per week. The decrease reflects deferral of some groundwater well drilling and plugging activities and equipment purchases, and a reduction of characterization services at some sites, as well as congressionally directed projects in FY 2008 not included in the FY 2009 request.

Program Direction (FY 2008 $306.9; FY 2009 $308.8) ..... +$1.8
Request supports the federal workforce responsible for the overall direction and administrative support of the EM program, including both headquarters and field personnel. It provides funding for salaries, benefits, travel, training, support services, and other related expenses for 1,505 FTEs, 1,044 of which are located in field offices, 299 in Headquarters, and 162 FTEs are assigned to the EM Consolidated Business Center. Includes 8 FTEs associated with the Central Technical Authority that provides nuclear safety oversight for the Department. The increase reflects a 2 percent escalation offset by the use of prior year balances. The FTEs increase is to support EM's best-in-class initiative to improve project management and contract management and to provide for succession planning as the number of retirement-eligible personnel increases. The FY 2009 request reflects the transfer of five FTEs at the Pantex and Lawrence Livermore Site offices to NNSA for long term stewardship of those sites.

Program Support (FY 2008 $32.8; FY 2009 $33.9) ..... +$1.1
The FY 2009 request supports continued policy, management, and technical support of the EM program, including efforts to accomplish workforce planning; conduct crosscutting

program analysis; and provide a central information database for the program. Supports the issuance of the Environmental Impact Statement and Record of Decision for Greater-Than-Class-C Disposal Alternatives.

Safeguards and Security (FY 2008 $259.3; FY 2009 $251.3) ..... -$8.0
The FY 2009 request ensures appropriate levels of protection for EM facilities and cleanup sites, anticipates evolving threats, and maintains a balance of the security mission with the operation of the Waste Isolation Pilot Plant, East Tennessee Technology Park, Fernald, West Valley, Paducah, Portsmouth, Hanford, and Savannah River sites. Increase for Paducah (+$8.2) returns the site to funding after utilizing prior year balances in FY 2008. Increase for Oak Ridge (+$8.7) is for extended Pro Force and security support at ETTP to support the K-25/K-27 project schedule, cyber security, and a return to full funding after utilizing prior year balances in FY 2008. Decrease at Richland (-$11.2) reflects the completion of the Canister Storage Building security upgrade in FY 2009, and decrease at Savannah River (-$13.7) is due to completion of a four-year Design Basis Threat facility upgrade. In addition, there will be carryover to meet FY 2008 requirements at the Portsmouth site, so no additional budget authority is requested.

Technology Development and Deployment (FY 2008 $21.2; FY 2009 $32.4) ..... +$11.2
Provides technical solutions and alternative technologies to enable accelerated cleanup. Areas of investment are critical high-return activities. The goals of the Technology Development and Deployment program are to eliminate technical barriers to cleanup by addressing technology needs identified by the sites and provide technical assistance to the sites. The program is composed of critical, high-risk, high-payback activities where significant improvements to existing processes can be achieved. Increase (+$11.2) reflects additional research and development in areas such as radioactive waste characterization, and post-closure tank system performance to eliminate technical barriers to cleanup.

D&D Fund Deposit (FY 2008 $458.8; FY 2009 $463.0)..... +$4.2
Provides EM program's contribution to the Uranium Enrichment Decontamination and Decommissioning Fund to fulfill the government contribution as required by the Energy Policy Act of 1992.

Non-Defense Environmental Cleanup

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Non-Defense Environmental Cleanup					
West Valley demonstration project	87,591	53,900	57,600	+3,700	+6.9%
Gaseous diffusion plants	27,363	37,773	81,296	+43,523	+115.2%
Depleted uranium hexafluoride conversion, 02-U-101	94,676	——	——	——	——
Fast flux test reactor facility (WA)	34,843	10,248	10,755	+507	+4.9%
Small sites	105,214	80,342	64,413	-15,929	-19.8%
Subtotal, Non-defense environmental cleanup	349,687	182,263	214,064	+31,801	+17.4%
Use of prior year balances	——	——	-653	-653	N/A
Total, Non-Defense Environmental Cleanup	**349,687**	**182,263**	**213,411**	**+31,148**	**+17.1%**

PROGRAM DESCRIPTION

The **FY 2009 request** for the **Non-Defense Environmental Cleanup** appropriation is **$213.4 million**, an increase of $31 million from FY 2008. This appropriation supports activities that address the environmental legacy resulting from civilian nuclear energy research. The nuclear energy research and development carried out by the Department and its predecessor agencies generated waste and contamination that pose unique problems, including large quantities of contaminated soil and groundwater and a number of contaminated structures. Upon completion of cleanup activities, these sites or portions of a site are turned over to other DOE program landlords or to the Office of Legacy Management for long-term surveillance and maintenance.

The Non-Defense Environmental Cleanup provides funding in several accounts: Fast Flux Test Reactor Facility, Gaseous Diffusion Plants, Small Sites, and the West Valley Demonstration Project. Funding for the Small Sites account includes projects at Argonne National Laboratory, Brookhaven National Laboratory, the Energy Technology Engineering Center, Idaho National Laboratory, the Inhalation Toxicology Laboratory, Los Alamos National Laboratory, Moab, and the Stanford Linear Accelerator Center.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

West Valley Demonstration Project (FY 2008 $53.9; FY 2009 $57.6).....+$3.7
This project includes solid waste stabilization and disposition, and nuclear facility decontamination and decommissioning activities at West Valley, New York. The FY 2009 request supports continued processing and disposal of waste generated from the decontamination and decommissioning activities at the Main Process Plant Building, and processing of transuranic (TRU) and high-activity wastes through the **Remote-Handled Waste Facility**. The increase supports additional processing and disposal of low-level waste and mixed low-level waste and the start of disposition activities for transuranic waste generated through decontamination of site facilities.

Gaseous Diffusion Plants (FY 2008 $37.8; FY 2009 $81.3).....+$43.5
The EM program includes the conversion of depleted uranium hexafluoride (DUF6) produced during enrichment operations at the gaseous diffusion plants at Paducah, Kentucky, and Portsmouth, Ohio, to a more stable form, and the maintenance and storage DUF6 cylinders and facilities.

Paducah (FY 2008 $17.2; FY 2009 $39.0).....+$21.8
The Paducah Gaseous Diffusion Plant began operation in 1952 to produce low-assay

enriched uranium for use as commercial nuclear reactor fuel. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation (USEC) in accordance with the Energy Policy Act of 1992. The FY 2009 request supports startup of operation of the **Depleted Uranium Hexafluoride Conversion Facility** as well as continued management, maintenance, and storage of DUF6 cylinders awaiting conversion. The increase supports DUF6 operations for processing approximately 10,000 metric tons of material (+$21.8).

Portsmouth (FY 2008 $20.6; FY 2009 $42.3).....+$21.7
The Portsmouth Gaseous Diffusion Plant began operations in 1952. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation (USEC) in accordance with the Energy Policy Act of 1992. Transition of the facility to cold shutdown status began after USEC ceased operations at the plant in 2001. The FY 2009 request supports start-up operations of the **Depleted Uranium Hexafluoride Conversion Facility** at Portsmouth, continued management, maintenance, and storage of DUF6 cylinders awaiting conversion, and recovery processing of highly enriched uranium stored at Nuclear Fuel Services. In FY 2009, DOE will also complete removal of technicium-99 in using the proceeds from previous sales of uranium inventory. The increase supports DUF6 operations for processing approximately 7,500 metric tons of material.

Fast Flux Test Reactor Facility (FY 2008 $10.2; 2009 $10.8).....+$.6
The FY 2009 request supports continued long-term surveillance and maintenance of the facility. The Department has deactivated the facility and is deferring substantial decontamination and decommissioning activities to focus on other, higher site priorities.

Small Sites (FY 2008 $80.3; FY 2009 $64.4).....-$15.9
Activities include cleanup, and decontamination and decommissioning activities at small non-defense sites and projects at **Argonne National Laboratory, Brookhaven National Laboratory**, **Energy Technology Engineering Center,** the **Inhalation Toxicology Laboratory**, **Moab site**, and **Stanford Linear Accelerator Center**, and non-defense activities at the **Los Alamos National Laboratory** and the **Idaho National Laboratory**.

Argonne National Laboratory (FY 2008 $.4; FY 2009 $.5).....+$.1
The FY 2009 request funds long-term response and stewardship activities, 301 Hot Cell decommissioning completion, and will complete EM work at the site.

Brookhaven National Laboratory (FY 2008 $28.4; FY 2009 $8.4).....-$20.0
The decrease reflects deferral of active demolition and decontamination activities at the **Brookhaven Graphite Research Reactor** and the **High Flux Beam Reactor** due to higher priority cleanup activities. With completion of soil and groundwater remediation, the FY 2009 request primarily funds maintenance and monitoring of remedies, environmental operations and safety activities.

Idaho National Laboratory (FY 2008 $5.4; FY 2009 $4.4).....-$1.0
The FY 2009 request supports maintenance of non-defense fuels stored on site at the Idaho National Laboratory, including fuel from **Three Mile Island-2** and fuels stored **at Fort St. Vrain** in Colorado. The decrease in funding reflects savings resulting from the Nuclear Regulatory Commission aging study.

Inhalation Toxicology Laboratory (FY 2008 $.4; FY 2009 $0.0).....-$.4
The FY 2009 decrease reflects completion of site cleanup in FY 2008.

Energy Technology Engineering Center (FY 2008 $12.9; FY 2009 $12.5).....-$.3
The FY 2009 request provides ongoing program and landlord support, site wide environmental monitoring, radiological groundwater characterization, and development of a work plan consistent with the State of California 2007 Consent Order and the pending Environmental Impact Statement and Record of Decision.

Los Alamos National Laboratory (FY 2008 $1.9; FY 2009 $1.9).....+$0.0
The FY 2009 request continues surveillance and maintenance at the Tritium System Test Facility and characterization activities in support of decontamination and decommissioning contract for the facility in FY 2009.

Moab Site (FY 2008 $23.7; FY 2009 $30.5).....+$6.8
This project scope includes remediation of the former Atlas Mineral Corporation, Uranium Ore Processing and Mill Site at Moab, Utah. The Environmental Impact Statement Record of Decision, signed in September 2005, determined that mill tailings would be relocated offsite via rail. FY 2009 activities include completion of rail upgrades between Moab and Crescent Junction (where the disposal cell will be located), continuation of disposal cell excavation, groundwater monitoring activities, and initiation of the tailings haul from Moab to Crescent Junction. The increase supports the completion of rail upgrades and the tailings-handling infrastructure.

Stanford Linear Accelerator Center (FY 2008 $5.8; FY 2009 $4.9).....-$1.0
This project scope includes remediation of chemical contamination of soil and groundwater resulting from decades of physics research at the site. The FY 2009 decrease reflects completion of installation of the groundwater treatment system at the plating shop, and completion of several soil remediation projects.

Uranium Enrichment Decontamination and Decommissioning Fund

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Uranium Enrichment Decontamination and Decommissioning Fund					
Decontamination and decommissioning	536,806	602,344	480,333	-122,011	-20.3%
Uranium/thorium reimbursement	19,800	19,818	——	-19,818	-100.0%
Total, Uranium Enrichment D&D Fund	**556,606**	**622,162**	**480,333**	**-141,829**	**-22.8%**

PROGRAM DESCRIPTION

The Energy Policy Act of 1992 established the **Uranium Enrichment Decontamination and Decommissioning Fund** (UED&D Fund) to carry out environmental management responsibilities at the nation's three gaseous diffusion plants. These responsibilities include decontamination and decommissioning, remedial actions, waste management, landlord requirements, surveillance, and operation and maintenance activities associated with conditions at the plants prior to the presence of the U.S. Enrichment Corporation. The UED&D Fund received receipts from commercial utilities based on their historic purchases of uranium enrichment services, measured in separative work units. The remainder of the annual deposit to the UED&D Fund is made by DOE and is authorized to come from annual appropriations. The law also requires DOE to administer a reimbursement program for remediation activities at active uranium and thorium processing sites that sold material to the U.S. government. The request for UED&D Fund activities for **FY 2009** is **$480.3 million**.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

Decontamination and Decommissioning
(FY 2008 $622.2; FY 2009 $480.3).....-$141.9
Office of Environmental Management manages the maintenance, remediation, and decontamination and decommissioning of uranium processing facilities and the gaseous diffusion plants at Paducah, Kentucky; Portsmouth, Ohio; and the East Tennessee Technology Park in Oak Ridge, Tennessee.

Oak Ridge East Tennessee Technology Park (ETTP) (formerly K-25)
(FY 2008 $282.2; FY 2009 $184.2).....-$98.0
ETTP was built as part of the World War II Manhattan Project and was used to enrich uranium for national defense purposes. Enrichment of weapons-grade uranium ceased in 1964. The plant continued to produce low-enriched uranium for commercial nuclear power purposes until 1985, when it was shut down. The FY 2009 request focuses on maintaining compliance with the ETTP safety basis requirements, continuing high risk equipment removal and required foaming activities for the east and north wings of the **K-25 process building**, and demolition of the west wing of the K-25 process building. The decrease reflects a reduction in remedial actions.

Paducah (FY 2008 $115.6; FY 2009 $95.9).....-$19.7
Paducah Gaseous Diffusion Plant began operation in 1952 to produce low-assay enriched uranium for use as commercial nuclear reactor fuel. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation in accordance with the Energy Policy Act of 1992. FY 2009 request supports remediation of groundwater associated with building C-400; closure and disposition

of all **DOE Material Storage Areas**; and characterization and disposition of recently discovered soil and rubble piles along the river. Decrease reflects completion of the majority of legacy waste disposition, partly offset by an increase for soil and rubble piles remediation.

Portsmouth (FY 2008 $204.5; FY 2009 $200.2) .....-$4.3
Portsmouth Gaseous Diffusion Plant began operation in 1952. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation in accordance with the Energy Policy Act of 1992. Transition of the facility to cold shutdown status began after the USEC ceased operations at the plant in 2001. The FY 2009 request supports continued disposal of low-level waste; initiation of disposition of depleted uranium metal stored in the Uranium Management Center; completion of Quadrant II remedial actions; and completion of Cold Shutdown activities, contract award and initiation of **gaseous diffusion plant decontamination and decommissioning**. Decrease reflects the completion of legacy waste management efforts and disposition of uranium hexafluoride small cylinders, offset by an increase to support the transition to decontamination and decommissioning of the plant.

Uranium/Thorium Reimbursements (FY 2008 $19.8; FY 2009 $0).....-$19.8
Title X of the Energy Policy Act of 1992 authorizes reimbursement of uranium and thorium processing site licensees for a portion of their cost of cleanup (federal-related byproduct material). Decrease reflects deferral of reimbursements to support higher priority DOE cleanup work at DOE sites.

Civilian Radioactive Waste Management

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Civilian Radioactive Waste Management					
Defense Nuclear Waste Disposal					
Defense nuclear waste disposal	346,500	199,171	247,371	+48,200	+24.2%
Nuclear Waste Disposal					
Repository program	33,566	112,595	172,388	+59,793	+53.1%
Program direction	65,640	74,674	74,983	+309	+0.4%
Total, Nuclear Waste Disposal	99,206	187,269	247,371	+60,102	+32.1%
Total, Civilian Radioactive Waste Management	**445,706**	**386,440**	**494,742**	**+108,302**	**+28.0%**

Funding for the **Office of Civilian Radioactive Waste Management** is requested in two accounts within the Energy and Water Development Appropriation: Nuclear Waste Disposal and Defense Nuclear Waste Disposal. All activities related to the establishment of a permanent geologic repository for nuclear waste are requested within the Nuclear Waste Fund and Defense Nuclear Waste Disposal accounts.

PROGRAM DESCRIPTION

The **Civilian Radioactive Waste Management** (CRWM) program fulfills the U.S. government's responsibility, mandated by the Nuclear Waste Policy Act of 1982, as amended, for permanent geologic disposal of spent nuclear fuel and high-level radioactive waste resulting from the nation's civilian and defense atomic energy activities. The program is responsible for developing successful waste acceptance, transportation and disposal strategies that protect public health and safety in ways that are both environmentally and economically viable. The **FY 2009 budget request of $494.7 million** supports these activities.

Congress makes two separate appropriations for the program, one from the Nuclear Waste Fund (Civilian) and the other through a Defense Nuclear Waste Disposal appropriation.

Nuclear Waste Fund (Civilian)

The Nuclear Waste Policy Act provides for two types of fees to be levied on the owners and generators of civilian spent nuclear fuel: an ongoing fee of one-tenth of one cent per kilowatt-hour of nuclear electricity generated and sold after April 7, 1983, and a one-time fee for all nuclear electricity generated and sold prior to that date. As of September 30, 2007, there is a total of $27.2 billion in fees and interest collected in the Nuclear Waste Fund, of which $6.9 billion has been disbursed for a balance of $20.8 billion.

Defense Nuclear Waste Disposal

Congress provides appropriations for the disposal of high-level waste generated over the past 50 years by defense activities of the U.S. military, the cleanup of World War II- era weapons plants, and the reduction of the nation's nuclear arsenal.

PROGRAM HIGHLIGHTS

Nuclear Waste Disposal (Civilian and Defense)

The mission of the CRWM program is critical to this country's national and economic security. In order for the United States to remain competitive in the global economy, its domestic energy resources need to be developed and utilized effectively. Nuclear energy can play a critical role in providing a significant share of our electrical energy in an environmentally sound manner. Designing, licensing and constructing a geologic repository for spent nuclear fuel and high level waste will resolve the challenge of safe disposal of these materials and make construction of new nuclear power plants more feasible, helping to expand our energy options and secure our economic future. In addition, a secure permanent repository is necessary to support nuclear non-proliferation goals, contributing to national security objectives.

The CRWM program anticipates submitting a high quality license application for the construction of a geologic repository by the end of 2008. Following a three to six month acceptance review period, the Nuclear Regulatory Commission (NRC) may move forward to docket the license application for review. Given a favorable review, FY 2009 will be the first year of a multi-year license defense process. After submittal and docketing of the license application, the Department will be required to respond to technical questions and Requests for Additional Information (RAIs) from the NRC. The Department will be required to support any depositions, interrogatories, discovery and response to discovery, and preparation for and appearance at the evidentiary hearings that are likely to begin in FY 2009 following completion of the NRC review of the LA and issuance of its Safety Evaluation Report.

The FY 2009 budget provides $494.7 million for work necessary to support the development of a repository including:

- Defending a license application to the NRC based on the simpler and safer Transportation, Aging and Disposal (TAD) canister approach to handling spent nuclear fuel and operating the repository;
- Progression of preliminary designs for facilities required for the receipt of spent nuclear fuel and high-level waste for emplacement in the repository;
- Continuing critical interactions with state, local, and tribal governments needed to support national transportation planning activities.
- Planning for a compliant and well-integrated safeguards and security, safety, and emergency management program for the disposal, transportation, and management of SNF and HLW.

Finally, the Administration submitted a legislative proposal to Congress in FY 2007 that addresses funding reform and regulatory issues that, if enacted, would allow the Department to secure the necessary fiscal resources needed for program success and clears the path for the program to move forward expeditiously toward waste acceptance.

SIGNIFICANT FUNDING CHANGES – FY 2009 to FY 2010 Request ($ in millions)

Yucca Mountain Project (FY 2008 $267.1; FY 2009 $372.7) .....+$105.7
In FY 2009, DOE will shift from solely focusing on submitting the License Application (LA) to the Nuclear Regulatory Commission (NRC) to vigorously defending the LA should the NRC opt to docket the application after a review ranging from three to six months. This will begin a three year period in which there will be an intensive effort to defend the LA leading up to the NRC authorization for repository construction (+$22.8). Such activities will range from supporting timely responses to NRC Requests for Additional Information and the development of more detailed

safeguards and security documents as required by the NRC. Additional funding will be directed to work on designs for the aging pad system and subsurface facilities, particularly to enable the necessary security assessments and response plans to be developed (+$29).

Transportation (FY 2008 $18.3; FY 2009 $20.0) …….. +$1.7
Rolling stock is increased to complete the preliminary design of the rail car to be used for armed escorts and to fund long-range procurements of materials for fabricating the prototype rail car to be used for testing (+$1.2). The initiation of major bridge design, geotechnical and hydrological analysis are also funded (+$5.0).

Program Management and Integration (FY 2008 $26.1; FY 2009 $27) .....+$0.9
FY 2009 funding under Program Management and Integration will largely remain equal to funding amounts provided under the FY 2008 budget. Many elements within this section of the CRWM request have largely been restructured for FY 2009 to give such important activities as Quality Assurance, System Analysis and Strategy Development, and Waste Management more visibility.

Legacy Management

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Legacy Management					
Legacy Management					
Legacy management	——	33,872	——	-33,872	-100.0%
Energy Supply and Conservation					
Legacy management	33,187	——	——	——	——
Total, Energy Supply and Conservation	33,187	——	——	——	——
Other Defense Activities					
Legacy management	19,733	144,060	174,397	+30,337	+21.1%
Program direction	11,202	10,901	11,584	+683	+6.3%
Total, Other Defense Activities	30,935	154,961	185,981	+31,020	+20.0%
Total, Office Of Legacy Management	**64,122**	**188,833**	**185,981**	**-2,852**	**-1.5%**

PROGRAM DESCRIPTION

The **Office of Legacy Management** (LM) ensures the sustainable protection of human health and the environment after DOE cleanup is completed, and continues management of certain retirement benefits for former contractor personnel after site closure. In FY 2009, funding for all LM activities is requested within the Other Defense Activities appropriation.

This program supports long-term stewardship activities (e.g., groundwater monitoring, disposal cell maintenance, records management, and management of natural resources) at sites where active remediation has been completed. In addition, at some sites the program includes management and administration of pension and benefit continuity for contractor retirees. The **FY 2009** budget **request** of **$186 million** supports these activities.

PROGRAM HIGHLIGHTS

The FY 2009 request provides $186 million to carry out all legacy management functions. In FY 2009, post closure responsibility for long-term stewardship activities and pension and benefit claims for former contractor employees at an anticipated 86 sites, including the Rocky Flats, Colorado, and the Fernald, Ohio, closure sites, is funded within the LM budget.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Legacy Management

Legacy Management (FY 2008 $33.9; FY 2009 $0) .....-$33.9
The decrease reflects a transfer of all LM activities to the Other Defense Activities appropriation.

Other Defense Activities

Legacy Management (FY 2008 $144.1; FY 2009 $174.4) .....+$30.3
The increase reflects funding previously requested within the Legacy Management appropriation that is now requested within the Other Defense Activities appropriation.

Increases in the LM program including a $12-million increase at Grand Junction for well replacement, are offset by the use of prior-year balances.

Program Direction (FY 2008 $10.9; FY 2009 $11.6) ..... +0.7
No significant change. Legacy Management continues to administer its programs consistent with its delegation as a High-Performing Organization.

SECTION 5. MANAGEMENT EXCELLENCE

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Corporate Management					
Departmental administration	147,943	148,415	154,827	+6,412	+4.3%
Inspector general	41,819	46,057	51,927	+5,870	+12.7%
Security and Safety Performance Assurance	313,895	——	——	——	——
Environment, Safety and Health	108,221	——	——	——	——
Health, Safety and Security	——	424,471	446,868	+22,397	+5.3%
Hearings and Appeals	4,349	4,565	6,603	+2,038	+44.6%
Total, Corporate Management	**616,227**	**623,508**	**660,225**	**36,717**	**+5.9%**

Management Excellence Strategic Theme: Enabling the mission through sound management

Goal 5.1 Integrated Management – Institute an integrated business management approach throughout DOE with clear roles and responsibilities and accountability to include effective line management oversight by both federal and contractor organizations

Goal 5.2 Human Capital – Ensure that DOE's workforce is capable of meeting the challenges of the 21st Century by attracting, motivating, and retaining a highly skilled and diverse workforce to do the best job

Goal 5.3 Infrastructure – Build, modernize, and maintain facilities and infrastructure to achieve mission goals and ensure a safe and secure workplace

Goal 5.4 Resources – Institutionalize a fully integrated resource management strategy that supports mission needs and postures the Department for continuous business process improvement

Departmental Administration

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Departmental Administration					
Administrative operations:					
Salaries and expenses:					
Office of the Secretary	5,429	5,751	5,700	-51	-0.9%
Board of contract appeals	147	——	——	——	——
Chief financial officer	38,044	41,998	45,048	+3,050	+7.3%
Management	54,161	65,033	67,000	+1,967	+3.0%
Human Capital Management	22,107	27,986	31,436	+3,450	+12.3%
Chief information officer	105,072	110,135	115,500	+5,365	+4.9%
Congressional & intergovernmental affairs	4,813	4,733	4,700	-33	-0.7%
Economic impact and diversity	6,154	6,443	4,400	-2,043	-31.7%
General counsel	23,202	29,889	31,233	+1,344	+4.5%
Policy and international affairs	16,502	21,039	23,000	+1,961	+9.3%
Public Affairs	4,493	3,339	3,780	+441	+13.2%
Loan guarantee	7,000	——	——	——	——
Competitive sourcing initiative (A-76)	2,464	——	——	——	——
Total, Administrative operations	289,588	316,346	331,797	+15,451	+4.9%
Cost of work for others	74,243	91,420	48,537	-42,883	-46.9%
Subtotal, Departmental Administration (gross)	363,831	407,766	380,334	-27,432	-6.7%
Adjustments:					
Funding from other defense activities	-86,999	-98,104	-108,190	-10,086	-10.3%
Total, Departmental Administration (gross)	276,832	309,662	272,144	-37,518	-12.1%
Miscellaneous revenues					
Revenues associated with cost of work	-75,709	-91,420	-48,537	+42,883	+46.9%
Other revenues	-53,180	-69,827	-68,780	+1,047	+1.5%
Total, Miscellaneous revenues	-128,889	-161,247	-117,317	+43,930	+27.2%
Total, Departmental Administration (Net)	**147,943**	**148,415**	**154,827**	**+6,412**	**+4.3%**

PROGRAM DESCRIPTION

The **Departmental Administration** (DA) appropriation funds 9 DOE-wide management organizations under **Administrative Operations**. These organizations support headquarters operations in human resources, administration, accounting, budgeting, program analysis, project management, information management, legal services, life-cycle asset management, workforce diversity, minority economic impact, policy, international affairs, congressional and intergovernmental liaison, and public affairs. Funding for the **Office of the Secretary** is provided separately from the other administrative functions within the DA appropriation. The DA appropriation also budgets for **Cost of Work for Others** and receives miscellaneous **Revenues** from other sources.

DOE also operates a **Working Capital Fund** (WCF) as a financial tool to improve management of common administration services. The objectives of the WCF are to fairly allocate costs to mission programs; to offer better choices on amount, quality, and sources of services; and to provide flexibility for service providers to respond to customer needs. The FY 2009 increase represents $3.9 million changes to current policy related to inflation and program discretionary spending and $31.3 million gross increases that result from WCF Board decisions to add new business functions to the WCF. The net increase to program accounts for these added functions is $19.7 million because DCAA audits ($15.5 million) are already funded in program accounts. Building increases $12.1 million; which includes Stairwell Safe Haven project ($2.0 million), outsourced contractual support ($5.5 million), and Property Management, Transportation, and Travel Support ($1.2) and ($3.4) rent increases. Other increases include: Inflation ($0.6 million), Mail ($1.1 million), Copy ($0.2 million), Printing ($0.3 million), Training ($1.2 million), STARS ($1.0 million), STRIPES ($2.4 million) and Oak Ridge Financial Service Center ($0.8 million).

Working Capital Fund
Budget by Function
(dollars in thousands)

Business Line Activities	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Supplies	3,046	2,996	2,983
Mail Services	2,022	2,280	3,376
Photocopying	2,238	2,569	2,766
Printing and Graphics	2,520	3,031	3,358
Building Occupancy	69,426	71,025	83,168
Telephones	8,086	8,689	9,119
Networking	6,636	6,718	6,776
Procurement Management	712	1,058	16,462
Payroll and Personnel	4,260	4,501	4,421
Corporate Training Services	320	758	2,175
Project Management Career Dev Program	1,000	1,000	1,000
Standard Accounting and Reporting System	4,000	3,500	7,691
Financial Reporting Control Assessment	2,919	5,000	5,000
Indirect	120	120	120
Total, Working Capital Fund	**107,305**	**113,245**	**148,415**

PROGRAM HIGHLIGHTS

The FY 2009 request provides $5.7 million for 34 full time equivalent employees (FTEs) within the Office of the Secretary. This request also provides $326.1 million for salaries and benefits, travel, contractual services, and program support expenses for 1,173 FTEs for the other organizations within the DA account.

The Cost of Work for Others and Revenues activities are budgeted at $48.5 million and -$117.3 million, respectively. Beginning in FY 2009, the cost of work account will no longer include $40.0 million for safeguards and security reimbursable work. Program offices will budget directly for these safeguards and security requirements within their respective appropriation accounts.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Chief Financial Officer (FY 2008 $42.0; FY 2009 $45.1) .....+$3.1
Supports 5 additional FTEs from the FY 2008 level for a total of 241 FTEs in FY 2009. The increase supports salaries, benefits, cost of living expenses and other personnel related expenses for the 241 FTEs ($3.3). The FY 2009 level of funding also supports a new Cost Analysis function ($1.0), corporate modeling ($0.5), and strategic planning ($0.1). The overall increase is offset by a reduction in information technology support due to the completion of upgrades to the Department's financial systems and related training (-$1.8).

Office of the Chief Information Officer (FY 2008 $110.1; FY 2009 $115.5).....+$5.4

Program Direction (FY 2008 $47.1; FY 2009 $53.7) .....+$6.6
The increase supports salaries, benefits and cost of living expenses for 141 FTEs ($0.6). The increase also supports a new operational cyber security requirement that was added in FY 2009 ($8.0). This funding will allow the Department to fully and properly implement and make operational the measures necessary to mitigate the cyber security weaknesses. The increase is offset by general reductions in information technology support services (-$1.2) and the transfer of records management (-$0.5) and spectrum management (-$0.3) to the Corporate Management Information Program (CMIP) line item.

Corporate Management Information Program (FY 2008 $28.2; FY 2009 $27.2) ....-$1.0
Funding decreased in FY 2009 due to the establishment of increasingly mature, integrated Enterprise Architecture and Capital Planning and Investment Control agency processes (-$1.7). The overall decrease is offset by the following activities that were transferred to the CMIP line from program direction beginning in FY 2009: records management ($0.5) and spectrum management ($0.3).

Cyber Security (FY 2008 $34.9; FY 2009 $34.5) .....-$0.4
Most actions identified in the DOE Cyber Security Revitalization plan have been completed and are now entering ongoing operational phase, the overall costs of cyber security have been marginally reduced.

Office of Economic Impact and Diversity FY 2008 $6.4; FY 2009 $4.4) .....-$2.0
The decrease is the result of the transfer of 3 FTEs and the Diversity function to the Office of Human Capital Management (-$0.7) and 9 FTEs and the Civil Rights function to the Office of Hearings and Appeals (-$1.7). The overall reduction is offset by a slight increase to support cost of living expenses for the 20 remaining FTEs ($0.4).

General Counsel (FY 2008 $29.9; FY 2009 $31.2).....+$1.3
The increase reflects salaries, benefits and cost of living expenses for 153 FTEs ($0.8). The increase also supports additional business lines that were added to the working capital fund in FY 2009 ($0.8). The increases are offset by slight decreases in travel and support services (-$0.3).

Human Capital Management (FY 2008 $27.9; FY 2009 $31.4) .....+$3.5
The increase supports salaries, benefits and cost of living expenses for 161 FTEs ($1.1). The total FTEs reflect an increase of 3 over the FY 2008 level to support the Diversity function that was transferred from the Office of Economic Impact and Diversity in FY 2009. Other increases support: Shared Service Center E-Government Initiative ($0.8), enhanced DOE Drug Testing program ($0.4), performance management automated web utility ($0.4), Human Capital Survey ($0.2) and miscellaneous other related expenses such and working capital fund and information technology ($1.0). The overall increase is offset by reductions in the Career Intern Program (-$0.2), Award programs (-$0.1) and other HR initiatives (-$0.1).

Office of Management (FY 2008 $65.0; FY 2009 $67.0).....+$2.0
Increase supports salaries, benefits and cost of living expenses for 283 FTES ($1.0). There's a net decrease of 1 FTE from the FY 2008 level as a result of the transfer of 6 FTEs to the Office of Health, Safety and Security (HSS) to support quality assurance and an increase of 5 FTEs to support project, facility and real estate management functions. The increase also supports the transfer of External Independent Reviews from Energy Efficiency and Renewable Energy ($0.1), National Nuclear Security Administration ($0.5), Science ($0.6) and Environmental Management ($3.0) to the Office of Management beginning in FY 2009. Other increases support the Earned Value Management System ($1.2), Performance Assessment and Report System ($1.0) and new business lines in the Working Capital Fund (WCF) ($2.0). The overall increase is offset by reductions in the A-76 Logistics Service Provider that was transferred to the WCF (-$4.5), completion of the National Academy of Public Administration (NAPA) review (-$1.5M) and other reductions in support service areas (-$1.4M).

Office of Policy and International Affairs (FY 2008 $21.0; FY 2009 $23.0) .....+2.0
Increase supports salaries, benefits and cost of living expenses for 120 FTES as well as the new business lines that were added to the Working Capital Fund ($0.7). The increase also supports the Climate Change Technology Program ($0.9) which will expand its role in assessing, informing and guiding the formulation of a strategic portfolio of Departmental investments in climate change related technology research, development, demonstration and deployment. Other increases support additional policy analysis and systems studies ($0.4).

Office of Public Affairs (FY 2008 $3.3; FY 2009 $3.8) ..... +0.5
Increase supports salaries, benefits and cost of living expenses for 24 FTES as well as the new business lines that were added to the Working Capital Fund.

Cost of Work for Others (FY 2008 $91.4; FY 2009 $48.5)..... -$42.9
Beginning in FY 2009, the cost of work account will no longer include $40.0 million for safeguards and security reimbursable work. Program offices will budget directly for these safeguards and security requirements within their respective appropriation accounts.

Revenues (FY 2008 -$161.2; FY 2008 -$117.3) ..... +$43.9
Beginning in FY 2009, the cost of work account will no longer include $40.0 million for safeguards and security reimbursable work. Program offices will budget directly for these safeguards and security requirements within their respective appropriation accounts.

Defense Related Administrative Support (FY 2008 -$98.1; FY 2009 -$108.2)..... -$10.1
Change reflects the proportional contribution from the Other Defense Activities appropriation for Departmental Administration (DA) costs. FY 2009 funding represents 33 percent of DA administrative costs.

Inspector General

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Inspector General					
Office of inspector general	**41,819**	**46,057**	**51,927**	**+5,870**	**+12.7%**

PROGRAM DESCRIPTION

The **Office of the Inspector General** (IG) promotes the effective, efficient, and economical operation of the programs and operations of DOE, including the National Nuclear Security Administration and the Federal Energy Regulatory Commission, through audits, inspections, investigations and other reviews, while detecting and preventing fraud, waste, abuse, and violations of law.

Statutory requirements direct the IG to conduct annual financial statement audits required by the Government Management Reform Act of 1994, review DOE's information security systems as required by the Federal Information Systems Management Act of 2002, and review DOE's implementation of the Government Performance and Results Act of 1993. In addition, the IG conducts reviews of the most significant management challenges facing the Department. The total **FY 2009 request** for the Office of Inspector General is **$51.9 million**, which is a $5.8 million increase over the FY 2008 enacted appropriation of $46.1 million.

PROGRAM HIGHLIGHTS

The FY 2009 request supports statutory requirements including work associated with the Federal Information Systems Management Act of 2002 to evaluate unclassified information systems and audit DOE's review of classified information systems. The IG will also operate a robust review program with greater emphasis on evaluating DOE's program performance and management improvements in each of the President's six key management initiatives, and the most serious management challenges facing the Department.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Inspector General (FY 2008 $46.0; FY 2009 $51.9).....+$5.9
Reflects increased costs in support services due to additional tasks associated with the Financial Statement Audits contract ($2.8). Funding provides continued support for 279 FTEs and includes the effect of the FY 2009 pay raise ($1.1), and increases in Travel, Support Services, and Other Related Expenses ($2.0).

Health, Safety and Security

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Health, Safety And Security					
Energy Supply and Conservation					
Environment, Safety and Health (non-defense)	27,841	——	——	——	——
Other Defense Activities					
Security And Safety Performance Assurance	313,895	——	——	——	——
Environment, Safety and Health (defense)	80,380	——	——	——	——
Health, safety and security	——	326,324	347,271	+20,947	+6.4%
Program direction	——	99,137	99,597	+460	+0.5%
Use of prior year balances and other adjustments	——	-990	——	+990	+100.0%
Total, Other Defense Activities	80,380	424,471	446,868	+22,397	+5.3%
Total, Health, Safety And Security	**422,116**	**424,471**	**446,868**	**+22,397**	**+5.3%**

PROGRAM DESCRIPTION

The **Health, Safety and Security** (HSS) program strengthens the Department's health, safety, environment and security functions by providing a focused and integrated corporate-level analysis of Departmental operating experience and identifying problem areas to provide the foundation for effective line management implementation of Department-wide solutions in the subject areas of safety, health, environment, and security. The Chief Health, Safety and Security Officer advises the Deputy Secretary and the Secretary on all matters related to health, safety, and security across the complex. HSS integrates worker health, safety, environment, and security functions to address crosscutting Departmental issues, increase collaboration and sharing of technical expertise, and increase accountability for worker health, safety, and security responsibilities. The total **request** for the program in **FY 2009** is **$446.9 million.**

PROGRAM HIGHLIGHTS

Health and Safety Activities ensure that DOE workers, the public, and the environment are adequately protected from the hazards of DOE activities. Policies and standards applied at DOE facilities reasonably assure that personnel and property are afforded at least the same level of protection as that in the private sector. Corporate functions provide for accrediting environmental and radiological laboratories used by DOE sites for regulatory compliance and employee monitoring programs, maintaining radiological standards used to calibrate personnel radiation monitors, producing annual occupational radiation exposure and other radiological and environmental reports, and enforcing worker safety and health programs. Other programs include the DOE Voluntary Protection Program, that ensures health and safety programs are maintained or continue to improve resulting in safe working environments; and environmental management system implementation to support site-specific programs and identification of opportunities for continuous improvement of environmental performance and pollution prevention efforts. Health Programs support domestic health studies including the Former Worker Program, a nationwide program of medical screening to identify work related health effects, and other studies to investigate and identify work related injury and illness for DOE workers and populations surrounding DOE sites. International health studies are conducted to support radiation health effects research in Japan, the Marshall Islands, Russia, and Spain. FY 2009 funding will complete the program activities in Palomares, Spain. The Employees Compensation Program supports

implementation of the Energy Employees Occupational Illness Compensation Program Act by providing the records and information needed to support claims filed by DOE contractor employees to the Department of Labor.

Security Activities provide for security policy development, interpretation, and guidance; the development and conduct of security and safety training; the deployment of new security technologies; and development and management of the Department's classification, declassification, and controlled information program. Support is also provided for specialized security activities; security issues and incidents tracking; nuclear materials accountability; foreign visits and assignments; foreign ownership, control or influence; and security enforcement programs. Funding also provides for background investigations conducted by the Federal Bureau of Investigation (FBI) and the Office of Personnel Management (OPM) to provide access authorizations (clearances) to DOE federal and contract personnel who require access to classified information or special nuclear material; and the centralized management of associated data. The program also provides operational support to DOE Headquarters by managing the physical protection and security of DOE facilities and information in the National Capital Area.

Program Direction provides the federal staffing, support services, and other resources and associated costs required to provide overall direction and execution of HSS activities. Program Direction provides for the **Independent Oversight** activity which provides accurate, comprehensive analysis of the effectiveness of DOE nuclear safeguards and security; cyber security; and environment, safety and health programs to senior DOE leadership. Support is also provided for the centralized leadership in resolving **Defense Nuclear Facilities Safety Board** issues. Funding also provides for 6 FTEs for non-safety related quality assurance activities transferred from the Office of Management.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

The FY 2009 Health Safety and Security budget request is $446.9, an increase of $22.4, or 5.3 percent over the FY 2008 appropriated funding level.

Health, Safety and Security (FY 2008 $326.3; FY 2009 $347.2).....+$20.9
Increases in Nuclear Safeguards and Security (+$15.3) that includes Specialized Security Activities (+$13.5), and Safety and Health Programs (+$7.9) are partially offset by a decrease in Security Investigations (-$2.3).

Program Direction (FY 2008 $99.1; FY 2009 $99.6).....+$0.5
Overall program direction increase is due to additional technical expertise for the Independent Oversight program, additional funding for the Working Capital Fund, and an increase due to the transfer of non-safety related quality assurance activities, offset by a decrease in salary and benefits as a result of an overall reduction in the estimated FTE level.

Hearings and Appeals

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Office Of Hearings And Appeals					
Other Defense Activities					
Program direction	**4,349**	**4,565**	**6,603**	**+2,038**	**+44.6%**

PROGRAM DESCRIPTION

The **Office of Hearings and Appeals** (OHA) continues to be responsible for all DOE adjudicative processes except those administered by the Federal Energy Regulatory Commission. The program's jurisdiction includes Freedom of Information Act and Privacy Act appeals, evidentiary hearings to determine an employee's eligibility for a security clearance, appeals and initial agency decisions on whistleblower complaints, and requests for exception from DOE regulations and orders, such as reporting requirements to DOE elements. Funding for this program is included in the Other Defense Activities Appropriation. Beginning in FY 2009, OHA will be responsible for the civil rights function, previously included in the Office of Economic Impact and Diversity, within the Departmental Administration Appropriation. The organizational transfer will afford the activities of the Office of Civil Rights the added capability of the Office of Hearings and Appeals' institutional expertise in conducting frequently complex administrative adjudications. The **FY 2009 request** for the Office of Hearings and Appeals is **$6.6 million** which is a $2.0 million increase over the FY 2008 enacted appropriation of $4.6 million.

SIGNIFICANT FUNDING CHANGES – FY 2008 to 2009 Request ($ in millions)

Hearings and Appeals (FY 2008 $4.6; FY 2009 $6.6).....+$2.0
The FY 2009 request supports salaries and benefits and cost of living expenses for 34 FTEs, which include the 9 additional FTEs that are transferred to the OHA beginning in FY 2009 to support civil rights functions.

SECTION 6. FEDERAL ENERGY REGULATORY COMMISSION

(discretionary dollars in thousands)

	FY 2007 Current Op. Plan	FY 2008 Current Approp.	FY 2009 Congressional Request	FY 2009 vs. FY 2008 $	FY 2009 vs. FY 2008 %
Federal Energy Regulatory Commission					
Federal energy regulatory commission	221,902	260,425	273,400	+12,975	+5.0%
FERC revenues	-221,902	-260,425	-273,400	-12,975	-5.0%
Total, Federal Energy Regulatory Commission					
Excess fees and recoveries, FERC					
Fees & recoveries in excess of annual appropriations	-43,595	-34,411	-36,932	-2,521	-7.3%
Total, Federal Energy Regulatory Commission	**-43,595**	**-34,411**	**-36,932**	**-2,521**	**-7.3%**

PROGRAM DESCRIPTION

The **Federal Energy Regulatory Commission** (FERC) regulates and oversees energy industries in the economic, environmental, and safety interests of the American public. The FERC seeks to encourage competitive markets whenever possible, assure access to abundant, reliable energy, promote the development of a strong energy infrastructure, and prevent market manipulation.

In carrying out its core duties to protect wholesale power customers and transmission customers from unjust and unreasonable rates and from undue discrimination and preference, the FERC relies on competition and effective regulation. To accomplish this, the FERC promotes the development of a strong energy infrastructure. This includes stimulating appropriate infrastructure development and maintaining a reliable and safe infrastructure. The FERC also supports competitive markets by developing rules that encourage fair and efficient competitive markets and by preventing the accumulation and exercise of market power. Lastly, the FERC prevents market manipulation through vigilant oversight and firm, but fair, enforcement of FERC rules.

PROGRAM HIGHLIGHTS

The FERC's priorities continue to include the implementation of Energy Policy Act of 2005 (EPAct 2005) requirements along with other reliability and enforcement efforts. EPAct 2005 has enhanced the FERC's authority with regard to:

- Electric and natural gas market transparency;
- Wholesale competition in the electric industry;
- New electric, natural gas, and hydropower infrastructure;
- Penalty authority related to fraud in energy market transactions; and
- Development and enforcement of mandatory grid-reliability standards.

A strong energy infrastructure is critical to the health of the U.S. economy. The FERC's rate policies, consistently applied to infrastructure projects, must give investors confidence that they will have an opportunity to recover their investment costs. Additionally, the FERC, consistent with a directive in EPAct 2005, issued Order No. 697 which offers incentives for potential investors. The pricing reform seeks to ensure investment in the nation's aging transmission infrastructure, promote electric power reliability, and lower costs for consumers by reducing transmission congestion.

In 2007, the Commission amended its regulations and the pro forma open access transmission tariff through Order No. 890. It was necessary to strengthen the pro forma open access transmission tariff to ensure that it achieves its original purpose of remedying undue discrimination, providing greater specificity to reduce opportunities for undue discrimination and facilitate the Commission's enforcement, and increasing transparency in the rules applicable to the planning and use of the transmission system.

The FERC acts to ensure just and reasonable rates by preventing market discrimination and manipulation through a combination of regulation and competition. This involves both regulatory reform, such as the open access transmission tariff reform, and vigilant market oversight and enforcement. The FERC ensures that its market, reliability, and other regulatory rules are clear, enforceable, and fully understood by the regulated entities. However, the obligation to comply with those rules lies with the regulated entity itself. As part of its overall enforcement program, the FERC works with companies to develop and maintain good compliance programs and promotes self-reporting of violations. The FERC's enforcement tools were greatly reinforced when EPAct 2005 conferred expanded authority which provided, for the first time, penalty authority for violations of the Natural Gas Act and all of Part II of the Federal Policy Act. It further provided or increased (for violations of the Natural Gas Policy Act) the level of penalties to $1 million each day for the duration of the violation. Penalties of this magnitude are applicable to any entity (not just companies traditionally subject to the FERC's jurisdiction) that manipulates wholesale gas or electric markets by engaging in fraud or deceit in connection with jurisdictional transactions.

SIGNIFICANT FUNDING CHANGES – FY 2008 to FY 2009 Request ($ in millions)

FERC (FY 2008 $260.4; FY 2009 $273.4).....+$13.0
FY 2009 request funds 1,465 FTEs which will support the FERC in its reliability and enforcement efforts, as well as the continued implementation of additional authorities under EPAct 2005. FERC will recover the full cost of its operations through a system of annual charges and fees, resulting in a net appropriation of $0 for FY 2009.