



U.S. DEPARTMENT OF  
**ENERGY**

**FY 2010 Congressional  
Budget Request**

**Budget Highlights**





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Office of Chief Financial Officer  
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### TRANSFORMING THE ENERGY ECONOMY THROUGH SCIENCE AND INNOVATION

President Obama has highlighted energy as one of three areas that are “absolutely critical to our economic future.” The prosperity and security of the United States hinge upon an historic effort to power the economy through clean and reliable energy sources. To get there, transformational discoveries and innovative technologies will be needed. The Department of Energy will leverage its premier scientific and technical resources and invest in new approaches to address this national imperative.

The Department’s fiscal year (FY) 2010 budget request of \$26.4 billion supports the President’s commitment to respond expeditiously to the challenges of economic uncertainty, U.S. dependence on oil, and the threat of a changing climate by transforming the way our Nation produces and consumes energy. Together with the American Recovery and Reinvestment Act of 2009 (Recovery Act), the FY 2010 budget request provides the critical initial investment in a multi-year effort to address these interconnected challenges.<sup>1</sup>

In developing the FY 2010 budget request, the Department considered that the \$38.7 billion of Recovery Act funding received by the Department allows for the acceleration of a number of important commitments. Recovery Act investments in energy conservation and renewable energy sources (\$16.8 billion), environmental management (\$6 billion), loan guarantees for renewable energy and electric power transmission projects (\$6 billion), grid modernization (\$4.5 billion), carbon capture and sequestration (\$3.4 billion), basic science research (\$1.6 billion), and the establishment of the Advanced Research Projects Agency - Energy (ARPA-E) (\$0.4 billion) will help jumpstart the economy; save and create jobs; and serve as a down payment on addressing fundamental energy challenges while reducing carbon emissions and U.S. dependence on oil.

The FY 2010 budget request supports Secretary Chu’s strategic framework by:

- Investing in science to achieve transformational discoveries
- Fostering the revolution in energy supply and demand while positioning the United States to lead on global climate change policy
- Increasing American economic competitiveness
- Reducing the risk of nuclear proliferation, advancing nuclear legacy cleanup, and maintaining the nuclear deterrent
- Improving the management of the Department

#### Investing in Science to Achieve Transformational Discoveries

The President has committed to double Federal investment in basic research over ten years. The Department will support this commitment by investing in basic and applied research, creating new incentives for private innovation, and promoting breakthroughs in energy. The FY 2010 budget funds three novel approaches to augmenting research and development efforts. **Energy Innovation Hubs** will be launched with the FY 2010 budget and **Energy Frontier Research Centers** and ARPA-E were just launched in April 2009. Funding in FY 2009, in the Recovery Act, and in FY 2010 will total \$1.2 billion for these three transformational activities:

- **Energy Innovation Hubs**  
In FY 2010 the Department proposes to fund eight multi-disciplinary Energy Innovation **Hubs** at a total of \$280 million to address basic science, technology, and economic and policy issues hindering the Nation’s ability to become energy secure and economically strong while reducing

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<sup>1</sup> For the latest details on the Department of Energy’s implementation of the Recovery Act, please visit: <http://www.energy.gov/recovery>

Greenhouse Gas (GHG) emissions. The purpose of the **Hubs** is to support cross-disciplinary research and development focused on the barriers to transforming energy technologies into commercially deployable materials, devices and systems. They advance highly promising areas of energy science and technology from their early stages of research to the point that the risk level will be low enough for industry to deploy into the marketplace. This initial set of research **Hubs** will explore the following topics: Solar Electricity; Fuels from Sunlight; Batteries and Energy Storage; Carbon Capture and Storage; Grid Materials, Devices, and Systems; Energy Efficient Building Systems Design; Extreme Materials; and Modeling and Simulation.

- **Energy Frontier Research Centers**

In FY 2010 the Department of Energy will continue to support Energy Frontier Research Centers (EFRC). Currently there are 46 EFRCs. These centers will enlist the talents and skills of the very best scientists and engineers to address current fundamental scientific roadblocks to clean energy and energy security. Roughly one-third of the centers will be supported by Recovery Act funding. These centers, involving almost 1,800 researchers and students from universities, national labs, industry, and non-profit organizations from 36 states and the District of Columbia, will address the full range of energy research challenges in renewable and low-carbon energy, energy efficiency, energy storage, and cross-cutting science. EFRC researchers will take advantage of new capabilities in nanotechnology, light sources that are a million times brighter than the sun, supercomputers, and other advanced instrumentation, much of it developed in collaboration with the Department of Energy's Office of Science.

- **Advanced Research Projects Agency- Energy (ARPA-E)**

ARPA-E is a new Department of Energy organization modeled after the Defense Advanced Research Projects Agency, created during the Eisenhower administration in response to Sputnik. The Recovery Act provided \$400 million and the FY 2010 budget requests \$10 million for ARPA-E. The purpose of ARPA-E is to advance high-risk, high-reward energy research projects that can yield revolutionary changes in how we produce, distribute, and use energy. It will ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies.

### **Fostering the revolution in energy supply and demand while positioning the United States to lead on global climate change policy**

Secretary Chu has stated unequivocally that the United States has a responsibility to curb carbon emissions to mitigate the effects of global climate change. The FY 2010 budget request will expand the use of low-carbon and renewable energy sources and efficiency while improving energy transmission infrastructure. Deploying these technologies will position the United States to lead on global climate change policy.

- **Clean, Renewable Energy Generation**

The FY 2010 budget request will transform the Nation's energy infrastructure by investing \$475 million in a variety of renewable sources of electrical generation such as solar (\$320 million, an 83 percent increase over FY 2009), wind (\$75 million, a 36 percent increase over FY 2009), and geothermal (\$50 million, a 14 percent increase over FY 2009), and deploying these technologies to reduce our dependence on oil. These sources of energy will reduce the production of GHG emissions and usher in a revitalized economy built on the next generation of domestic production. The Department's FY 2010 budget request will support the availability of loan guarantees for innovative technologies through the **Loan Guarantee Program**.

- **Energy Efficiency**

The Department implements a number of efforts to increase energy efficiency and conservation in homes, transportation, and industry. The FY 2010 requests \$671 million to accelerate deployment of clean, cost-effective, and rapidly deployable energy conservation measures in order to reduce energy consumption in residential and commercial buildings and in the industrial and Federal sectors. To accelerate efficiency research and deployment in the built environment, the Department will invest \$238 million in the Building technology program a 70 percent increase



over FY 2009. Federal assistance for state-level programs, such as State Energy Program grants (\$75 million) and weatherization assistance (\$220 million), will help citizens take advantage of energy conservation measures, lower energy costs and GHG emissions, and build a technical workforce. The FY 2010 budget complements the Recovery Act funding for these programs (\$3.1 billion for State Energy Programs and \$5 billion for weatherization assistance).

- **Grid Modernization**

As part of the revitalization of the Nation's energy infrastructure, the FY 2010 budget requests \$174 million, an increase of 105 percent above FY 2009, to invest in research and development that improves the reliability, efficiency, flexibility, and security of the Nation's electricity transmission and distribution networks. Building a "smart" grid that integrates state-of-the-art technologies is critical to effectively use renewable energy sources and create new jobs. These investments build on the Recovery Act investments to modernize and secure the grid (Recovery Act provided \$4.5 billion).

- **Other Low Emission Energy Technologies**

Investments in low-emissions transportation, nuclear energy, and cleaner coal will help transform the Nation's infrastructure to move beyond carbon-emitting sources of energy.

- *Low-Emissions Transportation Technology:* An important aspect of achieving this goal is for the U.S. to set the global standard for low-emissions transportation technology. The President has set a goal of deploying 1 million plug-in hybrid electric vehicles (PHEV) by 2015. The Department has a number of efforts underway in FY 2010 to meet this commitment, including a robust vehicle technology program funded at \$333 million, a 22 percent increase over FY 2009. The program will, among other activities, develop lithium-ion batteries, plug-in hybrids, drive-train electrification, as well as test new fuels blends, and research improvements to engine efficiency. Additionally, the FY 2010 budget provides \$20 million for administrative costs to help enable the **Advanced Technology Vehicle Manufacturing Loan Program** to support up to \$25 billion in loans to automobile and automobile part manufacturers for re-equipping, expanding, or establishing manufacturing facilities to produce advanced technology vehicles or qualified components.
- *Cleaner Coal:* The United States and many other countries continue to rely on coal fired electrical generation to meet their mid-term energy demands. Technology is needed to ensure that base-load electricity generation is as clean and reliable as possible. The FY 2010 budget request includes \$180 million, a 20 percent increase over FY 2009, in carbon capture and sequestration research, development and deployment. Such technologies would allow the continued use of the abundant domestic coal resources while reducing adverse impacts to the environment.
- *Safe and Reliable Nuclear Energy:* Nuclear energy currently supplies about 20 percent of the Nation's electricity. The Department requests \$383 million to research and develop advanced nuclear technology and fuel cycle technologies with improved safety and proliferation-resistant characteristics. These technologies will support potential of nuclear power as a secure, efficient, cost-effective, and emissions-free source of energy.

- **Energy Information**

Sound policy making relies on accurate energy information. This information plays a critical role in promoting efficient energy markets and informing the public and policy makers. The FY 2010 budget requests a total of \$133 million for the **Energy Information Administration (EIA)**, the Department's premier statistical agency, to improve energy data and analysis programs. This is an increase of 20 percent over FY 2009.

## **Increasing American Economic Competitiveness**

The Recovery Act and the FY 2010 budget will contribute to the national economic recovery and advance scientific and technical breakthroughs. A key component to improving competitiveness is developing the scientific and technical expertise necessary to sustain the new energy economy. The Department will initiate a new education effort designed to train the next generation of technical workers and researchers. This ensures that the jobs created through the Recovery Act maintain U.S. preeminence in science and technology.

- **RE-ENERGYSE (REgaining our ENERGY Science and Engineering Edge)**  
The Department will launch a comprehensive K-20+ science and engineering initiative, funded at \$115 million in FY 2010, to educate thousands of students at all levels in the fields contributing to the fundamental understanding of energy science and engineering systems. This initiative, which complements the Department's other education efforts, will provide graduate research fellowships in scientific and technical fields that advance the Department's energy mission; provide training grants to universities that establish multidisciplinary research and education programs related to clean energy; support universities that dramatically expand energy-related research opportunities for undergraduates; build partnerships between community colleges and different segments of the clean tech industry to develop customized curriculum for "green collar" jobs; and increase public awareness, particularly among young people, about the role that science and technology can play in responsible environmental stewardship.

## **Reducing the Risk of Nuclear Proliferation, Advancing Legacy Clean-up, and Maintaining the Nuclear Deterrent**

- **Reducing the Risk of Proliferation**  
President Obama has called the threat of nuclear proliferation "the most immediate and extreme threat to global security." He has announced a new international effort to secure all vulnerable nuclear material around the world within four years. The FY 2010 budget for the National Nuclear Security Administration's **Defense Nuclear Nonproliferation** program provides \$2.1 billion in FY 2010, and \$11.7 billion through FY 2014 to detect, secure, and dispose of dangerous nuclear material world-wide. The budget supports existing cooperative nonproliferation initiatives and begins to meet the President's goal of a world without nuclear weapons. The budget provides for the installation of radiation detection equipment at border crossings and Megaports, and for an aggressive schedule to repatriate Russian-origin highly enriched uranium fuel by the end of 2010. The FY 2010 budget request provides \$1.9 billion over five years for the construction of U.S. facilities for the disposition of U.S. weapons-grade plutonium in fulfillment of our commitment with the Russian Federation under the Plutonium Management and Disposition Agreement of September 2000.
- **Accelerating Environmental Cleanup**  
The FY 2010 budget request includes \$5.8 billion for the **Environmental Management** program to protect public health and safety by cleaning up hazardous, radioactive legacy waste from the Manhattan Project and the Cold War. This funding, along with Recovery Act investments of \$6 billion, will allow the program to continue to accelerate cleaning up and closing sites, focusing on activities with the greatest risk reduction.

As the Department continues to make progress in completing cleanup, the FY 2010 budget request of \$190 million for **Legacy Management** supports the Department's long-term stewardship responsibilities and payment of pensions and benefits for former contractor workers after site closure.

- **Leveraging Science to Maintain Our Nuclear Security Enterprise**  
The FY 2010 budget request continues the Department's commitment to the national security interests of the United States through stewardship of a safe, secure and reliable nuclear weapons stockpile without the use of underground nuclear testing. Through the NNSA, the Department

requests \$6.4 billion for **Weapons Activities** to support stewardship of the Nation's nuclear weapon stockpile. Also, the FY 2010 budget request preserves the science and technology base needed to maintain the Nation's nuclear deterrent and to address other national security challenges. The Department requests \$1 billion for the Naval Reactors program to support cradle-to-grave stewardship of nuclear propulsion plants that power the Nation's naval nuclear fleet, as well as commencement of several new research and development initiatives.

### **Improving the Management of the Department**

The Department is committed to strengthening its management to implement the \$26.4 billion FY 2010 request and \$38.7 billion of Recovery Act funds. The Department has developed strong oversight strategies for Recovery Act implementation, including upfront risk assessments and building specific risk management plans, upgrading process controls, establishing personal risk assurance accountabilities, and expanding outreach, training, and coordination between Headquarters and field offices. The Recovery Act, however, is only one aspect of a much larger effort to improve the Department's management.

As part of President Obama's commitment to fiscal discipline, DOE will focus on using its resources responsibly, transparently, and effectively by identifying potential savings throughout the agency. The FY 2010 budget request of \$182 million for Departmental Administration, along with resources in individual program offices, will continue the improvement in key functional areas such as human, financial, project, and information technology management. These efforts will instill management excellence and encourage the most efficient use of the Department's resources.

## **DEPARTMENT OF ENERGY'S FY 2010 PROGRAM OFFICE HIGHLIGHTS**

### **Office of Science: Cutting-edge Foundational Scientific Research**

The 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. 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 **Office of Science** 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. The Office of Science is a primary sponsor of basic research in the United States, leading the Nation to support the physical sciences in a broad array of research subjects in order to improve energy security and address issues ancillary to energy, such as climate change, genomics, and life sciences. In FY 2010, the Department requests \$4.9 billion, an increase of 4 percent over FY 2009, to continue to invest in science research. This is in addition to the \$1.6 billion of Recovery Act funding that is focused on investments in construction, facilities, and research.

The Office of Science is addressing critical societal challenges and key missions of the Department of Energy. Today's energy security challenges, coupled with global climate and environmental concerns, call for truly unprecedented levels of activity and dedication by the Office of Science and the scientific communities that it supports. Significant improvements in existing energy technologies are necessary. But, more importantly, developments of new energy technologies are essential. The 20th Century witnessed revolutionary advances, bringing us remarkable discoveries such as high temperature superconductors, which transmit electricity without resistance, and carbon nanotubes which combine the strength of steel with the mass of a feather. Both discoveries, though, were partly serendipitous. In the 21st Century, we must take charge of the complexity of materials—both biological and inorganic—and augment serendipity with intention. To accomplish this will require:

- Sustaining investments in exploratory and high-risk research in established and emerging disciplines, including the development of new tools and facilities;
- Focusing investments in high-priority research areas; and
- Training a new generation of scientists and engineers to be leaders in the 21<sup>st</sup> Century. The FY 2010 budget supports all three of these investment strategies.

The Office of Science supports large-scale research programs in:

- Condensed matter and materials physics
- Chemistry; biology; climate and environmental sciences
- Applied mathematics and computational science
- High energy physics and nuclear physics; and
- Plasma physics and fusion energy sciences

The Office of Science also provides the Nation's researchers with state-of-the-art user facilities—the large machines of modern science. Increasingly, they are first-of-a kind facilities, and they are in the billion-dollar-class range. These facilities offer capabilities that are unmatched anywhere in the world and enable U.S. researchers and industries to remain at the forefront of science, technology, and innovation. They include electron and proton accelerators and colliders for probing matter on scales from the subatomic to the macroscopic; the world's forefront neutron scattering facility and the world's best suite of synchrotron light sources for probing the structure and function of materials; and the world's largest and fastest computational resources devoted to the most challenging societal problems. These facilities also include technologically advanced, large-scale field sites for investigating the effects of clouds on atmospheric radiation; comprehensively equipped nanoscience and molecular science centers; facilities for rapid genome sequencing and integrated environmental molecular sciences; and facilities for investigating the plasma state and its properties for stable fusion systems. As mentioned, the President has committed to double basic science funding over ten years.

Two of the Department's eight Energy Innovation **Hubs** are requested in the Office of Science in FY 2010 (\$70 million). These **Hubs** will bring together teams of experts from multiple disciplines to focus on two grand challenges in energy: (1) the creation of fuels directly from sunlight without the use of plants or microbes and (2) advanced methods of electrical energy storage.

The Office of Science supports investigators from more than 300 academic institutions and from all of the Department's laboratories. The FY 2010 budget request will support about 25,000 Ph.D.s, graduate students, undergraduates, engineers, and technicians. Approximately 24,000 researchers from universities, national laboratories, industry, and international partners are expected to use the Office of Science scientific user facilities in FY 2010. The FY 2010 request supports the President's plan to increase Federal investment in the sciences, train students and researchers in critical fields, invest in areas critical to a clean energy future, and to make the U.S. a leader on climate change.

### **Office of Energy Efficiency and Renewable Energy: Developing and Deploying Clean and Reliable Energy**

The FY 2010 request will deliver a balanced and diverse portfolio of solutions to strategically address the urgent energy and environmental challenges facing the country today. This goal will be met by dramatically accelerating the development, deployment and commercialization of clean and renewable energy technologies to increase the amount of clean energy generated in the U.S., advancing energy efficient technologies and practices that use less energy, and providing information from research, development, and demonstration activities to change the way the Nation produces and uses energy.

The proposed **Office of Energy Efficiency and Renewable Energy (EERE)** budget of \$2.3 billion, an increase of 6 percent over FY 2009, and builds on the Recovery Act funding of \$16.8 billion to provide a diverse portfolio of solutions to the Nation's energy challenges, including:

**Advanced Transportation Solutions (Biomass, Vehicles, and Fuel Cells programs: \$636.5 million)**

- Advancing essential research and development projects to achieve cost competitive, commercial scale cellulosic ethanol production by 2012;
- Conducting research and development on lithium-ion batteries, advanced combustion, plug-in hybrids, and drive-train electrification to diversify and make the Nation's vehicles more efficient and reduce petroleum dependency;
- Supporting fuel testing and validating codes and standards that will help accelerate new fuel and vehicle solutions to the market; and
- Developing an array of fuel cell types suitable for transportation, stationary power, and portable power uses that are capable of efficiently using diverse fuels.

**Renewable Power Solutions (Wind, Solar, Geothermal, and Water Power programs: \$475 million)**

- Integrating renewable energy technologies with energy storage and smart grid technologies to resolve the intermittency challenge;
- Supporting wind power research and development to enable wind turbines to produce an increasing fraction 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 research, development, and deployment for base load capability; and
- Pursuing water power technologies as part of EERE's research and development portfolio.

**Energy Efficiency Solutions (Buildings, Industrial Technologies, Weatherization and Intergovernmental and Federal Energy Management programs: \$671 million)**

- Accelerating the deployment of the cheapest, cleanest, fastest energy source – energy efficiency;
- Reducing energy consumption and transforming the carbon footprint of the built environment through the development and deployment of zero energy buildings and home technologies;
- Significantly reducing the intensity of energy use by the U.S. industrial sector through next generation manufacturing technologies that will preserve jobs;
- Increasing energy efficiency and clean energy deployment through Federal energy assistance, including weatherizing low-income homes resulting in increased residential efficiency; and
- Implementing sound, cost effective energy management and investment throughout the Federal government

The FY 2010 EERE request includes funding for two of the Department's eight Energy Innovation **Hubs** (\$70 million). These **Hubs** will bring together teams of experts from multiple disciplines. One **Hub** will focus on integrating smart materials, designs, and systems to tune building usage to better conserve energy. The second **Hub** will emphasize designing and discovering new concepts and materials needed for solar to electricity conversion.

**Office of Electricity Delivery and Energy Reliability: Modernizing the Nation's Infrastructure**

The Nation's ability to meet the growing demand for reliable electricity is challenged by an aging electricity transmission and distribution system and by vulnerabilities in the U.S. energy supply chain. Despite increasing demand, the U.S. has experienced a long period of underinvestment in power generation, and infrastructure maintenance. The majority of the power delivery system was built on technology developed in the 1960s, 70s and 80s and is limited by the speed with which it can respond to disturbances. This limitation increases the vulnerability of the power system to outages that can spread quickly and have regional effects. Deploying the next generation of clean energy sources will require a complete modernization of U.S. energy infrastructure which will rely on digital network controls and transmission, distribution and storage breakthroughs.

The proposed FY 2010 **Office of Electricity Delivery and Energy Reliability** budget provides \$208 million, an increase of 52 percent over FY 2009, and builds on the “smart grid” investments and other activities to modernize and secure the electric grid provided by \$4.5 billion of Recovery Act funding.

The FY 2010 budget request provides \$174 million for research and development, which will support the development of technologies that will improve the reliability, efficiency, flexibility, functionality, and security of the Nation’s electricity delivery system. It invests in transmission system technologies and energy storage to enable more efficient integration of variable renewable generation; and increases funding for the next generation of smart grid technologies and for cyber security to ensure the increasingly digitized electrical infrastructure can be protected from cyber attacks. The request supports the establishment of an Energy Innovation **Hub** to develop “smart” materials that will allow the grid to adapt and respond to changing conditions.

The FY 2010 continues support for Permitting, Siting and Analysis (\$6.4 million), assisting states in developing state policies and laws that are critical to building the electric infrastructure needed to bring new clean energy projects to market; and for Infrastructure Security and Energy Restoration (\$6.2 million) enhancing the reliability and resiliency of U.S. critical infrastructure and facilitate its recovery from disruptions, reducing their impact.

### **Office of Environmental Management: Expeditiously and Responsibly Addressing the Legacy of Nuclear Weapons Production**

The federal government has the dual responsibilities of addressing the nuclear weapons production legacy of the Nation’s 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 long-term cleanup commitments.

To deliver on the Department’s obligations stemming from 50 years of nuclear research and weapons production during the Cold War, the **Office of Environmental Management (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 2010 request of \$5.8 billion, a decrease of 3 percent from FY 2009, builds upon the \$6 billion in Recovery Act funding. It supports the following activities, in priority order:

- Essential activities to maintain a safe and secure posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent nuclear fuel storage, receipt and disposition
- Special nuclear material consolidation, processing, and disposition
- High priority groundwater remediation
- Transuranic and mixed/low level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation & decommissioning

In FY 2010, 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 contact-handled and 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 15 sites, including three former weapons production sites- Rocky Flats and Fernald, with Mound completed in FY 2008,- as part of its risk-reduction cleanup strategy.

Recognizing that cleanup completion dates at the majority of EM sites extend beyond 2014, EM is working to improve project and program management in a number of areas. EM is strengthening its project and planning 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 Departmental mission, post-closure stewardship activities are transferred to the **Office of Legacy Management**. 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.

The FY 2010 budget request of \$197 million for the **Office of Civilian Radioactive Waste Management** implements the Administration's decision to terminate the Yucca Mountain program while developing nuclear waste disposal alternatives. All funding for development of the Yucca Mountain facility would be eliminated, such as further land acquisition, transportation access, and additional engineering. The budget request includes the minimal funding needed to explore alternatives for nuclear waste disposal through the Offices of Civilian Radioactive Waste Management and to continue participation in the Nuclear Regulatory Commission (NRC) license application process, consistent with the provisions of the Nuclear Waste Policy Act. The Administration intends to convene a "blue-ribbon" panel of experts to evaluate alternative approaches for meeting the federal responsibility to manage and ultimately dispose of spent nuclear fuel and high-level radioactive waste from both commercial and defense activities. The panel will provide the opportunity for a meaningful dialogue on how best to address this challenging issue and will provide recommendations that will form the basis for working with Congress to revise the statutory framework for managing and disposing of spent nuclear fuel and high-level radioactive waste.

#### **Loan Guarantee Program Office: Investing in the Next Generation of Energy Innovation:**

In FY 2010, the Department will continue to provide loans for innovative technologies through the **Loan Guarantee Program**. The Department requests \$43 million in funding in FY 2010 to operate the Office and support personnel and associated costs. This request will be offset by collections authorized under Title XVII of the Energy Policy Act of 2005 (P.L. 109-58). The legislation 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. To qualify, these projects must avoid, reduce, or sequester air pollutants or anthropogenic emissions of GHG; 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 Department is implementing this program under authorizing law that requires borrowers to pay the credit subsidy costs of these loan guarantees. Section 406 of the Recovery Act amended Title XVII, by adding a new Section 1705, which authorized a temporary program for the rapid deployment of renewable energy and electric power transmission projects. Section 1705 provides \$6 billion in appropriated credit subsidy. The Secretary has already moved aggressively to accelerate the pace of loan guarantees, offering the first loan guarantee within the first two months of the Administration.

#### **Office of Nuclear Energy: A Low Carbon Energy Option**

In order to develop advanced nuclear energy generation technologies to meet energy and climate goals, to develop advanced, proliferation-resistant nuclear fuel cycle technologies and to maintain the national nuclear technology infrastructure, the Department requests \$845 million in the FY 2010 budget request for

the **Office of Nuclear Energy (NE)**. This is the final year of investments in demonstrating untested licensing process for new nuclear power plants.

Currently, nuclear energy supplies approximately 20 percent of the nation's electricity and over 70 percent of clean, non-carbon electricity. Over 100 nuclear power plants are offering reliable and affordable baseload electricity in the United States, and they are doing so without air pollution and GHG emissions. Nuclear energy serves as a plentiful and reliable supply of energy today.

The FY 2010 budget requests \$192 million for **Fuel Cycle Research and Development**. The request focuses on long-term, science-based research and development of technologies with the potential to produce beneficial changes to the way in which the nuclear fuel cycle is managed. The research and development activities will provide a more complete understanding of the underlying science supporting the development of advanced fuel cycle technologies – including waste storage and disposal options- and, therefore, provide a sound basis for any future decision on the U.S nuclear fuel cycle.

The FY 2010 budget seeks \$20 million to close-out the **Nuclear Power 2010** program. This cost-shared, licensing demonstration program supported activities with industry that focused on enabling an industry decision by 2010 to build a new nuclear plant. In FY 2010 the program will complete support of industry interactions with the Nuclear Regulatory Commission on the NuStart Construction and Operating License project including meetings with the Advisory Committee on Reactor Safety, issuance of Final Safety Evaluation Reports and Final Environmental Impact Statements, and initiation of hearings by the Atomic Safety Licensing Board.

The FY 2010 budget request includes \$191 million to continue the development of advanced nuclear energy systems known as **“Generation IV (Gen IV).”** These next-generation technologies will enhance the safety, cost-effectiveness, and proliferation-resistance of nuclear power. Gen IV research and development includes activities conducted in support of the solving the underlying technology challenges (fuels, materials, and neutronic and thermofluids modeling) of the Sodium-cooled Fast Reactor, Molten Salt Reactor, Supercritical-Water-Cooled Reactor, Lead-cooled Fast Reactor, Very High Temperature Reactor, and the Gas-cooled Fast Reactor.

The FY 2010 NE budget request also includes \$70 million for two of the Department's eight Energy Innovation **Hubs**. The Modeling and Simulation **Hub** will focus on providing validated advanced modeling and simulation tools necessary to enable fundamental change in how the U.S. designs nuclear power and fuel cycle technologies. This has the potential to improve the performance and reduce the costs of nuclear technologies. The Extreme Materials Research **Hub** will further the fundamental knowledge of the behavior of materials under extreme conditions, including high radiation fields, high temperatures, and corrosive environments over long periods of time, relevant to nuclear energy applications. This work will directly support the development of novel fuels, waste forms, and structural materials.

### **Office of Fossil Energy: Abundant Energy for the 21<sup>st</sup> Century**

The FY 2010 budget request of \$882 million for the **Office of Fossil Energy (FE)** will help ensure that the United States can utilize traditional domestic energy resources in a clean and affordable manner. The United States has 25 percent of the world's coal reserves, and fossil fuels currently supply 86 percent of the Nation's energy. Low-carbon emissions coal plants and methane (natural gas) production from gas hydrates will help allow fossil fuels to be used as abundant and low-carbon emitting energy resources. In direct support of the Department of Energy's "Energy Security" mission, \$229 million of the \$882 million has been requested to provide a Strategic Petroleum Reserve program that is environmentally responsible and fully responsive to the needs of the Nation and the public in protecting against potential disruptions in foreign and domestic petroleum supplies.

The Department is committed to advancing Carbon Capture and Sequestration (CCS) technologies in order to promote cleaner and efficient use of fossil fuels. The \$3.4 billion in Recovery Act funds, combined with \$431 million requested in FY 2010 for CCS research and development, is the foundation of the



Department's clean coal research program which seeks to establish the capability of producing electricity from coal with dramatically reduced atmospheric emissions of carbon dioxide.

In FY 2010, the Energy Innovation **Hub** for CCS will focus on enabling fundamental advances and discovery of novel and revolutionary capture/separation approaches to dramatically reduce the energy penalty and costs associated with CO<sub>2</sub> capture. Both computational and experimental studies will be carried out for surface interactions of CO<sub>2</sub> and other gases, novel solvents/sorbents, and chemical, physical, and biological separation approaches. There are a number of technical issues associated with CCS, the most challenging of which is to significantly reduce the high cost of capturing CO<sub>2</sub> from large stationary emission sources such as coal power plants and transporting for permanent sequestration in either a liquid or solid form. Cost reductions are an imperative for CCS to be a viable technology option in the U.S. and in large coal-dependent developing nations.

### **The National Nuclear Security Administration: Ensuring America's Nuclear Security and Reducing the Global Threat of Nuclear Proliferation**

The **National Nuclear Security Administration (NNSA)** continues significant efforts to meet Administration and Secretarial priorities, leveraging science to promote U.S. national security objectives. The FY 2010 President's budget request is \$9.9 billion, an increase of 9 percent over FY 2009, to meet defense and homeland security-related objectives:

- Maintaining the Nation's nuclear deterrent;
- Addressing nonproliferation through innovative programs in the nations of the former Soviet Union and other countries to reduce the global nuclear threat, and to secure radiological materials worldwide;
- Supporting naval nuclear propulsion requirements of the U.S. Navy, including commencement of several new research and development initiatives;
- Maintaining comprehensive physical and cyber security for facilities, employees and information throughout the enterprise;
- Providing nuclear counterterrorism and emergency response capabilities in support of homeland security;
- Reducing the rate of growth in the deferred maintenance backlog and achieving facility footprint reduction goals; and,
- Providing corporate management and oversight for NNSA program operations.

The FY 2010 budget request of \$6.4 billion for the **Weapons Activities** appropriation includes programs to meet the immediate needs of the stockpile, including stockpile surveillance, annual assessments, life extension programs, and warhead dismantlement. The activities that sustain the long-term vitality of science, technology and engineering in the Stockpile Stewardship Program are organized into several multiyear, multifunctional efforts called **Campaigns**. They develop and maintain the critical capabilities needed to continue assessing the safety and reliability of the nuclear stockpile into the foreseeable future without underground testing. Readiness in Technical Base and Facilities supports facilities and operations at the government-owned, contractor-operated sites in the nuclear security enterprise. A number of activities funded under Weapons Activities also support scientific research users from other elements of the Department, federal government, and the academic and industrial communities. Activities funded by Secure Transportation Asset and Nuclear Counterterrorism Incident Response leverage the unique nuclear security expertise and resources maintained by NNSA to benefit other Departmental offices and the nation.

The FY 2010 budget request maintains capabilities and activities at current services levels until the Administration's strategic direction has been established for the nuclear weapons stockpile and associated enterprise. Only modest growth is requested to fund **Defense Nuclear Security, Nuclear Counterterrorism Incident Response, and Site Stewardship**. Defense Nuclear Security will focus on eliminating or mitigating security vulnerabilities across the nuclear security enterprise and identifying upgrades that will be required to comply with the Department's new Graded Security Protection policy. Nuclear Counterterrorism Incident Response supports increasing requests for capabilities to respond to

nuclear and radiological incidents worldwide. Site Stewardship consolidates most activities managed by the Office of Infrastructure and Environment in recognition of increased scope of activities in these areas, including environmental, nuclear materials integration, facility deactivation and demolition, and energy projects.

The FY 2010 budget request for the **Defense Nuclear Nonproliferation** (DNN) appropriation totals \$2.13 billion. The most significant FY 2010 increase relates to the request to move the funding for the Mixed Oxide Fuel Fabrication Facility project and the Waste Solidification Building back to NNSA's DNN program. Other increases include International Materials Protection and Cooperation and Nonproliferation and International Security, both of which increase 38 percent over the FY 2009 levels.

Increased funding for **International Materials Protection and Cooperation** (\$552 million, a 38% increase over FY 2009) provides for sustainability support to Russian warhead and material sites with completed security upgrades, upgrades to areas and buildings agreed to after the Bratislava Summit, and projects to assist the Russian Federation and other partner countries in establishing the necessary infrastructure to sustain effective operations. In addition, the budget provides for the Second Line of Defense program and the installation of radiation detection equipment at 43 foreign sites and 15 Megaports.

The request of \$207.2 million for **Nonproliferation and International Security** supports the Next Generation Safeguards Initiative, which aims to strengthen the international safeguards system and revitalize the U.S. technical base and the human capital that supports it; nuclear disablement, dismantlement, and verification activities; policy and technical support for U.S. efforts to address proliferation by Iran, North Korea and proliferation networks; and the implementation of nuclear arms reduction and associated agreements.

The FY 2010 budget request of \$701.9 million for **Fissile Materials Disposition**, compared with \$41.8 million in FY 2009, reflects the re-location of construction project funding for the Mixed Oxide Fuel Fabrication Facility and the Waste Solidification Building projects into this account. These activities expand activities in the United States to dispose of surplus weapons-grade fissile materials and support disposal of Russian surplus weapons-grade plutonium.

The FY 2010 budget request of \$1,033.1 million for **Naval Reactors** includes an increase of \$175.1 million to fund several new initiatives, including the commencement of design work for the OHIO-class ballistic missile submarine replacement and the refueling of the S8G land-based nuclear prototype located in upstate New York.

The **Office of the Administrator** receives \$420.8 million in the FY 2010 request. This provides for well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital, enhanced cost-effective utilization of information technology, and greater integration of budget and performance.

### **Sound Management and Effective Oversight**

The Recovery Act is an unprecedented effort to jumpstart the economy and put a down-payment on addressing long-neglected challenges that will enable the Nation to thrive in the 21st century. With much at stake, the Recovery Act provides for transparency and accountability by supporting measures to root out waste, inefficiency, and unnecessary spending. A government-wide coordinating Recovery Board has been established to develop the protocols to oversee Agency and Department spending, project reporting, and auditing. A website, Recovery.gov, will allow the public to monitor the Recovery Act funding. The Department is committed to managing these funds effectively and, to maintain transparency, will report directly to Recovery.gov to provide up-to-date data on the expenditure of funds.

The first version of Recovery.gov features projections for how, when, and where the funds will be spent—which states and sectors of the economy are due to receive what proportion of the funds. As money starts to flow, far more data will become available. The website will include information about Federal grant

awards and contracts as well as formula grant allocations. Federal agencies will provide data on how they are using the money, and eventually, prime recipients of Recovery Act funding will provide information on how they are using their funds to implement projects. Some of the specific protocols in place at the Department are daily Recovery Act meetings, program fraud/risk training, pre-spend audits, and the requirement for risk management, phase-gate spending, and implementation plans.

The Department is committed to strengthening its management culture and increasing its focus on results. 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. 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 improve 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 FY 2008 financial statements were reviewed by independent auditors and received an unqualified 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 2010 will continue its effort to build and improve its integrated business management system, I-MANAGE, with the deployment of budget execution and formulation modules such as I-BUDGET.

The Department has made steady progress in improving project management and has developed an action plan with concrete steps and scheduled milestones. The focus of the action plan is to successfully address the root causes of the major challenges to planning and managing Department projects. The action plan identifies eight measures that, when completed, will result in significant, measurable, and sustainable improvements in the Department's contract and project management performance and culture.

Most notably, the plan includes aggressive performance metrics to drive improved performance and increased accountability. For example, by 2011, 90 percent of the Department's capital asset line item projects will be completed within 10 percent of the original approved cost baseline unless otherwise impacted by a directed change. The plan also includes 20 additional measures to gauge the Department's progress.

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.

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, the Department 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 the Department'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.

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

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Discretionary Summary By Organization</b>						
National Security						
Weapons.....	6,302,366	6,380,000	—	6,384,431	+4,431	+0.1%
Defense Nuclear Nonproliferation.....	1,334,922	1,482,350	—	2,136,709	+654,359	+44.1%
Naval Reactors.....	774,686	828,054	—	1,003,133	+175,079	+21.1%
Office of the Administrator.....	402,137	439,190	—	420,754	-18,436	-4.2%
<b>Total, National Nuclear Security Administration.....</b>	<b>8,814,111</b>	<b>9,129,594</b>	<b>—</b>	<b>9,945,027</b>	<b>+815,433</b>	<b>+8.9%</b>
Energy and Environment						
Energy						
Energy Efficiency and Renewable Energy.....	1,704,112	2,178,540	16,800,000	2,318,602	+140,062	+6.4%
Electricity Delivery & Energy Reliability.....	136,170	137,000	4,500,000	208,008	+71,008	+51.8%
Fossil Energy.....	888,545	1,110,219	3,400,000	881,565	-228,654	-20.6%
Nuclear Energy.....	1,033,161	1,357,819	—	844,632	-513,187	-37.8%
<b>Total, Energy.....</b>	<b>3,761,988</b>	<b>4,783,578</b>	<b>24,700,000</b>	<b>4,252,807</b>	<b>-530,771</b>	<b>-11.1%</b>
Environment						
Environmental Management.....	5,756,869	5,991,572	6,000,000	5,829,725	-161,847	-2.7%
Domestic utility fees.....	—	—	—	-200,000	-200,000	—
Civilian Radioactive Waste Management.....	386,440	288,390	—	196,800	-91,590	-31.8%
Office of Legacy Management.....	188,833	185,981	—	189,802	+3,821	+2.1%
<b>Total, Environment.....</b>	<b>6,332,142</b>	<b>6,465,943</b>	<b>6,000,000</b>	<b>6,016,327</b>	<b>-449,616</b>	<b>-7.0%</b>
<b>Total, Energy and Environment.....</b>	<b>10,094,130</b>	<b>11,249,521</b>	<b>30,700,000</b>	<b>10,269,134</b>	<b>-980,387</b>	<b>-8.7%</b>
Science						
Science.....	4,082,883	4,757,636	1,600,000	4,941,682	+184,046	+3.9%
Advanced research projects agency - Energy.....	—	15,000	400,000	10,000	-5,000	-33.3%
Corporate Management						
Office of the Secretary.....	5,751	5,700	—	5,864	+164	+2.9%
Competitive Sourcing.....	-2,000	—	—	—	—	—
Cost of Work and Revenues.....	-69,827	-68,780	—	-71,203	-2,423	-3.5%
Chief Information Officer.....	110,135	115,500	—	104,545	-10,955	-9.5%
Chief Financial Officer.....	41,998	43,257	—	65,981	+22,724	+52.5%
Innovative technology loan guarantee program.....	4,459	—	—	—	—	—
Advanced technology vehicles manufacturing loan.....	—	7,510,000	10,000	20,000	-7,490,000	-99.7%
Section 1705 temporary loan guarantee program.....	—	—	5,990,000	—	—	—
Management.....	67,033	67,790	—	88,456	+20,666	+30.5%
Chief Human Capital Officer.....	27,986	31,436	—	29,537	-1,899	-6.0%
Hearings and Appeals.....	4,565	6,603	—	6,444	-159	-2.4%
Congressional and Intergovernmental Affairs.....	4,733	6,200	—	7,326	+1,126	+18.2%
Public Affairs.....	3,339	3,780	—	5,405	+1,625	+43.0%
Office of Indian energy policy and programs.....	—	—	—	—	—	—
General Counsel.....	29,889	31,233	—	32,478	+1,245	+4.0%
Policy and International Affairs.....	21,039	23,000	—	30,253	+7,253	+31.5%
Economic Impact and Diversity.....	6,443	4,400	—	6,671	+2,271	+51.6%
Inspector General.....	46,057	51,927	15,000	51,445	-482	-0.9%
<b>Total, Corporate Management.....</b>	<b>301,600</b>	<b>7,832,046</b>	<b>6,015,000</b>	<b>383,202</b>	<b>-7,448,844</b>	<b>-95.1%</b>
Health, Safety and Security.....	419,571	447,470	—	449,882	+2,412	+0.5%
Energy Information Administration.....	95,460	110,595	—	133,058	+22,463	+20.3%
Power Marketing Administrations.....	244,953	234,139	10,000	288,861	+54,722	+23.4%
Federal Energy Regulatory Commission.....	-20,370	-27,682	—	-26,864	+818	+3.0%
<b>Total, Discretionary Funding.....</b>	<b>24,032,338</b>	<b>33,748,319</b>	<b>38,725,000</b>	<b>26,393,982</b>	<b>-7,354,337</b>	<b>-21.8%</b>

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

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Discretionary Summary By Appropriation</b>						
Energy And Water Development, And Related Agencies						
Appropriation Summary:						
Energy Programs						
Energy efficiency and renewable energy.....	1,704,112	2,178,540	16,800,000	2,318,602	+140,062	+6.4%
Electricity delivery and energy reliability.....	136,170	137,000	4,500,000	208,008	+71,008	+51.8%
Nuclear energy.....	960,903	792,000	—	761,274	-30,726	-3.9%
Legacy management.....	33,872	—	—	—	—	—
Fossil energy programs						
Clean coal technology.....	-58,000	—	—	—	—	—
Fossil energy research and development.....	727,181	876,320	3,400,000	617,565	-258,755	-29.5%
Naval petroleum and oil shale reserves.....	20,272	19,099	—	23,627	+4,528	+23.7%
Strategic petroleum reserve.....	186,757	205,000	—	229,073	+24,073	+11.7%
Northeast home heating oil reserve.....	12,335	9,800	—	11,300	+1,500	+15.3%
Total, Fossil energy programs.....	888,545	1,110,219	3,400,000	881,565	-228,654	-20.6%
Uranium enrichment D&D fund.....	622,162	535,503	390,000	559,377	+23,874	+4.5%
Energy information administration.....	95,460	110,595	—	133,058	+22,463	+20.3%
Non-Defense environmental cleanup.....	182,263	261,819	483,000	237,517	-24,302	-9.3%
Science.....	4,082,883	4,772,636	1,600,000	4,941,682	+169,046	+3.5%
Energy transformation acceleration fund.....	—	—	400,000	10,000	+10,000	N/A
Nuclear waste disposal.....	187,269	145,390	—	98,400	-46,990	-32.3%
Departmental administration.....	148,415	155,326	—	182,331	+27,005	+17.4%
Inspector general.....	46,057	51,927	15,000	51,445	-482	-0.9%
Advanced technology vehicles manufacturing loan.....	—	7,510,000	10,000	20,000	-7,490,000	-99.7%
Innovative technology loan guarantee program.....	4,459	—	—	—	—	—
Section 1705 temporary loan guarantee program.....	—	—	5,990,000	—	—	—
Total, Energy Programs.....	9,092,570	17,760,955	33,588,000	10,403,259	-7,357,696	-41.4%
Atomic Energy Defense Activities						
National nuclear security administration:						
Weapons activities.....	6,302,366	6,380,000	—	6,384,431	+4,431	+0.1%
Defense nuclear nonproliferation.....	1,334,922	1,482,350	—	2,136,709	+654,359	+44.1%
Naval reactors.....	774,686	828,054	—	1,003,133	+175,079	+21.1%
Office of the administrator.....	402,137	439,190	—	420,754	-18,436	-4.2%
Total, National nuclear security administration.....	8,814,111	9,129,594	—	9,945,027	+815,433	+8.9%
Environmental and other defense activities:						
Defense environmental cleanup.....	5,411,231	5,657,250	5,127,000	5,495,831	-161,419	-2.9%
Other defense activities.....	749,459	1,314,063	—	852,468	-461,595	-35.1%
Defense nuclear waste disposal.....	199,171	143,000	—	98,400	-44,600	-31.2%
Total, Environmental & other defense activities.....	6,359,861	7,114,313	5,127,000	6,446,699	-667,614	-9.4%
Total, Atomic Energy Defense Activities.....	15,173,972	16,243,907	5,127,000	16,391,726	+147,819	+0.9%
Power marketing administrations:						
Southeastern power administration.....	6,404	7,420	—	7,638	+218	+2.9%
Southwestern power administration.....	30,165	28,414	—	44,944	+16,530	+58.2%
Western area power administration.....	228,907	218,346	10,000	256,711	+38,365	+17.6%
Falcon & Amistad operating & maintenance fund.....	2,477	2,959	—	2,568	-391	-13.2%
Colorado River Basins.....	-23,000	-23,000	—	-23,000	—	—
Total, Power marketing administrations.....	244,953	234,139	10,000	288,861	+54,722	+23.4%
Federal energy regulatory commission.....	—	—	—	—	—	—
Subtotal, Energy And Water Development and Related Agencies.....						
Uranium enrichment D&D fund discretionary payments.....	-458,787	-463,000	—	-663,000	-200,000	-43.2%
Excess fees and recoveries, FERC.....	-20,370	-27,682	—	-26,864	+818	+3.0%
<b>Total, Discretionary Funding.....</b>	<b>24,032,338</b>	<b>33,748,319</b>	<b>38,725,000</b>	<b>26,393,982</b>	<b>-7,354,337</b>	<b>-21.8%</b>

# Science

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Office Of Science</b>						
Science						
High energy physics.....	702,845	795,726	232,390	819,000	+23,274	+2.9%
Nuclear physics.....	423,671	512,080	154,800	552,000	+39,920	+7.8%
Biological and environmental research.....	531,063	601,540	165,653	604,182	+2,642	+0.4%
Basic energy sciences.....	1,252,756	1,571,972	555,406	1,685,500	+113,528	+7.2%
Advanced scientific computing research.....	341,774	368,820	157,110	409,000	+40,180	+10.9%
Fusion energy sciences program.....	294,933	402,550	91,023	421,000	+18,450	+4.6%
Science laboratories infrastructure.....	66,861	145,380	198,114	133,600	-11,780	-8.1%
Safeguards and security.....	75,946	80,603	—	83,000	+2,397	+3.0%
Science program direction.....	177,779	186,695	1,600	213,722	+27,027	+14.5%
Workforce development for teachers and scientists.....	8,044	13,583	12,500	20,678	+7,095	+52.2%
Small business innovation research (SBIR)/Small Business Technology Transfer (STTR) (SC funding).....	92,997	—	19,004	—	—	—
Subtotal, Science.....	3,968,669	4,678,949	1,587,600	4,941,682	+262,733	+5.6%
Congressionally directed projects.....	120,161	93,687	—	—	-93,687	-100.0%
SBIR/STTR (Other DOE funding).....	47,241	—	—	—	—	—
Use of prior year balances and other adjustments.....	-53,188	-15,000	12,400	—	+15,000	+100.0%
<b>Total, Office Of Science.....</b>	<b>4,082,883</b>	<b>4,757,636</b>	<b>1,600,000</b>	<b>4,941,682</b>	<b>+184,046</b>	<b>+3.9%</b>

## PROGRAM DESCRIPTION

The mission of the Office of Science is the delivery of scientific discoveries and major scientific tools to transform our understanding of nature and to advance the energy, economic, and national security of the United States. A key strategy for accomplishing this mission and a hallmark of the Office of Science and its predecessors for more than six decades has been the support of fundamental science challenges and projects that are of great scale. The earliest example is the Manhattan Project, created to address a critical national security need during World War II.

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 \$4,942 million in FY 2010. The Science program supports several ongoing initiatives such as the Climate Change Science Program (\$165.3 million); the Climate Change Technology Program (\$635.7 million); Networking and Information Technology Research and Development (\$447.0 million); and the National Nanotechnology Initiative (\$326.5 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. 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

**Basic Energy Sciences** supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the

foundations for new energy technologies and to support other aspects of DOE missions in energy, environment, and national security. BES-supported research disciplines—condensed matter and materials physics, chemistry, geosciences, and aspects of physical biosciences—provide the knowledge base for the control of the physical and chemical transformations of materials and the discovery and design of new materials with novel structures, functions, and properties. These disciplines drive new solutions and technologies in virtually every aspect of energy resources, production, conversion, transmission, storage, efficiency, and waste mitigation. BES also plans, designs, constructs, and operates scientific user facilities that use x-ray, neutron, and electron beam scattering to probe the most fundamental electronic and atomic properties of materials at extreme limits of time, space, and energy resolution. The world-class scientific user facilities supported by BES provide important capabilities for fabricating, characterizing, and transforming materials of all kinds from metals, alloys, and ceramics to fragile bio-inspired and biological materials. In FY 2010, investments continue to support the Energy Frontier Research Centers, focused on accelerating fundamental energy sciences, and single investigator and small groups. Two Energy Innovation Hubs (Hubs) are initiated by BES as part of the suite of Institutes initiated by DOE in FY 2010. The BES Hubs will assemble multidisciplinary teams from universities, national laboratories, and the private sector to advance state-of-the-art energy sciences and technology toward their fundamental limits in search of revolutionary changes in energy production and use. BES Hubs will focus on Fuels from Sunlight and on Batteries and Energy Storage, and will be complementary to the EFRCs. BES continues support for the operations of its suite of scientific user facilities and construction of the National Synchrotron Light Source II, and full operations of the Linac Coherent Light Source will begin in FY 2010.

**Advanced Scientific Computing Research** supports research to discover, develop, and deploy the computational and networking capabilities to analyze, model, simulate, and predict complex phenomena important to DOE. Scientific computing is particularly important for the solution of research problems that are unsolvable through traditional theoretical and experimental approaches or are too hazardous, time-consuming, or expensive to solve by traditional means. ASCR supports research in applied mathematics, computer science, advanced networking, and computational science (Scientific Discovery through Advanced Computing, SciDAC); as well as research and evaluation prototypes, and the operation of high performance computing systems and networks. In FY 2010, ASCR continues research efforts in SciDAC, applied mathematics, and computer science programs. The FY 2010 request supports continued operations of the Leadership Computing Facilities at Oak Ridge National Laboratory and Argonne National Laboratory. The total capacity of the National Energy Research Scientific Computing (NERSC) facility at Lawrence Berkeley National Laboratory will increase from 360 teraflops to approximately one petaflop (1,000 teraflops) with the acquisition and operation of NERSC-6. ESnet will deliver 100-400 gigabit per second (Gbs) connections among the Office of Science laboratories in FY 2010 from 40-60 Gbs in FY 2009.

**Biological and Environmental Research** supports research to explore the frontiers of genome-enabled biology; discover the physical, chemical, and biological drivers of climate change; and seek the molecular determinants of environmental sustainability and stewardship. BER-supported systems biology research uncovers Nature's secrets from the diversity of microbes and plants to understand how biological systems work, how they interact with each other, and how they can be manipulated to harness their processes and products that contribute to new strategies for producing new biofuels, cleaning up legacy waste, and sequestering carbon dioxide (CO<sub>2</sub>). BER plays a vital role in supporting research on atmospheric processes, climate modeling, interactions between ecosystems and greenhouse gases (especially CO<sub>2</sub>), and analysis of impacts of climatic change on energy production and use. Subsurface biogeochemistry research seeks to understand the role that subsurface biogeochemical processes play in determining the fate and transport of contaminants including heavy metals and radionuclides. In FY 2010, BER continues research in systems biology, radiochemistry, climate science, and subsurface biogeochemistry. Support is provided for the three DOE Bioenergy Research Centers started in FY 2007, the Joint Genome Institute, and operations of and capital equipment for the Environmental Molecular Science Laboratory. A new activity for climate model visualization is initiated in FY 2010 to develop onsite

and remote-access tools for model development and evaluation. BER will also continue support for simulations and analyses needed for part of the Intergovernmental Panel on Climate Change Fifth Assessment.

**High Energy Physics** program supports research to understand how our universe works at its most fundamental level. This is accomplished by discovering the most elementary constituents of matter and energy, probing the interactions between them, and exploring the basic nature of space and time itself. HEP is focused on three scientific frontiers in particle physics: the Energy Frontier, the Intensity Frontier, and the Cosmic Frontier. Research includes theoretical and experimental studies by individual investigators and large collaborative teams: some who gather and analyze data from accelerator facilities in the U.S. and around the world; and others who develop and deploy ultra-sensitive ground- and space-based instruments to detect particles from space and observe astrophysical phenomena that advance our understanding of fundamental particle properties. HEP also invents new technologies to meet the challenges of research at the frontiers such as superconducting radio frequency technologies. The Tevatron Collider at Fermi National Accelerator Laboratory continues operations during FY 2010. Its record-breaking performance over the last few years means it remains competitive with the Large Hadron Collider (LHC) in Geneva, Switzerland, for significant discoveries. Support for LHC detector operations, maintenance, computing, and R&D continues in FY 2010 in order to maintain a U.S. leadership role in the LHC program. Construction continues for the NuMI Off-Axis Neutrino Appearance (NOvA) project to enable key measurements of neutrino properties. R&D for proposed new experiments using the NuMI beam and other auxiliary beamlines, such as the Long Baseline Neutrino Oscillation Experiment (LBNE) and the Muon to Electron experiment (Mu2e), will be underway so these experiments can be ready for operation before the end of the next decade. Several national and international collaborative projects to pursue questions in dark matter, dark energy, and neutrino properties continue in FY 2010, including the Cryogenic Dark Matter Search at the Soudan Mine in Minnesota, the Dark Energy Survey experiment in Chile, and R&D for the Joint Dark Energy Mission, the Large Synoptic Survey Telescope, and R&D efforts for experiments that may be located in the National Science Foundation's proposed Deep Underground Science and Engineering Laboratory (DUSEL). HEP also continues supported for advanced accelerator and detector R&D and R&D in superconducting radio frequency technology applicable to a variety of future accelerator projects.

**Nuclear Physics** supports research to discover, explore, and understand all forms of nuclear matter. The fundamental particles that compose nuclear matter, quarks and gluons, are relatively well understood, but exactly how they fit together and interact to create different types of matter in the universe is still largely not understood. To accomplish this, NP supports experimental and theoretical research—along with the development and operation of particle accelerators and advanced technologies—to create, detect, and describe the different forms and complexities of nuclear matter that can exist in the universe, including those that are no longer found naturally. NP also provides stewardship of isotope production and technologies to advance important applications, research, and tools for the nation. The FY 2010 request supports core nuclear physics research at over 85 academic institutions and 9 of the DOE national laboratories. The request supports near optimal levels of operations at NP's four scientific user facilities: the Continuous Electron Beam Accelerator Facility (CEBAF), the Relativistic Heavy Ion Collider (RHIC), the Argonne Tandem Linac Accelerator System (ATLAS), and the Holifield Radioactive Ion Beam Facility (HRIBF). Construction for the 12 GeV CEBAF Upgrade project continues, as well as conceptual design and R&D for the proposed Facility for Rare Isotope Beams (FRIB). The request also supports several major items of equipment (MIEs) to address compelling scientific opportunities. In FY 2010, the Isotope Development and Production for Research Applications Program will focus on production on the isotope needs of stakeholders and research isotope priorities identified by the Nuclear Science Advisory Committee and community input.

**Fusion Energy Sciences** supports research to expand the fundamental understanding of matter at very high temperatures and densities and the scientific foundations needed to develop a fusion energy source. This is accomplished by studying plasmas under a wide range of temperature and



density, developing advanced diagnostics to make detailed measurements of their properties, and creating theoretical/computational models to resolve the essential physics. FES operates scientific user facilities to enable world-leading research programs in high-temperature, magnetically confined plasmas, and to participate in the design and construction of ITER, the world's first facility for studying a sustained burning plasma. FES also supports enabling R&D to improve the components and systems that are used to build fusion facilities. The FY 2010 budget request funds the U.S Contributions to ITER project, including research and development of key components, long-lead procurements, personnel, and cash contribution to the ITER Organization. Research at the major experimental facilities in the FES program—the DIII-D tokamak, the Alcator C-Mod tokamak, and the National Spherical Torus Experiment (NSTX)—will continue to focus on providing solutions to key high-priority ITER issues and build a firm physics basis for ITER design and operation. The FY 2010 request will continue support for the Fusion Simulation Program computational initiative and the research at two plasma science centers selected in FY 2009. FES also continues to support the joint program in high energy density laboratory plasmas (HEDLP) with the National Nuclear Security Administration.

The **Science Laboratories Infrastructure** (SLI) program supports infrastructure and landlord responsibilities at DOE laboratories; the Building 51 and the Bevatron demolition project is completed in FY 2009. Construction funding supports three new projects and continues prior year projects. **Science Program Direction** requests additional funding to support total staffing of 1,149 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 2009 Appropriation to 2010 Request (\$ in millions)*

<b>High Energy Physics (FY 2009 \$795.7; FY 2010 \$819.0)</b> .....	<b>+\$23.3</b>
In Proton Accelerator-Based Physics, funding increases for Facility Projects (\$80.2; +\$35.0) for current experiments and future facility R&D, a portion was redirected from Advanced Technology R&D. Also, Large Hadron Collider Support increases primarily for an upgrade project (\$86.5; +\$12.1). Proton Complex Operations and Support decrease reflecting that stable running has been achieved, reducing workload necessary to run the accelerator as well as the increased automation of data collection with detectors (\$138.1; -\$7.0). Other activities net a small increase (\$138.2; +\$0.4).....	
	<b>+\$40.5</b>
In Electron Accelerator-Based Physics, funding decreases to levels necessary to complete analysis of physics data (\$14.4; -\$2.2) and support the planned profile for safe dismantling and decommissioning of the BaBar detector and putting PEP II into a minimum maintenance configuration (\$12.0; -\$2.4).....	
	<b>-\$4.6</b>
Non-Accelerator Physics (\$99.3; -\$1.5) decreases from directed funding in FY 2009 for completion of EXO, offset by an increase in research for active experiments and new projects. Theoretical physics (\$67.2; +\$2.4) increases for a constant level of effort and also supporting the second phase of the computing initiative for lattice quantum chromodynamics. Advanced Technology R&D (\$183.1; -\$13.5) decreases from the BELLA project completion and a portion of the General Accelerator Development activities are redirected to projects in the Proton Accelerator-Based Physics subprogram .....	
	<b>-\$12.6</b>
<b>Nuclear Physics (FY 2009 \$512.1; FY 2010 \$552.0)</b> .....	<b>+\$39.9</b>
The Medium Energy Nuclear Physics subprogram increases support for research and operations at TJNAF (\$91.0; +\$5.9) and to support other research and operations (\$40.0; +\$3.4). The Heavy Ion Nuclear Physics subprogram decreases support for RHIC research (\$9.0; -\$0.8), while university and other national lab research increases (\$43.7; +\$6.7), and Operations (\$166.9; +\$13.3). The Low Energy Nuclear Physics subprogram increases support for research activities	

(\$70.4; +\$17.4) and operations of the two smaller NP facilities, HRIBF and ATLAS (\$33.2; +\$2.4), as well as additional funds to continue R&D and conceptual design activities at the Facility for Rare Isotope Beams (\$9.0; +\$2.0) and other operations (\$4.2; +\$0.4). Nuclear Theory activities also increase to support theoretical efforts, including the LQCD initiative with HEP, needed to achieve the scientific goals of the program (\$43.4; +\$4.0) ..... +\$54.7

Support for the Isotope Production and Applications program, which was transferred from the Office of Nuclear Energy in FY 2009, decreases as a result of one-time investments and upgrades in FY 2009. .... -\$5.7

Construction funding decreases for the 12 GeV CEBAF upgrade (\$22.0; -\$6.6) and completion of the Electron Beam Ion Source (\$0.0; -\$2.5) according to the planned profiles ..... -\$9.1

**Biological and Environmental Research (FY 2009 \$601.5; FY 2010 \$604.2) ..... +\$2.7**

Biological System Science Research (\$318.5) includes increases in support of computational Biosciences (\$8.3; +\$3.8) and the Joint Genome Institute (\$69.0; +\$4.0). Funding decreases in Foundational Genomics Research (\$33.2; -\$5.0), Metabolic Synthesis and Conversion (\$39.1; -\$3.0), Radiochemistry and Imaging Instrumentation (\$20.7; -\$2.2), and Radiobiology (\$25.9; -\$2.0). SBIR/STTR increases (+\$0.1) ..... -\$4.3

Climate and Environmental Sciences (\$285.7) increases for Atmospheric System research (\$26.5; +\$1.1), Environmental System Science (\$82.6; +\$2.9) and Climate and Environmental Facilities and Infrastructure to support an ACRF field experiment and to continue the EMSL equipment refresh (\$99.5; +\$5.0). Climate and Earth System Modeling funding decreases (\$69.8; -\$2.2) as multiyear activities funded in FY 2009 are completed during 2010 (\$0.0; -\$8.9), Earth System Modeling is increased (\$30.6; +\$5.0) along with Integrated assessment (\$11.3; +\$1.7). SBIR/STTR increases (+\$0.2)..... +\$7.0

**Basic Energy Sciences (FY 2009 \$1,572.0; FY 2010 \$1,685.5) ..... +\$113.5**

Materials Sciences and Engineering research (\$381.1) increases to initiate a new Energy – Innovation Hub—Fuels from Sunlight (\$34.0; +\$34.0). Support for Energy Frontier Research Centers (\$55.3; \$0.0) is continued. Support for the EPSCoR program decreases as a result of additional funding provided in the FY 2009 appropriation (\$8.5; -\$8.2). Other activities are increased (\$273.4; +\$12.5). SBIR/STTR is increased (\$9.9; +\$1.1) ..... +\$39.4

Chemical Sciences, Geosciences, and Energy Biosciences (\$338.4) increases to initiate a new Energy –Innovation Hub—Batteries and Energy Storage (\$34.0; +\$34.0). Support for Energy Frontier Research Centers (\$44.7, +\$0.0) is continued. Other activities are increased (\$250.6; +\$10.3). SBIR/STTR is increased (\$9.1; +\$1.2) ..... +\$45.5

Scientific User Facilities (\$811.8) supports increased operation of Electron-Beam Microcharacterization and Accelerator and Detector Research (\$24.7; +\$4.4). Funding is continued per schedule for SNS instrumentation MIEs (\$23.0; +\$4.0), funding for the Linac Coherent Light Source Ultrafast Science Instruments MIE was completed in FY 2009 (\$0.0; -\$15.0). Funding for the SNS power upgrade is initiated (\$2.0; +\$2.0). Funding for Synchrotron Radiation Light Sources (\$375.7; +\$9.3) continues including full funding of linac operations at SLAC. Funding of High-Flux Neutron Sources (\$260.3; +\$8.8) includes \$4.0 to continue decommissioning of the target assembly at the Intense Pulsed Neutron Source and \$183.9 for Spallation Neutron Source operations. Funding is also provided for operation of all five of the nanocenters (\$106.8; +\$5.6). SBIR/STTR is increased (\$19.3; +\$0.7) ..... +\$19.8

Construction (\$154.2) funding increases as construction of the National Synchrotron Light Source II ramps up (\$139.0; +\$45.7). Funding for the Advanced Light Source User Support Building was completed in FY 2009 (\$0.0; -\$11.5). Funding for the Photon Ultrafast Laser Science and Engineering Building Renovation at SLAC was also completed in FY 2009 (\$0.0; -\$3.7). Final

funding for construction of the Linac Coherent Light Source is provided in FY 2010 per schedule (\$15.2; -\$21.7) ..... +\$8.8

**Advanced Scientific Computing Research (FY 2009 \$368.8; FY 2010 \$409.0)..... +\$40.2**

Increased funding in the Applied Mathematics supports the transfer of cyber security research from the networking activity and a new fellowship program (\$44.9; +\$4.7). Computer Science also increases to support a new effort in advanced computer architecture design (\$46.8; +\$13.2). An increase in Computational Partnerships will support interdisciplinary teams focused on applications for extreme scale computing (\$53.2; +\$1.2). Next generation networking for science remains unchanged as increases for new efforts on developing technologies are offset by the transfer of cyber research to the Applied mathematics activity. Support for NERSC operations is continued (\$55.0; +\$0.2) while support for the Leadership Computing Facilities at ORNL and ANL is increased to cover scheduled increases in lease payments (\$130.0; +\$15.0). Support for ESnet increases to deliver increased bandwidth (\$29.9; +\$4.8). SBIR/STTR increases (\$11.0; +\$1.1).

**Science Laboratories Infrastructure (FY 2009 \$145.4; FY 2010 \$133.6) .....-\$11.8**

Infrastructure Support (\$6.6) decreases due to completion of funding for demolition of Building 51 and the Bevatron at LBNL in FY 2009 (\$0.0; -\$24.8). OR landlord is increased to support road repairs (\$5.2; +\$0.1)-\$24.7

Construction funding (\$127.0) increases to support three new FY 2010 projects which are part of the SC Infrastructure Modernization Initiative. These are the Research Support Building and Infrastructure Modernization at SLAC (\$8.9; +\$8.9), the Energy Sciences Building at ANL (\$10.0; +\$10.0), and the Renovate Science Laboratories, Phase II at BNL (\$7.0; +\$7.0). Funding is continued for the FY 2009 new project starts: the Interdisciplinary Science Building, Phase I, project at BNL (\$39.4; +\$31.1), the Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, project at LBNL (\$34.0; +\$21.5), and the Technology and Engineering Development Facility project at TJNAF (\$27.7; +\$24.0). Construction funding was completed in FY 2009 for the following projects: the Physical Sciences Facility at PNNL (\$0.0; -\$52.8); the Modernization of Laboratory Facilities at ORNL (\$0.0; -\$25.1); Seismic Safety Upgrade of Buildings, Phase I, at LBNL (\$0.0; -\$2.6); OSTI Facility Improvements (\$0.0; -\$2.5), and the Renovate Science Laboratory, Phase I, at BNL (\$0.0; -\$6.6).....+\$12.9

**Fusion Energy Sciences (FY 2009 \$402.6; FY 2010 \$421.0)..... +\$18.4**

Funding for the international ITER project increases consistent with the planned funding profile (\$135.0; +\$11.0). Other increases include support for research related to the Fusion Simulation Project (\$4.0; +\$2.0), for operations of DIII-D and Alcator C-Mod facilities for increased run time weeks (\$55.8; +\$3.7), the Enabling R&D subprogram (\$23.2; +\$0.3), and other small increases throughout the program (\$203.0; +\$1.4).

**Science Program Direction (FY 2009 \$186.7; FY 2010 \$213.7) ..... +\$27.0**

Funding for salaries and benefits for headquarters and field staffing, including support for 83 additional FTEs for total FY 2009 staffing of 1,149 FTEs (\$155.9; +\$17.1); travel to support increased staff (\$5.2; +\$0.6); support services (\$24.3; +\$5.3); and other related expenses (\$28.3; +\$4.0) including office space, communications and utilities.

**Workforce Development for Teachers and Scientists (FY 2009 \$13.6; FY 2010 \$20.7)+\$7.1**

Funding primarily increases to implement the Graduate Fellowship program (\$5.0; +\$5.0) and for ongoing Student programs (\$8.1; +\$2.8), partially offset by a minor decrease in other activities (\$7.6; -\$0.7).

**Safeguards and Security (FY 2009 \$80.6; FY 2010 \$83.0) ..... +\$2.4**

Funding increases to provide a constant level of effort for safeguards and security activities.

## Advanced Research Projects Agency – Energy (ARPA-E)

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation*	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Advanced Research Projects Agency - Energy</b>						
Energy Transformation Acceleration Fund						
Advanced research projects agency-Energy (ARPA-E).....	—	—	400,000	10,000	+10,000	N/A
<b>Total, Advanced Research Projects Agency - Energy.....</b>	—	—	<b>400,000</b>	<b>10,000</b>	<b>+10,000</b>	<b>N/A</b>

### PROGRAM DESCRIPTION

The America COMPETES Act of 2007 (H.R. 2272, P.L. 110-69, 42 U.S.C. 16538) established the **Advanced Research Projects Agency – Energy (ARPA-E)** within the Department of Energy (DOE) to overcome the long-term and high-risk technological barriers in the development of energy technologies. On April 27, 2009 President Obama announced the creation of ARPA-E.

The mission of ARPA-E is to overcome the long-term and high-risk technological barriers in the development of energy technologies. To achieve this mission, ARPA-E will pursue the following goals.

First, ARPA-E aims to enhance the economic security of the United States through the development of energy technologies that result in:

- Reduced energy imports,
- Improved energy efficiency, and
- Reduced energy-related emissions, including greenhouse gases.

A second goal of ARPA-E is to ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies.

The **FY 2010 budget request of \$10.0 million** provides funding for Program Direction that supports these activities. The Omnibus Appropriations Act of 2009 provided \$15.0 million for ARPA-E in the Science appropriation, and the American Recovery and Reinvestment Act of 2009 provided \$400.0 million to carry out program activities. The FY 2010 budget request for ARPA-E is through the Energy Transformation Acceleration Fund, and by statute, appropriations to this Fund are to be separate and distinct from the rest of the budget for DOE.

### PROGRAM HIGHLIGHTS

The ARPA-E program supports the DOE mission in advancing the economic and energy security of the United States by promoting scientific and technological innovation.

The technologies ARPA-E will identify and promote can potentially produce transformative results and complement other ongoing research focusing on driving known technological solutions toward their fundamental limits. ARPA-E will work with our Departmental applied agencies where their expertise is relevant, to be able to move technology advances to the proof of concept and prototyping phase and, in the case of smaller-scale projects, into the demonstration phase.

\* The Omnibus Appropriations Act of 2009 provided \$15,000,000 for the Advanced Research Projects Agency – Energy in the Science appropriation.

ARPA-E will focus on:

- Disruptive applied technologies;
- High-risk, high-potential programs;
- Projects in need of rapid and flexible experimentation and/or engineering;
- Marrying technological opportunities with mission gaps, and;
- Breakthrough science that can transform a field.

ARPA-E will seek to fund the radical or breakthrough advances necessary to transform the energy marketplace by creating platform technologies; to identify and support the science and technology critical to our nation's energy infrastructure; act as the bridge between the basic research and the more applied areas; and find energy supplies that will also not degrade our environment.

ARPA-E creates a new organization within DOE. The Director of ARPA-E will report directly to the Secretary of Energy and will be appointed by the President, by and with the advice and consent of the United States Senate. The Director will be responsible for approving all new programs within ARPA-E, developing funding criteria, and assessing program success through the establishment of technical milestones.

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

**Advanced Research Projects Agency (FY 2009 \$0.0; FY 2010 \$10.0).....+\$10.0**  
FY 2010 is the first budget request for ARPA-E.

## Energy Efficiency and Renewable Energy

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Assistant Secretary For Energy Efficiency And Renewable Energy</b>						
Energy Efficiency and Renewable Energy						
Energy Efficiency and Renewable Energy RDD&D						
Fuel cell technologies (formerly Hydrogen technology).....	206,241	168,960	43,400	68,213	-100,747	-59.6%
Biomass and biorefinery systems R&D.....	195,633	217,000	786,500	235,000	+18,000	+8.3%
Solar energy.....	166,320	175,000	—	320,000	+145,000	+82.9%
Wind energy.....	49,034	55,000	118,000	75,000	+20,000	+36.4%
Geothermal technology.....	19,307	44,000	400,000	50,000	+6,000	+13.6%
Water power.....	9,654	40,000	—	30,000	-10,000	-25.0%
Vehicle technologies.....	208,359	273,238	—	333,302	+60,064	+22.0%
Building technologies.....	107,382	140,000	—	237,698	+97,698	+69.8%
Industrial technologies.....	63,192	90,000	50,000	100,000	+10,000	+11.1%
Federal energy management program.....	19,818	22,000	—	32,272	+10,272	+46.7%
RE-ENERGYSE (Regaining our energy science and engineering edge).....	—	—	—	115,000	+115,000	N/A
Facilities and infrastructure.....	76,176	76,000	100,700	63,000	-13,000	-17.1%
Advanced battery manufacturing.....	—	—	2,000,000	—	—	—
Alternative fueled vehicles pilot grant program.....	—	—	300,000	—	—	—
Transportation electrification.....	—	—	400,000	—	—	—
Energy efficient appliance rebate program.....	—	—	300,000	—	—	—
Program direction.....	104,057	127,620	50,000	238,117	+110,497	+86.6%
Program support.....	10,801	18,157	—	120,000	+101,843	+560.9%
<b>Subtotal, Energy Efficiency and Renew. Energy RDD&amp;D.....</b>	<b>1,235,974</b>	<b>1,446,975</b>	<b>4,548,600</b>	<b>2,017,602</b>	<b>+570,627</b>	<b>+39.4%</b>
Energy efficiency and conservation block grants - Competitive.....	—	—	456,000	—	—	—
Energy efficiency and conservation block grants, Subtitle E Title V EISA.....	—	—	2,744,000	—	—	—
Weatherization and Intergovernmental Eere R & D.....	282,217	516,000	8,100,000	301,000	-215,000	-41.7%
<b>Subtotal, Energy Efficiency and Renewable Energy.....</b>	<b>1,518,191</b>	<b>1,962,975</b>	<b>16,800,000</b>	<b>2,318,602</b>	<b>+355,627</b>	<b>+18.1%</b>
Congressionally directed projects.....	186,664	228,803	—	—	-228,803	-100.0%
Use of prior year balances and other adjustments.....	-743	-13,238	—	—	+13,238	+100.0%
<b>Total, Energy Efficiency And Renewable Energy.....</b>	<b>1,704,112</b>	<b>2,178,540</b>	<b>16,800,000</b>	<b>2,318,602</b>	<b>+140,062</b>	<b>+6.4%</b>

The **Office of Energy Efficiency and Renewable Energy (EERE)** conducts research, development, demonstration and deployment activities in partnership with industry to advance a diverse supply of energy efficiency and clean power technologies and practices. The FY 2010 budget request continues to support research on alternatives that will decrease our Nation's dependence on 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 oil, and enhance energy security. The FY 2010 budget request is \$2,318.6 million, an increase of \$140 million, or approximately 6.4 percent above the FY 2009 appropriation.

The **Fuel Cell Technologies** program (formerly Hydrogen Technology) in FY 2010 is refocusing its efforts on technology-neutral fuel cell systems for diverse applications in the stationary, portable and transportation sectors. This revised effort is aligned with DOE's emphasis on developing a portfolio of technologies with a more near term impact, which provide improved energy efficiency using multiple fuels and that bolster job creation. The program's activities will center on technology development for multiple types of fuel cell systems, including polymer electrolyte, solid oxide, alkaline, and others.

The **Biomass and Biorefinery Systems R&D** (Biomass) program facilitates the development and transformation of domestic, renewable, and abundant biomass resources into cost-competitive, high performance biofuels, bioproducts and biopower through targeted research, development, and deployment (RD&D), which leverages public and private partnerships. In FY 2010, the Biomass program plans to continue the deployment of integrated biorefinery technologies with private sector partners through cost-shared demonstration projects of varying scales while also advancing biomass conversion technologies through targeted R&D work with partners from National Laboratories, academic institutions, and industry. Additionally, feedstock production trials will be expanded through the existing Regional Feedstock Partnerships framework with a greater emphasis on environmental sustainability. Simultaneously, feedstock logistics technologies will be developed and improved to reduce feedstock costs. Ethanol blends testing and collaborative efforts with other DOE programs, agencies, and external stakeholders will also continue in support of the development of biofuels infrastructure and end use markets. In addition to EERE's Biomass program, DOE is also making substantial investments in fundamental research to support Energy Independence and Security Act (EISA) 2007 through the Office of Science's three Bioenergy Research Centers.

The **Solar Energy** program focuses on solar power R&D that will reduce demand for fossil fuels and promote a cleaner environment. The 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 Solar Energy Program estimates that cost reductions in these areas could facilitate industry's deployment of 5 to 10 gigawatts of new grid-connected solar electricity generating capacity by 2015. In FY 2010, the program continues its emphasis on making large-scale concentrating solar cost competitive in intermediate power markets by 2015, but will add an element that challenges industry to develop systems that can compete in the baseload power market by 2020. To successfully compete with coal in this market, lower cost solar systems with the ability to store significant amounts of energy must be developed. The Solar program will work with industry and universities to lower the cost of concentrating solar power technologies and develop advanced thermal energy storage. In addition, market transformation efforts will continue 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 market barriers to wind energy through government and private sector stakeholder collaboration while also improving wind technology through industry partnerships and applied research and testing.

The **Geothermal** program's mission is to conduct RD&D to establish Enhanced Geothermal Systems (EGS) as a major contributor to baseload electricity generation. The technologies developed by the program are expected to provide a new source of electricity that is clean, reliable and cost competitive. The Geothermal Program will continue to focus on EGS, which are engineered reservoirs created to produce energy from geothermal resources deficient in natural water and/or permeability. These engineered reservoirs are created by drilling wells into hot rock, fracturing the rock between the wells, and circulating a fluid through the fractured rock to extract the heat. Complementary activities include a web-based, public database; international collaborative activities; investigations of low temperature geothermal opportunities; and support for geothermal workforce development.

The **Water Power** program focuses on enabling the development and deployment of advanced water power technologies that will increase water-based electric generation in the U.S. via a new suite of marine and hydrokinetic technologies and by means of quick and cost-effective increases in incremental conventional hydropower generation. Funding will be used to continue technology development and testing, environmental impact studies, resource assessments, and cost analyses.

The **Vehicle Technologies** (VT) program supports R&D to make passenger and commercial vehicles more efficient and capable of operating on non-petroleum fuels. These strategies can lead to environmental benefits, reduce oil use, improve America's energy security, and benefit the economy. VT R&D includes lightweight materials, advanced batteries, power electronics, and electric motors for hybrid and plug-in hybrid vehicles (PHEVs – hybrids that can be recharged from an electric outlet or operated on liquid fuels), and advanced combustion engines and fuels. The FY 2010 budget significantly increases the emphasis on those technologies facilitating cost effective PHEVs, and on deployment activities to accelerate the use of maturing technologies such as alternative fuels. This focus supports the Presidential goal of deploying 1 million PHEVs by 2015 that can get up to 150 miles per gallon.

The **Building Technologies** (BT) program develops and promotes deployment of technologies to make new and existing homes and buildings less energy intensive. BT promotes 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 focuses 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. DOE is taking all necessary steps, consistent with the consent decree, EPOA, and EISA, to finalize legally required efficiency standards as expeditiously as possible and consistent with all applicable judicial and statutory deadlines.

The **Industrial Technologies** program (ITP) works to cost-effectively improve the energy efficiency of the U.S. economy by advancing RD&D of transformational manufacturing technologies—dramatically reducing industry's energy and carbon intensity. ITP has completed 2,098 assessments of energy use in manufacturing plants as part of the Save Energy Now initiative, identifying opportunities to save more than \$1.2 billion annually in energy costs and avoid 10.5 million metric tons of carbon dioxide emissions. Advanced technologies developed in collaboration with industry are succeeding in diverse commercial markets, ranging from innovative membranes for low-energy chemicals production to wireless sensor systems for process monitoring.

The **Federal Energy Management** program (FEMP) facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the Nation's energy security and environmental stewardship 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, providing technical assistance, coordinating Federal reporting and evaluation, and supporting alternative fuel use in the Federal vehicle fleet.

**REgaining our ENERGY Science and Engineering Edge (RE-ENERGYSE)** is a broad educational effort that cuts across program offices to inspire students and workers to pursue careers in science, engineering, and entrepreneurship related to clean energy. RE-



ENERGYSE is a new initiative to focus on a number of critical areas that will build the foundation of a vibrant American workforce to participate in the green economy.

The **Facilities and Infrastructure** activity enables the acquisition and maintenance of 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** program accelerates sustainable energy integration and clean energy deployment, in partnership with State and local, U.S. Territory, and Tribal governments. The Weatherization Assistance Program, through a state-managed network of local weatherization providers, supports home energy retrofits for low income families and career development opportunities for workers. The State Energy Program supports the States' expanding role in utility, renewable energy, and building code policies and other high impact energy projects. Tribal Energy Activities support feasibility assessments and project planning for clean energy projects on Tribal lands.

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

The **Program Support** account provides for program measurement and strategic direction, as well as 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. Strategic Priorities and Impact Analysis provides strategic analysis of technology and policy innovation. Its activities focus primarily on climate change, market, policy, and energy-systems and supply chain issues that impact and are impacted by EERE clean energy technologies. Commercialization activities focus on the finance industry, equipment suppliers, and energy companies to help bridge the market gaps that impede commercialization of many EERE energy technology and systems innovations. International activities will advance EERE's mission globally by promoting U.S. action on global climate change, energy security, and economic goals, accelerating clean energy innovation and cost reductions, and transforming energy efficiency and renewable energy markets in key developing countries.

## *PROGRAM HIGHLIGHTS*

The FY 2010 request continues to support a balanced and diverse portfolio of solutions to address the Nation's urgent energy and environmental challenges facing the country today by: 1) researching and developing renewable energy technologies to dramatically increase the amount of clean energy produced in the U.S.; 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 Presidential goals, the FY 2010 budget advances clean energy technologies and deployment activities that are essential to breaking our addiction to oil, and changing the way we power our homes, businesses, and automobiles. The proposed Office of Energy Efficiency and Renewable Energy budget of \$2,318.6 million provides a diverse portfolio of activities, including:

Advanced Transportation Solutions

- Advancing essential RD&D projects to achieve cost competitive, commercial scale cellulosic ethanol production by 2012;
- Accelerating RD&D on PHEVs and drive-train electrification to reduce petroleum dependency and make our Nation’s vehicles more efficient; and
- Continuing to research and develop critical fuel cell technologies that enable near term commercialization pathways.

Renewable Power

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

Energy Efficiency

- Reducing energy consumption and transforming the carbon footprint of the built environment through the development of technologies that will enable cost competitive zero energy buildings by 2020; and
- Supporting the advancement of clean and efficient industrial technologies and processes.

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

**Fuel Cell Technologies (FY 2009 \$169.0; FY 2010 \$68.2) .....-\$100.8**

Funding for Fuel Cell Technologies is reduced by \$100.8 million. This reflects a refocus of the program's efforts on technology-neutral fuel cell systems for diverse applications in the stationary, portable and transportation sectors. The program's activities will center on technology development for multiple types of fuel cell systems, including polymer electrolyte, solid oxide, alkaline, and others. Funding is provided for Fuel Cell Systems R&D (+\$63.2) and Systems Analysis (-\$2.7); funding for all other activities is zero, reflecting their longer-term status. Three activities transferred to the Vehicle Technologies program in FY 2009 (Education, Safety and Codes & Standards, and Technology Validation) are returned to the Fuel Cell Technologies Program in FY 2010, but are not funded.

**Biomass and Biorefinery Systems R&D (FY 2009 \$217.0; FY 2010 \$235.0) .....+\$18.0**

Biomass and Biorefinery Systems R&D funding is increased by 8.3 percent. Funding for Feedstock Infrastructure increased (+\$12.0), mainly to support an expansion of feedstock production trials and sustainability efforts critical to ensuring a stable supply of feedstocks needed for a viable domestic biofuels industry capable of providing the volumes mandated by the EISA 2007 Renewable Fuel Standard. Increased Platforms Research and Development funding (+\$6.3) supports the completion of ongoing multi-year R&D projects and the initiation of a new competitive solicitation within Thermochemical R&D Platform. Integration of Biorefineries funding is increased (+\$1.5) to support ongoing multi-year biorefinery project deployment schedules. Products R&D funding is decreased (-\$1.8) due to relative FY 2010 needs associated with multi-year fermentation organism (ethanologen) project cost schedules.

**Solar Energy (FY 2009 \$175.0; FY 2010 \$320.0) .....+\$145.0**

Solar Energy is increased 82.8 percent. The increases within Photovoltaic R&D (+\$24.9), Concentrating Solar Power (+\$54.1), Systems Integration (+\$17.5) and Market

Transformation (+\$13.4) reflect funding for a new Solar Electricity Energy Innovation Hub (+\$35.0), PV Manufacturing initiatives, commitments for the trough and advanced components solicitation (Phase III), establishment of the pilot solar zone, efforts that address grid integration specific to the high penetration of solar technologies, and the new Solar Policy & Analysis Network for workforce development and technical outreach.

**Wind Energy (FY 2009 \$55.0; FY 2010 \$75.0)..... +\$20.0**

Additional funds will be used to create partnerships and solicitations to accelerate the development of offshore wind technology and projects that improve the reliability and cost effectiveness of land-based wind turbine systems (+\$13.5). Additionally, development of improved grid integration strategies (+\$2.4) and market acceptance activities (+\$4.1) that expand workforce development, wind-radar mitigation efforts, wind technology education, and research and testing on mid-sized turbine technology for community applications constitute a large portion of the program's expanded activities.

**Geothermal Technology (FY 2009 \$44.0; FY 2010 \$50.0) .....+\$6.0**

The funding for Geothermal Technology increases by 13.6 percent. This increase funds additional component technology R&D supporting EGS in critical areas.

**Water Power (FY 2009 \$40.0; FY 2010 \$30.0).....-\$10.0**

Funding for Water Power decreases by 25 percent. Funds provided by Congress in FY 2008 to establish this new program were sufficient to initiate resource and technology assessments and to establish an RD&D framework. Appropriated funds for FY 2009 initiated priority activities for marine and hydrokinetic technology development and testing, environmental impact studies, resource assessments, and cost analyses to begin a nation-wide assessment of the existing conventional hydropower infrastructure in order to identify opportunities for increased incremental generation, ancillary benefits, and improved environmental performance. The FY 2010 request is sufficient to continue and build upon activities begun in FY 2009.

**Vehicle Technologies (FY 2009 \$273.2; FY 2010 \$333.3).....+\$60.1**

Overall funding for Vehicle Technologies increases by 22 percent. This reflects increases in VT's core R&D activities that support accelerated development of PHEVs, as well as lighter vehicles and more efficient combustion engines. The largest increase is for Hybrid Electric Systems (+\$39) to accelerate battery and power-electronics R&D and to expand hybrid electric vehicles and PHEV testing and simulation. Increases in Combustion and Emissions Control (+\$12.2) will be used for systems-level engine efficiency optimization, and Solid-State Energy Conversion (+\$4.2) will fund competitively selected awards on an FY 2010 solicitation focused on demonstrating thermoelectric devices in vehicle applications and on research of the next generation of advanced thermoelectric materials. Propulsion Materials Technology (+\$2.9) will expand laboratory R&D in the areas of biofuels materials compatibility and high efficiency electric motor magnetic materials. Increases in Lightweight Materials Technology (+\$11.7) will support R&D and pilot-scale demonstrations for reducing the costs of automotive aluminum, magnesium, and carbon-fiber components and structures. In FY 2010, three activities (Safety and Codes and Standards, Technology Validation, and Education) are transferred from to the Fuel Cell Technologies Program as part of a reprioritization of fuel cell and hydrogen related activities.

**Building Technologies (FY 2009 \$140.0; FY 2010 \$237.7).....+\$97.7**

Additional funding increases critical research elements of the Residential Buildings Integration (+\$18.1), Commercial Buildings Integration (+\$7), Space Conditioning and Refrigeration R&D (+\$5.7), Analysis Tools (+\$2.4), and Solar Heating and Cooling (+\$2.8) subprograms. Funding for Building and Appliance Market Transformation also increases the ENERGY STAR (+\$2.5) and Equipment Standards and Analysis (+\$15) subprograms to reflect the President's emphasis on more efficient appliances. In addition, an increase in funding

(+\$35) will establish an Energy Innovation Hub in Energy Efficient Building Systems Design, focusing on cutting edge building components.

**Industrial Technologies Program (FY 2009 \$90.0; FY 2010 \$100.0) .....+\$10.0**  
Funding for the Industries of the Future (crosscutting) subprogram is increased (+\$12.9). The increase is primarily associated with an expansion of the Best Practices Save Energy Now (SEN) initiative, achieved through new targeted corporate outreach efforts aimed at highly energy intensive industries for tangible reductions in energy use. Funding for Industries of the Future (specific) subprogram decreases (-\$2.9). This is primarily due to work with specific industries such as the Glass (-\$1.0) and Metal Casting (-\$1.9) industries now being supported through Energy-Intensive Process R&D efforts, within the Industries of the Future (crosscutting) subprogram.

**Federal Energy Management (FY 2009 \$22.0; FY 2010 \$32.3) .....+\$10.3**  
New activities include the promotion of alternate finance opportunities through a larger, more coordinated team of project, finance, and technical experts (+\$4.1) that will provide expanded assistance to Federal agencies through updated product specifications and dedicated training to procurement officials and planning assistance (+\$4.0). Increased funding will continue the expansion of information/awareness products for energy efficiency in Federal agencies (+\$1.0) and information and analysis critical to deployment of alternative fuel infrastructure for petroleum displacement in the Federal vehicle fleet (+\$1.0).

**REgaining our ENERGY Science and Engineering Edge (RE-ENERGYSE) (FY 2009 \$0; FY 2010 \$115.0).....+\$115.0**  
The FY 2010 request for RE-ENERGYSE is \$115.0. This is a new program in FY 2010. Significant funding changes include: initiating Higher Education (+\$80.0) as well as Technical Training and K-12 Education (+\$35.0).

**Facilities and Infrastructure (FY 2009 \$76.0; FY 2010 \$63.0) .....-\$13.0**  
The request for Facilities and Infrastructure represents a decrease (-\$13.0) from the FY 2009 Appropriation. The FY 2010 request includes a reduction (-\$3.0) for General Plant Projects and General Capital Equipment on the NREL research campus, and \$44.0 that is required to complete the South Table Mountain Ingress/Egress and Traffic Capacity Upgrades.

**Weatherization and Intergovernmental Activities (FY 2009 \$516.0; FY 2010 \$301.0)-\$215.0**  
The FY 2010 request for Weatherization and Intergovernmental Activities represents a decrease (-\$215.0) from the FY 2009 appropriation. Significant funding changes include: an increase for the State Energy Program (+\$25.0); a decrease for the Weatherization Assistance Grants program (-\$230.0); the transfer of the International Renewable Energy Program to the Program Support line item within EERE (-\$5.0); and the elimination of the Renewable Energy Production Incentive at DOE (-\$5.0). The reduced funding proposed for Weatherization Grants reflects the availability of funds from the Recovery Act, which are available for obligation through September 2010.

**Program Direction (FY 2009 \$127.6; FY 2010 \$238.1) .....+\$110.5**  
The increase is due to the hiring of 253 additional Federal employees required to advance the Presidential and Secretarial priorities for the RD&D of EERE programs, business administration and unprecedented project management and oversight. The increased funding reflects cost-of-living increases, in-grade increases, and increased costs to the government portion of personnel benefits. Higher funding levels permit site visits for purposes of project coordination and oversight in carrying out technical and administrative responsibilities. Additionally, travel facilitates enhanced collaboration with stakeholders to ensure transparency and accountability. Provisions are included for the hiring of additional support contractor staff and substantial expansion of information technology, communications, and network systems to include connectivity to multiple locations, as well as the purchase and installation of needed desktop systems. Increased funding provides for the

necessary contracting of additional workspace and the corresponding support systems required for new staff, both at Headquarters and at the Project Management Center. This is reflective of higher per capita space and infrastructure costs, such as DOE Working Capital Fund activities and other overhead costs.

**Program Support (FY 2009 \$18.2; FY 2010 \$120.0).....+\$101.8**

In FY 2010 Program Support includes funding for three additional subprograms: Strategic Priorities and Impact Analysis (+\$43.0); Commercialization (+\$45.0); and International (+\$10.0), which was transferred from the Weatherization and Intergovernmental Activities Program. The increase to Technology Advancement and Outreach (+\$2.9) will expand capacity to meet growing demands for information by the general public and other stakeholders. Methods to provide this information include: web-based and toll-free telephone services, and partnerships with industry, state and local governments, and non-government organizations that leverage dissemination and use of energy savings techniques and technologies.

## Electricity Delivery and Energy Reliability

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Office Of Electricity Delivery &amp; Energy Reliability</b>						
Electricity Delivery & Energy Reliability						
Research and development.....	82,826	84,721	—	174,000	+89,279	+105.4%
Operations and analysis.....	11,451	11,451	—	—	-11,451	-100.0%
Permitting, siting and analysis.....	—	—	—	6,400	+6,400	N/A
Infrastructure security & energy restoration(HS).....	—	—	—	6,188	+6,188	N/A
Program direction.....	17,603	21,180	22,500	21,420	+240	+1.1%
Congressionally directed projects.....	24,290	19,648	—	—	-19,648	-100.0%
Smart grid investment program (EISA 1306).....	—	—	3,375,700	—	—	—
Smart grid regional and energy storage demos.....	—	—	700,000	—	—	—
Workforce development.....	—	—	100,000	—	—	—
Interoperability standards and framework.....	—	—	10,288	—	—	—
Interconnection planning and analysis.....	—	—	80,000	—	—	—
Other recovery act.....	—	—	211,512	—	—	—
<b>Total, Electricity Delivery &amp; Energy Reliability.....</b>	<b>136,170</b>	<b>137,000</b>	<b>4,500,000</b>	<b>208,008</b>	<b>+71,008</b>	<b>+51.8%</b>

### 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 three programs: **Research and Development, Permitting, Siting and Analysis, and Infrastructure Security and Energy Restoration**. In FY 2010, the Department requests **\$208.0 million** to continue these efforts. The FY 2010 budget also proposes a budget structure change to better align with the Department's priorities to establish a clean, secure energy future.

The **Research and Development** program consists of the following subprograms:

The **Clean Energy Transmission and Reliability** subprogram includes activities to develop advanced transmission-driven technologies that will improve grid reliability, efficiency, and security. It supports research in next-generation cables and conductors to increase the delivery capacity of existing systems, as well as research on tools that enhance our understanding of the power system and enable response to changing system and market conditions. It incorporates activities previously funded in High Temperature Superconductivity and phasor development and transmission-level renewables integration activities funded in Visualizations and Controls subprograms.

The **Smart Grid Research and Development** subprogram promotes the development of an efficient, fully integrated "smart grid" system by adapting and integrating the use of advanced technologies to modernize the nation's electric delivery network for enhanced operational intelligence and connectivity. Smart grid activities were previously funded within Renewable and Distributed Systems Integration. Power electronics will also be incorporated. Also included is a new initiative, the Grid Materials, Devices and Systems Hub, to develop new "smart" materials for conductors, insulators, power electronics, and other elements of the electric system.

The **Energy Storage** subprogram is working to develop energy storage technologies that reduce power disturbances and peak electricity demand, and improve system flexibility to reduce adverse effects to users. Research will pursue advances in the design of storage devices for batteries, flywheels, and electronic capacitors.

The **Cyber Security for Delivery Systems** subprogram includes research activities to address the vulnerabilities within the electric distribution system to reduce the risk of energy disruptions due to cyber attacks on the nation's energy infrastructure, a critical need with the increased deployment of smart grid technologies. Activities were previously funded under the Visualization and Control subprogram.

The **Permitting, Siting, and Analysis** program uses education, outreach, and analysis to help states, regional electric grid operators, and federal agencies develop and improve electricity policies, market mechanisms, state laws, and programs to assist in modernizing the electric grid and the development of new electric infrastructure needed to bring clean energy projects to market. It implements the mandatory transmission provisions of the Energy Policy Act of 2005, and administers international electricity regulatory program through cross-border permitting.

The **Infrastructure Security and Energy Restoration** program leads national efforts to enhance the security of the nation's critical infrastructure from threats and hazards. It works to ensure the reliability, survivability and resiliency of the energy infrastructure by coordinating the Department's response to energy emergencies, working to prevent unauthorized use of the energy infrastructure, and assisting all levels of government and the private sector to recover from energy supply disruptions. This program carries out DOE's responsibilities as the lead Sector Specific Agency for protecting the nation's critical energy infrastructure.

### *PROGRAM HIGHLIGHTS*

The Research and Development program will lead to technologies that reduce greenhouse gas emissions and contribute to energy independence and economic growth by improving the reliability, efficiency, flexibility, functionality, and security of the Nation's electricity delivery system. In FY 2010, the program reflects an increased emphasis on the development of advanced transmission technologies, including more efficient cables and conductors to reduce energy loss; strengthening the reliability of the electric grid by enhancing real-time visualization tools; developing a "smart grid" system with enhanced intelligence and connectivity, and reducing the risk of cyber attacks by developing advanced cyber security protections and controls.

The Permitting, Siting and Analysis program implements the electricity grid modernization requirements of the Energy Policy Act of 2005. It also assists States, regions, and other Federal agencies to develop and improve policies, market mechanisms, State laws, and programs that facilitate the development of the electricity infrastructure required to access clean energy resources. It issues permits for cross-border transmission lines and authorizes electricity exports.

The Infrastructure Security and Energy Restoration (ISER) program, working with the Department of Homeland Security, leads the national effort to enhance the security of our Nation's critical infrastructure from all threats and hazards. It assists states with energy security activities and develops models and simulations to track emerging energy sector problems. The program is responsible for maintaining continuous and reliable energy supplies for the United States through preventative measures and restoration and recovery actions in a coordinated effort with other Federal agencies, States, local governments and the private sector. ISER assists other agencies in the restoration of electricity after disasters, and also provides expert recommendations on the improvement of energy infrastructure security.

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

**Electricity Delivery and Energy Reliability (FY 2009 \$137.0; FY 2010 \$208.0) ..... +\$71.0**  
Increase in funding reflects increased investments in research and development, particularly in energy storage, smart grid technologies, and cyber security areas. It also reflects the establishment of an energy discovery institute, the Grid Materials, Devices and Systems Hub.

*Research and Development*

**Clean Energy Transmission and Reliability (FY 2009 \$0; FY 2010 \$42.0) ..... +\$42.0**  
In FY 2010, funding supports the development of a North American wide-area monitoring system to enhance situational awareness; research to expand the capabilities of a phasor measurement unit based network; and research on advanced cables and conductors to mitigate alternating current energy losses in second-generation High Temperature Superconducting wire. The increase primarily reflects the new budget structure for the Research and Development Program beginning the FY 2010.

**Smart Grid Research and Development (FY 2009 \$0; FY 2010 \$67.0) ..... +\$67.0**  
In FY 2010 the program will focus on research in advanced control methods, developing smart grid functionalities for renewable systems, plug-in hybrid electric vehicles, and other end use applications; improved interfaces and decision support, including development of a simulation tool for Smart Grid systems for industry and policy makers; It will also conduct research in advanced components, focusing on development of cost-effective, high-voltage energy conversion and flow control; and integrated communications, including implementation of smart grid interoperability standards and development of a Smart Grid Maturity Model. The solicitation to fund the new Grid Materials, Devices and Systems Hub will be conducted in FY 2010, with initial research focusing on smart material-based sensors and devices. The increase reflects funding of the new Grid Materials, Devices and Systems Hub, and an increased support for smart grid research, as well as the new budget structure for the Research and Development Program beginning the FY 2010.

**Energy Storage (FY 2009 \$0 FY 2010 \$15.0) ..... +\$15.0**  
The increase for energy storage reflects an acceleration of materials and device research, field tests, and modeling and analysis. Research will also be expanded to support successful integration of renewable energy resources into the grid by modifying their variability. The increase also reflects the new budget structure for the Research and Development Program beginning the FY 2010.

**Cyber Security for Energy Delivery Systems (FY 2009 \$0; FY 2010 \$50.0) ..... +\$50.0**  
FY 2010 activities will develop computational modeling to build trustworthy systems as a transition strategy for legacy systems, continue test bed assessments of SCADA/EMS systems, and conduct research on smart grid technologies to develop secure systems that can withstand cyber attacks. Increase reflects acceleration of the development and deployment of resilient network devices, architectures, and smart grid systems. It also reflects the new budget structure for the Research and Development Program beginning the FY 2010.

**High Temperature Superconductivity R&D (FY 2009 \$23.8; FY 2010 \$0.0) ..... -\$23.8**  
Activities will be included in the proposed FY 2010 budget structure change within the Clean Energy Transmission and Reliability subprogram.

**Visualization and Controls (FY 2009 \$24.4; FY 2010 \$0.0) ..... -\$24.4**  
FY 2010 activities will be included in the new Clean Energy Transmission and Reliability and Cyber Security for Energy Delivery Systems subprograms

**Energy Storage and Power Electronics (FY 2009 \$6.6; FY 2010 \$0.0) ..... -\$6.6**



Energy Storage activities will be included in a separate Energy Storage Program, while Power Electronics activities will be incorporated into the Smart Grid Research and Development subprogram.

**Renewable and Distributed Systems Integration (FY 2009 \$30.0; FY 2010 \$0.0).....-\$30.0**  
FY 2010 activities will be included in the Smart Grid Research and Development subprogram.

*Permitting, Siting, and Analysis*

**Permitting, Siting, and Analysis (FY 2009 \$5.3; FY 2010 \$6.4) ..... +\$1.1**  
Funding will support increased technical assistance that will be provided to state electricity regulatory agencies and to electric utilities as they implement their National Action Plan for Energy Efficiency; additional analysis for projects such as national voluntary evaluation measurement and verification of energy savings from efficiency, and additional support to states on smart grid policies.

*Infrastructure Security and Energy Restoration*

**Infrastructure Security and Energy Restoration (FY 2009 \$6.2; FY 2010 \$6.2) ..... +\$0**  
The program continues infrastructure reliability activities by applying a robust systems analysis to identify critical assts and interdependencies; continue advancements in power outage and restoration visualization and modeling; continue its emergency response activities. There is no significant change in funding.

*Program Direction*

**Program Direction (FY 2009 \$21.2; FY 2010 \$21.4) ..... +\$0.2**  
Increase reflects an additional 2 FTEs for a total of 63 FTEs. The funding supports salaries/benefits, travel, support services and other related expenses. In addition, the increased funds provides for all program direction costs for 19 FTEs located at NETL that are counted within Fossil Energy that perform work for OE.

## Environmental Management

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Environmental Management</b>						
Defense Environmental Cleanup.....	5,411,231	5,657,250	5,127,000	5,495,831	-161,419	-2.9%
Non-Defense Environmental Cleanup.....	182,263	261,819	483,000	237,517	-24,302	-9.3%
Uranium Enrichment D&D Fund.....	622,162	535,503	390,000	559,377	+23,874	+4.5%
Uranium enrichment D&D fund discretionary payments.....	-458,787	-463,000	—	-463,000	—	—
<b>Total, Environmental Management (Gross).....</b>	<b>5,756,869</b>	<b>5,991,572</b>	<b>6,000,000</b>	<b>5,829,725</b>	<b>-161,847</b>	<b>-2.7%</b>
Domestic utility fees.....	—	—	—	-200,000	-200,000	N/A
<b>Total, Environmental Management (Net).....</b>	<b>5,756,869</b>	<b>5,991,572</b>	<b>6,000,000</b>	<b>5,629,725</b>	<b>-361,847</b>	<b>-6.0%</b>

### PROGRAM DESCRIPTION

The **Environmental Management (EM)** program was created in 1989 to safely manage 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 **\$5.83 billion** in **FY 2010** offset by \$200 million in assessments pursuant to section 1802 of the Atomic Energy Act of 1954.

EM is requesting program funds in three appropriation accounts: **Defense Environmental Cleanup** (FY 2009 \$5,657.3 million; FY 2010 \$5,495.8 million); **Non-Defense Environmental Completion** (FY 2009 \$261.8 million; FY 2010 \$237.5 million); and **Uranium Enrichment Decontamination and Decommissioning Fund** (FY 2009 \$535.5.2 million; FY 2010 \$559.4 million).

### PROGRAM HIGHLIGHTS

The FY 2010 budget request totals \$5.83 billion, a decrease of \$162 million from the FY 2009 appropriation. The FY 2010 request places a priority on balancing risk reduction and regulatory requirements, 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 completed 15 of 18 planned for cleanup and closure, including 3 former weapons production sites. The FY 2010 request continues this risk reduction strategy, and reflects the following priorities: essential activities to maintain a safe and secure posture in the EM complex; radioactive tank waste stabilization, treatment, and disposal; spent nuclear fuel storage, receipt and disposition; special nuclear material consolidation, processing, and disposition; high priority groundwater remediation; transuranic and mixed/low level waste disposition; soil and groundwater remediation; excess facilities deactivation and decommissioning.

## Defense Environmental Cleanup

(discretionary dollars in thousands)

	FY 2008	FY 2009	FY 2009	FY 2010	FY 2010 vs. FY 2009	
	Current Appropriation	Current Appropriation	Additional Appropriation	Congressional Request	\$	%
<b>Defense Environmental Cleanup</b>						
Closure sites.....	42,050	45,883	19,700	41,468	-4,415	-9.6%
Hanford site.....	904,998	966,976	1,634,500	903,080	-63,896	-6.6%
Office of River Protection.....	976,540	1,009,943	326,035	1,098,000	+88,057	+8.7%
Idaho National Laboratory.....	517,487	475,761	467,875	406,168	-69,593	-14.6%
NNSA sites and Nevada off-sites.....	321,464	320,851	273,100	276,624	-44,227	-13.8%
Oak Ridge Reservation.....	194,235	262,835	558,110	153,768	-109,067	-41.5%
Savannah River site.....	1,138,714	1,227,143	1,615,400	1,209,949	-17,194	-1.4%
Waste Isolation Pilot Plant.....	234,585	231,661	172,375	220,337	-11,324	-4.9%
Program direction.....	306,941	309,807	25,635	355,000	+45,193	+14.6%
Program support.....	32,844	33,930	—	34,000	+70	+0.2%
Safeguards and Security.....	257,632	260,341	—	279,437	+19,096	+7.3%
Technology development.....	20,600	32,320	—	55,000	+22,680	+70.2%
Uranium enrichment D&D fund contribution.....	458,787	463,000	—	463,000	—	—
Defense holdback.....	—	—	34,270	—	—	—
Subtotal, Defense environmental cleanup.....	5,406,877	5,640,451	5,127,000	5,495,831	-144,620	-2.6%
Use of prior year balances.....	-12,841	-1,109	—	—	+1,109	+100.0%
Congressionally directed projects.....	17,195	17,908	—	—	-17,908	-100.0%
<b>Total, Defense Environmental Cleanup.....</b>	<b>5,411,231</b>	<b>5,657,250</b>	<b>5,127,000</b>	<b>5,495,831</b>	<b>-161,419</b>	<b>-2.9%</b>

### PROGRAM DESCRIPTION

The **FY 2010 request** for the **Defense Environmental Cleanup** appropriation is **\$5.5 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 2009 \$45.8, FY 2010 \$41.5) ..... -\$4.3**

Request supports closure and post-closure activities at the **Miamisburg (Mound) site in Ohio**. These closure sites have or will have completed physical cleanup by FY 2010. Responsibility for post-closure administration at Rocky Flats and Fernald, 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. The FY 2010 request provides for additional support for Operable Unit 1 groundwater monitoring and remediation at Miamisburg and ongoing litigation liabilities, contract closeout, and regulatory completion activities at completed sites managed by the Consolidated Business Center.

**Hanford Site (Richland) (FY 2009 \$967.0; FY 2010 \$903.1) ..... -\$63.9**

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 (\$501.4) and 2035 Completion Projects (\$401.7).

Request includes increases for deactivation, decommissioning, and demolition of facilities and structures in the 100 and 300 Areas within the **River Corridor Closure Project**, and decreases associated with the completion of shipment of special nuclear material from the **Plutonium Finishing Plant**, the completion of **K-East Basin** demolition and reduced retrieval of transuranic waste.

**Office of River Protection (FY 2009 \$1,009.9; FY 2010 \$1,098.0) ..... +\$88.1**

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 (\$408.0).

Funds construction of the **Waste Treatment and Immobilization Plant (WTP)** consistent with the December 2008 baseline to immobilize radioactive waste at Hanford. Design of the WTP is approximately 67 percent design complete and construction is approximately 39 percent complete. The FY 2010 request continues design and construction on the five subprojects that make up the WTP facility: the Low-Activity Waste Facility (\$100); Analytical Laboratory (\$55); High-Level Waste Facility (\$160), Pretreatment Facility (\$325), and Balance of Facilities (\$50).

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 2010 request maintains the tank farm in a safe and compliant manner, continues evaporator and other activities to manage space in the tanks, and supports retrieval of two C Farm single shell tanks. The request also supports scientific applied research and technology development activities to advanced solutions for treatment of radioactive waste including pre-treatment processes, tank structural integrity, and advanced retrieval technologies.

**Idaho National Laboratory (FY 2009 \$475.8; FY 2010 \$406.2) ..... -\$69.6**

The FY 2010 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 construction activities at the **Sodium Bearing Waste Treatment Facility**. The decrease reflects acceleration of remote-handled transuranic waste shipments to the waste Isolation Pilot Plant and a scope of work included in the American Recovery and Reinvestment Act.

**NNSA Sites (FY 2009 \$320.9; FY 2010 \$276.6) ..... -\$44.3**

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** (\$189.0), **Nevada Test Site** (\$65.7), and **Separations Process Research Unit** in New York (\$15.0).

**Los Alamos National Laboratory** reflects a decrease (-\$33.7) in FY 2010. The request continues shipments of contact-handled transuranic waste to the Waste Isolation Pilot Plant, the start up of processing and remediation lines for cemented waste and concrete monoliths, disposition of 4,000 cubic meters of sludge mixed low-level waste, and the completion of characterization activities for several areas. The decrease is due to the completion of the installation of monitoring well networks, and the completion of decontamination and decommissioning of activities at Technical Area 21 Delta Prime West and Technical Area 54.

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 (-\$10.0) reflects a reduction in the share of disposal costs direct-funded by EM.

The decrease for **Separations Process Research Unit** (-\$3.0) reflects the acceleration of the North Field land remediation and completion of some demolition of nuclear facility Buildings G2 and H2.

**Oak Ridge Reservation (FY 2009 \$262.8; FY 2010 \$153.8).....-\$109.0**

FY 2010 request supports treatment and disposal of defense-funded decommissioning, legacy waste management activities, including closure activities at the **Toxic Substances Control Act (TSCA) Incinerator**, processing of contact-and remote-handled waste at the **Transuranic Waste Treatment Facility**; and remediation activities. Decreases reflect reduction in funding requirements for U-233 down-blending operations, the completion of the David Witherspoon 1630 site cleanup, and scopes of work included in the American Recovery and Reinvestment Act.

**Savannah River (FY 2009 \$1,227.1; FY 2010 \$1,209.9).....-\$17.2**

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: 2035 Completion Projects (\$57.1), Nuclear Material Stabilization and Disposition (\$391.6) and Tank Farm Activities (\$761.3).

The FY 2010 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 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** (\$234.1); 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 (conducted with Recovery Act funding).

Increases in the FY2010 budget are attributable to the receipt of foreign and domestic fuel, preparation activities in support of the Idaho National Laboratory Fuel Swap, Salt Waste Processing Facility construction, and the initiation of the Plutonium Preparation Project. Decreases reflect the projected completion of the drummed transuranic waste and PUREX disposition programs and scopes of work included in the American Recovery and Reinvestment Act.

**Waste Isolation Pilot Plant (FY 2009 \$231.7; FY 2010 \$220.3) .....-\$11.4**

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 2010

request site upgrades to receive and handle TRUPACT III shipping containers. The decrease reflects completion of the drum characterization program at Savannah River site and efficiencies in Centralized Characterization Project waste characterization activities.

**Program Direction (FY 2009 \$309.8; FY 2010 \$355.0) ..... +\$45.2**

Request supports an increase of 169 FTEs as recommended by the National Academy of Public Administration. The federal workforce is 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 1,674 FTEs, 1,133 of which are located in field offices, 351 in Headquarters, and 190 FTEs are assigned to the EM Consolidated Business Center. 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.

**Program Support (FY 2009 \$33.9; FY 2010 \$34.0) ..... +\$0.1**

The FY 2010 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

**Safeguards and Security (FY 2009 \$260.3; FY 2010 \$279.4) ..... +\$19.1**

The FY 2010 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, West Valley, Paducah, Portsmouth, Hanford, and Savannah River sites. Increase for Portsmouth (+\$13.0) returns the site to funding after utilizing prior year balances in FY 2009. Increase for Oak Ridge (+\$5.4) is due to increase security operations, including protective force and Material Control and Accountability associated with decontamination and decommissioning operations to accelerate the East Tennessee Technology Park cleanup project. Increase at Richland (+\$3.0) reflects consolidation and relocation costs and capital improvements associated with footprint reduction. Decrease at Savannah River (-\$2.3) is due to the realization of efficiencies.

**Technology Development and Deployment (FY 2009 \$32.3; FY 2010 \$55.0) ..... +\$22.7**

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 supports applied research and technology development in areas such as tank waste, soil and groundwater remediation and deactivation and decommissioning.

**D&D Fund Deposit (FY 2009 \$463.0; FY 2010 \$463.0)..... +\$0.0**

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 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Non-Defense Environmental Cleanup</b>						
Fast flux test reactor facility (WA).....	10,248	10,755	—	7,652	-3,103	-28.9%
Gaseous diffusion plants.....	23,922	48,296	—	104,444	+56,148	+116.3%
Depleted uranium hexafluoride conversion, 02-U-101.....	28,386	33,000	—	—	-33,000	-100.0%
Small sites.....	69,342	100,164	404,880	67,347	-32,817	-32.8%
West Valley demonstration project.....	64,900	65,500	73,875	58,074	-7,426	-11.3%
Non-Defense program direction.....	—	—	2,415	—	—	—
Non-Defense unallocated.....	—	—	1,830	—	—	—
<b>Subtotal, Non-defense environmental cleanup.....</b>	<b>196,798</b>	<b>257,715</b>	<b>483,000</b>	<b>237,517</b>	<b>-20,198</b>	<b>-7.8%</b>
Use of prior year balances.....	-14,535	-653	—	—	+653	+100.0%
Congressionally directed projects.....	—	4,757	—	—	-4,757	-100.0%
<b>Total, Non-Defense Environmental Cleanup.....</b>	<b>182,263</b>	<b>261,819</b>	<b>483,000</b>	<b>237,517</b>	<b>-24,302</b>	<b>-9.3%</b>

### PROGRAM DESCRIPTION

The **FY 2010 request** for the **Non-Defense Environmental Cleanup** appropriation is **\$237.5 million**, a decrease of \$24.3 million from FY 2009. 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 2009 to FY 2010 Request (\$ in millions)

**West Valley Demonstration Project (FY 2009 \$65.5; FY 2010 \$58.1).....-\$7.4**

This project includes solid waste stabilization and disposition, and nuclear facility decontamination and decommissioning activities at West Valley, New York. The FY 2010 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 decrease reflects a scope of work included in the American Recovery and Reinvestment Act.

**Gaseous Diffusion Plants (FY 2009 \$81.3; FY 2010 \$104.4).....+\$23.1**

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 2009 \$45.3; FY 2010 \$49.2).....+\$3.9**

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 2010 request supports the Operational Readiness Review of the **Depleted Uranium Hexafluoride Conversion Facility** as well as continued management, maintenance, and storage of DUF6 cylinders awaiting conversion.

**Portsmouth (FY 2009 \$36.0; FY 2010 \$55.3)..... +\$19.3**  
 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 2010 request supports the completion of the Operational Readiness Review and training, qualification, and evaluation of facility staff and operators for the **Depleted Uranium Hexafluoride Conversion Facility** at Portsmouth, and continued management, maintenance, and storage of DUF6 cylinders awaiting conversion

**Fast Flux Test Reactor Facility (FY 2009 \$10.8; 2010 \$7.7) .....-\$3.1**  
 The FY 2010 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 2009 \$100.2; FY 2010 \$67.3) .....-\$32.9**  
 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**. The FY 2009 Omnibus Appropriations Act included transfers of \$10M, respectively, from the Office of Science and the National Nuclear Security Administration for work at Argonne National Laboratory.

**Argonne National Laboratory (FY 2009 \$9.5; FY 2010 \$0) .....-\$9.5**  
 Remediation complete.

**Brookhaven National Laboratory (FY 2009 \$8.4; FY 2010 \$12.6)..... +4.2**  
 The increase reflects additional work on the removal and disposal of the bioshield at the **Brookhaven Graphite Research Reactor** and remediation of contaminated soil at Building 96 Source Area and contaminated groundwater at the SR-90 plume .

**Idaho National Laboratory (FY 2009 \$13.5; FY 2010 \$5.0) .....-\$8.5**  
 The FY 2010 request reflects the completion of cleanup activities of excess radioactive contaminated facilities.

**Energy Technology Engineering Center (FY 2009 \$15.0 FY 2010 \$13.0) .....-\$2.0**  
 The FY 2010 request provides ongoing program and landlord support, site wide environmental monitoring, radiological groundwater characterization, and support to the Environmental protection Agency for Area IV radiological characterization study..

**Los Alamos National Laboratory (FY 2009 \$1.9; FY 2010 \$0) .....-\$1.9**  
 The FY 2010 request reflects a scope of work included in the American Recovery and Reinvestment Act.

**Moab Site (FY 2009 \$40.7; FY 2010 \$30.7) .....-\$10.0**



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 2010 activities include Moab and Crescent Junction operations and maintenance, continued monitoring and analysis of contaminated groundwater, and continued remediation of properties surrounding the tailings pile. Decrease reflects scope of work included in the American Recovery and Reinvestment Act.

**Stanford Linear Accelerator Center** (FY 2009 \$4.9; FY 2010 \$4.6).....-\$0.3  
This project scope includes remediation of chemical contamination of soil and groundwater resulting from decades of physics research at the site. FY 2010 activities include operation of groundwater treatment systems and soil remediation.

# Uranium Enrichment Decontamination and Decommissioning Fund

(discretionary dollars in thousands)

	FY 2008	FY 2009	FY 2009	FY 2010	FY 2010 vs. FY 2009	
	Current	Current	Additional	Congressional		
	Appropriation	Appropriation	Appropriation	Request	\$	%
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>						
Decontamination and decommissioning.....	602,344	525,503	315,200	559,377	+33,874	+6.4%
Uranium/thorium reimbursement.....	19,818	10,000	68,950	—	-10,000	-100.0%
UE D&D program direction.....	—	—	1,950	—	—	—
UE D&D unallocated.....	—	—	3,900	—	—	—
<b>Total, Uranium Enrichment D&amp;D Fund.....</b>	<b>622,162</b>	<b>535,503</b>	<b>390,000</b>	<b>559,377</b>	<b>+23,874</b>	<b>+4.5%</b>

## 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 2010** is **\$559.4 million**.

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

### **Decontamination and Decommissioning (FY 2009 \$535.5; FY 2010 \$559.4)..... +\$23.9**

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 2009 \$209.0; FY 2010 \$225.0)..... +\$16.0**

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 2010 request focuses on maintaining compliance with the ETTP safety basis requirements and continuing demolition of the **K-25 process building** including decontamination and decommissioning of 19 process-building units. The increase reflects additional funding for planned demolition activities.

### **Paducah (FY 2009 \$116.4; FY 2010 \$87.5)..... -\$28.9**

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 2010 request supports continued landfill operations, pump and treat operations, remediation of groundwater associated with building C-400, and completion of the remediation of the **surface**

**water operable units** and three soils facilities. Decrease reflects completion of DOE Material Storage Areas and completion of decontamination and decommissioning of inactive facilities.

**Portsmouth** (FY 2009 \$200.2; FY 2010 \$246.9) ..... +\$46.7  
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 2010 request supports continued disposal of low-level waste; cold shutdown activities, contract award and initiation of **gaseous diffusion plant decontamination and decommissioning**. Increase reflects the initiation of transition activities to decontamination and decommissioning and increased infrastructure costs.

**Uranium/Thorium Reimbursements (FY 2009 \$10.0; FY 2010 \$0)** ..... -\$10.0  
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 scope of work that was included in the American Recovery and Reinvestment Act.

## Civilian Radioactive Waste Management

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Office Of Civilian Radioactive Waste Management</b>						
Defense Nuclear Waste Disposal						
Defense nuclear waste disposal.....	199,171	143,000	—	98,400	-44,600	-31.2%
Nuclear Waste Disposal						
Repository program.....	119,054	68,552	—	28,400	-40,152	-58.6%
Program direction.....	68,215	74,983	—	70,000	-4,983	-6.6%
Congressionally directed projects.....	—	1,855	—	—	-1,855	-100.0%
Total, Nuclear Waste Disposal.....	187,269	145,390	—	98,400	-46,990	-32.3%
<b>Total, Civilian Radioactive Waste Management.....</b>	<b>386,440</b>	<b>288,390</b>	<b>—</b>	<b>196,800</b>	<b>-91,590</b>	<b>-31.8%</b>

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 carrying out the Nuclear Waste Policy Act of 1982, as amended, are requested within the Nuclear Waste Fund and Defense Nuclear Waste Disposal accounts.

### PROGRAM DESCRIPTION

The **Civilian Radioactive Waste Management** (OCRWM) 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 disposal strategies that protect public health and safety in ways that are both environmentally and economically viable. The **FY 2010 budget request of \$196.8 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, 2008, there is a total of approximately \$29.1 billion in fees and interest collected in the Nuclear Waste Fund, of which approximately \$7.1 billion has been disbursed for a balance of approximately \$22.0 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 OCRWM FY 2010 budget request is dedicated solely to supporting to the Nuclear Regulatory Commission (NRC) license application (LA) process at the minimum level

practicable. Prior year activities that supported both the LA and other OCRWM activities have been scaled back to include only those elements specific to support of LA and are, therefore, no longer included as distinct budget elements. The Program Direction budget has been restructured to support only LA activities. Finally, Project Support activities are limited to those required by law, regulation, or order for the operation of a federal program or essential to a full and fair license process.

All funding for development of the Yucca Mountain facility has been eliminated, such as further land acquisition, transportation access, and additional engineering. The budget request includes the minimal funding needed to explore alternatives for nuclear waste disposal through OCRWM and to continue participation in the Nuclear Regulatory Commission (NRC) license application (LA) process, consistent with the provisions of the Nuclear Waste Policy Act. The Administration intends to convene a “blue-ribbon” panel of experts to evaluate alternative approaches for meeting the federal responsibility to manage and ultimately dispose of spent nuclear fuel and high-level radioactive waste from both commercial and defense activities. The panel will provide the opportunity for a meaningful dialogue on how best to address this challenging issue and will provide recommendations that will form the basis for working with Congress to revise the statutory framework for managing and disposing of spent nuclear fuel and high-level radioactive waste.

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

**Repository Project (FY 2009 \$180.3; FY 2010 \$116.1).....-\$64.2**

In FY 2010, DOE will scale back all activities associated with the Repository Project to the minimum level needed to support the Nuclear Regulatory Commission (NRC) licensing process. This NRC licensing proceeding will require significant DOE effort to respond to potentially multiple rounds of highly technical, detailed NRC RAIs; provide technical, scientific, and legal support for court challenges; and maintain and update the LA and supporting documents as issues resulting from contentions are resolved and RAIs are responded to. Additionally, the Atomic Safety and Licensing Board (ASLB) will continue the LA hearing process; which will also require significant DOE effort to provide technical, scientific, licensing, and legal support for the NRC hearing process.

**Transportation (FY 2009 \$2.1; FY 2010 \$0.0) ..... -\$2.1**

In accordance with the Administration’s policy guidance to scale back in FY 2010 activities associated with the Repository Program to the minimum level needed to support the NRC licensing process, the program will suspend all transportation system development this fiscal year. Activities mandated by the Nuclear Waste Policy Act Section 180(c) will be archived until planning for emergency preparedness training and technical assistance to States and tribes is funded again in the future. Collaboration with States, Tribes and industry stakeholders on transportation planning will be suspended this fiscal year.

**Program Management and Integration (FY 2009 \$26.2; FY 2010 \$10.7) .....-\$15.5**

FY 2010 funding under Program Management and Integration is reduced to the minimum level needed to support the NRC licensing process. Specific reductions include Program Management and Control activities (-\$4.4), Waste Acceptance (-\$4.0), Quality Assurance (-\$3.0), Safeguards and Security (-\$2.0), as well as all work under the International Program element (-\$2.0). Many of the functions previously conducted by contractor staff will now be absorbed into the work by federal staff.

**Program Direction (FY 2009 \$74.9; FY 2010 \$70.0) .....-\$4.9**

FY 2010 funding under Program Direction is reduced to the minimum level needed to support the NRC licensing process. The majority of the decrease is from a reduction in support services contractor support (-\$4.8). Many of the functions previously conducted by contractor staff will now be absorbed into the work by federal staff.



# Legacy Management

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Office Of Legacy Management</b>						
Legacy Management						
Legacy management.....	33,872	—	—	—	—	—
Other Defense Activities						
Legacy management.....	144,060	174,397	—	177,618	+3,221	+1.8%
Program direction.....	10,901	11,584	—	12,184	+600	+5.2%
<b>Total, Other Defense Activities.....</b>	<b>154,961</b>	<b>185,981</b>	<b>—</b>	<b>189,802</b>	<b>+3,821</b>	<b>+2.1%</b>
<b>Total, Office Of Legacy Management.....</b>	<b>188,833</b>	<b>185,981</b>	<b>—</b>	<b>189,802</b>	<b>+3,821</b>	<b>+2.1%</b>

## 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.

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 2010** budget **request of \$189.8 million** supports these activities.

## PROGRAM HIGHLIGHTS

The FY 2010 request provides \$189.8 million to carry out all legacy management functions. In FY 2010, post closure responsibility for long-term stewardship activities at more than 80 sites and pension and benefit claims for former contractor employees at 6 sites, including the Rocky Flats, Colorado, and the Fernald, Ohio, closure sites, are funded within the LM budget.

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

### Other Defense Activities

**Legacy Management (FY 2009 \$174.4; FY 2010 \$177.6) ..... +\$3.2**

The increased funding reflects the consolidation of records during FY 2010 from various locations to a central storage facility -- the LM Business Center, in Morgantown, WV -- and higher costs associated with funding pensions and benefits for former contractor employees at Fernald, Pinellas, Rocky Flats, and other sites.

**Program Direction (FY 2009 \$11.6; FY 2010 \$12.2) ..... +\$0.6**

No significant change. Legacy Management continues to administer its programs consistent with its delegation as a High Performing Organization.

## Innovative Technology Loan Guarantee Program

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
					<b>Innovative Technology Loan Guarantee Program</b>	
Administrative operations.....	5,459	19,880	—	26,000	+6,120	+30.8%
Loan guarantee, offsetting collections.....	-1,000	-19,880	—	-26,000	-6,120	-30.8%
Direct loan subsidy costs.....	—	—	—	—	—	—
<b>Total, Innovative Technology Loan Guarantee.....</b>	<b>4,459</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>Section 1705 Temporary Loan Guarantee Program</b>						
Loan Guarantee subsidy costs.....	—	—	5,965,000	—	—	—
Administrative operations.....	—	—	25,000	17,000	+17,000	N/A
Administrative operations offsetting collections.....	—	—	—	-17,000	-17,000	N/A
<b>Total, Section 1705 Temporary Loan Guarantee Program.....</b>	<b>—</b>	<b>—</b>	<b>5,990,000</b>	<b>—</b>	<b>—</b>	<b>—</b>

The **Loan Guarantee Program Office (LGPO)** 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.

Section 406 of the American Recovery and Reinvestment Act of 2009, P.L.111-5 (Recovery Act), amended the LGPO's authorizing legislation, by establishing Section 1705 which is a temporary program for the rapid deployment of renewable energy and electric power transmission projects. Section 1705 provides \$6 billion in appropriated credit subsidy which will allow the Secretary to make loan guarantees for the following categories of projects that commence construction not later than September 30, 2011:

- Renewable energy systems including incremental hydropower, that generate electricity or thermal energy, and facilities that manufacture related components.
- Electric power transmission systems, including upgrading and reconductoring projects.
- Leading edge biofuel projects that will use technologies performing at the pilot or demonstration scale that the Secretary determines are likely to become commercial technologies and will produce transportation fuels that substantially reduce life-cycle greenhouse gas emissions compared to other transportation fuels. Funding for these projects shall not exceed \$500,000,000.

### *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**

The DOE Title XVII Loan Guarantee Program has issued five competitive solicitations and is evaluating the applications received in the following solicited sectors:

- The 2006 mixed technologies solicitation closed in November 2008. The LGPO is evaluating 11 projects for \$4.0 billion in loan authority.
- The front-end nuclear power facilities solicitation closed in December 2008. The LGPO is evaluating two proposals for \$2 billion in loan authority.
- The nuclear power facilities solicitation also closed in December 2008 and the LGPO is evaluating 15 proposals for \$18.5 billion in loan guarantee authority.
- The fossil energy advanced technologies solicitation Part II applications were due March 2009 and the LGPO is evaluating five projects for \$8 billion in loan guarantee authority.
- The advanced renewables solicitation closed in February 2009 and is evaluating 33 projects for \$18.5B in loan guarantee authority. The application submission deadline for large scale renewable projects will close in April 2009.

In March 2009, the Department announced that it offered its first conditional commitment for a loan guarantee to a solar power materials production company which applied under the 2006 mixed technologies solicitation.

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. Commitments to guarantee loans under Title XVII of the Energy Policy Act of 2005, will total \$99.6 billion. Of the total provided, up to \$51.0 billion will be available to support eligible projects under Section 1703; and the \$6 billion appropriated for Section 1705 subsidy costs will support \$48.6 billion in eligible projects under Section 1705 of the Recovery Act. DOE is not seeking additional appropriations for credit subsidy costs in FY 2010.

The Department requests \$43.0 million in funding in FY 2010 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 2009 to 2010 Request (\$ in millions)**

<b>Loan Guarantee Program Office (FY 2009 \$0; FY 2010 \$0)</b> .....	<b>\$0</b>
<b>Administrative Operations (FY 2009 \$19.9; FY 2010 \$43)</b> .....	<b>+\$23.1</b>
Increase in administrative operations supports an additional 49 FTEs from 35 FTEs in FY 2009 to 84 FTEs in FY 2010 to adequately staff the office to perform required tasking that is necessary to support \$99.6 billion in loan guarantee authority provided including administering the Section 1705 Temporary Loan Guarantee Program.	
<b>Offsetting Collections (FY 2009 -\$19.9; FY 2010 -\$43.0)</b> .....	<b>-\$23.1</b>

# Advanced Technology Vehicle Manufacturing Loan Program

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Advanced Technology Vehicles Manufacturing Loan Program</b>						
Direct loan subsidy costs.....	—	7,500,000	—	—	-7,500,000	-100.0%
Administrative expenses.....	—	10,000	10,000	20,000	+10,000	+100.0%
<b>Total, Advanced Technology Vehicles Manufacturing Loan Program.....</b>	<b>—</b>	<b>7,510,000</b>	<b>10,000</b>	<b>20,000</b>	<b>-7,490,000</b>	<b>-99.7%</b>

## PROGRAM DESCRIPTION

Section 136 of the Energy Independence and Security Act of 2007 establishes an incentive program consisting of both grants and direct loans to support the development of advanced technology vehicles and associated components in the United States. The Department of Energy (DOE) is charged with administering the section 136 program, known as the Advanced Technology Vehicles Manufacturing Loan Program (ATVM).

Under section 136, the ATVM Loan Program provides loans to automobile and automobile part manufacturers for the cost of re-equipping, expanding, or establishing manufacturing facilities in the United States to produce advanced technology vehicles or qualified components, and for associated engineering integration costs.

The FY 2009 Continuing Resolution (CR) enacted on September 30, 2008, appropriated \$7.5 billion to support a maximum of \$25 billion in loans under the ATVM. Also, the CR provided DOE \$10 million to administer the program. Section 406 of the American Recovery and Reinvestment Act of 2009 (PL 111-5) provided an additional \$10 million in FY 2009 to administer the program.

As required by the Federal Credit Reform Act of 1990, this account records, for this program, the subsidy costs associated with the loan guarantees committed in 1992 and beyond (including modifications of direct loans or loan guarantees that resulted from obligations or commitments in any year), as well as administrative expenses of this program. The subsidy amounts are estimated on a present value basis; the administrative expenses are estimated on a cash basis.

The ATVM Loan Program will support the President's goal to create new green jobs in the automotive and component manufacturing industries and will help ensure that new advanced technology vehicles meet a higher standard (125% of the base year<sup>1</sup> CAFE fuel efficiency standards) than similarly classed conventional technology vehicles.

## PROGRAM HIGHLIGHTS

DOE issued an interim final rule to establish regulations necessary to implement the loan and grant programs authorized by section 136. Additionally, concurrent with the issuance of that interim final rule, the Department began to consider and evaluate substantially complete applications for loans under the ATVM Loan Program as and when they are submitted during

<sup>1</sup> The interim final rule for the program, promulgated on November 12<sup>th</sup>, 2008, set the base year for this requirement as the model year 2005. The final rule has not yet been promulgated.

a first tranche period, which closed on December 31, 2008. Originally, under the interim final rule, subsequent tranche periods were established to close on the last day of each calendar year quarter (i.e., March 31, 2009; June 30, 2009, etc.) For applications submitted during those subsequent periods, no final decisions would be made with respect to such applications until after the close of the particular tranche period. Following the close of the first tranche, however, the Secretary of Energy made a decision to alter this requirement to allow evaluations to proceed on a rolling basis to expedite the loan process. DOE may make decisions on any substantially complete application and close loans with respect to such applications at any time, based on its date of substantial completion.

The Department requests \$20.0 million in funding in fiscal year 2010 to operate the office and support personnel and associated costs. To ensure that the Department meets statutory requirements and implements effective management and oversight of its loan guarantee activities, program funding also will support the procurement of outside expertise in areas such as finance, project engineering, and commercial market assessment. DOE is not seeking additional appropriations for credit subsidy costs in FY 2010.

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

**Advanced Technology Vehicle Manufacturing Loan Program  
(FY 2009 \$7,520.0; FY 2010 \$20.0).....-\$7,500.00**

**Direct Loan Subsidy Costs .....-\$7,500.00**

The program is not seeking additional appropriations for direct loan subsidy costs in FY 2010.

## Nuclear Energy

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Office Of Nuclear Energy</b>						
Nuclear Energy						
Research and development.....	257,171	515,000	—	403,000	-112,000	-21.7%
Fuel cycle research and facilities.....	456,806	—	—	—	—	—
Infrastructure						
Radiological facility management.....	48,119	66,146	—	77,000	+10,854	+16.4%
Idaho facilities management						
INL infrastructure.....	115,935	140,000	—	203,402	+63,402	+45.3%
Idaho sitewide safeguards and security.....	75,261	78,811	—	83,358	+4,547	+5.8%
Total, Infrastructure.....	239,315	284,957	—	363,760	+78,803	+27.7%
Program direction.....	80,872	73,000	—	77,872	+4,872	+6.7%
Transfer from state department.....	2,000	—	—	—	—	—
Congressional directed projects.....	—	2,854	—	—	-2,854	-100.0%
Subtotal, Nuclear Energy.....	1,036,164	875,811	—	844,632	-31,179	-3.6%
Use of prior year balances and other adjustments.....	—	-5,000	—	—	+5,000	+100.0%
Funding from other defense activities.....	-75,261	-78,811	—	-83,358	-4,547	-5.8%
Total, Nuclear Energy.....	960,903	792,000	—	761,274	-30,726	-3.9%
Other Defense Activities						
Infrastructure.....	75,261	78,811	—	83,358	+4,547	+5.8%
Mixed oxide fuel fabrication facility.....	—	487,008	—	—	-487,008	-100.0%
Subtotal, Other Defense Activities.....	75,261	565,819	—	83,358	-482,461	-85.3%
Less security charge for reimbursable work (NE).....	-3,003	—	—	—	—	—
Total, Other Defense Activities.....	72,258	565,819	—	83,358	-482,461	-85.3%
<b>Total, Nuclear Energy.....</b>	<b>1,033,161</b>	<b>1,357,819</b>	<b>—</b>	<b>844,632</b>	<b>-513,187</b>	<b>-37.8%</b>

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 Idaho Safeguards and Security is requested within Other Defense Activities. Within the two accounts, DOE is **requesting** a total of **\$844.632 million** for NE activities in **FY 2010**.

### PROGRAM DESCRIPTION

NE conducts research and development on nuclear energy generation, security, materials, systems, safety, and waste management technologies and tools, and operates and maintains nuclear infrastructure in a safe and compliant manner to support achievement of national energy, climate, and non-proliferation goals. A key mission of DOE's nuclear energy research and development program is to plan and conduct applied research in advanced reactor and fuel and waste management technologies. The aim of these efforts is to enable nuclear energy to be used as a safe, advanced, cost-effective source of reliable energy that will help address climate change by reducing greenhouse gas emissions.

Through the **Fuel Cycle Research and Development program** DOE conducts research on advanced, proliferation-resistant nuclear fuel cycle and waste management technologies that can minimize wastes and will support the development of technical options to the Nation's current fuel cycle and waste management strategies. The **Nuclear Power 2010** program partnered with industry to support technology development and licensing demonstration activities and is being brought to closure in FY 2010. The **Generation IV Nuclear Energy Systems program** support research and development of advanced reactor systems that could provide improved economic performance, safety, and proliferation-resistance.

## PROGRAM HIGHLIGHTS

The FY 2010 request supports innovative applications of nuclear technology to develop new nuclear technologies, advanced proliferation-resistant nuclear fuel and waste management technologies and maintains national nuclear capabilities to meet future challenges.

The **Nuclear Power 2010** program is requesting \$20.0 million in FY 2010 to complete support of industry interactions with NRC on the NuStart COL application project including meetings with the Advisory Committee on Reactor Safety, issuance of Final Safety Evaluation Reports and Final Environmental Impact Statements, and initiation of hearings by the Atomic Safety Licensing Board. By the end of FY 2010, component vendors and other private sector partners will have adequate incentive to complete additional work without further Federal funding.

The **Generation IV Nuclear Energy Systems program** (Gen IV) program is requesting \$191 million for a broad range of research activities conducted in support of the solving the underlying technology challenges (fuels, materials, and neutronic and thermofluids modeling) of advanced reactor technologies. This program will also pursue a competitively-awarded Energy Innovation Hub. The Modeling and Simulation hub will focus on providing validated advanced modeling and simulation tools necessary to enable fundamental change in how the U.S. designs nuclear power and fuel cycle technologies. This has the potential to improve the performance and reduce the costs of nuclear technologies.

The **Fuel Cycle R&D program** is requesting \$192 million in FY 2010 for long-term, science-based research and development of technologies that can help address waste management concerns, reduce high level waste, and safely manage and dispose of long-lived, highly radiotoxic elements. These efforts could enable beneficial changes to the way in which nuclear fuel and waste is managed. This program will also pursue a competitively-awarded Energy Innovation Hub. The Extreme Materials Research hub will further the fundamental knowledge of the behavior of materials under extreme conditions, including high radiation fields, high temperatures, and corrosive environments over long periods of time, relevant to nuclear energy applications. This work will directly support the development of novel fuels, waste forms, and structural materials.

The **Radiological Facilities Management** program is requesting \$77 million to maintain important DOE nuclear technology facilities in a safe, secure, environmentally compliant and cost-effective manner. This includes \$30 million to begin reestablishing domestic capability for use in radioisotope power systems for National Aeronautics and Space Administration missions and national security applications. These agencies use Pu-238-based power systems where other power sources, such as batteries, fuel cells, and solar technologies, are not economical or technologically viable.

The **Idaho Facilities Management** program requests \$203 million to support Idaho National Laboratory (INL) site-wide infrastructure used to ensure the Department's nuclear energy research and development facilities are maintained and operated to support national priorities. Key activities conducted under this program include ensuring that all NE facilities meet essential safety and environmental requirements, managing all special nuclear materials contained in these facilities, and disposing of DOE materials under NE ownership.

The **Idaho Site-Wide Safeguards and Security** program (\$83.4 million) 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** (\$77.9 million) 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 2009 to 2010 Request (\$ in millions)*

**Nuclear Power 2010 (FY 2009 \$177.5; FY 2010 \$20.0) .....-\$157.5**

Decrease reflects close out of the shared cost program with the reactor vendors- Westinghouse and GEH - and the Dominion COL application project in FY 2010. The cooperative agreements set up in the NP 2010 program have developed satisfactory equity and momentum in the design and certification of the Gen III+ reactors such that the vendors are well positioned to complete these activities as a fully private venture. In addition, uncertainty pertaining to the direction of the Dominion project has lead to cessation of funding under the NP 2010 program for the Dominion COL application.

**Generation IV Nuclear Energy Systems**

**(FY 2009 \$180.0; FY 2010 \$191.0).....+\$11.0**

Increase reflects a general shift in priorities toward R&D activities focused on long-term technology advances within various Gen IV reactor designs under development. Increase also includes initiation of the Energy Innovation Hub for Modeling and Simulation.

**Fuel Cycle R&D (FY 2009 \$145.0; FY 2010 \$192.0).....+\$47.0**

Increase reflects shift toward longer-term, science-based transformational R&D focused on waste storage and disposal options. Transmutation R&D activities associated with reactor design and enabling technology development and modeling and simulation activities were shifted into the Gen IV program. Also includes initiation of the Energy Innovation Hub for Extreme Materials Research.

**Radiological Facilities Management (FY 2009 \$35.0; FY 2010 \$77.0).....+\$42.0**

Increase reflects the initial funding for reestablishment of Pu-238 production capability and also includes a new full-cost recovery space charge at LANL. The Pu-238 project is expected to be implemented over a 7 year period, ultimately providing a national production capability of 5kg of Pu-238 per year to support space exploration and national security applications.

**Idaho Facilities Management (FY 2009 \$140.0; FY 2010 \$203.4).....+63.4**

Increase reflects additional work related to the Advanced Test Reactor as well as operational improvements at the Materials and Fuels Complex. Additional funds are provided for the Idaho Facilities and Infrastructure Recapitalization program to address deferred maintenance backlogs. FY 2010 funding also reflects an overall decrease in INL regulatory compliance activities and the transfer of the Radiological and Environmental Sciences Laboratory to Program Direction.

**Idaho Sitewide Safeguards and Security (FY 2009 \$78.8; FY 2010 \$83.3).....+\$4.8**

Increase reflects escalation associated with the contract negotiated with protective force personnel, 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.

## Fossil Energy

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Fossil Energy Programs</b>						
Fossil Energy Research and Development	727,181	876,320	3,400,000	617,565	-258,755	-29.5%
Clean Coal Technology	-58,000	—	—	—	—	—
Naval Petroleum & Oil Shale Reserves	20,272	19,099	—	23,627	+4,528	+23.7%
Strategic Petroleum Reserve	186,757	205,000	—	229,073	+24,073	+11.7%
Northeast Home Heating Oil Reserve	12,335	9,800	—	11,300	+1,500	+15.3%
<b>Total, Fossil Energy Programs</b>	<b>888,545</b>	<b>1,110,219</b>	<b>3,400,000</b>	<b>881,565</b>	<b>-228,654</b>	<b>-20.6%</b>

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 a separate appropriation account.

### PROGRAM DESCRIPTION

#### *Fossil Research and Development*

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Fossil Energy Research and Development</b>						
Coal.....	479,871	692,410	3,390,000	403,865	-288,545	-41.7%
Natural gas technologies.....	19,270	20,000	—	25,000	+5,000	+25.0%
Petroleum - Oil technologies.....	4,817	5,000	—	—	-5,000	-100.0%
Program direction.....	148,597	152,000	10,000	158,000	+6,000	+3.9%
Plant and capital equipment.....	12,882	18,000	—	20,000	+2,000	+11.1%
Fossil energy environmental restoration.....	9,483	9,700	—	10,000	+300	+3.1%
Special recruitment programs.....	650	656	—	700	+44	+6.7%
Cooperative research and development.....	4,817	5,000	—	—	-5,000	-100.0%
Congressionally directed projects.....	46,794	43,864	—	—	-43,864	-100.0%
Use of prior year balances and other adjustments.....	—	-70,310	—	—	+70,310	+100.0%
<b>Total, Fossil Energy Research and Development.....</b>	<b>727,181</b>	<b>876,320</b>	<b>3,400,000</b>	<b>617,565</b>	<b>-258,755</b>	<b>-29.5%</b>

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 technologies to reduce emissions from coal-fueled electricity generation plants to achieve near-zero atmospheric emissions power production, with specific focus on dramatic reductions of carbon emissions at acceptable cost.

**The Clean Coal Power Initiative (CCPI)** is a cooperative, cost-shared program between the government and industry that 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. CCPI demonstrates technologies that have successfully been developed at smaller scale through the R&D activities within FER&D.

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<sub>2</sub>) and significantly improve efficiency, which would also reduce CO<sub>2</sub> emissions.

The **Innovations for Existing Plants (IEP)** activity supports the economic post-combustion capture, separation, and compression of CO<sub>2</sub> from coal-fired utility boilers or other low concentration CO<sub>2</sub> streams.

The **Integrated Gasification Combined Cycle (IGCC)** activity develops advanced gasification-based technologies to reduce the cost of coal-based IGCC plants and improve efficiency, thus improving market acceptance. IGCC technology can be more easily adapted for carbon capture and storage (CCS) than are PC plants. Consequently, IGCC technologies will be an integral part of CCS demonstration projects.

The **Advanced Turbines** develops hydrogen turbines that will operate at higher efficiency and ultra-low NO<sub>x</sub> (2 ppm or less) when using coal-derived hydrogen fuels from IGCCs coupled with CCS.

The **Carbon Sequestration** activity develops economical ways to separate and permanently store CO<sub>2</sub> emissions from the combustion of fossil fuels. The program will help reduce the cost of CCS for existing and future fossil fuel power generating facilities and provide protocols to capture, transport, store, and monitor CO<sub>2</sub> injected in geologic formations.

The **Fuels** activity focuses on developing technologies to produce ultra-pure hydrogen derived from coal for both stationary and mobile applications.

The **Fuel Cells** activity develops low cost, highly efficient, fuel cell systems to generate 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 megawatt scale distributed power applications.

Serving as a bridge between basic and applied research, **Advanced Research** projects foster the development of innovative systems which improve efficiency and environmental performance while reducing the costs of advanced coal-based systems. The projects include applied research 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.

The Recovery Act provides funds for **Fossil Energy Research and Development**, focused on Carbon Capture and Storage (CCS). Specific programs funded by the Recovery Act include: Fossil Energy Research and Development; the Clean Coal Power Initiative Round III; Industrial Carbon Capture and Storage Applications; Geologic Site Characterizations; and Geologic Sequestration Research and Training.

The **Natural Gas Technologies** R&D program develops policy information and environmentally friendly technologies for gas hydrates, a potentially huge new source of natural gas that can provide a clean-burning bridge to a renewable energy future.

The **Petroleum – Oil Technology** R&D program is being terminated in FY 2010.

#### *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. The FY 2010 budget proposes to repeal the program through a legislative proposal.



### Strategic Petroleum Reserve

	(discretionary dollars in thousands)					
	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Strategic Petroleum Reserve</b>						
SPR - Facilities development.....	186,757	205,000	—	229,073	+24,073	+11.7%
Use of prior year balances and other adjustments.....	—	—	—	—	—	—
<b>Total, Strategic Petroleum Reserve.....</b>	<b>186,757</b>	<b>205,000</b>	<b>—</b>	<b>229,073</b>	<b>+24,073</b>	<b>+11.7%</b>

The **Strategic Petroleum Reserve (SPR)** provides strategic and economic security against disruptions in oil supplies via an emergency stockpile of crude oil. The program also helps fulfill U. S. commitments to the International Energy Agency, which include coordinated energy emergency response plans and deterrence against intentional energy supply disruptions. To provide further insurance against oil supply disruptions that could harm the U.S. economy, the FY 2010 budget proposes a SPR program that is environmentally responsible and fully responsive to the needs of the Nation and the public. One initiative in FY 2010 proposes to replace an existing storage cavern at one SPR site due to environmental risk. FY 2010 budget continues vapor pressure mitigation activities to ensure the availability of crude oil inventories at SPR sites within environmental and safety constraints.

### Northeast Home Heating Oil Reserve

	(discretionary dollars in thousands)					
	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Northeast Home Heating Oil Reserve</b>						
Northeast Home heating oil reserve.....	12,335	9,800	—	11,300	+1,500	+15.3%

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 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Naval Petroleum &amp; Oil Shale Reserves</b>						
Production operations.....	20,272	19,099	—	14,166	-4,933	-25.8%
Management.....	—	—	—	9,461	+9,461	N/A
<b>Total, Naval Petroleum &amp; Oil Shale Reserves.....</b>	<b>20,272</b>	<b>19,099</b>	<b>—</b>	<b>23,627</b>	<b>+4,528</b>	<b>+23.7%</b>

The Naval Petroleum and Oil Shale Reserve (NPOSR) mission is to complete environmental remediation activities and determine the equity finalization of NPR-1, to operate NPR-3 until its economic limit is reached, maintain the Rocky Mountain Oil Field Test Center (RMOTC) as a field demonstration facility, , and identify and analyze options for RMOTC becoming a fully self-sustaining user 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 that 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*

Coal activities include research, development and demonstration of technologies that will improve the competitiveness of domestic coal in future energy supply markets by transforming, through technologies that capture and store CO<sub>2</sub>, this abundant and low-cost domestic resource into a low- CO<sub>2</sub> emission energy option. The administration strongly supports coal as an important part of our energy portfolio.

In FY 2010 and through the Recovery Act, the Coal program continues aggressive funding for carbon capture and storage (CCS) activities, including large-scale demonstration of injection and storage of CO<sub>2</sub> in geologic formations through the Regional Carbon Sequestration Partnerships and large-scale demonstration of carbon capture technologies through the Clean Coal Power Initiative and Industrial CCS activity.

### *Strategic Petroleum Reserve*

The FY 2010 budget request maintains the operational readiness of the SPR to ensure a 4.4 MMB/Day drawdown rate. The SPR program is environmentally responsible and fully responsive to the needs of the Nation and the public, FY 2010 budget includes one-time funds for the replacement a Bayou Choctaw storage cavern that presents a major environmental risk with continued use with an existing commercial cavern.

### *Northeast Home Heating Oil Reserve*

The FY 2010 budget request continues operation of the Reserve, including lease of commercial storage space, and proposes purchase of the remaining barrels of heating oil that were sold in FY 2007 to fund the commercial storage contracts.

### *Naval Petroleum and Oil Shale Reserves*

In FY 2010, 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 2010 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, initiates close-out processes for NPR-3, and transitions RMOTC to a self-sustaining user facility.

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

### *Fossil Energy Research and Development*

<b>Coal (FY 2009 \$692.4; FY 2010 \$403.9)</b> .....	<b>-\$288.5</b>
The 2010 Budget maintains the 2009 funding level for R&D, but does not provide any demonstration funds. The Recovery Act provided \$3.4 billion for CCS, about 5 times the 2009 level. DOE will make dramatic progress in demonstrating CCS at commercial scale using these funds without the need for additional resources for demonstration in 2010.	
<b>Clean Coal Power Initiative (FY 2009 \$288.2; FY 2010 \$0)</b> .....	<b>-\$288.2</b>
CCPI will expand and extend the Round 3 solicitation using \$800 million in Recovery Act funding and continue to evaluate proposals for advanced technology systems that capture CO <sub>2</sub> for sequestration or beneficial reuse.	
<b>Innovations for Existing Plants (FY 2009 \$50.0; FY 2010 \$41.0)</b> .....	<b>-\$9.0</b>
Funding will focus on carbon capture technologies for post-combustion applications.	
<b>Integrated Gasification Combined Cycle (FY 2009 \$65.2; FY 2010 \$55.0)</b> .....	<b>-\$10.2</b>
The decrease in funding is due to a delay in implementation of Phase IV of the Ion Transport Membrane (ITM) program for the design and construction of the automated membrane manufacturing facility to support the 2,000-ton/day ITM air separation unit and extension of the schedule for the 50 MWe high temperature desulfurization unit. Additional time is needed to achieve cost-effective progress on these activities	
<b>Advanced Turbines (FY 2009 \$28.0; FY 2010 \$31.0)</b> .....	<b>+\$3.0</b>
The increase supports hydrogen turbine development for low CO <sub>2</sub> emission coal plants, including refinement of combustor designs for ultra low NO <sub>x</sub> emissions and the development and testing of the turbine expander section of the machine to reduce leakage, improve efficiency, increase power output, and ultimately reduce the cost of power from IGCC/CCS systems.	
<b>Carbon Sequestration (FY 2009 \$150.0; FY 2010 \$179.9)</b> .....	<b>+\$29.9</b>
The increase supports site selection and characterization, regulatory permits, community outreach, and injection for large-scale, geologic carbon storage tests under the Regional Partnership Program. The additional funding supports the exploration of innovative CO <sub>2</sub> capture technologies needed to significantly lower the cost of CCS, and initiates efforts to augment the monitoring, mitigation, and verification which are being conducted in the Phase III tests.	
<b>Fuels (FY 2009 \$25.0; FY 2010 \$15.0)</b> .....	<b>-\$10.0</b>
The decrease reflects focusing efforts on early engineering and design studies on hydrogen production modules for near-zero emission coal plants.	
<b>Fuel Cells (FY 2009 \$58.0; FY 2010 \$54.0)</b> .....	<b>-\$4.0</b>
The decrease reflects a right-sizing in the levels of effort of some activities. Solid State Energy Conversion Alliance (SECA) Teams will continue to develop systems to support delivery of \$400/kW (2000\$) fuel cell systems, and scale them up for MW scale deployment.	
<b>Program Direction (FY 2009 \$152.0; FY 2010 \$158.0)</b> .....	<b>+\$6.0</b>
The increase reflects the following: projected Cost-of-Living Adjustments and anticipated increases in benefits, promotions, and within grade increases; an increase in travel activities; additional costs for Working Capital Fund activities; and increased contractual costs.	
<b>Plant and Capital Equipment (FY 2009 \$18.0; FY 2010 \$20.0)</b> .....	<b>+\$2.0</b>
Increased funding will be applied to [no evidence whether the projects have been prioritized] projects to reduce environmental, safety, health risks and liabilities posed by aging infrastructure.	
<b>Cooperative Research and Development (FY 2009 \$5.0; FY 2010 \$0.0)</b> .....	<b>-\$5.0</b>

In FY 2010, the Department anticipates that these centers would compete successfully for Fossil Energy funding through the competitive solicitation process.

**Congressionally Directed Projects (FY 2009 \$43.9; FY 2010 \$0.0) ..... -\$43.9**  
No Congressionally Directed Projects were requested for the FY 2010 Budget.

*Strategic Petroleum Reserve*

**Strategic Petroleum Reserve (FY 2009 \$205.0; FY 2010 \$229.1) ..... +\$24.1**  
The increase reflects the purchase of a commercial storage cavern to replace an existing SPR cavern due to environmental risk offset by no new funding being requested in FY 2010 for expansion.

*Naval Petroleum Reserve*

**Naval Petroleum and Oil Shale Reserves (FY 2009 \$19.1; FY 2010 \$23.6) ..... +\$4.5**  
The increase is for the start of environmental remediation at the Elk Hills site (NPR-1), initiation of close-out activities at NPR-3, and transition of RMOTC to a self-supporting user facility.

*Northeast Home Heating Oil Reserve*

**Northeast Home Heating Oil Reserve (FY 2009 \$9.8; FY 2010 \$11.3) ..... +\$1.5**  
The increase reflects the FY 2010 repurchase of the remaining barrels of heating oil sold during FY 2007 to finance the new storage contracts.

# National Nuclear Security Administration

(discretionary dollars in thousands)

	FY 2008 Current Approp.	FY 2009 Current Approp.	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
				\$	%
<b>National Nuclear Security Administration</b>					
Weapons.....	6,302,366	6,380,000	6,384,431	4,431	0.1%
Defense Nuclear Nonproliferation.....	1,334,922	1,482,350	2,136,709	654,359	44.1%
Naval Reactors.....	774,686	828,054	1,003,133	175,079	21.1%
Office of the Administrator.....	402,137	439,190	420,754	-18,436	-4.2%
<b>Total, National Nuclear Security Administration.....</b>	<b>8,814,111</b>	<b>9,129,594</b>	<b>9,945,027</b>	<b>815,433</b>	<b>8.9%</b>

## PROGRAM DESCRIPTION

The **National Nuclear Security Administration (NNSA)** was created by the Congress in 2000 to focus the management of the nation's nuclear defense through a single, separately organized and managed agency within the DOE. **NNSA** supports U.S. national security and global threat reduction in the following key focus areas: maintaining the nuclear deterrent; addressing nonproliferation priorities through innovative programs in the Former Soviet Union and other countries, and securing radiological materials worldwide; supporting naval nuclear propulsion requirements for the U. S. Navy; providing nuclear counter-terrorism and emergency response assets and capabilities in support of homeland security; maintaining comprehensive security for facilities, employees and information; reducing the legacy deferred maintenance backlog for mission critical facilities; and, providing corporate management and oversight for NNSA programs and operations.

## PROGRAM HIGHLIGHTS

**NNSA** is requesting a total of **\$9.9 billion** in **FY 2010** an increase of **\$815.4 million** over the FY 2009 Current Appropriation. **NNSA** is requesting program funds in four appropriation accounts: **Weapons Activities** (FY 2009 \$6380.0 million; FY 2010 \$6384.4 million); **Defense Nuclear Nonproliferation** (FY 2009 \$1482.4 million; FY 2010 2136.7 million); **Naval Reactors** (FY 2009 \$828.1 million; FY 2010 \$1003.1 million), and **Office of the Administrator** (FY 2009 \$439.2 million; FY 2010 \$420.8 million).

For **Weapons Activities**, the budget reflects only a continuation of current capabilities, pending upcoming strategic nuclear policy decisions. For **Defense Nuclear Nonproliferation**, the budget reflects the transfer of funding for the Mixed Oxide (MOX) Fuel Fabrication Facility project back from the Office of Nuclear Energy to NNSA; and the start of a multi-year initiative to further enhance global nuclear nonproliferation efforts and secure loose nuclear materials. For **Naval Reactors**, the budget reflects an increase to support the development of the new generation submarine reactor replacement. For **Office of the Administrator**, the request fully supports additional full time equivalents (FTEs) to meet increased requirements in the programs. Each appropriation is described on the following pages, which detail the year to year changes in the budgets.

In the upcoming year, NNSA will participate in the national debate to lay out a vision for our nation's nuclear security and non-proliferation goals. This vision is based on the reality that nuclear security is not just about warheads and the size of the stockpile. The vision emphasizes that we must increase our focus on nuclear security and transforming the Cold War nuclear weapons complex into a 21st century national security enterprise. We must ensure our evolving strategic posture places the stewardship of our nuclear arsenal, nonproliferation programs, missile defenses, and the international arms control objectives into one comprehensive strategy that protects the American people and our allies.

## Weapons Activities – NNSA

(discretionary dollars in thousands)

	FY 2008	FY 2009	FY 2009	FY 2010	FY 2010 vs. FY 2009	
	Current	Current	Additional	Congressional	\$	%
	Appropriation	Appropriation	Appropriation	Request		
<b>Weapons Activities</b>						
Directed stockpile work.....	1,405,602	1,590,152	—	1,514,651	-75,501	-4.7%
Science campaign.....	286,274	316,690	—	316,690	—	—
Engineering campaign.....	168,548	150,000	—	150,000	—	—
Inertial confinement fusion and highyield campaign.....	470,206	436,915	—	436,915	—	—
Advanced simulation and computing campaign.....	574,537	556,125	—	556,125	—	—
Pit manufacturing and certification campaign.....	213,831	—	—	—	—	—
Readiness campaign.....	158,088	160,620	—	100,000	-60,620	-37.7%
Readiness in technical base & facilities.....	1,635,381	1,674,406	—	1,736,348	61,942	+3.7%
Secure transportation asset.....	211,523	214,439	—	234,915	20,476	+9.5%
Nuclear counterterrorism incident response.....	158,655	215,278	—	221,936	6,658	+3.1%
Facilities and infrastructure recapitalization program.....	177,861	147,449	—	154,922	7,473	+5.1%
Site stewardship.....	—	—	—	90,374	90,374	N/A
Environmental projects and operations.....	17,272	38,596	—	—	-38,596	-100.0%
Safeguards and security.....	904,420	856,494	—	871,555	15,061	+1.8%
Congressionally directed projects.....	47,232	22,836	—	—	-22,836	-100.0%
Subtotal, Weapons Activities.....	6,429,430	6,380,000	—	6,384,431	4,431	+0.1%
Use of prior year balances and other adjustments.....	-127,064	—	—	—	—	—
<b>Total, Weapons Activities.....</b>	<b>6,302,366</b>	<b>6,380,000</b>	<b>—</b>	<b>6,384,431</b>	<b>4,431</b>	<b>+0.1%</b>

### 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 2010 is \$6.38 billion**, an increase of \$4.4 million above the FY 2009 funding level. The FY 2010 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 Counterterrorism Incident Response; Facilities and Infrastructure Recapitalization Program; Site Stewardship; Defense Nuclear Security and Cyber Security. Program Direction activities, except for Secure Transportation Asset, are funded in a separate appropriation under the Office of the Administrator account. Funding for security investigations of Headquarters Federal staff is included in the DOE Security program request and field Federal staff and management and operations contractors at NNSA landlord sites is provided by the Program Office associated with the work.

**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 2010 request is organized by Life Extension Programs, Stockpile Systems, 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 NNSA has successfully maintained

a safe, secure and reliable stockpile through the moratorium on underground nuclear testing by pursuing a "science-based" certification and assessments process which relies on experiments, modeling, simulation, surveillance and historical test data. The Campaign activities for Science, Engineering, Inertial Confinement Fusion and Advanced Simulation and Computing maintain the FY 2009 funding levels throughout the FYNSP. The **Science Campaign** develops improved capabilities to assess the safety, reliability, and performance of the nuclear package portion of weapons without further underground nuclear testing. The **Engineering Campaign** develops capabilities to assess and improve the safety, reliability, and performance of the non-nuclear and nuclear explosive package engineering components in nuclear weapons. The **Inertial Confinement Fusion Ignition and High Yield Campaign** 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 diagnostics and cryogenic target systems for the National Ignition Facility (NIF); 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 **Advanced Simulation and Computing Campaign** provides leading edge, high end simulation capabilities to meet weapons assessment and certification requirements, including weapon codes, weapons science, platforms, and computer facilities. The **Readiness Campaign** has the responsibility for development and deployment of modern manufacturing capabilities to produce materials and components in compliance with weapon design and performance requirements, and in accordance with life extension program and refurbishment schedules.

**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. RTBF funding is allocated to ensure that these government-owned, contractor-operated facilities are operational, safe, secure, compliant with regulatory requirements, and able to sustain a defined level of readiness to execute the large variety of activities tasked to the nuclear security enterprise.

**Secure Transportation Asset** provides for the safe, secure movement of nuclear weapons, special nuclear materials, and weapon components to meet projected DOE and DoD requirements. The Program Direction in this account provides for the Federal Agents and the transportation workforce.

**Nuclear Counterterrorism Incident Response (NCTIR)** 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 provides program funding for Render Safe Research and Development, National Technical Nuclear Forensics Stabilization and Implementation, International Emergency Management and Cooperation and Nuclear Counterterrorism activities.

**Facilities and Infrastructure Recapitalization Program (FIRP)** continues to fulfill its commitments to restore, rebuild, and revitalize the physical infrastructure of the nuclear security enterprise. FIRP addresses an integrated, prioritized list of maintenance and infrastructure projects, separate yet complimentary to maintenance and infrastructure efforts under RTBF in order to increase the operational efficiency of the NNSA sites through targeted reduction of deferred maintenance and restoration of key facilities.

**Site Stewardship** will consolidate most activities managed by the Office of Infrastructure and Environment under a single GPRA unit tasked to ensure environmental compliance and energy and operational efficiency throughout the nuclear security enterprise. It will encompass activities currently under Environmental Projects and Operations (EPO) and will include new subprogram elements Nuclear Materials Integration (NMI) and Stewardship Planning.

**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.

## *PROGRAM HIGHLIGHTS*

The FY 2010 request continues significant efforts to meet priorities to leverage science and to promote national security. Key focus areas include:

### **National Security Enterprise Transformation**

The Department has completed a programmatic decision process to guide restructuring of the physical infrastructure of the nuclear security enterprise. The first two Records of Decision (RODs) were signed on December 16, 2008. While outlining a path forward for the enterprise, the RODs do not commit to a specific budget, timeline, size or capacity for any related facility. Enterprise transformation will support the Administration's strategic direction for our nation's nuclear security and non-proliferation goals that will be more fully articulated in the coming year.

The ROD: "Operations Involving Plutonium, Uranium, and the Assembly and Disassembly of Nuclear Weapons" decided that (1) manufacturing and research and development involving plutonium will remain at the Los Alamos National Laboratory (LANL); to support these activities NNSA will construct and operate the Chemistry & Metallurgy Research Replacement-Nuclear Facility (CMRR-NF) at LANL; (2) manufacturing and R&D involving uranium will remain at the Y-12 National Security Complex in Tennessee; NNSA will construct and operate a Uranium Processing Facility (UPF) at Y-12 as a replacement for existing facilities; and (3) assembly and disassembly of nuclear weapons and high explosives production and manufacturing will remain at the Pantex Plant in Texas. The second ROD, "Tritium Research and Development, Flight Test Operations, and Major Environmental Test Facilities" decided to (1) consolidate tritium R&D activities at the Savannah River Site (SRS) in South Carolina; (2) conduct flight testing in a campaign mode at the Tonopah Test Range (TTR) in Nevada under a reduced footprint permit; and (3) consolidate major environmental test facilities at Sandia National Laboratories (SNL) in New Mexico. The details for implementing these RODs are being formulated and corresponding plans of action will be developed through FY 2010.

Additional changes will continue the transformation process of the NNSA security enterprise as it marches forward, deeper into the 21st Century. Realigning capital and business infrastructure will take time and initial investments must be made in replacement facilities or business processes before significant savings are realized. In the long-term, this realignment will reduce staffing and overall costs with much less impact on capabilities by eliminating maintenance on buildings no longer needed, security on unnecessary fence lines, or inefficient business practices. Based on extensive business evaluations that have been shared with the public, this transformation path offers the lowest overall cost and risk going forward. Infrastructure changes where costs are not dependent on the size or composition of our future stockpile will be moved forward immediately. As the reports of the Bipartisan Congressional Commission on the U.S. Strategic Posture and subsequent Nuclear Posture Review are completed this year, opportunities to further reduce costs will be sought.

### **Site Stewardship**

Site Stewardship is proposed as a new GPRA Unit that consolidates most activities managed by the Office of Infrastructure and Environment in recognition of the increased scope of programs in these areas. This GPRA unit encompasses activities currently conducted under



Environmental Projects and Operations, and includes new subprogram elements for Nuclear Materials Integration and planning for future stewardship line item construction projects. Integration of these related activities within a single site stewardship GPRA unit provides the NNSA with focus and flexibility in program management, priority-setting, and funding for these important activities, many of which are regulatory-driven.

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

**Weapons Activities (FY 2009 \$6,380.0; FY 2010 \$6,384.4) .....+\$4.4**  
FY 2010 request is \$4.4 million above the FY 2009 appropriation.

**Directed Stockpile Work (FY 2009 \$1,590.2; FY 2010 \$1,514.7) .....-\$75.5**  
FY 2010 request is 4.7 percent below the FY 2009 level attributable mainly to the relocation of the funding for the Pit Disassembly and Conversion Facility to Readiness in Technical Base and Facilities (RTBF) and the Waste Solidification Building to Defense Nuclear Nonproliferation. The NNSA will continue all programs to meet the immediate needs of the stockpile, stockpile surveillance, annual assessment, and Life Extension Programs (LEP). In September 2008, the Nuclear Weapons Council (NWC) directed the commencement of the B61 Phase 6.2/6.2A Refurbishment study, which will evaluate options to address aging, reliability, surety improvements, and the consolidation of modifications of the B61. This study is funded under the B61 Stockpile System and does not include any work associated with the recently completed B61-7/11 LEP.

**Life Extension Programs (FY 2009 \$205.0 \$; FY 2010 \$209.2).** FY 2010 request is \$4.2 or 2 percent above the FY 2009 level. The increase represents funding for production of the W76 LEP in FY 2010 and includes engineering support from the national laboratories to support manufacturing and productivity improvements. In addition, this funding increase includes resources required to support the requalification and pre-build at the KCP in support of Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS). The NNSA successfully delivered all B61-7/11 LEP units to the Air Force on time, having completed 100% of planned retrofits at Pantex and 100% of production activity at Y-12.

**Stockpile Systems (FY 2009 \$328.5; FY 2010 \$390.3).** FY 2010 request is \$61.8 or 18.8 percent above the FY 2009 level. This activity provides funding for the routine maintenance, periodic repair, or replacement of limited life components; the annual assessment and certification process; resolution and timely closure of significant finding investigations; and surveillance activities by specific weapon system. The increase is associated with the following systems: B61 to complete the Phase 6.2/6.2A Refurbishment study addressing end of life components, aging and reliability; W78 to support peak production of two limited life components and a higher level of annual surveillance; B83 to support additional limited life component activities, stockpile surveillance requirements, and the development of gas transfer and neutron generator replacements; W87 to support full surveillance requirements and to support design and pre-production efforts for the neutron generator first production unit scheduled for 2012. These increases are partially offset by a decrease for the W80, reflecting a decision to limit funding only to safety studies and limited life component production.

**Weapons Dismantlement and Disposition (FY 2009 \$190.2; FY 2010 \$84.1).** FY 2010 request is \$106.1 or 55.8 percent below the FY 2009 level. This program provides for the dismantlement, characterization of components, disposal of retired warhead systems, and surveillance of retired stockpile systems. The decrease reflects the relocation of the funding for the

Pit Disassembly and Conversion Project to Readiness in Technical Base and Facilities (RTBF) and the Waste Solidification Building to Defense Nuclear Nonproliferation. When adjusted for these transfers, Weapons Dismantlement and Disposition reflects an increase of 47 percent to dismantlement activities.

**Stockpile Services** (FY 2009 \$866.4; FY 2010 \$831.1). FY 2010 request is \$35.3 or 4.1 percent below the FY 2009 level. The program supports production activities; research and development; certification; weapon safety and security efforts; stockpile management and technology; and responsive infrastructure. The decrease results from the decision to cease all but limited life component support and to conduct minimal certification and safety assessments on the W80 warhead. It also reflects reduced component development and general research and development support. In addition, the decrease reduces vulnerability studies for primary and secondary assessments.

**Campaigns** (FY 2009 \$1,620.4; FY 2010 \$1,559.7) .....-\$60.7  
FY 2010 request is 3.7 percent below the FY 2009 level.

**Science Campaign** (FY 2009 \$316.7; FY 2010 \$316.7). FY 2010 request is the same as the FY 2009 level. The Science Campaign request includes a new subprogram called "Academic Alliances" that consolidates funding for graduate fellowships, university programs, and the Joint Program in High Energy Density Laboratory Plasmas with the DOE Office of Science.

**Engineering Campaign** (FY 2009 \$150.0; FY 2010 \$150.0). FY 2010 request is the same as the FY 2009 level. Increased emphasis is placed on Enhanced Surveillance and Weapons Systems Engineering Assessment Technology in the FY 2010 request.

**Inertial Confinement Fusion Ignition and High Yield Campaign** (FY 2009 \$436.9; FY 2010 \$436.9). FY 2010 request is the same as the FY 2009 level. With the completion of construction of the National Ignition Facility in March 2009, emphasis will be shifted to prepare for the first ignition experiments to achieve ignition and thermonuclear burn in the laboratory in FY2010, a demonstration which will be of major significance to the Department of Energy's fundamental science missions.

**Advanced Simulation and Computing Campaign** (FY 2009 \$556.1; FY 2010 \$556.1). FY 2010 request is the same as the FY 2009 level and will provide for growth in Physics and Engineering models as support shifts away from new hardware and software procurements.

**Readiness Campaign** (FY 2009 \$160.6; FY 2010 \$100.0). FY 2010 request is \$60.6 or 37.7 percent below the FY 2009 level. The FY 2010 Request contains a planned 37.8 percent reduction and will continue to invest in new technologies to improve design and manufacturing capabilities of the nuclear security enterprise.

**Readiness in Technical Base and Facilities**  
(FY 2009 \$1,674.4; FY 2010 \$1,736.3)..... +\$61.9  
FY 2010 request is 3.7 percent above the FY 2009 level.

**Operations of Facilities** (FY 2009 \$1,163.3; FY 2010 \$1,342.3). FY 2010 request is \$179.0 or 15.4 percent above the FY 2009 level. Approximately \$311.8 is requested for the Los Alamos National Laboratory (+7.8%), \$210.8 for the Y-12 complex (-10.5%), \$104.1 for the Sandia National Laboratory (-

16.1%), \$169.0 for the Kansas City Plant (+88.1%), \$86.7 for the Lawrence Livermore National Laboratory (+4.9%), \$131.6 for the Pantex Plant (+30%), \$128.6 for the Savannah River Site (+38.6%), \$79.6 for the Nevada Test Site (-13.7%), and \$120.1 for Institutional Site Support (+114.1%). The increase for Kansas City is associated with the Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS) transformation project for transition to a new, smaller facility, and the Supply Change Management Center. The increase for Savannah River provides for Other Project Costs associated with the transfer of PDCF, high priority capital equipment and General Plant Projects. The increase to Institutional Site Support supports contractor employee defined-benefit pension plans.

**Program Readiness** (FY 2009 \$71.6; FY 2010 \$73.0). FY 2010 request is \$1.4 or 1.9 percent above the FY 2009 level. It supports readiness investments to address crosscutting needs of the Complex beyond any single facility, campaign, or nuclear system which are essential to achieving stewardship objectives. The increase is due to the transfer of Test Readiness activities from the Science Campaign.

**Material Recycle and Recovery** (FY 2009 \$70.3; FY 2010 \$69.5). FY 2010 request is \$0.8 or 1.2 percent below the FY 2009 level. It provides for the recycle and recovery of plutonium, 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.

**Containers** (FY 2009 \$22.7; FY 2010 \$23.4). FY 2010 request is \$0.7 or 3 percent above the FY 2009 level. It includes research, development, design, certification, testing and evaluation for shipping containers not directly associated with the life extension programs in DSW.

**Storage** (FY 2009 \$32.0; FY 2010 \$24.7). FY 2010 request is \$7.3 or 22.8 percent below the FY 2009 level. It provides for storage of surplus pits, highly enriched uranium, and other weapons and nuclear materials. The decrease reflects the transition into operations at the Highly Enriched Uranium Materials Facility at Y-12.

**Construction** (FY 2009 \$314.5; FY 2010 \$203.4). FY 2010 request is \$111.1 or 35.3 percent below the FY 2009 level, primarily to sustain ongoing line item construction and project engineering design activities. Funding for the PDCF has been relocated from DSW to RTBF. One new construction project, the Nuclear Facilities Risk Reduction Project at Y-12, is requested to sustain uranium capabilities at Building 9212.

**Secure Transportation Asset** (FY 2009 \$214.4; FY 2010 \$234.9) ..... +\$20.5  
 FY 2010 request is 9.6 percent above the FY 2009 level. Funding provides personnel, training and equipment for the safe and secure transport of the nuclear security enterprise, DOE, DoD and other customer requirements. The increase is due to the projected addition of federal agents, salary escalation and overtime, general site support to all STA federal agents, the procurement of escort vehicles, and the purchase of one Boeing 737 type replacement aircraft.

**Nuclear Counterterrorism Incident Response**  
 (FY 2009 \$215.3; FY 2010 \$221.9) ..... +\$6.6  
 FY 2010 request is 3.0 percent above the FY 2009 level and provides funding 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, which responds to nuclear terrorist threats. The increase supports first responder priorities in state-of-readiness and agility for the response teams to deal with complex multi-faceted nuclear threats, maintenance and calibration of equipment to maintain standards. Also, the increase reflects an increase for international outreach efforts related to the International Emergency Management and Cooperation program element.

**Facilities and Infrastructure Recapitalization Program (FIRP)**

(FY 2009 \$147.4; FY 2010 \$154.9) ..... +\$7.5

FY 2010 request is 5 percent above the FY 2009 level and provides funding for recapitalization, infrastructure planning and construction. The increase is the result of continued progress in restoring the condition of mission essential facilities and infrastructure across the nuclear security enterprise to an acceptable condition.

**Site Stewardship** (FY 2009 \$0; FY 2010 \$90.4) ..... +\$90.4

The FY2010 request consolidates existing activities managed by the Office of Infrastructure and Environment under a new GPRA unit entitled Site Stewardship. Increases support Environmental Project and Operations (+\$2.7) and Stewardship Planning (+\$29.1), which provides funding for the Pantex Renewable Energy Project (PREP). The PREP will provide the capability to generate and distribute environmentally friendly electricity to the Pantex Plant in order to contribute to Department and National renewable energy objectives. Funding for Nuclear Materials Integration (\$20) was previously provided under RTBF.

**Environmental Projects and Operations** (FY 2009 \$38.6; FY 2010 \$0) ..... -\$38.6

Environmental Project and Operations is now funded under Site Stewardship.

**Safeguards and Security** (FY 2009 \$856.5; FY 2010 \$871.5) ..... +\$15.0

FY 2010 request is 1.8 percent above 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 \$749.0 is an increase of \$13.8 or 1.8 percent above the FY 2009 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 funding increase reflects increased support for specialized training of the protective force, salary escalation of 4% or more, vulnerability analysis activities, and an emphasis on oversight and performance assurance.

**Cyber Security** funding of \$122.5 is an increase of \$1.2, or 1 percent above the FY 2009 level. Funding sustains NNSA's information infrastructure and upgrades elements to counter cyber threats from external and internal attacks using the latest available technology. Increased support to the Infrastructure Program will be provided to continue implementation of the Department's revitalization plan at the NNSA landlord sites.

**Congressionally Directed Projects** (FY 2009 \$22.8; FY 2010 \$0) ..... -\$22.8

No funds are requested.

## Defense Nuclear Nonproliferation – NNSA

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
					<b>Defense Nuclear Nonproliferation</b>	
Nonproliferation and verification R&D.....	379,649	363,792	—	297,300	-66,492	-18.3%
Nonproliferation and international security.....	149,993	150,000	—	207,202	+57,202	+38.1%
International nuclear materials protection and cooperation.....	624,482	400,000	—	552,300	+152,300	+38.1%
Elimination of weapons-grade plutonium production program...	180,190	141,299	—	24,507	-116,792	-82.7%
Fissile materials disposition.....	66,235	41,774	—	701,900	+660,126	+1,580.2%
Global threat reduction initiative.....	199,448	395,000	—	353,500	-41,500	-10.5%
International nuclear fuel bank.....	49,545	—	—	—	—	—
Congressionally directed projects.....	7,380	1,903	—	—	-1,903	-100.0%
<b>Subtotal, Defense Nuclear Nonproliferation.....</b>	<b>1,656,922</b>	<b>1,493,768</b>	<b>—</b>	<b>2,136,709</b>	<b>+642,941</b>	<b>+43.0%</b>
Total, Rescissions.....	-322,000	-11,418	—	—	+11,418	+100.0%
<b>Total, Defense Nuclear Nonproliferation.....</b>	<b>1,334,922</b>	<b>1,482,350</b>	<b>—</b>	<b>2,136,709</b>	<b>+654,359</b>	<b>+44.1%</b>

### 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 request in FY 2010 is \$2.14 billion, \$654.3 million** above the FY 2009 level, and work will be done in the following major areas.

**Nonproliferation and Verification Research and Development** reduces the threat to national security posed by nuclear weapons proliferation/detonation or the illicit trafficking of nuclear materials through the long-term development of new and novel technology. Using the unique facilities and scientific skills of the NNSA and DOE national laboratories and plants, in partnership with industry and academia, the program sponsors research and development that supports nonproliferation mission requirements necessary to close technology gaps identified through close interaction with NNSA and other U.S government agencies and programs. This program meets unique challenges and plays an important role in the federal government by driving basic science discoveries and developing new technologies applicable to nonproliferation, homeland security, and national security needs.

**Nonproliferation and International Security** prevents weapons of mass destruction (WMD) proliferation by states and non-state actors. In FY 2010, NIS will provide technical and policy support for nonproliferation and associated treaties and agreements, domestic and international legal and regulatory controls, diplomatic and counter-proliferation initiatives, cooperation with foreign partners on export controls, safeguards, and security, and international nonproliferation organizations. Major program elements involve inter alia: (1) maintenance and improvement of international nonproliferation regimes, including the Nuclear Non-Proliferation Treaty, the system of International Atomic Energy Agency safeguards, multilateral supplier regimes, and bilateral nuclear cooperation agreements; (2) cooperation with foreign partners to improve national export controls, safeguards, and physical protection systems and to redirect WMD expertise; and (3) application of technology in support of verification, monitoring, and international nuclear safeguards.

**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, ending weapons-grade plutonium production in Russia by replacing the reactors with fossil-fueled power plants to provide of heat and electricity to the Siberian cities of Seversk and Zheleznogorsk.

**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 denying terrorists access to nuclear and radiological materials.

## *PROGRAM HIGHLIGHTS*

The FY 2010 request includes \$701.9 million for **Fissile Materials Disposition**, to eliminate surplus Russian plutonium and surplus United States (U.S.) plutonium and highly enriched uranium. Funding is included for the Mixed Oxide Fuel Fabrication Facility and the Waste Solidification Building. These projects are 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 completed MPC&A upgrades in Russia at a total of 73 warhead sites at the end of calendar year 2008 and plans to complete approximately 229 buildings containing weapons usable nuclear material by the end of 2012; blend-down a total of approximately 17 MTs of HEU by the end of 2015; and install radiation detection equipment at approximately 600 border around the world and at approximately 100 ports of interest in approximately 40 countries by the end of 2015. Under the SLD program, a total of 160 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 has been installed at 19 ports in 18 countries. Various stages of implementation are underway at ports in 25 other locations.

For the MPC&A Program, the FY2010 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 2010 request provides for the installation of radiation detection equipment at an additional 42 foreign sites and at 15 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 directly supports President Obama's goal to accelerate efforts to secure and remove all vulnerable nuclear material from the most vulnerable sites within four (4) years, by the end of 2012. 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 2010 budget includes \$353.5 million for activities to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide, including \$97 million for Russia-origin fuel return and \$71.5 million for reactor conversions.

**Elimination of Weapons-Grade Plutonium Production** will continue support for Zheleznogorsk to shut down the last weapons-grade plutonium production reactor by constructing a replacement fossil-fueled facility. Funding will enable NNSA to maintain a schedule that allows completion of the Zheleznogorsk project in 2010. The Seversk project shut down two of the last three weapons-grade plutonium production reactors by providing heat and electricity through refurbishment of an existing 1950s fossil-fueled facility. The two reactors at Seversk were shutdown more than six months early (April and June 2008). The program received CD-4 approval on September 26, 2008, completing the project. The remaining activities to expend the full U.S. commitment of \$285 million to the Russian Federation will continue through first quarter in FY 2010.

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. The U.S. has committed 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 2010 request provides \$313.5 million toward the total U.S. commitment to the Global Partnership.

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

**Defense Nuclear Nonproliferation (FY 2009 \$1,482.4; FY 2010 \$2,136.7).....+\$654.3**  
 FY 2010 request is significantly increased with the return of MOX funding.

**Nonproliferation and Verification R&D (FY 2009 \$363.8; FY 2010 \$297.3).....-\$66.5**  
 FY 2009 request continues research programs in Proliferation Detection, and Nuclear Detonation Detection.

**Proliferation Detection (FY 2009 \$199.7; FY 2010 \$171.8).....-\$27.9**  
 Decrease is a result of programmatic decisions related to the need to complete work in the Formal Soviet Union (FSU), funds were shifted to other DNN programs.

<b>Nuclear Detonation Detection</b> (FY 2009 \$145.6; FY 2010 \$125.5) .....	-\$20.1
Decrease is a result of programmatic decisions related to the need to complete work in the FSU, funds were shifted to other DNN programs.	
<b>Physical Sciences Facility at Pacific Northwest National Laboratory</b> (FY 2009 \$18.5; FY 2010 \$0.0) .....	-\$18.5
The project was fully funded in 2009, no further funding required.	
<b>Nonproliferation and International Security</b> (FY 2009 \$150.0; FY 2010 \$207.2) .....	+\$57.2
FY 2010 request includes:	
<b>Dismantlement and Transparency</b> (FY 2009 \$47.5; FY 2010 \$92.7) .....	+\$45.2
Increase to expand technology development supporting nonproliferation activities, including verification in countries of concern, support for the Next Generation Safeguards Initiative; to meet monitoring activities under the U.S.-Russian Highly Enriched Uranium (HEU) Purchase Agreement, and future arms control agreements.	
<b>Global Security Engagement and Cooperation</b> (FY 2009 \$44.1; FY 2010 \$50.7) .....	+\$6.6
Funding increase reflects expansion of safeguards and infrastructure development work, and trade control outreach, related to the Next Generation Safeguards Initiative and UN Security Council Resolution 1540, particularly cooperative efforts with countries in the Middle East and Asia.	
<b>International Regimes and Agreements</b> (FY 2009 \$40.8; FY 2010 \$42.7) .....	+\$1.9
Funding increase will support additional interdiction review cases, and implementation of the International Atomic Energy Agency (IAEA) Additional Protocol within the DOE complex.	
<b>Treaties and Agreements</b> (FY 2009 \$17.6; FY 2010 \$21.0) .....	+\$3.4
Funding increase reflects distribution of funding for the Next Generation Safeguards Initiative activities.	
<b>International Nuclear Materials Protection and Cooperation</b> (FY 2009 \$400.0; FY 2010 \$552.3) .....	+\$152.3
<b>Navy Complex</b> (FY 2009 \$22.7; FY 2010 \$33.9) .....	+\$11.2
Increases support for the security of Russian Navy warhead sites, including nuclear materials detection at closed city entrances; accelerated support for personnel reliability programs; and sustainability of installed MPC&A upgrades.	
<b>Strategic Rocket Forces</b> (FY 2009 \$34.4; FY 2010 \$48.6) .....	+\$14.2
Increase reflects additional MPC&A upgrades to selected SRF sites and design and construction of the Abromavo counterterrorism training center.	
<b>Rosatom Weapons Complex</b> (FY 2009 \$56.1; FY 2010 \$71.5) .....	+\$15.4
Increase reflects selected new or additional MPC&A upgrades at Rosatom Weapons Complex sites added after the Bratislava Agreement and the replacement and retrofit of MPC&A equipment at the end of its service life.	
<b>Civilian Nuclear Sites</b> (FY 2009 \$35.5; FY 2010 \$43.5) .....	+\$8.0
Increase reflects additional MPC&A upgrades and addition MPC&A support for countries outside of Russia and the Former Soviet States.	
<b>Material Consolidation and Conversion</b> (FY 2009 \$21.6; FY 2010 \$13.6) .....	-\$8.0
Decrease projects a lower availability of excess HEU to be downblended to LEU.	



<b>National Programs and Sustainability</b> (FY 2009 \$54.9; FY 2010 \$68.5).....	+\$13.6
Increase reflects work for the development of additional regulations to meet the 2013 date for transfer of sustainability responsibility to the Russian Federation and to perform additional regulatory gap analysis related to sustainability.	
<b>Second Line of Defense (SLD)</b> (FY 2009 \$174.8; FY 2010 \$272.7) .....	+\$97.9
Reflects additional sustainability support for sites in the Core program with completed installations of radiation detection equipment and an FY 2010 increase of 6 more	
<b>Megaports</b> (FY 2009 \$102.9; FY 2010 \$194.3) then in FY 2009.	
<b>Elimination of Weapons-Grade Plutonium Production</b>	
(FY 2009 \$141.3; FY 2010 \$24.5) .....	-\$116.8
Decrease reflects the ramp down of work as the project is completed.	
<b>Fissile Materials Disposition</b> (FY 2009 \$41.8; FY 2010 \$701.9) .....	+\$660.1
Funding supports the elimination of surplus fissile materials. In FY 2010, the funding for the MOX Fuel Fabrication Facility and the Waste Solidification Building is being requested in the Defense Nuclear Nonproliferation appropriation.	
<b>U.S. Surplus Fissile Materials Disposition</b>	
(FY 2009 \$40.8; FY 2010 \$700.9) .....	+\$660.1
The increase supports the continuation of construction for the MFFF and WSB projects and all related supporting activities.	
<b>Russian Surplus Fissile Materials Disposition</b>	
(FY 2009 \$1.0; FY 2010 \$1.0) .....	\$0.0
FY 2010 funding is requested for U.S. technical support activities.	
<b>Global Threat Reduction Initiative</b> (FY 2009 \$395.0; FY 2010 \$353.5) .....	-\$41.5
Decrease reflects completion of the BN-350 Nuclear Material Protection material shipments by the end of FY 2010, and a reduction in reactor conversions, partially offset by an increase for DPRK denuclearization activities. .	
<b>HEU Reactor Conversion</b> (FY 2009 \$83.3; FY 2010 \$71.5) .....	-\$11.8
Reflects a reduction of reactor conversions from 6 in FY 2009 to 5 in FY 2010.	
<b>Nuclear and Radiological Material Removal</b>	
(FY 2009 \$194.2; FY 2010 \$202.0) .....	+\$7.8
Increase for DPRK denuclearization (+\$40.0), partially offset by a decrease associated with advance procurements in FY 2009 to accelerate shipments in FY 2010.	
<b>Nuclear and Radiological Material Protection</b>	
(FY 2009 \$117.5; FY 2010 \$80.0) .....	-\$37.5
Decrease due to the scheduled completion of the BN-350 Nuclear Material Protection material shipments by the end of FY 2010.	
<b>Congressionally Directed Projects</b> (FY 2009 \$1.9; FY 2010 \$0) .....	-\$1.9
No funds are requested to continue congressionally directed projects.	
<b>Use of Prior-Year Balances</b> (FY 2009 -\$11.4; FY 2010 \$0) .....	+\$11.4
The Omnibus Appropriation Act, 2009 (P.L. 111-8) included a use of prior year balances offset.	

## Office of the Administrator – NNSA

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Office of the Administrator</b>						
Office of the administrator.....	379,997	415,878	—	431,074	+15,196	+3.7%
Congressionally directed projects.....	22,140	23,312	—	—	-23,312	-100.0%
Use of prior year balances and other adjustments.....	—	—	—	-10,320	-10,320	N/A
<b>Total, Office of the Administrator.....</b>	<b>402,137</b>	<b>439,190</b>	<b>—</b>	<b>420,754</b>	<b>-18,436</b>	<b>-4.2%</b>

### PROGRAM DESCRIPTION

The National Nuclear Security Administration (NNSA) **Office of the Administrator** appropriation provides for a well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital; enhanced cost-effective utilization of information technology; and greater integration of budget and performance. 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, nuclear nonproliferation leadership, and safeguards and security oversight. The Naval Reactors and Secure Transportation Asset programs retain separately funded program direction accounts.

The organizational structure includes eight site offices reporting directly to the Assistant Deputy Administrator for Nuclear Safety and Operations. 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 2010 request** for this program is **\$420.8 million**.

### PROGRAM HIGHLIGHTS

The NNSA supports the **President's National Objectives** with a more robust and effective NNSA organization through improved human capital and financial management. The FY 2010 request supports the following efforts: applying advanced science and nuclear technology to the Nation's defense; supporting national security by maintaining nuclear deterrent and preventing proliferation, 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 partial funding for Historically Black College and Universities (HBCUs).

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

**Office of the Administrator (FY 2009 \$439.2; FY 2010 \$420.8).....-\$18.4**

**Program Direction (FY 2009 \$415.9; FY 2010 \$431.1).....+\$15.2**

The FY 2010 request supports salaries and benefits and cost of living adjustments for 1,970 FTEs, an increase of 28 FTEs from the FY 2009 level of 1,942 FTEs. The FY 2010 funding level of \$431.1 million will be achieved through the planned use of prior year unobligated balances in the amount of \$10.3 million.

**Congressionally Directed Projects (FY 2009 \$23.3; FY 2010 \$0).....-\$23.3**

Decrease from the FY 2009 Congressionally Directed Projects for support for HBCU activities. In FY 2010, NNSA requests funding of \$4.1 million, consisting of \$3.0 million for the Massie Chairs of Excellence and \$1.1 million for the HBCUs, within the Office of Administrator appropriation; up to \$6 million for HBCUs within the Weapons Activities appropriation; up to \$3 million for HBCUs within the Defense Nuclear Nonproliferation appropriation; and, up to \$1 million for HBCUs within the Naval Reactors appropriation.

**Use of Prior-Year Balances (FY 2009 \$0.0; FY 2010 -\$10.3) .....-\$10.3**

The request includes the use of prior year balances to meet program requirements.

# Naval Reactors

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
					<b>Naval Reactors</b>	
Naval reactors development.....	742,283	793,600	—	966,333	+172,733	+21.8%
Program direction.....	32,403	34,454	—	36,800	+2,346	+6.8%
<b>Total, Naval Reactors.....</b>	<b>774,686</b>	<b>828,054</b>	<b>—</b>	<b>1,003,133</b>	<b>+175,079</b>	<b>+21.1%</b>

## PROGRAM DESCRIPTION

The Naval Reactors (NR) program has responsibility for all naval nuclear propulsion work, beginning with reactor technology development, continuing through construction, testing, operation, maintenance, and ultimately, reactor plant disposal. The **Naval Reactors request for FY 2010 is \$1.0 billion**, an increase of \$175.1 million over the FY 2009 appropriation.

The program's efforts ensure the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers, constituting 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. A growing activity of the program is the conduct of research and development to fulfill the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements.

Recent and ongoing work includes the development and delivery of the next-generation reactor for the VIRGINIA-class submarine and design for the next-generation reactor plant for the GERALD R. FORD aircraft carrier.

Naval Reactors anticipates future requirements for development and delivery of new reactor designs for the OHIO-class ballistic missile submarine replacement and for a new nuclear-powered surface combatant. These new plants will have significant improvements in life-cycle costs, advanced power capabilities, and increased endurance compared to current plants.

## PROGRAM HIGHLIGHTS

The FY 2010 request provides \$1,003.1 million for Naval Reactors; an increase of \$175.1 million above the FY 2009 funding level.

The increase in funding supports several new important initiatives: commencement of design work for the OHIO-class ballistic missile submarine replacement, the refueling of the S8G land-based nuclear prototype, and the recapitalization of spent nuclear fuel infrastructure in Idaho. Funding also 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 2009 to 2010 Request (\$ in millions)*

**Naval Reactors Development (FY 2009 \$828.1; FY 2010 \$1003.1) .....+\$175.1**

Increase in Operations and Maintenance and overall increase in Construction and Program Direction funding, as follows:

**Operations and Maintenance (FY 2009 \$771.6; FY 2010 \$935.5) .....+\$163.9**

Increases in all Operations and Maintenance activities reflect the Secretary of Energy's support for several new research and development initiatives, including: 1) commencement of DOE-cognizant design work for the reactor plant for the OHIO-class ballistic missile submarine replacement (+\$59.0); 2) new core development in support of refueling efforts for a land-based prototype that serves as a testing platform for new naval reactor technologies (+\$47.5); 3) NEPA and conceptual design efforts in support of recapitalization of the Program's spent nuclear fuel infrastructure (+\$5.0); 4) continued low-power testing in support of demonstrating supercritical carbon dioxide energy conversion technology (+\$1.0), and 5) additional funding to support contractor employee defined benefit pension plans (+\$57.8).

**Construction (FY 2009 \$22.0; FY 2010 \$30.8) .....+\$8.8**

Increase supports project, engineering and design funds for new line item construction projects to address infrastructure upgrades at the Naval Reactors Facility (NRF) in Idaho (+\$0.7) and security upgrades at the Knolls Atomic Power Laboratory (+\$1.5); commencement of construction funding for the Expended Core Facility M-290 Receiving and Discharge Station at NRF (+\$9.2); and, decreases in construction funding for the Materials Research and Technology Complex at the Bettis Atomic Power Laboratory (-\$.7) and the Production Support Complex at NRF (-\$1.9).

**Program Direction (FY 2009 \$34.5; FY 2010 \$36.8) .....+\$2.3**

Increase reflects inflationary-based salary adjustments and achievement of the FY 2010 target of 215 FTEs, an increase of 6 FTEs from FY 2009, due to the realignment of responsibilities between headquarters and the Naval Reactors Laboratory Field Offices and to support oversight of new projects, as well as substantial escalation in travel costs.

# Energy Information Administration

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
Energy Information Administration National energy information system.....	95,460	110,595	—	133,058	+22,463	+20.3%

## 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 2010 request** is **\$133.1 million**, which is a \$22.5 million increase over the FY 2009 current appropriation of \$110.6 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 2009 \$110.6; FY 2010 \$133.1)..... +\$22.5**  
 Increased funding improves EIA's capability to close energy information gaps, strengthen analysis, and address growing energy data quality issues. Provides for the Energy End-Use and Efficiency Data efforts (\$9.0) including improving the coverage and scope of the three end-use consumption surveys and an external study to help identify survey frame efficiencies. Provides for Enhanced Scope and Data Quality (\$6.8) including weekly renewable fuels data and expanding several surveys; enhancing reporting on refinery outages and addressing gasoline imports and diesel exports and other critical data quality issues (\$3.4); and integrated State energy data products and more timely international data and analyses (\$1.6). Provides for the Energy and Financial Market efforts (\$1.1).

## Power Marketing Administrations

	(discretionary dollars in thousands)					
	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Power Marketing Administrations</b>						
Southeastern Power Administration						
Purchase power and wheeling.....	62,215	63,522	---	85,228	+21,706	+34.2%
Program direction .....	6,404	7,420	---	7,638	+218	+2.9%
Total, Program direction.....	6,404	7,420	---	7,638	+218	+2.9%
Subtotal, Southeastern Power Administration.....	68,619	70,942	---	92,866	+21,924	+30.9%
Less alternative financing (for PPW)/Offsetting collections..	-62,215	-63,522	---	-92,866	-29,344	-46.2%
Total, Southeastern Power Administration.....	6,404	7,420	---	---	-7,420	-100.0%
Reclassification of Mandatory Receipts to Discretionary Collections				7,638		
Southwestern Power Administration						
Operation and maintenance.....	11,892	12,865	---	12,775	-90	-0.7%
Purchase power and wheeling.....	45,000	46,000	---	48,000	+2,000	+4.3%
Program direction .....	22,054	24,330	---	28,153	+3,823	+15.7%
Total, Program direction.....	22,054	24,330	---	28,153	+3,823	+15.7%
Construction.....	4,269	5,991	---	6,016	+25	+0.4%
Subtotal, Southwestern Power Administration.....	83,215	89,186	---	94,944	+5,758	+6.5%
Less alternative financing/Offsetting collections.....	-53,050	-60,772	---	-81,868	-21,096	-34.7%
Total, Southwestern Power Administration.....	30,165	28,414	---	13,076	-15,338	-54.0%
Reclassification of Mandatory Receipts to Discretionary Collections				31,868		
Western Area Power Administration						
Construction and rehabilitation.....	62,419	74,544	---	104,971	+30,427	+40.8%
Operation and maintenance .....	52,873	52,365	---	57,159	+4,794	+9.2%
Total, Operation and maintenance.....	52,873	52,365	---	57,159	+4,794	+9.2%
Purchase power and wheeling.....	475,254	600,960	---	548,847	-52,113	-8.7%
Utah mitigation and conservation.....	7,114	7,342	---	7,584	+242	+3.3%
Program direction.....	156,128	166,423	---	180,756	+14,333	+8.6%
Subtotal, Western Area Power Administration.....	753,788	901,634	---	899,317	-2,317	-0.3%
Less alternative financing/Offsetting collections (P.L. 108-477/109-103)	-520,944	-679,922	---	-786,257	-106,335	-15.6%
Offsetting collections (P.L. 98-381).....	-3,937	-3,366	---	-3,879	-513	-15.2%
Total, Western Area Power Administration.....	228,907	218,346	---	109,181	-109,165	-50.0%
Reclassification of Mandatory Receipts to Discretionary Collections				147,530		
Western Area Power Administration, Recovery Act						
Operation and maintenance.....	---	---	10,000	---	---	---
Falcon and Amistad Operating and Maintenance Fund						
Operation and maintenance.....	2,477	2,959	---	2,568	-391	-13.2%
Offsetting collections.....	---	---	---	-2,348	-2,348	N/A
Total, Falcon and Amistad Fund.....	2,477	2,959	---	220	-2,739	-92.6%
Reclassification of Mandatory Receipts to Discretionary Collections				2,348		
Colorado River Basins Power Marketing Fund						
Spending authority from offsetting collections						
Equipment, contracts and other related expenses.....	190,444	195,137	---	212,766	+17,629	+9.0%
Utah mitigation and conservation fund.....	---	---	---	---	---	---
Program direction.....	41,701	45,147	---	48,957	+3,810	+8.4%
Total, Spending authority from offsetting collections.....	232,145	240,284	---	261,723	+21,439	+8.9%
Offsetting collections.....	-255,145	-263,284	---	-284,723	-21,439	-8.1%
Total, Colorado River Basins.....	-23,000	-23,000	---	-23,000	---	---
<b>Total, Power Marketing Administrations.....</b>	<b>244,953</b>	<b>234,139</b>	<b>10,000</b>	<b>99,477</b>	<b>-134,662</b>	<b>-57.5%</b>

### 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 renewable federal hydroelectric power from 24 Corps multipurpose projects to preference customers in a six-state area 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, 25 substations/switchyards, 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 at rates comparable to borrowings at open market rates for similar issues and with some non-federal financing.

## *PROGRAM HIGHLIGHTS*

The President's FY 2010 budget proposes the permanent reclassification of receipts from mandatory to discretionary to offset the annual expenses of the Western, Southwestern and Southeastern Power Marketing Administrations (PMAs) to allow for better operations and maintenance planning and execution, leading to a more reliable power system. Reclassification of these receipts would be achieved through legislation with a 2010 impact for all the PMAs of \$189.384 million.

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.

### **American Recovery and Reinvestment Act of 2009 (Recovery Act)**

The Recovery Act, provides \$10 million in nonreimbursable appropriations to Western to support implementation of activities authorized in Section 402 of the Act.

Section 402 of the Recovery Act provides **Western** borrowing authority for the purpose of constructing, financing, facilitating, planning, operating, maintaining or studying the construction of new or upgraded electric power transmission lines and related facilities with at least one terminus



within the area served by Western; and delivering or facilitating the delivery of power generated by renewable energy resources constructed or reasonably expected to be constructed after the date of enactment. The authority to borrow from the United States Treasury is available to Western on a permanent, indefinite basis, with the amount of outstanding borrowing not to exceed \$3.25 billion at any one time. Western has established a separate office, the Transmission Infrastructure Program, to carry out the use of borrowing authority and to provide the transparency and specific reporting required under the Act. The Transmission Infrastructure Program will support Western's and the Department's priorities by facilitating the delivery of renewable energy resources to market.

In addition, Section 401 of the Recovery Act provides **Bonneville** a new increment of \$3.25 billion in Treasury borrowing authority under the Federal Columbia River Transmission System Act in addition to its existing authority of \$4.45 billion for a total of \$7.7 billion in borrowing authority. This new increment of Treasury borrowing authority gives Bonneville the certainty of sufficient access to capital to proceed with planned new projects and ensures that existing capital projects will be able to proceed as planned.

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

**Southeastern Power Administration (FY 2009 \$7.4; FY 2010 \$7.6) ..... +\$0.2**

**Program Direction** (FY 2009 \$7.4; FY 2010 \$7.6) ..... +\$0.2  
 Increase reflects the full effect of the FY 2010 salaries and benefits increase as well as mission related travel and other operating expenses. The FY 2010 funding level allows Southeastern to maintain its current level of 44 FTEs in FY 2010.

**Purchase Power and Wheeling** (FY 2009 \$63.5; FY 2010 \$85.2) ..... +\$21.7  
 (FY 2009 alternative financing \$14.0; use of receipts \$49.5; FY 2010 alternative financing \$14.4; use of receipts \$70.8). A majority of the FY 2010 request increase results from increased pumping energy costs to support the Richard B. Russell, Carters projects. Expected increased power purchase expenses at the Jim Woodruff project account for a smaller proportion of the overall increase. 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 2009 -\$14.0; FY 2010 -\$14.4)..... -\$0.4  
 In FY 2010, 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.

**Offsetting Collections** (FY 2009 -\$49.5; FY 2010 -\$78.4)..... -\$29.9  
 The FY 2010 budget includes the use of Southeastern's receipts to offset appropriations for annual expenses in the Program Direction (-\$7.6) activity. In FY 2010, Southeastern will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-\$70.8), which enables Southeastern to meet its annual operation and maintenance requirements and purchase power and wheeling needs.

**Southwestern Power Administration (FY 2009 \$28.4; FY 2010 \$13.1) ..... -\$15.3**

**Operations and Maintenance** (FY 2009 \$12.9; FY 2010 \$13.8) ..... +\$0.9  
 Increase reflects funding for replacement of an additional transformer.

**Program Direction** (FY 2009 \$24.3; FY 2010 \$27.2) ..... +\$2.9  
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 2010 budget reflects an increase of 5 FTEs.

**Purchase Power and Wheeling** (FY 2009 \$46.0; FY 2010 \$48.0) ..... +\$2.0  
(FY 2009 alternative financing \$11.0; use of receipts \$35.0; FY 2010 alternative financing \$10.0; use of receipts \$38.0 (+2.0)). 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 2009 \$6.0; FY 2010 \$6.0) ..... +\$0.0  
Funding level stays constant with emphasis on upgrades to the Communications system.

**Alternative Financing** (FY 2009 -\$25.8; FY 2010 -\$12.0)..... +\$13.8  
In FY 2010, alternative financing will be used to offset Construction (-\$2.0) and Purchase Power and wheeling (-\$10.0) to allow Southwestern to continue to meet their annual operation and maintenance requirements.

**Offsetting Collections** (FY 2009 -\$35.0; FY 2010 -\$69.9)..... +\$35.9  
The FY 2010 budget includes the use of Southwestern's receipts to offset appropriations for annual expenses in the Operation and Maintenance (-\$5.6) and Program Direction (-\$26.2) activities. In FY 2010, Southwestern will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-\$38.0), which enable Southwestern to meet its annual hydroelectric contractual obligations.

**Western Area Power Administration (FY 2009 \$228.3; FY 2010 \$109.2).....-\$119.1**  
FY 2010 Construction, Rehabilitation, Operation, and Maintenance program level is \$899.3 (compared to \$911.6 in FY 2009 which included \$10.0 budget authority granted as part of the American Recovery and Reinvestment Act) and will be funded by \$109.2 in budget authority; and \$349.8 in offsetting collections for Purchase Power and Wheeling; \$37.0 in offsetting collections for Operations and Maintenance; \$110.5 in offsetting collections for Program Direction; \$3.9 through a reimbursable agreement with the Bureau of Reclamation using offsetting collections from P.L. 98-381 from the Colorado River Dam Fund; and \$288.9 of alternative financing.

**Purchase Power and Wheeling** (FY 2009 \$601.0; FY 2010 \$548.8).....-\$52.2  
(FY 2009 alternative financing \$197.8; use of receipts \$403.2; FY 2010 alternative financing \$199.0; use of receipts \$349.8). FY 2010 decrease in purchase power and wheeling reflects a reduction in the amount of power purchased in anticipation of a bottom to the long-term drought conditions experienced in the Pick-Sloan Missouri River Basin.

**Program Direction** (FY 2009 \$166.4; FY 2010 \$180.8) ..... +\$14.4  
Increase reflects the full effect of Western's FY 2010 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 needs in

environmental analysis, planning engineering, ADP program support for the power billing system and administrative support associated with transmission line reliability and upgrades.

**Construction and Rehabilitation** (FY 2009 \$74.5; FY 2010 \$105.0) ..... +\$30.5  
(FY 2009 alternative financing \$47.7, appropriation \$26.9; FY 2010 alternative financing \$83.8, appropriations \$21.2) The FY 2010 budget relies significantly on alternative customer financing for the growing capitol program requirements. The increase provides for new and ongoing transmission line and substation construction activity to address Western's aging transmission system infrastructure and reliability concerns due to expansive load growth in the surrounding areas. In addition, the increase provides for extensive environmental remediation of a 1940's vintage substation originally constructed to support the production of magnesium during World War II.

**Operation and Maintenance** (FY 2009 \$52.4; FY 2010 \$57.2) ..... +\$4.8  
The increase in regular O&M activities is attributed to inflation and increased cyclical maintenance activity to the aging transmission system. Also included is critical restocking of Western's wood pole inventory to replace storm damaged and aging poles. This increase is offset by a slight decrease in replacement and addition activities.

**American Recovery and Reinvestment Act of 2009 (Recovery Act),  
Implementation Appropriation** (FY 2009 \$10.0; FY 2010 \$0.0).....-\$10.0  
In FY 2010 no additional appropriation under the American Recovery and Reinvestment Act is requested; funds appropriated in FY 2009 under the Act will continue to be used to support the implementation of Western's Transmission infrastructure Program until expended.

**Utah Reclamation Mitigation & Conservation** (FY 2009 \$7.3; FY 2010 \$7.6) . +\$0.3  
FY 2010 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 2009 -\$406.5; FY 2010 -\$501.2) .....-\$94.7  
The FY 2010 budget includes the use of Western's receipts (-\$147.5) to offset appropriations for annual expenses in the Operation and Maintenance and Program Direction activities. In FY 2010, Western will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-\$349.8) and use Colorado River Dam Fund receipts (-\$3.9) to support Boulder Canyon Project activities.

**Alternative Financing** (FY 2009 -\$276.8; FY 2010 -\$288.9).....-\$12.1  
In FY 2010, alternative financing methods, including cash advances from customers, will be used to offset Program Direction (-\$5.7); Operation and Maintenance (-\$0.4); Construction (-\$83.8); and Purchase Power and Wheeling (-\$199.0) appropriation requirements.

**Bonneville Power Administration** (self financed through revenues)  
**Budget Obligations (FY 2009 \$3,584; FY 2010 \$3,980) ..... +\$396.0**  
No direct annual appropriations are received from Congress. In FY 2010, total requirements of all Bonneville programs include estimated budget obligations of \$3,980 million. This amount includes operating expenses of \$3,030 million, capital investments of \$846 million, and \$105 million in projects funded in advance; with \$420 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 Associated Project costs and Fish and Wildlife costs. Increase in capital investments primarily reflects changes in power and transmission services.

**Power Services-Capital** (FY 2009 \$241.0; FY 2010 313.0)..... +\$72.0

The FY 2010 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 2010, slight increase is due primarily to reshaping of funding requirements for Associated Project costs increased Fish and Wildlife funding to implement Biological Opinions and other program activities, and increased energy efficiency activities.

**Transmission Services-Capital** (FY 2009 \$322.0; FY 2010 \$490.0)..... +\$168.0

FY 2010 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 2010 reflects increase primarily in Main Grid projects.

## Departmental Administration

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Departmental Administration</b>						
Administrative operations:						
Salaries and expenses:						
Office of the Secretary.....	5,751	5,700	—	5,864	+164	+2.9%
Chief financial officer.....	41,998	43,257	—	65,981	+22,724	+52.5%
Management.....	67,033	67,790	—	88,456	+20,666	+30.5%
Human Capital Management.....	27,986	31,436	—	29,537	-1,899	-6.0%
Chief information officer.....	110,135	115,500	—	104,545	-10,955	-9.5%
Congressional & intergovernmental affairs.....	4,733	6,200	—	7,326	+1,126	+18.2%
Economic impact and diversity.....	6,443	4,400	—	6,671	+2,271	+51.6%
General counsel.....	29,889	31,233	—	32,478	+1,245	+4.0%
Policy and international affairs.....	21,039	23,000	—	30,253	+7,253	+31.5%
Public Affairs.....	3,339	3,780	—	5,405	+1,625	+43.0%
Office of Indian energy policy and programs.....	—	—	—	—	—	—
Competitive sourcing initiative (A-76)						
Use of prior year balances and other adjustments.....	-2,000	—	—	—	—	—
Total, Administrative operations.....	316,346	332,296	—	376,516	+44,220	+13.3%
Cost of work for others.....	91,420	48,537	—	48,537	—	—
Subtotal, Departmental Administration (gross).....	407,766	380,833	—	425,053	+44,220	+11.6%
Funding from other defense activities.....	-98,104	-108,190	—	-122,982	-14,792	-13.7%
Total, Departmental Administration (gross).....	309,662	272,643	—	302,071	+29,428	+10.8%
Miscellaneous revenues						
Revenues associated with cost of work.....	-91,420	-48,537	—	-48,537	—	—
Other revenues.....	-69,827	-68,780	—	-71,203	-2,423	-3.5%
Total, Miscellaneous revenues.....	-161,247	-117,317	—	-119,740	-2,423	-2.1%
<b>Total, Departmental Administration (Net).....</b>	<b>148,415</b>	<b>155,326</b>	<b>—</b>	<b>182,331</b>	<b>+27,005</b>	<b>+17.4%</b>

### PROGRAM DESCRIPTION

The **Departmental Administration (DA)** appropriation funds 10 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. Changes to WCF businesses total \$16.9 million due to adding annual Financial Statement Audits (\$12.0), transit subsidy (SEET) expenses to the Payroll business (\$2.7 million), GSA rent increases (\$3.3 million), offset by efficiencies in the Financial Reporting Assessment business (\$1.0 million).

**PROJECTED CUSTOMER COSTS FY 2010**  
**Comparison of Annual Estimates by Business Line**

<b>ORG CODE</b>	<b>FY 2008 Actual</b>	<b>FY 2009 Congressional Budget</b>	<b>FY 2010 Estimates</b>
Supplies	3,127	2,983	3,127
Mail	2,420	3,376	4,091
Copy	2,473	2,766	3,050
P&G	2,174	3,358	3,214
Building	74,431	83,169	86,547
Phones	9,359	9,119	15,504
Network	5,810	6,776	0
Proc Mgt	785	16,462	15,655
Payroll/CHRIS	4,621	4,421	7,148
Corp Training	449	2,175	2,175
PMCDP	1,018	1,000	1,000
STARS	5,033	7,691	7,697
A-123	4,000	5,000	4,000
Financial			
Statement Audit	0	0	12,000
Indirect	120	120	120
<b>TOTAL</b>	<b>\$115,821</b>	<b>\$148,416</b>	<b>\$165,326</b>

*PROGRAM HIGHLIGHTS*

The FY 2010 request provides \$5.8 million for 34 full time equivalent employees (FTEs) within the Office of the Secretary. This request also provides \$176.5 million for salaries and benefits, travel, contractual services, and program support expenses for 1,226 FTEs for the other organizations within the DA account.

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

**Chief Financial Officer (FY 2009 \$43.3; FY 2010 \$66.0) ..... +\$22.7**

Supports 10 additional FTEs from the FY 2009 level for a total of 246 FTEs in FY 2010. The increase supports salaries, benefits, cost of living expenses and other personnel related expenses for the 246 FTEs (\$3.3). The FY 2010 level of funding also supports transfer from CIO of \$11.8 for the Integrated Management Navigation System (iManage), a fully developed iPortal project (\$2.7), a fully developed iBudget budget and planning system (\$2.2), fully funded remaining iManage development programs (\$0.3), DOECO (EO) (\$0.6), the placement of the Cost Analysis function in CFO (\$1.0), and other CFO corporate management initiatives for modeling and human capital for the DOE financial management community (\$0.8).

**Office of the Chief Information Officer (FY 2009 \$115.5; FY 2010 \$104.55)..... -\$11.0**

Program Direction (FY 2009 \$53.7; FY 2010 \$38.1) ..... -\$15.6  
Decrease in Program Direction is related to the administrative transfer of funds from this OCIO activity to a new OCIO Energy Information Technology Services activity (-\$18.1). The decrease also reflects a reduction for operational cyber security funding (-\$5.0) that was included in the FY2009 request but not included in the request for FY 2010. An

increase supports salaries and benefits and related expenses for working capital funds to support 144 FTEs (\$4.8). Miscellaneous support services for the OCIO corporate office are increased to support financial and program oversight (\$1.9). The transfer of the Department's Records Management and Spectrum management (\$.8) from the OCIO Corporate Management Improvement activity to this activity are also reflected.

**Cyber Security (FY 2009 \$34.5; FY 2010 \$33.4) .....-\$1.1**

Most actions identified in the DOE Cyber Security Revitalization plan have been completed. Most of the activities are now entering an ongoing operational phase.

**Corporate Management Information Program (FY 2009 \$27.3; FY 2010 \$9.4.) .....-\$17.9**

Funding decrease in FY 2010 reflects the administrative transfer of several elements of this activity to other Departmental programs and CIO activities. Funding for the Integrated Management and Navigation System (iMANAGE) program (-\$11.7) activity has been transferred to the Chief Financial Officer program. The Converged Network activity has been transferred to the new OCIO Energy Information Technology Services activity (-\$5.0). The transfer of the Department's Records Management (-\$.5) and Spectrum management (-\$.3) to the OCIO Program Direction activity are also reflected. The activity has also been reduced slightly (-\$.4) due to the establishment of an increasingly mature, integrated Enterprise Architecture and Capital Planning and Investment Control agency process.

**Energy Information Technology Services (FY 2009 \$0; FY 2010 \$23.6)..... +\$23.6**

Formally located within the Office of the Chief Information Officer's Program direction and Corporate Management Information activities, this is a new activity established to recognize the importance of this function as a key mission component of the office. The increase reflects a transfer from the Program Direction activity (\$18.6) and the Corporate Management Information program (\$5.0).

**Office of Economic Impact and Diversity FY 2009 \$4.4.; FY 2010 \$6.6) ..... +\$2.2**

The increase for program support is to provide for the increases in contract and grant activity across the department as a result of the Recovery Act spending ..... (\$1.9).

**General Counsel (FY 2009 \$31.2; FY 2010 \$32.4)..... +\$1.2**

The increase reflects salaries, benefits and cost of living expenses for 153 FTEs (\$1.2).

**Human Capital Management (FY 2009 \$31.4; FY 2010 \$29.5) .....-\$1.9**

This funding level supports salaries, benefits and cost of living expenses for 189 FTEs (\$3.3). The total FTEs reflect an increase of 28 over the FY 2009 level. This includes 10 FTEs for the centrally-funded CCIS Intern Program (two-year pilot program); costs were previously captured under Support Services, but are now included under Salaries and Benefits since intern employees are on-board. This also includes an increase of 18 FTEs for core HC functions; they will be utilized to meet customer expectations and needs, and will focus on key areas of HR Operations (staffing, recruitment and classification) and Policy (corporate-wide initiatives). Other changes which offset the overall decrease include: Support Services (-\$3.6), and Other Related Expenses (-\$1.6).

**Office of Management (FY 2009 \$67.8; FY 2010 \$88.4)..... +\$20.6**

Increase of \$1.9M supports salaries, benefits and cost of living expenses for 281 FTES, offset by a net decrease of 7 FTEs from the FY 2009 level as a result of the transfer of 2 FTEs to the National Nuclear Security Administration (NNSA) for the Strategic and Critical Materials Program, and the transfer of 5 FTEs to the Chief Financial Officer (CFO) for the Cost Analysis Program. Other increases include the Project Assessment and Reporting System (\$2.0) to complete systems configuration and initiate deployment of the system, Contract/Project Management Reform (\$5.0), and Portfolio Analysis (\$10.0). Other increases support Other Related Expenses (\$1.7).

**Office of Policy and International Affairs (FY 2009 \$23.0; FY 2010 \$30. 3) ..... +7. 3**

Increase supports the Climate Change Technology Program (\$7.3) 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.

**Office of Public Affairs (FY 2009 \$3.8; FY 2010 \$5.4) ..... +1.6**  
Increase supports salaries, benefits and cost of living expenses for 24 FTES.

**Congressional and Intergovernmental Affairs (FY 2009 \$6.2; FY 2010 \$7.3) ..... +1.1**  
Increase supports salaries, benefits and cost of living expenses for 48 FTES..

**Cost of Work for Others (FY 2009 \$48.5; FY 2010 \$48.5)..... \$0**  
There is no change between FY 2009 and FY 2010.

**Revenues (FY 2009 -\$117.3; FY 2010 -\$119.7) ..... -\$2.4**  
The increase is due to inflation.

**Defense Related Administrative Support (FY 2009 -\$108.2; FY 2010 -\$123.0) ..... -\$14.8**  
Change reflects the proportional contribution from Other Defense Activities appropriation for Departmental Administration (DA) costs. FY 2010 funding represents 33 percent of DA administrative costs.



# Inspector General

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
Office Of The Inspector General Office of inspector general.....	46,057	51,927	15,000	51,445	-482	-0.9%

## 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. Additionally, in FY 2009, the OIG received \$15 million from the American Recovery & Reinvestment Act. These funds will be used to provide effective oversight of the Department's Recovery Act programs, grants and projects in an effort to protect taxpayer interests.

Statutory requirements direct the IG to conduct an annual evaluation of DOE's information security systems as required by the Federal Information Systems Management Act of 2002. IG is also charged with reviewing 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 2010 request** for the Office of Inspector General is **\$51.4 million**, which is a \$0.5 million decrease over the FY 2009 enacted appropriation of \$51.9 million. However, beginning in 2010, the IG will have an increase of \$12 million available for its use as the cost of DOE's annual financial statement audit is transferred to the Working Capital Fund. These funds will enhance the IG's ability to monitor and review programs with significant funding from the Recovery Act and respond to the anticipated increases in hotline calls and reports.

## PROGRAM HIGHLIGHTS

The FY 2010 request supports statutory requirements, including work associated with the Federal Information Systems Management Act of 2002 to evaluate unclassified information systems.

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

**Inspector General (FY 2009 \$51.9; FY 2010 \$51.4) ..... -\$0.5**  
 Reflects decreased costs in support services due to a change in the funding of the Financial Statement Audit contract, with offsetting increases to salaries and benefits, travel, training, and other related costs associated with the oversight of the Department's Recovery Act programs.

## Health, Safety and Security

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Health, Safety And Security</b>						
Other Defense Activities						
Health, safety and security.....	326,324	346,874	—	337,757	-9,117	-2.6%
Program direction.....	99,137	99,597	—	112,125	+12,528	+12.6%
Congressionally directed projects.....	—	999	—	—	-999	-100.0%
Subtotal, Health, safety and security.....	425,461	447,470	—	449,882	+2,412	+0.5%
Use of prior year balances (HSS).....	-5,890	—	—	—	—	—
<b>Total, Health, Safety And Security.....</b>	<b>419,571</b>	<b>447,470</b>	<b>—</b>	<b>449,882</b>	<b>+2,412</b>	<b>+0.5%</b>

### PROGRAM DESCRIPTION

The **Health, Safety and Security** program demonstrates the unwavering commitment of the U.S. Department of Energy to maintain a safe and secure work environment for all Federal and contractor employees and to ensure that its operations do not adversely affect the health, safety, and security of the surrounding communities. The Office of Health, Safety and Security (HSS) is DOE's central organization responsible for health, safety, and security providing corporate-level leadership and strategic vision to coordinate and integrate these activities. HSS is responsible for policy development, technical assistance, safety analysis, corporate safety and security programs, education and training, DOE-wide independent oversight, and enforcement. The Chief Health, Safety and Security Officer advises the Secretary and the Deputy Secretary on all matters related to health, safety, and security across the complex. HSS provides clear policy guidance, assistance in policy implementation, and a focused and integrated corporate-level analysis of Departmental operating experience that identifies existing and potential problem areas to provide line managers with a solid foundation for implementing effective Department-wide activities and solutions in the areas of health, safety, and security. The total **request** for the program in **FY 2010 is \$449.9 million.**

### PROGRAM HIGHLIGHTS

**Health and Safety Activities** ensure that DOE workers, the public, and the environment are adequately protected from the nuclear, chemical, and industrial hazards posed by DOE operations while striving to be current with worldwide technologies, knowledge, and experience. 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 activities 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 activities support domestic health studies including the former worker medical screening 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, and Russia. Health activities also provides records and information needed for implementation of the Energy Employees Occupational Illness Compensation Program Act by the Department of

Labor to support benefit claims filed by eligible personnel who may have been harmed as a result of working at a DOE facility.

**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. This subprogram also provides for the physical protection and security of DOE facilities and information in the National Capital Area; and security background investigations associated with providing access authorizations to DOE Headquarters Federal and contract personnel who, in the performance of their official duties, require access to classified information or certain quantities of special nuclear material.

**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 the implementation of DOE nuclear safeguards and security; cyber security; emergency management; 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.

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

The FY 2010 Health Safety and Security budget request is \$449.9, an increase of \$2.4, or 0.5% percent over the FY 2009 appropriated funding level.

**Health, Safety, and Security (FY 2009 \$346.9; FY 2010 \$337.8) .....-\$9.1**

Overall program funding decrease in security (-\$11.9) is offset by an increase in safety and health activities (+\$2.8). The security activities funding decrease is a result of shifting funding responsibility for field security investigations associated with access authorizations from HSS to the Under Secretaries' program offices beginning in FY 2010. Funding increases include Headquarters security operations and specialized security activities, as well as additional support for implementing the Energy Employees Occupational Illness Compensation Program Act, former worker medical screening, and implementing enhancements in nuclear safety activities.

**Program Direction (FY 2009 \$99.6; FY 2010 \$112.1) .....+\$12.5**

Funding reflects an increase in staffing and independent oversight activities to implement enhancements in nuclear safety activities, as well as cost of living adjustments for the Federal workforce.

**Congressionally Directed Projects (FY 2009 \$1.0; FY 2010 \$0.0).....-\$1.0**

Funding is not requested for this Congressionally directed project.

# Hearings and Appeals

(discretionary dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
Office Of Hearings And Appeals Other Defense Activities Program direction.....	4,565	6,603	—	6,444	-159	-2.4%

## PROGRAM DESCRIPTION

The **Office of Hearings and Appeals** (OHA) is 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. In FY 2009, OHA gained the responsibility for the civil rights function, previously included in the Office of Economic Impact and Diversity, within the Departmental Administration Appropriation. The civil rights function includes the investigation of Equal Employment Opportunity (EEO) and Title VI/Title IX complaints, oversight of DOE financial assistance to ensure that it is being used in a non-discriminatory way, and coordination of the employee concerns program activities across the DOE complex. The **FY 2010 request** for the Office of Hearings and Appeals is **\$6.4 million** which is a \$0.2 million decrease over the FY 2009 enacted appropriation of \$6.6 million.

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

**Hearings and Appeals (FY 2009 \$6.6; FY 2010 \$6.4)..... -\$0.2**  
 The FY 2010 request supports salaries and benefits and cost of living expenses for 34 FTEs, which include the 9 FTEs who support the civil rights function.

## Federal Energy Regulatory Commission

	(discretionary dollars in thousands)					
	FY 2008 Current Appropriation	FY 2009 Current Appropriation	FY 2009 Additional Appropriation	FY 2010 Congressional Request	FY 2010 vs. FY 2009	
					\$	%
<b>Federal Energy Regulatory Commission</b>						
Federal energy regulatory commission.....	260,425	273,400	—	298,000	+24,600	+9.0%
FERC revenues.....	-260,425	-273,400	—	-298,000	-24,600	-9.0%
<b>Total, Federal Energy Regulatory Commission.....</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>
Excess fees and recoveries, FERC						
Fees & recoveries in excess of annual appropriations.....	-20,370	-27,682	—	-26,864	+818	+3.0%
<b>Total, Federal Energy Regulatory Commission.....</b>	<b>-20,370</b>	<b>-27,682</b>	<b>—</b>	<b>-26,864</b>	<b>+818</b>	<b>+3.0%</b>

### PROGRAM DESCRIPTION

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

In carrying out its core duties to protect wholesale power and transmission customers from unjust and unreasonable rates and undue discrimination and preference, the Commission relies on competition and effective regulation. To accomplish this, the Commission promotes the development of a strong energy infrastructure. This includes stimulating appropriate infrastructure development and maintaining a reliable and safe infrastructure. 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, FERC prevents market manipulation through vigilant oversight and firm, but fair, enforcement of its rules.

### PROGRAM HIGHLIGHTS

A strong energy infrastructure is critical to the health of the U.S. economy. In order to support the development of sufficient infrastructure, FERC's rate policies must give investors confidence that they will have an opportunity to recover their investment costs. FERC, in some cases, allows incentive rate treatment for potential investors. These policies promote investment in the Nation's aging transmission infrastructure, which will further electric power reliability and lower costs for consumers by reducing transmission congestion.

The Commission has been involved in the deployment of energy efficient technologies, the development of a "smart grid," and the incorporation of renewable energy into the transmission grid. Under the Energy Independence and Security Act (EISA) of 2007, the Commission is charged with the responsibility of reviewing and approving interoperability standards of smart grid technology, and serves as a member of the Smart Grid Collaborative. Additionally, the development of state renewable energy portfolios has led to an increase in renewable generation facilities seeking access to the transmission grid. The Commission has adapted its policies to ensure new generating facilities, including renewable energy sources, are able to connect to the transmission grid in a fair and timely manner. Key to FERC's renewable resource integration efforts has been removing regulatory barriers to grid access and helping regional transmission organizations (RTOs) and independent transmission system operators (ISOs) better manage lengthy interconnection queues.

The Commission 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 and vigilant market oversight and enforcement. For example, FERC issued Order No. 719 in FY 2008 to support competitive markets; this rule requires RTOs and ISOs to alter their market rules to remove barriers to the use of demand response resources and to allow prices to reflect supply and demand conditions.

Additionally, one of the Commission's primary objectives is to protect and improve the reliability and security of the Nation's bulk-power system, based on enforcement of the Reliability Standards by the Commission-certified ERO, and the eight Regional Entities, subject to Commission review. The Commission's continued work to promote electric grid reliability will focus on: 1) overseeing the development and enforcement of mandatory electric reliability standards to protect the bulk power system, including cyber security standards; 2) addressing and improving infrastructure security; and 3) coordinating efforts with Canada and Mexico to address reliability standards and other cross-border reliability issues.

The Commission 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, FERC works with companies to develop and maintain good compliance programs and promotes self-reporting of violations. FERC's enforcement tools include expanded penalty authority for violations of the Natural Gas Act and all of Part II of the Federal Policy Act. This expanded authority further provides or increases (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 2009 to FY 2010 Request (\$ in millions)*

**FERC (FY 2009 \$273.4; FY 2010 \$298.0)..... +\$24.6**

The FY 2009 request funds 1,528 FTEs that will support FERC in its reliability and enforcement efforts. 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 2010.