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Department of Energy
FY 2011 Congressional Budget Request

Budget Highlights

February 2010 Office of Chief Financial Officer

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Table of Contents

Introduction

LEADING THROUGH INNOVATION, ENERGY, AND SECURITY

President Obama expressed clearly what is at stake with energy policy in the years and decades ahead when he said in October 2009 that "nations everywhere are racing to develop new ways to produce and use energy, and the nation that wins this competition will be the nation that leads the global economy." The Department of Energy (DOE) will continue to be at the forefront of this effort to ensure the United States is the global leader. To succeed, the Department will pursue game-changing breakthroughs, invest in innovative technologies, and deploy commercially viable solutions.

In addition to innovation and energy advances, national security will continue to be central to the DOE's efforts. DOE will lead by accelerating and expanding efforts at home and around the world to reduce the global threat posed by nuclear weapons, nuclear proliferation and unsecured or excess nuclear materials. The National Nuclear Security Administration (NNSA) supports the international effort to secure all vulnerable nuclear material around the world within four years. The NNSA also stewards a safe, secure, and effective stockpile until a world without nuclear weapons can be realized.

The Department's Fiscal Year (FY) 2011 budget request of $28.4 billion, a 6.8 percent or $1.8 billion increase from FY 2010, supports the President's commitment to respond in a considered, yet expeditious manner to the challenges of rebuilding the economy, maintaining nuclear deterrence, securing nuclear materials, improving energy efficiency, incentivizing production of renewable energy, and curbing greenhouse gas emissions that contribute to climate change. Together with the American Recovery and Reinvestment Act of 2009 (Recovery Act) and FY 2010 budget, the FY 2011 budget request supports investment for a multi-year effort to address these interconnected challenges.

The FY 2011 budget builds on the $36.7 billion in Recovery Act funding. By the end of FY 2010, the Department expects to obligate 100 percent and outlay roughly 35-40 percent of Recovery Act funds. In developing the FY 2011 budget request, the Department has taken these investments into account. 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 ($4 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 ($0.4 billion) will continue to strengthen the economy by providing much-needed investment, by saving or creating tens of thousands of direct jobs, cutting carbon emissions, and reducing U.S. dependence on foreign oil.

The President's FY 2011 Budget supports Secretary Chu's three strategic priorities:

- **Innovation:** Investing in science, discovery and innovation to provide solutions to pressing energy challenges
- **Energy:** Providing clean, secure energy and promoting economic prosperity through energy efficiency and domestic forms of energy
- **Security:** Safeguarding nuclear and radiological materials, advancing responsible legacy cleanup, and maintaining nuclear deterrence

These strategic priorities will be enabled by a continued commitment to management excellence:

- **Management:** Transforming the culture of the Department with a results-oriented approach

Innovation: Investing in Science, Discovery and Innovation to Provide Solutions to Pressing Energy Challenges

As President Obama made clear in his remarks to the National Academy of Sciences in April 2009, the public sector must invest in research and innovation not only because the private sector is sometimes reluctant to take large risks, but because the rewards will be broadly shared across the economy. Leading requires assembling a critical mass of the best scientists and engineers to engage in mission-oriented, cross-disciplinary approaches to addressing current and future energy challenges. To develop clean energy solutions and maintain nuclear security, the Department must cultivate the science, technology, engineering, and mathematics workforce of the next generation. The FY 2011 budget request of $55 million for RE-ENERGYSE (Regaining our ENERGY Science and Engineering Edge) supports K-20+ science and engineering education.

With every initiative the Department undertakes, sound science must be at the core. In FY 2011 the Department will increasingly emphasize cross-cutting initiatives to link science throughout the Department, specifically with energy and national security programs. These cross-cutting initiatives will enhance science capabilities to create knowledge and innovative technologies that can be brought to bear on national energy and security issues, leverage world-class science and engineering expertise to establish global leadership as clean energy innovators, and employ use-inspired research to reduce the cost and time to bring technologies to market at scale. The Department believes that it will deliver solutions more quickly and efficiently through our efforts to break down the traditional stovepipes and operate in a more integrated and coordinated manner. The FY 2011 Budget continues to address the President's priorities in an integrated and efficient manner, and to deliver results for the American taxpayer.

The Department continues its strong commitment to basic research and supports the President's Plan for Science and Innovation by requesting funding for the Office of Science at $5.1 billion, a 4.4 percent or $218 million increase from FY 2010. The FY 2011 budget request will support the training of students and researchers in fields critical to national competitiveness and innovation, and will support investments in areas of research essential for a clean energy future. The President's Plan commits to doubling Federal investment in basic research at select agencies. The Department supports an overarching commitment to science by investing in basic and applied research, creating new incentives for private innovation and promoting breakthroughs in energy.

To help achieve the game-changing breakthroughs needed to continue leading the global economy, the FY 2011 budget request includes $300 million for the Advanced Research Projects Agency – Energy (ARPA-E). Introduced in FY 2009, ARPA-E is responsible for enabling specific high-risk and high-payoff transformational research and development projects. Beyond simply funding transformational research that creates revolutionary technologies, ARPA-E is dedicated to the market adoption of those new technologies to meet the Nation's long-term energy challenges. This funding, along with the $400 million made available through the Recovery Act, will provide sustained investment in this pioneering program.

The Department will continue funding the three Energy Innovation Hubs introduced in FY 2010 to focus on developing fuels that can be produced directly from sunlight, improving energy efficient building systems design, and using modeling and simulation tools to create a virtual model of an operating advanced nuclear reactor. In addition, DOE is proposing a new Hub to focus on batteries and energy storage. Each of these Hubs will bring together a multidisciplinary team of researchers in an effort to speed research and shorten the path from scientific discovery to technological development and commercial deployment of highly promising energy-related technologies.

Complementing the Hubs, the Department proposes expanding the Energy Frontier Research Centers in FY 2011 to capture new, emerging opportunities by furthering its scientific reach and potential technological impact by competitively soliciting in two categories: discovery and development of new materials critical to science frontiers and technology innovations, and basic research for energy needs.

Energy: Providing Clean, Secure Energy and Promoting Economic Prosperity through Energy Efficiency and Domestic Forms of Energy

In Copenhagen, President Obama emphasized that climate change is a grave and growing danger. The imperative now is to develop the capacity to confront the challenges climate change poses and seize the opportunity to be the global leader in the clean energy economy. Meeting the Administration's goal to reduce carbon emissions by more than 80 percent by 2050 will be achieved by addressing supply and demand through increased energy efficiency, renewable generation, and grid modernization, as well as improvements in existing technologies and information analysis. An important tool that will continue to be used to address these issues will be loan guarantees. The Department's FY 2011 budget request, building on the FY 2010 budget and the Recovery Act, invests in the research, development, and deployment of technologies that will position the United States to lead international efforts to confront climate change now and in the future. The long-term economic recovery will be sustained by these continued investments in the new energy economy.

- **Loan Guarantees**
  The Loan Guarantee Program Office (LGPO) is a vital tool for promoting innovation in the energy sector across a broad portfolio of clean and efficient energy technologies. In FY 2011, the Department is requesting funding and authority to support approximately $40 billion of innovative energy technology development. During FY 2010, the LGPO streamlined the application review process. In FY 2011, the Department will continue to accelerate the availability of loans to leverage private sector investment in clean energy projects that will save and create jobs and stimulate the economy.

- **Energy Efficiency**
  In August 2009, President Obama said, "If we want to reduce our dependence on oil, put Americans back to work and reassert our manufacturing sector as one of the greatest in the world, we must produce the advanced, efficient vehicles of the future." In FY 2011, the Department will promote energy efficiency in vehicles technologies, at $325 million. No less important to achieving the President's stated ambitions is decreasing energy consumption through developing and advancing building technologies ($231 million) and industrial technologies ($100 million). Federal assistance for state-level programs, such as State Energy Program grants ($75 million, a 50 percent increase from FY 2010) and Weatherization Assistance grants ($300 million, a 43 percent increase from FY 2010), will help States and individuals take advantage of efficiency measures for buildings and homes, lower energy costs and greenhouse gas emissions, and develop an ever-evolving, technically proficient workforce.

- **Clean, Renewable Energy Generation**
  The FY 2011 budget request will modernize the Nation's energy infrastructure by investing in a variety of renewable sources such as solar ($302 million), wind ($123 million), water ($41 million), hydrogen ($137 million), biomass ($220 million) and geothermal ($55 million). These sources of energy reduce the production of greenhouse gas emissions and continue the pursuit of a clean energy economy built on the next generation of domestic production. The Department is also continuing to promote domestic clean energy through the four Power Marketing Administrations, which market and deliver electricity primarily generated by hydroelectric dams.

- **Grid Modernization**
  In support of the modernization of the electricity grid, the President's FY 2011 Budget requests $144 million for research and development to improve reliability, efficiency, flexibility, and security of electricity transmission and distribution networks. The "Smart Grid" will integrate new and improved technologies into the energy mix, ensuring reliability, integration of renewable energy resources, and improving security.

While investing in energy efficiency, renewable energy generation, and grid modernization are fundamental steps necessary for creating a clean energy economy; investing in the improvement of existing sources of energy will provide a bridge between current and future technologies These technologies are already a major segment of the energy mix and will play a critical role in providing a solid foundation that will make possible the creation of this new economy.

- **Safe and Secure Nuclear Energy**
  Nuclear energy currently supplies approximately 20 percent of the Nation's electricity and 70 percent of the Nation's clean, non-carbon electricity. The request for the Office of Nuclear Energy includes $495 million for research, development, and deployment in addition to key investments in supportive infrastructure. Work on advanced reactor technologies, fuel cycle management, and cross-cutting technologies will ensure that nuclear energy remains a safe, secure, economical source of clean energy. The Department will also promote nuclear energy through the Loan Guarantee Program, which is requesting $36 billion in loan authority in FY 2011.

- **Clean and Abundant Fossil Energy**
  The world will continue to rely on coal fired electrical generation to meet energy demand. It is imperative that the United States develop the technology to ensure that base-load electricity generation is as clean and reliable as possible. The Office of Fossil Energy will invest $438 million in the research and development of advanced coal-fueled power systems and carbon capture and storage technologies. This will allow the continued use of the abundant domestic coal resources in the U.S. while reducing greenhouse gas emissions.

Accurate energy information and analysis play a critical role in promoting efficient energy markets and informing policy-making and strategic planning. This budget requests a total of $129 million for the Energy Information Administration, the statutory statistical agency within the Department, to improve energy data and analysis programs.

Security: Safeguarding Nuclear and Radiological Materials, Advancing Responsible Legacy Cleanup and Maintaining Nuclear Deterrence

- **Reduces the Risk of Proliferation**
  In an April 2009 speech in Prague, the President called the threat of nuclear proliferation "the most immediate and extreme threat to global security" and announced his support for a new international effort to secure all vulnerable nuclear material around the world within four years. The FY 2011 budget for the NNSA Defense

Nuclear Nonproliferation program supports this effort, recognizing the urgency of the threat and making the full commitment to global cooperation that is essential to addressing this threat. The budget provides $2.7 billion in FY 2011, and $13.7 billion through FY 2015 to detect, secure, and dispose of dangerous nuclear and radiological material worldwide. This request is an increase of 26 percent or $550 million from FY 2010. The budget supports cooperative nonproliferation initiatives with foreign governments and the effort and expertise to forge them into durable international partnerships, achieving the objective of a world without nuclear weapons. The budget continues the installation of radiation detection equipment at international border crossings and Megaports, significantly expands materials protection and control security upgrades at selected sites in foreign countries to address outsider and insider threats, and accelerates the pace of highly enriched uranium research reactor conversions with an urgent focus to develop the capability to produce the medical isotope molybdenum-99 in the U.S. using low enriched uranium. The FY 2011 budget request provides $4.4 billion over five years for Fissile Materials Disposition including 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, and provides the first $100 million of a $400 million U.S. commitment to advance the construction of plutonium disposition facilities in the Russian Federation. The FY 2011 budget request also supports a funding increase for Nonproliferation and Verification Research and Development for new technologies in support of treaty monitoring and verification.

- **Leverages Science to Maintain Nuclear Deterrence**
  The FY 2011 budget request advances the Department's commitment to the national security interests of the United States through stewardship of a safe, secure and effective nuclear weapons stockpile without the use of underground nuclear testing. As the role of nuclear weapons in our Nation's defense evolves and the threats to national security continue to grow, the focus of this enterprise must also change and place its tremendous intellectual capacity and unique facilities in the service of addressing other challenges related to national defense. NNSA is taking steps to move in this direction, including functioning as a national science, technology, and engineering resource to other agencies with national security responsibilities. NNSA must ensure our evolving strategic posture places the stewardship of our nuclear stockpile, nonproliferation programs, counterterrorism, missile defenses, and the international arms control objectives into one comprehensive strategy that protects the American people and our allies. Through the NNSA, the Department requests $7.0 billion for the Weapons Activities appropriation, a 9.8 percent or $624 million increase from the FY 2010 appropriation. This increase provides a strong basis for transitioning to a smaller nuclear stockpile, strengthens the science, technology and engineering base, modernizes key nuclear facilities, and streamlines the enterprise's physical and operational footprint. These investments will enable execution of a comprehensive nuclear defense strategy based on current and projected global threats that relies less on nuclear weapons, yet enhances national security by strengthening the NNSA's nuclear security programs. This improved NNSA capability base will mitigate the concerns regarding ratification of the follow-on Strategic Arms Reduction Treaty and the Comprehensive Test Ban Treaty. The FY 2011 request for Weapons Activities has four major components. The request for Stockpile Support increases, reflecting the President's commitment to maintain the safety, security and effectiveness of the nuclear deterrent without underground nuclear testing, consistent with the principles of the Stockpile Management Program outlined in Section 3113 (a)(2) of the National Defense Authorization Act of Fiscal Year 2010 (50 U.S.C. 2524). The request for Science, Technology and Engineering increases by over 10 percent, and provides the funding necessary to protect and advance the scientific capabilities at the U.S. nuclear security laboratories supporting the stockpile and broader national security and energy issues. The budget request for Infrastructure supports the operation and maintenance of the government-owned, contractor-operated facilities in the nuclear security enterprise, as well as special capabilities for secure transportation and construction. The security and counterterrorism component of the budget provides for physical and cyber security in the NNSA enterprise, as well as emergency response assets and NNSA's focused research and development contribution to the Nation's counterterrorism efforts.

- **Advances Responsible Environmental Cleanup**
  The FY 2011 budget includes $6 billion for the Office of Environmental Management to protect public health and safety by cleaning up hazardous, radioactive legacy waste from the Manhattan Project and the Cold War. This funding 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 clean-up, the FY 2011 budget request of $189 million for the Office of Legacy Management supports the Department's long-term stewardship responsibilities and payment of pensions and benefits for former contractor workers after site closure.

The Administration has determined that the Yucca Mountain repository is not a workable option and has decided to terminate the Office of Civilian Radioactive Waste Management. The core functions and staff to support efforts under the Nuclear Waste Policy Act to meet the obligation of the Government will transfer to the Office of Nuclear Energy by the end of FY 2010.

Management: Transforming the Culture of the Department with a Results-Oriented Approach

Secretary Chu recognizes that in order to transform the way Americans use and produce energy, we must transform the Department of Energy. The Department is committed to strengthening its management culture and increasing its focus on results. The implementation of the Recovery Act provided the Department with an opportunity to continue to refine best practices in management, accountability, operations, and transparency. These best practices will be applied in executing the FY 2011 budget.

To achieve Secretary Chu's strategic priorities, the Department requests a net of $169 million for Departmental Administration. These funds, along with resources in individual program offices, will help transform key functional areas such as human, financial, project, and information technology management. The request includes $2 million for Management Reform within the Office of the Secretary, which will provide the Department with strategic direction, coordination, and oversight of reform initiatives.

DEPARTMENT OF ENERGY FY 2011 PROGRAM OFFICE HIGHLIGHTS

Office of Science: Supporting Cutting-Edge Foundational Scientific Research

The Department of Energy's Office of Science (SC) 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. SC 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 2011, the Department requests $5.1 billion, an increase of 4.4 percent over the enacted FY 2010 appropriation, to invest in science research. The FY 2011 request supports the President's Plan for Science and Innovation, which encompasses the entire SC budget, as part of a strategy to double overall basic research funding at select agencies. As part of this plan, the budget request supports the training of students and researchers in fields critical to our national competitiveness and innovation economy, and supports investments in areas of research critical to our clean energy future and to making the U.S. a leader on climate change.

SC is addressing critical societal challenges and key missions of the Department of Energy through significant improvements in existing technologies and development of new energy technologies. SC will accomplish this by: (1) sustained investments in exploratory and high-risk research in traditional and emerging disciplines, including the development of new tools and facilities; (2) focused investments in high-priority research areas; and (3) investments that train new generations of scientists and engineers to be leaders in the 21st century. The FY 2011 budget request supports all three of these investment strategies.

Two of the four Energy Innovation Hubs being requested in FY 2011 are through the Office of Science; these Hubs will bring together teams of experts from multiple disciplines to focus on two grand challenges in energy: (1) Fuels from Sunlight, a Hub established in FY 2010 and (2) Batteries and Energy Storage, a new Hub in the FY 2011 request.

The Energy Frontier Research Centers (EFRC) program will be expanded in the FY 2011 request to capture new, emerging opportunities by furthering its scientific reach and potential technological impact. New EFRCs will be competitively solicited in two categories: discovery and development of new materials that are critical to both science frontiers and technology innovations, and basic research for energy needs in a limited number of areas that are underrepresented in the 46 original EFRC awards.

The FY 2011 request for the U.S. ITER Project ($80 million, a decrease of $55 million from FY 2010) is a reflection of the pace of ITER construction as of the end of 2009. The Administration is engaged in a range of efforts to implement management reforms at the ITER Organization and accelerate ITER construction while minimizing the overall cost of the Construction Phase for the U.S. and the other ITER members.

The Office of Science supports investigators from more than 300 academic institutions and from all of the DOE laboratories. The FY 2011 budget request will support approximately 27,000 Ph.D.s, graduate students, undergraduates,

engineers, and technicians. Nearly 26,000 researchers from universities, national laboratories, industry, and international partners are expected to use SC scientific user facilities in FY 2011.

Advanced Research Projects Agency – Energy: Transformational Research and Development

The FY 2011 budget request includes $300 million for the Advanced Research Projects Agency – Energy (ARPA-E), a program launched in FY 2009 that sponsors specific high-risk and high-payoff transformational research and development projects that overcome the long-term technological barriers in the development of energy technologies to meet the Nation's energy challenges, but that industry will not support at such an early stage. An essential component of ARPA-E's culture is an overarching focus on accelerating science to market. Beyond simply funding transformational research creating revolutionary technologies, ARPA-E is dedicated to the market adoption of those new technologies that will fuel the economy, create new jobs, reduce energy imports, improve energy efficiency, reduce energy-related emissions, and ensure that the U.S. maintains a technological lead in developing and deploying advanced energy technologies.

Office of Energy Efficiency and Renewable Energy: Developing and Deploying Clean, Reliable Energy

The Office of Energy Efficiency and Renewable Energy (EERE) strengthens the energy security, environmental quality, and economic vitality of the U.S. through the research, development, demonstration and deployment (RDD&D) of clean energy technologies and generation and advances in energy efficiency. EERE's activities are critical to creating a low carbon economy and sustaining strong economic growth and job creation while dramatically reducing greenhouse gas emissions and energy imports. EERE programs link advances in basic research and the creation of commercially successful products and services to ensure delivery to the marketplace for general use and implementation.

The FY 2011 budget request of $2.4 billion, an increase of 5 percent over FY 2010, is aimed at accelerating revolutionary change in the Nation's energy economy. The request includes programs associated with meeting the President's goals of investing in the next generation of clean energy technologies, vehicles and fuels, and energy efficiency measures that reduce energy use in Federal agencies and the industrial and building sectors.

Clean, Renewable Energy Generation

The FY 2011 budget request continues to work to transform the Nation's energy infrastructure by investing over $650 million in a variety of renewable sources of electrical generation such as solar ($302 million, a 22 percent increase over FY 2010), and wind ($123 million, a 53 percent increase over FY 2010), as well as deploy clean technologies to reduce our dependence on oil. The request includes expansions on Concentrating Solar Power, biopower and off-shore wind, which will provide new, additional avenues for clean energy development and deployment. These technologies will reduce the production of greenhouse gas emissions and revitalize an economy built on the next generation of domestic production.

Energy Efficiency

The Department implements a number of efforts to increase energy efficiency and conservation in homes, transportation, and industry. The FY 2011 budget requests $758 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 the industrial and Federal sectors. The Department will invest $231 million in the Building Technologies program, a 16 percent increase over FY 2010 for built environment R&D. Federal assistance for state-level programs such as State Energy Program grants ($75 million) and Weatherization Assistance Program ($300 million), will continue to help citizens implement energy conservation measures, lower energy costs and greenhouse gas emissions, and build a technical workforce. The FY 2011 request also includes $545 million to accelerate research, development and deployment of advanced fuels and vehicles to reduce the use of petroleum and greenhouse gas emissions. The FY 2011 budget complements the Recovery Act funding for these programs ($3.1 billion for State Energy Programs, $5 billion for Weatherization Assistance, $2 billion for Advanced Battery Manufacturing and $400 million for Transportation Electrification).

Office of Electricity Delivery and Energy Reliability: Moving Toward a More Intelligent Grid to Power the Digital Economy

The FY 2011 budget request for the Office of Electricity Delivery and Energy Reliability (OE) budget is $186 million, an increase of 8 percent over FY 2010. These funds will build on the "Smart Grid" investments and other activities.

The ability of the United States to meet the growing demand for reliable electricity is challenged by an aging power grid under mounting stress. Despite the increasing demand for reliable power brought on by the modern digital economy, the power grid in the U.S. has suffered from a long period of underinvestment. Much of the power delivery system was built on technology developed over 50 years ago and thus responds to disturbances with speed limited by the technology of that period. This limitation increases the vulnerability of the power system to outages that can spread quickly and impact whole regions. Breakthroughs in digital network controls, transmission, distribution, and energy storage will make the power grid more efficient, alleviating the stress on the system, as well as enable greater use of clean and distributed energy sources. The return on these investments will come from a reduction in economic losses caused by power outages and the delay or avoidance of costly investment in new generation and transmission infrastructure.

The budget request provides $144 million for research and development, which supports development of technologies that will improve the reliability, efficiency, flexibility, functionality, and security of the Nation's electricity delivery system. It accelerates investment in energy storage capabilities and funds two new research initiatives: Advanced Modeling Grid Research, to develop grid-modeling capabilities using the large volumes of data generated by advanced sensors deployed on the grid; and Power Electronics, to develop new power control devices in collaboration with universities. The proposal also continues to support the development of "Smart Grid" technologies and cyber security systems for the power grid.

The budget request continues support for Permitting, Siting, and Analysis ($6.4 million) to assist States, regional entities, and other federal agencies in developing policies and programs aimed at modernizing the power grid; and for Infrastructure Security and Energy Restoration ($6.2 million) to enhance the reliability and resiliency of U.S. critical infrastructure and facilitate its recovery from energy supply disruptions.

Office of Environmental Management: Reducing Risks and Making Progress

The mission of the Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about from over six decades of nuclear weapons development, production, and Government-sponsored nuclear energy research. This cleanup effort is the largest in the world, originally involving two million acres at 107 sites in 35 states, dealing with some of the most dangerous materials known to man.

EM continues to pursue its cleanup objectives within the overall framework of achieving the greatest comparative risk reduction benefit and overlaying regulatory compliance commitments and best business practices to maximize cleanup progress. To support this approach, EM has prioritized its cleanup activities:

- 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

The FY 2011 budget request for $6.0 billion will fund activities to maintain a safe and secure posture in the EM complex and make progress against program goals and compliance commitments, including reduction of highest risks to the environment and public health, use of science and technology to reduce life cycle costs, and reduction of EM's geographic footprint by 40 percent by 2011. EM continues to move forward with the development of the capability for dispositioning tank waste, nuclear materials, and spent nuclear fuel. The budget request includes the construction and operation of three unique and complex tank waste processing plants to treat approximately 88 million gallons of radioactive tank waste for ultimate disposal. It will also fund the solid waste disposal

infrastructure needed to support disposal of transuranic and low-level wastes generated by high-risk activities and the footprint reduction activities. In addition to the FY 2011 budget request, EM will continue to expend the $6 billion in Recovery Act funding provided by Congress to complete lower-risk footprint reduction and near-term completion cleanup activities.

EM carries out its cleanup activities with the interests of stakeholders in mind. Most importantly, EM will continue to fulfill its responsibilities by conducting cleanup within a "Safety First" culture that integrates environment, safety, and health requirements and controls into all work activities to ensure protection to the workers, public, and the environment, and adheres to sound project and contract management principles. EM is also strengthening its project and planning analyses to better assess existing priorities and identify opportunities to accelerate cleanup work. Working collaboratively with the sites, EM continues 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.

After the EM program completes cleanup and closure of sites that no longer have an ongoing DOE mission, post closure stewardship activities are transferred to the **Office of Legacy Management (LM)**. LM also receives sites remediated by the U.S. Army Corps of Engineers (Formerly Utilized Sites Remedial Action Program) and private licensees (Uranium Mill Tailings Radiation Control Act, Title II sites). 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 post-retirement benefits for contractor retirees.

The Administration has determined that developing a repository at Yucca Mountain, Nevada, is not a workable option and has decided to terminate the **Office of Civilian Radioactive Waste Management (RW)**. The Nation needs a different solution for nuclear waste disposal. As a result, in 2010, the Department will discontinue its application to the U.S. Nuclear Regulatory Commission for a license to construct a high-level waste geologic repository at Yucca Mountain and establish a Blue Ribbon Commission to inform the Administration as it develops a new strategy for nuclear waste management and disposal. All funding for development of the Yucca Mountain facility and RW will be eliminated by the end of FY 2010. The Administration remains committed to fulfilling its obligations under the Nuclear Waste Policy Act. The Office of Nuclear Energy will develop an integrated approach to improve the waste management options for the Nation and support the Blue Ribbon Commission. Ongoing responsibilities under the Nuclear Waste Policy Act, including administration of the Nuclear Waste Fund and the Standard Contract, will continue under the Office of Nuclear Energy, which will lead future waste management activities.

Innovative Technology Loan Guarantee Program and Advanced Technology Vehicle Manufacturing Program: Supporting Investment in Innovation and Manufacturing

To encourage the early commercial production and use of new or significantly improved technologies in energy projects, the Department is requesting an additional $36 billion in authority to guarantee loans for nuclear power facilities and $500 million in appropriated credit subsidy for the cost of loan guarantees for renewable energy systems, and efficient end-use energy technology projects under section 1703 of the Energy Policy Act of 2005. The additional loan authority for nuclear power projects will promote near-term deployment of new plants and support an increasing role for private sector financing. The additional credit subsidy will allow for investment in the innovative renewable and efficiency technologies that are critical to meeting the Administration's goals for affordable, clean energy, technical leadership, and global competitiveness.

The FY 2011 budget also requests $58 million to evaluate applications received under the eight solicitations released to date and to ensure efficient and effective management of the Loan Guarantee Program. This request will be offset by collections authorized under Title XVII of the Energy Policy Act of 2005 (P.L. 109-8).

The **Advanced Technology Vehicle Manufacturing** program requests $10 million to support ongoing loan and loan monitoring activities associated with the program mission of making 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.

Office of Nuclear Energy: Investing in Energy Security and Technical Leadership

The Department is requesting $912 million for the Office of Nuclear Energy (NE) in FY 2011 – an increase of 5 percent over the FY 2010 enacted level. NE's funding supports the advancement of nuclear power as a resource capable of meeting the Nation's energy, environmental, and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers through research, development, and demonstration as appropriate.

Currently, nuclear energy supplies approximately 20 percent of the Nation's electricity and over 70 percent of clean, non-carbon producing 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 greenhouse gas emissions. NE is working to develop innovative and transformative technologies to improve the competitiveness, safety and proliferation resistance of nuclear energy to support its continued use.

The FY 2011 budget supports a reorganized and refocused set of research, development, and deployment (RD&D) activities. This program is built around exploring, through RD&D: technology and other solutions that can improve the reliability, sustain the safety, and extend the life of current reactors; improvements in the affordability of new reactors to enable nuclear energy to help meet the Administration's energy security and climate change goals; understanding of options for nuclear energy to contribute to reduced carbon emissions outside the electricity sector; development of sustainable nuclear fuel cycles; and minimization of risks of nuclear proliferation and terrorism.

NE is requesting $195 million for Reactor Concepts Research, Development and Deployment. This program seeks to develop new and advanced reactor designs and technologies. Work will continue on design, licensing and R&D for the Next Generation Nuclear Plant to demonstrate gas-cooled reactor technology in the United States. The program also supports research on Generation IV and other advanced designs and efforts to extend the life of existing light water reactors. In FY 2011, NE will initiate a new effort focused on small modular reactors, a technology the Department believes has promise to help meet energy security goals.

The FY 2011 request includes $201 million for Fuel Cycle Research and Development to perform long-term, results-oriented science-based R&D to improve fuel cycle and waste management technologies to enable a safe, secure, and economic fuel cycle. The budget also requests $99 million to support a new R&D program, Nuclear Energy Enabling Technologies, focused on the development of cross-cutting and transformative technologies relevant to multiple reactor and fuel cycle concepts. The Crosscutting Technology Development activity provides crosscutting R&D support for nuclear energy concepts in areas such as advanced fuels and reactor materials and creative approaches to further reduce proliferation risks. The Transformative Nuclear Concepts R&D activity will support, via an open, competitive solicitation process, investigator-initiated projects that relate to any aspect of nuclear energy generation including, but not limited to, reactor and power conversion technologies, enrichment, fuels and fuel management, waste disposal, and nonproliferation, to ensure that good ideas have sufficient outlet for exploration. The Energy Innovation Hub for Modeling and Simulation will apply existing modeling and simulation capabilities to create a "virtual" reactor user environment to simulate an operating reactor. NE will also continue its commitments to investing in university research, international cooperation, and the Nation's nuclear infrastructure – important foundations to support continued technical advancement.

Office of Fossil Energy: Abundant and Affordable Energy for the 21st Century

The FY 2011 budget request of $760 million for the Office of Fossil Energy (FE) will help ensure that the United States can continue to rely on clean, affordable energy from traditional domestic fuel resources. The United States has 25 percent of the world's coal reserves, and fossil fuels currently supply 86 percent of the Nation's energy.

The Department is committed to advancing Carbon Capture and Storage (CCS) technologies in order to promote a cleaner and more efficient use of fossil fuels. In addition to significant Recovery Act funds, Advanced CCS with $438 million requested in FY 2011 is the foundation of the Department's clean coal research program which seeks to establish the capability of producing electricity from coal with near-zero atmospheric emissions.

In addition, $150 million of FE's $760 million request will be used to promote national energy security through the continued operations of both the Strategic Petroleum Reserve and Northeast Home Heating Oil Reserve programs.

These programs protect the Nation and the public against economic damages from potential disruptions in foreign and domestic petroleum supplies.

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 2011 President's budget request is $11.2 billion, an increase of 13 percent from the enacted FY 2010 appropriation. The FY 2011-2015 President's Request for the NNSA is a significant funding increase over FY 2010 levels, reflecting the President's priorities on global nuclear nonproliferation and for strengthening the nuclear security posture of the United States to meet defense and homeland security-related objectives:

- Broaden and strengthen the NNSA's science, technology and engineering mission to meet national security needs
- Work with global partners to secure all vulnerable nuclear materials around the world within four years
- Work towards a world with no nuclear weapons. Until that goal is achieved, ensure the U.S. nuclear deterrent remains safe, secure and effective
- Transform the Nation's Cold-War era weapons complex into a 21st century national security enterprise
- Provide safe and effective nuclear propulsion for U.S. navy warships

The FY 2011 budget request of $7.01 billion for the Weapons Activities appropriation provides funding for a wide range of programs. Some activities provide direct support for maintaining the nuclear weapon stockpile, including stockpile surveillance, annual assessments, life extension programs, and warhead dismantlement. Science, Technology and Engineering programs are focused on long-term vitality in science and engineering, and on performing R&D to sustain current and future stockpile stewardship capabilities without the need for underground nuclear testing. These programs also provide a base capability to support scientific research needed by other elements of the Department, to the federal government national security community, and the academic and industrial communities. Infrastructure programs support facilities and operations at the government-owned, contractor-operated sites, including activities to maintain and steward the health of these sites for the long term. Security and counterterrorism activities leverage the unique nuclear security expertise and resources maintained by NNSA to other Departmental offices and to the Nation.

The Weapons Activities request is an increase of 9.8 percent over the FY 2010 enacted level. This level is sustained and increased in the later outyears. The multi-year increase is necessary to reflect the President's commitment to maintain the safety, security and effectiveness of the nuclear deterrent without underground nuclear testing, consistent with the principles of the Stockpile Management Program outlined in Section 3113 (a)(2) of the National Defense Authorization Act of Fiscal Year 2010 (50 U.S.C. 2524). Increases are provided which directly support of the nuclear weapon stockpile, for scientific, technical and engineering activities related to maintenance assessment and certification capabilities, and for recapitalization of key nuclear facilities. The President's Request provides funding necessary to protect the human capital base at the national laboratories —including the ability to design and certify nuclear weapons — through a stockpile stewardship program that fully exercises these capabilities. Security and nuclear counterterrorism activities decrease about 3 percent from the FY 2010 appropriated levels, leveraging the continuing efficiencies in the Defense Nuclear Security budget.

The FY 2011 request for Defense Nuclear Nonproliferation is $2.7 billion, an increase of 25.8 percent over the FY 2010 appropriation. The increase is driven by the imperative for U.S. leadership in nonproliferation initiatives both here and abroad. In addition to the programs funded solely by the NNSA, our programs support the Department of Energy mission to protect our national security by preventing the spread of nuclear weapons and nuclear materials to terrorist organizations and rogue states. These efforts are implemented in part through the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, formed at the G8 Kananaskis Summit in June 2002, and the Global Initiative to Combat Nuclear Terrorism, launched in Rabat, Morocco, in October 2006.

The FY 2011 President's request for International Nuclear Materials Protection and Cooperation reflects selective new security upgrades to buildings and areas that were added to the cooperation after the Bratislava Summit, additional Second Line of Defense sites, and sustainability support for MPC&A upgrades. The Global Threat Reduction Initiative increases by 68 percent in support of the international effort to secure vulnerable nuclear materials around the world within four years. The Fissile Materials Disposition program increases by 47 percent reflecting continuing domestic construction of the MOX Fuel Fabrication Facility and the Waste Solidification Building, as well as design documentation

for a related pit disassembly and conversion capability. A portion of the funding increase results from the transfer of funding associated with the latter activity from the Weapons Activities appropriation starting in 2011.

The President's request of $1.1 billion for Naval Reactors is an increase of 13.3 percent over the FY 2010 appropriated level. The program supports the U.S. Navy's nuclear fleet, comprised of all of the Navy's submarines and aircraft carriers, including 52 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. These ships are relied on every day, all over the world, to protect our national interests. Starting in FY 2010, there are major new missions for the NNSA Naval Reactors program. A significant funding increase is requested for the OHIO Class submarine replacement and for the related activity which will demonstrate new submarine reactor plant technologies as part of the refueling of the land-based prototype reactor. R&D is underway now, and funding during this Future Years Nuclear Security Program is critical to support the long manufacturing spans for procurement of reactor plant components in 2017, and ship procurement in 2019. Resources are also included in FY 2011 to support commencement of design work for the recapitalization of spent nuclear fuel infrastructure.

The Office of the Administrator appropriation provides for federal program direction and support for NNSA's Headquarters and field installations. The FY 2011 request is $448.3 million, a 6.5 percent increase over the FY 2010 appropriation. 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 integration of budget and performance through transparent financial management practices.

Management: Transforming the Culture of the Department with a Results-Oriented Approach

Secretary Chu recognizes that in order to transform the way Americans use and produce energy, we need to transform the Department of Energy. Because the mission of the Department is vital and urgent, it must be pursued using a results-oriented approach that is safe, fiscally responsible, and legally and ethically sound. The Department has developed strong management and oversight capabilities during implementation of the Recovery Act, and these lessons will be applied to the FY 2011 budget. The budget request of $337 million for corporate management includes $75 million for the Office of Management, $102 million for the Office of the Chief Information Officer, $43 million for the Inspector General's office, $62.7 million for the Office of the Chief Financial Officer, $37 million for the Office of General Counsel, and $2 million for Management Reform within the Office of the Secretary. The Management Reform effort will provide the Department with strategic direction, coordination, and oversight of management initiatives. The primary mission of this new office is to identify operational efficiencies to free up resources for priority mission activities. Additionally, the Department is also requesting $12 million for a new Acquisition Workforce Improvement initiative which will be utilized to increase the size and improve the training of our acquisition professionals.

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 develop different 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 2009 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. In addition, the Department continues to strengthen the execution of program funding dollars by having regular execution reviews that will ensure funding is processed, approved and spent quickly and responsibly. The Department in FY 2011 will continue its effort to build and improve its integrated business management system.

The Department is continuing to make progress in improving project management and is implementing an action plan with scheduled milestones and aggressive performance metrics. 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.

To improve financial performance in project management, the Department has increased the use of Earned Value Management (EVM) techniques within program offices. These techniques 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.

A more detailed summary description of the Department of Energy's FY 2011 budget request follows:

Department of Energy

Budget by Organization

(discretionary dollars in thousands)

Discretionary Summary By Organization	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
National Security						
Weapons Activities	6,410,000	0	6,384,431	7,008,835	+624,404	+9.8%
Defense Nuclear Nonproliferation	1,545,071	0	2,136,709	2,687,167	+550,458	+25.8%
Naval Reactors	828,054	0	945,133	1,070,486	+125,353	+13.3%
Office of the Administrator	439,190	0	410,754	448,267	+37,513	+9.1%
Total, National Nuclear Security Administration	*9,222,315*	*0*	*9,877,027*	*11,214,755*	*+1,337,728*	*+13.5%*
Energy and Environment						
Energy Efficiency and Renewable Energy	2,156,865	16,771,907	2,242,500	2,355,473	+112,973	+5.0%
Electricity Delivery and Energy Reliability	134,629	4,495,712	171,982	185,930	+13,948	+8.1%
Fossil Energy	1,097,003	3,398,607	951,133	760,358	-190,775	-20.1%
Nuclear Energy	1,357,263	0	869,995	912,252	+42,257	+4.9%
Total, Energy	*4,745,760*	*24,666,226*	*4,235,610*	*4,214,013*	-21,597	-0.5%
Environment						
Environmental Management	5,990,667	6,000,000	6,007,854	6,047,000	+39,146	+0.7%
Civilian Radioactive Waste Management	288,390	0	196,800	0	-196,800	-100.0%
Office of Legacy Management	185,981	0	190,802	188,626	-2,176	-1.1%
Total, Environment	*6,465,038*	*6,000,000*	*6,395,456*	*6,235,626*	*-159,830*	*-2.5%*
Total, Energy and Environment	*11,210,798*	*30,666,226*	*10,631,066*	*10,449,639*	*-181,427*	*-1.7%*
Science	4,807,170	1,632,918	4,903,710	5,121,437	+217,727	+4.4%
Advanced Research Projects Agency - Energy	15,000	388,856	0	299,966	+299,966	N/A
Corporate Management						
Office of the Secretary	5,700	4,800	5,864	7,864	+2,000	+34.1%
Cost of Work and Revenues	-68,780	0	-72,203	-71,203	+1,000	+1.4%
Chief Information Officer	115,500	5,700	103,063	102,163	-900	-0.9%
Chief Financial Officer	43,257	15,000	62,981	62,731	-250	-0.4%
Management	67,790	10,000	78,456	86,675	+8,219	+10.5%
Human Resources	31,436	2,800	29,537	27,560	-1,977	-6.7%
Hearings and Appeals	6,603	0	6,444	6,444	——	——
Congressional and Intergovernmental Affairs	6,200	0	10,326	6,326	-4,000	-38.7%
Public Affairs	3,780	0	4,500	4,500	——	——
Office of Indian Energy Policy and Programs	0	0	0	0	——	——
General Counsel	31,233	3,200	32,478	36,654	+4,176	+12.9%
Policy and International Affairs	23,000	0	30,253	30,253	——	——
Economic Impact and Diversity	4,400	500	6,671	6,337	-334	-5.0%
Inspector General	51,927	15,000	51,927	42,850	-9,077	-17.5%
Total, Corporate Management	*322,046*	*57,000*	*350,297*	*349,154*	*-1,143*	*-0.3%*
Credit Programs						
Innovative Technology Loan Guarantee Program	0	0	0	500,000	+500,000	N/A
Advanced Technology Vehicles Manufacturing Loan	7,510,000	10,000	20,000	9,998	-10,002	-50.0%
Section 1705 Temporary Loan Guarantee Program	0	3,960,000	0	0	——	——
Total, Credit Programs	*7,510,000*	*3,970,000*	*20,000*	*509,998*	*+489,998*	*+2,450.0%*
Health, Safety and Security	447,470	0	443,882	464,211	+20,329	+4.6%
Energy Information Administration	110,595	0	110,595	128,833	+18,238	+16.5%
Power Marketing Administrations	234,139	10,000	288,861	95,477	-193,384	-66.9%
Federal Energy Regulatory Commission	-23,080	0	-28,886	-29,111	-225	-0.8%
Domestic Utility Fees	0	0	0	-200,000	-200,000	N/A
Total, Discretionary Funding	**33,856,453**	**36,725,000**	**26,596,552**	**28,404,359**	**+1,807,807**	**+6.8%**

** The Defense Environmental Cleanup/Uranium Enrichment Decontamination and Decommissioning Fund accounts reflect correctly the Administration's policy for the Department's FY 2011 request. These accounts include $47 million that was inadvertently omitted from the official Budget request. A budget amendment is expected to be forthcoming to formally correct for this error.*

Department of Energy

Budget by Appropriation

(discretionary dollars in thousands)

Discretionary Summary By Appropriation	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Energy And Water Development, And Related Agencies Appropriation Summary						
Energy Programs						
Energy Efficiency and Renewable Energy	2,156,865	16,771,907	2,242,500	2,355,473	+112,973	+5.0%
Electricity Delivery and Energy Reliability	134,629	4,495,712	171,982	185,930	+13,948	+8.1%
Nuclear Energy	791,444	0	786,637	824,052	+37,415	+4.8%
Fossil Energy Programs						
Clean Coal Technology	0	0	0	0	——	——
Fossil Energy Research and Development	863,104	3,398,607	672,383	586,583	-85,800	-12.8%
Naval Petroleum and Oil Shale Reserves	19,099	0	23,627	23,614	-13	-0.1%
Strategic Petroleum Reserve	226,586	0	243,823	138,861	-104,962	-43.0%
Strategic Petroleum Account	-21,586	0	0	0	——	——
Northeast Home Heating Oil Reserve	9,800	0	11,300	11,300	——	——
Subtotal, Fossil Energy Programs	*1,097,003*	*3,398,607*	*951,133*	*760,358*	*-190,775*	*-20.1%*
Uranium Enrichment D&D Fund	535,503	390,000	573,850	730,498	+156,648	+27.3%
Energy Information Administration	110,595	0	110,595	128,833	+18,238	+16.5%
Non-Defense Environmental Cleanup	261,819	483,000	254,673	225,163	-29,510	-11.6%
Science	4,813,470	1,632,918	4,903,710	5,121,437	+217,727	+4.4%
Energy Transformation Acceleration Fund	8,700	388,856	0	299,966	+299,966	N/A
Nuclear Waste Disposal	145,390	0	98,400	0	-98,400	-100.0%
Departmental Administration	155,326	42,000	168,944	169,132	+188	+0.1%
Inspector General	51,927	15,000	51,927	42,850	-9,077	-17.5%
Advanced Technology Vehicles Manufacturing Loan	7,510,000	10,000	20,000	9,998	-10,002	-50.0%
Innovative Technology Loan Guarantee Program	0	0	0	500,000	+500,000	N/A
Section 1705 Temporary Loan Guarantee Program	0	3,960,000	0	0	——	——
Total, Energy Programs	*17,772,671*	*31,588,000*	*10,334,351*	*11,353,690*	*+1,019,339*	*+9.9%*
Atomic Energy Defense Activities						
National Nuclear Security Administration:						
Weapons Activities	6,410,000	0	6,384,431	7,008,835	+624,404	+9.8%
Defense Nuclear Nonproliferation	1,545,071	0	2,136,709	2,687,167	+550,458	+25.8%
Naval Reactors	828,054	0	945,133	1,070,486	+125,353	+13.3%
Office of the Administrator	439,190	0	410,754	448,267	+37,513	+9.1%
Total, National Nuclear Security Administration	*9,222,315*	*0*	*9,877,027*	*11,214,755*	+1,337,728	+13.5%
Environmental and Other Defense Activities						
Defense Environmental Cleanup	5,656,345	5,127,000	5,642,331	5,588,039	-54,292	-1.0%
Other Defense Activities	1,314,063	0	847,468	878,209	+30,741	+3.6%
Defense Nuclear Waste Disposal	143,000	0	98,400	0	-98,400	-100.0%
Total, Environmental & Other Defense Activities	*7,113,408*	*5,127,000*	*6,588,199*	*6,466,248*	*-121,951*	*-1.9%*
Total, Atomic Energy Defense Activities	*16,335,723*	*5,127,000*	*16,465,226*	*17,681,003*	*+1,215,777*	*+7.4%*
Power Marketing Administration						
Southeastern Power Administration	7,420	0	7,638	0	-7,638	-100.0%
Southwestern Power Administration	28,414	0	44,944	12,699	-32,245	-71.7%
Western Area Power Administration	218,346	10,000	256,711	105,558	-151,153	-58.9%
Falcon & Amistad Operating & Maintenance Fund	2,959	0	2,568	220	-2,348	-91.4%
Colorado River Basins	-23,000	0	-23,000	-23,000	——	——
Total, Power Marketing Administrations	*234,139*	*10,000*	*288,861*	*95,477*	*-193,384*	*-66.9%*
Federal Energy Regulatory Commission	0	0	0	0	——	——
Subtotal, Energy And Water Development and Related Agencies	*34,342,533*	*36,725,000*	*27,088,438*	*29,130,170*	*+2,041,732*	*+7.5%*
Uranium Enrichment D&D Fund Discretionary Payments	-463,000	0	-463,000	-696,700	-233,700	-50.5%
Excess Fees and Recoveries, FERC	-23,080	0	-28,886	-29,111	-225	-0.8%
Total, Discretionary Funding	**33,856,453**	**36,725,000**	**26,596,552**	**28,404,359**	**+1,807,807**	**+6.8%**

** The Defense Environmental Cleanup/Uranium Enrichment Decontamination and Decommissioning Fund accounts reflect correctly the Administration's policy for the Department's FY 2011 request. These accounts include $47 million that was inadvertently omitted from the official Budget request. A budget amendment is expected to be forthcoming to formally correct for this error.*

Science

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Advanced Scientific Computing Research	358,772	161,795	394,000	426,000	+32,000	+8.1%
Basic Energy Sciences	1,535,765	555,406	1,636,500	1,835,000	+198,500	+12.1%
Biological and Environmental Research	585,176	165,653	604,182	626,900	+22,718	+3.8%
Fusion Energy Sciences Program	394,518	91,023	426,000	380,000	-46,000	-10.8%
High Energy Physics	775,868	232,390	810,483	829,000	+18,517	+2.3%
Nuclear Physics	500,307	154,800	535,000	562,000	+27,000	+5.0%
Workforce Development for Teachers and Scientists	13,583	12,500	20,678	35,600	+14,922	+72.2%
Science Laboratories Infrastructure	145,380	198,114	127,600	126,000	-1,600	-1.3%
Safeguards and Security	80,603	0	83,000	86,500	+3,500	+4.2%
Science Program Direction	186,695	5,600	189,377	214,437	+25,060	+13.2%
Congressionally Directed Projects	91,064	0	76,890	0	-76,890	-100.0%
Small Business Innovation Research (SBIR)	154,439	55,637	0	0	——	——
Subtotal, Science	***4,822,170***	***1,632,918***	***4,903,710***	***5,121,437***	**+217,727**	**+4.4%**
Use of Prior Year Balances and Other Adjustments	-15,000	0	0	0	——	——
Total, Science	**4,807,170**	**1,632,918**	**4,903,710**	**5,121,437**	**+217,727**	**+4.4%**

PROGRAM DESCRIPTION

The mission of the **Office of Science (SC)** is the delivery of scientific discoveries and major scientific user facilities tools to transform our understanding of nature and to advance the energy, economic, and national security of the United States. The Science program supports basic research in the following areas: fundamental research in energy, matter, and the basic forces of nature; biological systems; climate change and the 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 $5.1 billion FY 2011. SC supports several ongoing initiatives such as the U.S. Global Change Research Program ($191.2 million); the Climate Change Technology Program ($706.2 million); Networking and Information Technology Research and Development ($461.9 million); and the National Nanotechnology Initiative ($331.3 million).

In support of its mission, SC's 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. SC activities are carried out in ten programs: Advanced Scientific Computing Research (ASCR), Basic Energy Sciences (BES), Biological and Environmental Research (BER), Fusion Energy Sciences (FES), High Energy Physics (HEP), Nuclear Physics (NP), Workforce Development for Teachers and Scientists (WDTS), Science Laboratories Infrastructure (SLI), Safeguards and Security (S&S), and Science Program Direction (SCPD).

PROGRAM HIGHLIGHTS

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 not solvable 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 partnerships (Scientific Discovery through Advanced Computing, or SciDAC), as well as research and evaluation prototypes, and the operation of high performance computing systems and networks. In FY 2011, ASCR continues research efforts in SciDAC, applied mathematics, and computer science programs. The FY 2011 request supports continued operations of the Leadership Computing Facilities at Oak Ridge National Laboratory and Argonne National Laboratory, which provide petascale computing power to the

open science community. The Oak Ridge Leadership Computing Facility operates the most powerful computer in the world at 2.33 petaflops. The Argonne Leadership Computing Facility operates a 556 teraflop system and in FY 2011 will support site preparation and acquisition activities for a next generation machine of approximately 10 petaflops. 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 begin to deliver 100 gigabit per second (Gbps) connections among the Office of Science laboratories, up from 40-60 Gbps in FY 2009.

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 2011, 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 are supported in FY 2011 by BES as part of the suite of Hubs 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, FY 2011 will be the first full year of operations of the Linac Coherent Light Source.

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. BER plays a vital role in supporting research on atmospheric processes, climate modeling, interactions between ecosystems and greenhouse gases, 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 2011, 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 operation of the Environmental Molecular Science Laboratory. In FY 2011 BER expands climate research to accelerate the resolution of critical uncertainties involved in the prediction of climate change and to increase the accuracy of projections. BER will also continue support for simulations and analyses needed for part of the Intergovernmental Panel on Climate Change Fifth Assessment.

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 2011 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 2011 request will continue support for the Fusion Simulation Program computational initiative and the research at two plasma science centers. FES also continues to support the joint program in high energy density laboratory plasmas (HEDLP) with the National Nuclear Security Administration.

High Energy Physics 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 2011. 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 2011 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. Project engineering and design is initiated for the Long Baseline Neutrino Experiment (LBNE) and the Muon to Electron (Mu2e) experiment. Several national and international collaborative projects to pursue questions in dark matter, dark energy, and neutrino properties continue in FY 2011, 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, for the Large Synoptic Survey Telescope, and 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 2011 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, and funds are requested for initial design and engineering activities for the Facility for Rare Isotope Beams (FRIB). The request also supports several major items of equipment (MIEs) to address compelling scientific opportunities. In FY 2011, the Isotope Development and Production for Research Applications program will focus on production of the isotopes needed by stakeholders and on research isotope priorities identified by the Nuclear Science Advisory Committee and community input.

Workforce Development for Teachers and Scientists increases support to start a second cohort of participants in the SC Graduate Fellowship Program. The Science Laboratories Infrastructure program supports infrastructure at DOE laboratories and landlord responsibilities at the Oak Ridge Reservation, and provides Payments in Lieu of Taxes to local communities around the Argonne, Brookhaven, and Oak Ridge National Laboratories. Construction funding supports two new projects and continues prior year projects. The Safeguards and Security program continues to address the highest security needs of the SC complex. Finally, Science Program Direction requests additional funding to support total staffing of 1,135 FTEs at headquarters, field sites, and the Office of Scientific and Technical Information.

SIGNIFICANT FUNDING CHANGES – FY 2010 Appropriation to FY 2011 Request ($ in millions)

Advanced Scientific Computing Research (FY 2010 $394.0; FY 2011 $426.0)..... +$32.0

Increased funding in Applied Mathematics supports the development of improved applied mathematical models, methods, and algorithms ($45.4; +$0.7). Computer Science also increases to support the challenges of emerging extreme scale architectures ($47.4; +$0.6). Computational Partnerships will support efforts on getting applications ready for extreme scale computing ($53.3; +$0.0). Next generation networking for science remains unchanged ($14.3; $0.0). Support for NERSC operations is increased ($56.0; +$1.0) while support for the Leadership Computing Facilities at ORNL and ANL is increased to cover scheduled increases in lease payments ($158.0; +$34.8). Support for R&E prototypes decreases with final payment on the DARPA HPCS project ($10.1;-$6.1). Support for ESnet increases to begin to deliver increased bandwidth ($30.0; +$0.3). SBIR/STTR increases ($11.5; +$0.7).

Basic Energy Sciences (FY 2010 $1,636.5; FY 2011 $1,835.0) ..... +$198.5
Materials Sciences and Engineering research ($432.7) increases to initiate a new Energy Innovation Hub - Batteries and Energy Storage ($34.0; +$34.0). Support for Energy Frontier Research Centers ($78.0; +$20.0) is increased. Support for the EPSCoR program decreases because of additional funding provided in the FY 2010 appropriation ($8.6; -$13.0). Other activities are increased ($300.9; +$26.3). SBIR/STTR is increased ($11.2; +$1.7) ..... +$69.0

Chemical Sciences, Geosciences, and Energy Biosciences ($403.6) increases to initiate a new Energy Innovation Hub—Fuels from Sunlight ($24.3; +$24.3). Support for Energy Frontier Research Centers ($62.0, +$20.0) is continued. Geosciences ($50.8; +$28.4) and Chemical Physics Research ($75.6; +$22.1) are increased. Other activities are increased ($180.4; +$9.3). SBIR/STTR is increased ($10.5; +$2.5) ..... +$106.7

Scientific User Facilities ($847.1) research decreases as GPP funding for the ORNL Guest House is completed ($27.4; -$5.2). Funding is continued per schedule for SNS instrumentation MIEs, including the SNS power upgrade ($22.4; -$2.6). Funding for Synchrotron Radiation Light Sources ($403.6; +$36.6) increases to support increases at the Advanced Photon Source and the first full year of Linac Coherent Light Source operations at SLAC. Funding of High-Flux Neutron Sources ($262.7; +$3.8) includes $3.0 to continue decommissioning of the target assembly at the Intense Pulsed Neutron Source and $186.5 for Spallation Neutron Source operations. Funding is also provided for operation of all five of the nanocenters ($109.5; +$4.8). Funding for Other Project Costs decreases with the completion of effort on the LCLS ($1.5; -$12.0). SBIR/STTR is unchanged ($20.0; +$0.0) ..... +$25.4

Construction ($151.6) funding increases as construction of the National Synchrotron Light Source II ramps up ($151.6; +$12.6). Final funding for construction of the Linac Coherent Light Source was provided in FY 2010 per schedule ($0.0; -$15.2) ..... -$2.6

Biological and Environmental Research (FY 2010 $604.2; FY 2011 $626.9) ..... +$22.7
Biological System Science Research ($321.9) includes increases in Genomic Science in the areas of Foundational Genomics and Computational Biosciences ($176.9; +$11.3). Funding is decreased for Radiological Sciences ($42.3; -$4.3). Ethical, Legal, and Societal Issues is continued at the 2010 level ($5.0; +$0.0). Medical Applications research decreases with completion of Artificial Retina effort in 2011 ($4.0; -$4.2). The Joint Genome Institute and Structural Biology Infrastructure funding is maintained near the 2010 level ($84.9; +$0.6). SBIR/STTR increases ($8.8; +$0.1) ..... +$3.5

Climate and Environmental Sciences ($305.0) increases for Atmospheric System research to support next generation 3D cloud parameterizations ($28.4; +$1.9). Environmental System Science is decreased ($81.5; -$1.0). Climate and Earth System Modeling funding increases for uncertainty quantification in climate models, incorporation of observational data sets, model development testbeds, and the development of numerical methods to enable climate models to use future computing architectures ($85.6;+$15.8). Climate and Environmental Facilities and Infrastructure provides increased support for the ACRF ($101.4; +$1.9). SBIR/STTR increases ($8.1; +$0.6)…. ..... +$19.2

Fusion Energy Sciences (FY 2010 $426.0; FY 2011 $380.0) ..... -$46.0
Funding for the international ITER project decreases consistent with current project status ($80.0; -$55.0). Other increases include: support for research related to the High Energy Density Laboratory Plasmas project ($31.0; +$6.5) and the Advanced Fusion Simulation project ($6.0; +$2.0); operations of DIII-D and Alcator C-Mod facilities for increased run time weeks ($58.2; +$3.3) and for the NSTX Upgrade MIE ($7.7; +$1.0); and, Advanced Design Studies and Materials Research within the Enabling R&D subprogram ($24.0; +$0.8). The increases in these

activities are partially offset by reductions to DIII-D R&D and small decreases within the Science subprogram ($173.1; -$4.6).

High Energy Physics (FY 2010 $810.5; FY 2011 $829.0) ..... +$18.5
In Proton Accelerator-Based Physics, grant and national laboratory funding increases to support LHC and Tevatron collider research ($131.4; +$4.9). Also, Large Hadron Collider Support increases primarily for the pre-conceptual R&D for the detector upgrade project ($84.0; +$3.9). Proton Complex Operations and Support increase to support the Fermilab site infrastructure ($139.8; +$1.7). Proton Accelerator Facility Projects exhibit a net decrease consistent with project profiles ($74.5; -$5.7). Other activities net a small increase ($9.6; +$0.1).

In Electron Accelerator-Based Physics, funding decreases to levels to support the planned profile for safe dismantling and decommissioning of the BaBar detector and putting PEP II into a minimum maintenance configuration ($9.8; -$2.3). Other activities net a small decrease ($14.9;-$0.4).

In Non-Accelerator Physics funding decreases for Reactor Neutrino Detector, DES and Super Cryogenic Dark Matter Search consistent with planned project profiles ($22.1; -$15.0). National Laboratory Research is enhanced to provide operating funds for the DES and SuperCDMS projects ($43.9; +$3.1). Other activities have a small increase ($22.5; +$0.9).

The Theoretical Physics program ($69.5; +$2.6) and the Advanced Technology Research and Development program ($190.0; +$7.7) increase slightly to maintain constant levels of effort.

Funding to initiate project engineering and design activities for the Long Baseline Neutrino Experiment ($12.0; +$12.0) and the Muon to Electron Conversion Experiment ($5.0; +$5.0).

Nuclear Physics (FY 2010 $535.0; FY 2011 $562.0) ..... +$27.0
The Medium Energy Nuclear Physics subprogram increases support for research and operations at TJNAF and maintains support to other research and operations activities ($129.6; +$2.0). The Heavy Ion Nuclear Physics subprogram increases support for RHIC research and operations ($174.1; +$7.7), while university and other national laboratory research and operations decreases ($44.3; -$1.2). Low Energy Nuclear Physics subprogram research activities ($103.5; +$0.8) continue at ongoing levels and R&D, engineering, and design activities at the Facility for Rare Isotope Beams ($10.0; -$2.0) continue. Nuclear Theory activities increase to support theoretical efforts, including the LQCD initiative with HEP, needed to achieve the scientific goals of the program ($44.7; +$3.1). Support for the Isotope Production and Applications program ($19.8; +$0.6) is maintained at a constant level of effort. Construction funding increases for the 12 GeV CEBAF upgrade ($36.0; +$16.0) consistent with the planned project profile.

Workforce Development for Teachers and Scientists (FY 2010 $20.7; FY 2011 $35.6)..... +$14.9
Funding increases to provide for full and active participation in the Science of Science Policy initiative to better understand the benefits and effectiveness of Federal science and technology investments on the S&T workforce ($5.2; +$5.0); the SC graduate fellowship program is expanded ($15.0; +$10.0). These increases are partially offset by minor decreases in other activities ($15.4; -$0.1)

Science Laboratories Infrastructure (FY 2010 $127.6; FY 2011 $126.0) ..... -$1.6
Infrastructure Support ($6.6) continues support for OR landlord ($5.2) and payments in lieu of taxes ($1.4). Construction funding ($119.4) decreases to support two new FY 2011 projects which are part of the SC Infrastructure Modernization Initiative. These are the Utilities Upgrade at FNAL ($7.5; +$7.5) and the Utility Infrastructure Modernization at TJNAF ($7.8; +$7.8). Funding is continued for five prior year projects ($104.0; -$16.9).

Safeguards and Security (FY 2010 $83.0; FY 2011 $86.5) ..... +$3.5
Funding increases to provide a constant level of effort for safeguards and security activities and will be used to support security investigations for federal field employees.

Science Program Direction (FY 2010 $189.4; FY 2011 $214.4) ..... +$25.1
Funding for salaries and benefits for headquarters and field staffing, including support for 58 additional FTEs for total FY 2011 staffing of 1,135 FTEs ($161.6; +$15.3); support of staff and advisory committee travel ($4.9; +$0.6); support services ($23.7; +$7.4); and other related expenses ($24.2; +$1.8) including office space, communications and utilities

Advanced Research Projects Agency – Energy

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Science						
Advanced Research Projects Agency-Energy (ARPA-E)	6,300	0	0	0	——	——
Energy Transformation Acceleration Fund						
Advanced Research Projects Agency - Energy						
ARPA-E Projects	0	377,556	0	273,400	+273,400	N/A
Program Direction	8,700	11,300	0	26,566	+26,566	N/A
Subtotal, EnergyTtransformation Acceleration Fund	*8,700*	*388,856*	*0*	*299,966*	+299,966	N/A
Total, Advanced Research Projects Agency - Energy	**15,000**	**388,856**	**0**	**299,966**	**+299,966**	**N/A**

PROGRAM DESCRIPTION

As envisioned by the National Academies 2005 report, *Rising Above the Gathering Storm,*[1] and authorized by the America COMPETES Act of 2007, the **Advanced Research Projects Agency – Energy (ARPA-E)** is responsible for funding specific high-risk, high-payoff, game-changing research and development projects to meet the nation's long-term energy challenges. ARPA-E received initial funding in FY 2009 to fund transformational energy research that industry by itself cannot and will not support. There is an inherent risk associated with these programs, but the pay-off will be not only monetary but also socially rewarding. Furthermore, it is expected that these programs will result in the flow of new ideas and continue to fuel the economy, create new jobs, provide security, and enhance the quality of life.

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. Second, ARPA-E aims to ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies.

The FY 2011 budget request of $300 million provides funding for Projects that support the mission and Program Direction that supports these projects. The Omnibus Appropriations Act of 2009 provided $15.0 million for ARPA-E in the Science appropriation to stand up the program (which was subsequently transferred to ARPA-E in the FY 2010 appropriation) and the American Recovery and Reinvestment Act of 2009 provided $400.0 million to carry out program activities.

PROGRAM HIGHLIGHTS

ARPA-E: An Overview

In the 1950s and 1960s, Sputnik and the space race inspired young people to pursue careers in science and engineering and helped propel the United States forward as the world's technological leader. Perhaps the most important innovation of the 20th century was the Haber-Bosch process of creating artificial fertilizers by fixing atmospheric nitrogen to form ammonia. It touched humanity like none other because it led to massive increase in food production and an almost four-fold increase in global population in 100 years. But there were plenty of other game-changers: creating semi-dwarf, high-yield strains of wheat that introduced the green revolution; antibiotics; the polio vaccination; the transistor and integrated circuits; electrification; the airplane; nuclear energy; optical and wireless communication; and the Internet. Now imagine all of these innovations taking place in a span of just a few decades: this is the scale and pace of game-changing innovations that are now needed to address the energy and climate change challenge of current and future generations.

[1] Report available at the National Academies Press web site: http://www.nap.edu/catalog.php?record_id=11463

The Innovation Challenge

The technology race that started with Sputnik was made possible by the United States' ability to exploit abundant sources of inexpensive energy. However, these energy resources are becoming increasingly sparse and are damaging the environment. Worldwide consumption of energy has nearly doubled between 1970 and 2001, and by 2025, it is expected to triple. Most of this increase has been due to the use of fossil fuels. While the world has abundant forms of fossil fuel such as coal, shale oil, and tar sands that will last for hundreds of years, if the world substantially increases the generation of greenhouse gases by relying on these, it runs the risk of causing disruptive climate change. Similar to our response when challenged by Sputnik, we must take an alternative look at the drivers of innovation for the next few decades. The three innovation catalysts of this generation are:

1. Energy dependence
2. Greenhouse gas emissions and climate change
3. Maintaining America's technological lead

While the U.S. recognizes the need for innovation, it must step up its clean energy efforts. For example, in photovoltaic manufacturing, the U.S. market share has dropped from approximately 45 percent in the mid-1990s to the present 10 percent. Furthermore, the hybrid electric vehicle (HEV) battery market is dominated by Asian countries. In 2008 Japan maintained approximately 98 percent of the worldwide market share in the production of nickel-metal hydride (NiMH) batteries for HEVs, compared to the two percent share of worldwide production represented by the United States. In addition, there have been few American players in the market, and future HEV/plug-in hybrid electric vehicle (PHEV)/electric vehicle (EV) battery demand will be met by Asian lithium-ion production without transformative American innovation in advanced batteries. Compounding the situation is the fact that energy use in the U.S. is greater than any other industrialized or emerging country in the world. For example, in building technologies, which includes lighting and appliances, fans and pumps for air conditioning units, and cooling and heating, the U.S. energy intensity far exceeds that of similar buildings in similar climates in China and Europe.

Evolution of ARPA-E

Recognizing the need to reevaluate the way the United States spurs innovation, the National Academies' report, *Rising Above the Gathering Storm*, included the recommendation to establish an ARPA-E within the DOE. In August of 2007, the America COMPETES Act signed into law. It codified many of the recommendations in the National Academies report. Specifically, ARPA-E was authorized and charged with the following objectives:

1. To bring a freshness, excitement, and sense of mission to energy research that will attract many of the U.S.'s best and brightest minds—those of experienced scientists and engineers, and, especially, those of students and young researchers, including persons in the entrepreneurial world
2. To focus on creative "out-of-the-box" transformational energy research that industry by itself cannot or will not support due to its high risk but where success would provide dramatic benefits for the Nation
3. To utilize an ARPA-like organization that is flat, nimble, and sparse, capable of sustaining for long periods of time those projects whose promise remains real, while phasing out programs that do not prove to be as promising as anticipated
4. To create a new tool to bridge the gap between basic energy research and development/industrial innovation

While ARPA-E was authorized in 2007, it did not receive an appropriation at that time. President Barack Obama announced the launch of ARPA-E on April 27, 2009,[2] as part of a sweeping announcement about federal investment in research and development and science education. The American Recovery and Reinvestment Act of 2009 provided ARPA-E with $400 million in funding.

ARPA-E: Capitalizing on America's Strength and Leveraging Innovation

ARPA-E was created to be a catalyst for innovation and to do so with fierce urgency. The United States' history is replete with examples of pioneers and entrepreneurs who took risks. These innovators often failed initially, but quickly learned from those failures, competed against each other, and innovated in both

[2] www.whitehouse.gov/the_press_office/Remarks-by-the-President-at-the-National-Academy-of-Sciences-Annual-Meeting/

technology and business to create the largest industrial base the world has ever seen. ARPA-E's objective is to tap into this truly American ethos and to identify and support the pioneers of the future. With the best research and development infrastructure in the world, a thriving innovation ecosystem in business and entrepreneurship, and a generation of youth that is willing to engage with fearless intensity, the U.S. has all the ingredients necessary for future success. The goal of ARPA-E is to harness these ingredients and make a full-court press to address the U.S.'s technological gaps and leapfrog over current energy approaches.

ARPA-E has made a great start and promises to be successful because it uses an innovative business process. The process includes:

- *Organization:* Flat, nimble, agile, collaborative, internal debates and discussions
- *Excellence:* Recruit an all-star team to ARPA-E, focus on highly selective and potentially game-changing ideas, enable creation and support of the best teams
- *Openness:* Open to best ideas regardless of origin, sharing and partnership with Congress and other stakeholders, public understanding of value of technology for society
- *Integrity:* New program creation and proposal review process
- *Speed:* Streamline transactions, accelerate science to market, respond to community input
- *Metrics of Success*: Quantitative value creation

ARPA-E works in close coordination with other offices within DOE as well as private and public sector stakeholders. ARPA-E finances high-risk, high-reward projects. Furthermore, its purpose is to identify the crucial technological and scalability gaps in the process of transferring science and technology to the marketplace. To facilitate this, ARPA-E is at the center of the process and sends and receives information between the private and public sectors and the investment community.

For example, ARPA-E works with SC to identify science that is a potential game-changer for energy systems. It also works with DOE's various applied science offices to coordinate efforts toward specific goals and to leverage contacts within the private sector, State and local government, DOE national laboratories, and universities. ARPA-E then takes this insight and funds teams that have the potential to enable the adoption of new ARPA-E technologies. All the while, ARPA-E's project management team is working with other offices within DOE and stakeholders to identify and correct potential disconnects in coordination, collaboration, and identifying game-changing technologies.

APRA-E's Launch: Funding Opportunity Announcement 1

Concurrent with the President officially launching ARPA-E, DOE issued the first Funding Opportunity Announcement (FOA-1) for the new energy agency. During the initial phase, applicants were asked to submit an eight-page concept paper that briefly outlined a technical concept; applicants that made the first cut were invited to move on to the full application phase. For FOA-1, 3,682 concept papers were received and 312 applicants made the full application phase. On October 26, 2009, the DOE awarded $151 million in Recovery Act funds for 37 energy research projects. The value of individual awards ranged from $500,000 to $20 million, averaging $4 million, and the awards will have a lifespan of two to three years.

Recipients included researchers and inventors in 17 states that are conducting transformational research and development in the areas of solar cells, wind turbines, geothermal drilling, biofuels, and biomass energy crops. The grants also support a variety of energy efficiency technologies, including power electronics and engine-generators for advanced vehicles, devices for waste heat recovery, electrically controlled windows and control systems for smart buildings, light-emitting diodes, reverse-osmosis membranes for water desalination, catalysts to split water into hydrogen and oxygen, improved fuel cell membranes, and more energy-dense magnetic materials for a variety of electronic components. Additional grants went to energy storage technologies, including an ultra-capacitor, improved lithium-ion batteries, metal-air batteries that use ionic liquids, liquid sodium batteries, and liquid metal batteries.

Some specific examples of ARPA-E grants include a large-scale liquid metal battery, under development at the Massachusetts Institute of Technology. Based on low-cost, domestically available liquid metals, the battery could lead to the mass adoption of large-scale energy storage as part of the nation's energy grid. At the University of Minnesota, researchers have developed a bioreactor that has the potential to produce gasoline directly from sunlight and carbon dioxide using a symbiotic system of two organisms. In addition, Momentive Performance Materials will be investigating a novel crystal growth technology to lower the cost

of light emitting diodes, which are 30 times more efficient than incandescent bulbs and four times more efficient than compact fluorescents.

In less than two months after the announcement of FOA-1 awards, 25 of the 37 awards were distributed, demonstrating that ARPA-E will act expeditiously. Furthermore, ARPA-E has leveraged its investments with an additional $90 million in funding through cost sharing ($57 million) and additional investments ($33 million) from private-equity and other sources for a total investment of $240 million in FOA-1.

Funding Opportunity Announcement 2

On the heels of FOA-1's success, Secretary Chu announced on December 7, 2009 that a second round of funding opportunities for transformational energy research projects is available through ARPA-E. Funding Opportunity Announcement 2 (FOA-2) will provide an additional $100 million in Recovery Act funding. In contrast to FOA-1, which was open to all topics related to energy, FOA-2 is more focused. The topics resulted from several workshops that ARPA-E hosted over a three-month period, where it received input from the technical community. Areas of focus included under FOA-2 are:

1. *Electrofuels.* ARPA-E seeks new ways to make liquid transportation fuels—without using petroleum or biomass—by using microorganisms to harness chemical or electrical energy to convert carbon dioxide into liquid fuels.
2. *Innovative Materials and Processes for Advanced Carbon Capture Technologies (IMPACCT).* Areas of interest to ARPA-E include low-cost catalysts to enable systems with superior thermodynamics that are not currently practical due to slow kinetics, robust materials that resist degradation from caustic contaminants in flue gas, and advanced capture processes that dramatically reduce the parasitic energy penalties and corresponding increase in the cost of electricity required for carbon capture.
3. *Batteries for Electrical Energy Storage in Transportation (BEEST).* ARPA-E seeks to develop a new generation of ultra-high energy density, low-cost battery technologies for long electric range plug in hybrid electric vehicles and electric vehicles.

Value of an ARPA-E Investment: Metrics of Success

ARPA-E offers a significant shift for the Department of Energy, both for the programs it funds and the methodology of the funding. That shift is the crux of what will result in a valuable investment for an ARPA-E awardee. Not only do the selected teams receive ARPA-E funds, but they also receive the full coordinated support and scrutiny from the entire ARPA-E project management team including:

- *Operations Team.* Expedites transactions within the constraints of Congressional statute.
- *Program Team.* Provides technical help and monitors the funded team's technical progress.
- *Commercialization Team.* Accelerates the deployment of the developed technology and advises on company building.
- *Outreach Team.* Highlights progress to the media, Congress, and stakeholders via various outreach opportunities.

To measure the success of ARPA-E and its investments, one must establish both near-term and long-term metrics of success. In the near-term, it is critical to establish a strong foundation and hire top-notch individuals at all levels and positions within the organization. Through ARPA-E's innovative organizational structure, it is currently hiring program directors that span science, technology, and business and are given autonomy and resources to pursue high-risk technological projects and start and stop these projects based on performance and relevance. ARPA-E awards fund research that lasts two to four years at most. During the first years of an award, a few of the metrics that ARPA-E will track are: follow-on funding received by ARPA-E awardees, world-record technological performance, patents filed and licensed, the number of new companies and industries formed, jobs created by new and existing industries affected by ARPA-E's innovation. Longer term, the organization will look beyond the microeconomic effects of its investments and examine its investments in terms of the macroeconomic results. A few of these metrics would include: domestic and global sales, the influence on the U.S. market share and technological lead, and the number of innovative ecosystems that have been built. Furthermore, it will measure the effects on the environment and track the reduction in greenhouse gas emissions and oil imports.

Similar to the inspiration created by Sputnik and the space race in the 1950s and 1960s, today the nation is facing the current innovation challenge head on through new initiatives such as ARPA-E. Via ARPA-E, the

nation will make enormous strides in scientific and technological advancement by utilizing the best research and development infrastructure in the world, a thriving innovation ecosystem in business and entrepreneurship, and a generation of youth that is willing to engage with fearless intensity. Furthermore, like the game-changers that were discovered over the course of the 20th century, ARPA-E is accelerating this pace and scale and expects to accomplish the same amount of innovation in the next few decades. There are high expectations for ARPA-E, but it is ready for the challenge.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Advanced Research Projects Agency - Energy (FY 2010 $0.0; FY 2011 $300.0)..... +$300.0
The Omnibus Appropriations Act of 2009 provided $15.0 million for ARPA-E in the Science appropriation to stand up the program (which was subsequently transferred to ARPA-E in the FY 2010 appropriation), and the American Recovery and Reinvestment Act of 2009 provided $400.0 million to carry out program activities. The FY 2011 request will be the first regular appropriation for ARPA-E.

Energy Efficiency and Renewable Energy

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Hydrogen Technology	164,638	42,967	174,000	0	-174,000	-100.0%
Hydrogen and Fuel Cell Technologies	0	0	0	137,000	+137,000	N/A
Biomass and Biorefinery Systems R&D	214,245	777,138	220,000	220,000	——	——
Solar Energy	172,414	115,963	247,000	302,398	+55,398	+22.4%
Wind Energy	54,370	106,932	80,000	122,500	+42,500	+53.1%
Geothermal Technology	43,322	393,106	44,000	55,000	+11,000	+25.0%
Water Power	39,082	31,667	50,000	40,488	-9,512	-19.0%
Vehicle Technologies	267,143	109,249	311,365	325,302	+13,937	+4.5%
Building Technologies	138,113	319,186	222,000	230,698	+8,698	+3.9%
Industrial Technologies	88,196	212,854	96,000	100,000	+4,000	+4.2%
Federal Energy Management Program	22,000	22,388	32,000	42,272	+10,272	+32.1%
RE-ENERGYSE (Regaining Our Energy Science and Engineering Edge)	0	0	0	50,000	+50,000	N/A
Facilities and Infrastructure	76,000	258,920	19,000	57,500	+38,500	+202.6%
Advanced Battery Manufacturing	0	1,990,000	0	0	——	——
Alternative Fueled Vehicles	0	298,500	0	0	——	——
Transportation Electrification	0	398,000	0	0	——	——
Information and Communication Efficiency	0	48,647	0	0	——	——
Program Direction	127,620	80,000	140,000	200,008	+60,008	+42.9%
Program Support	18,157	21,890	45,000	87,307	+42,307	+94.0%
Weatherization and Intergovernmental	516,000	8,360,500	270,000	385,000	+115,000	+42.6%
Energy Efficiency and Conservation Block Grants - Competitive	0	398,000	0	0	——	——
Energy Efficiency and Conservation Block Grants, Subtitle E Title V EISA	0	2,786,000	0	0	——	——
Congressionally Directed Projects	228,803	0	292,135	0	-292,135	-100.0%
Subtotal, Energy Efficiency and Renewable Energy	***2,170,103***	***16,771,907***	***2,242,500***	***2,355,473***	***+112,973***	***+5.0%***
Use of Prior Year Balances and Other Adjustments	-13,238	0	0	0	——	——
Total, Energy Efficiency And Renewable Energy	**2,156,865**	**16,771,907**	**2,242,500**	**2,355,473**	**+112,973**	**+5.0%**

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 2011 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 individual program activities promote the specific development and use of sector-based clean, reliable, and cost-effective technologies through two key sectors: energy efficiency and renewable energy. The increased productivity from efficiency gains and the generation of power from renewable energy sources can help meet growing national energy needs, reduce dependence on oil, and enhance energy and environmental security. The FY 2011 budget request is $2.4 billion, an increase of $113 million, or approximately 5.0 percent above the FY 2010 appropriation.

The **Hydrogen and Fuel Cell Technologies** program (formerly Hydrogen Technology) maintains a balanced program that addresses a variety of both near-term and longer-term applications and technologies. R&D of fuel cell technologies for transportation, portable, and stationary applications continues as does the development of improved methods in hydrogen fuel storage and production of hydrogen from renewable resources. The program continues to address safety and codes and standards needs within its Market Transformation activity and continues critical R&D needed for the manufacturing of fuel cell systems and hydrogen fuel storage systems. Technology Validation efforts are also sustained to provide real-world operating data as technology progresses.

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 2011, 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. Additional deployment activities will be initiated for large scale stand-alone biopower technologies to advance the use of renewable resources for power production. Feedstock production trials will continue through the Regional Feedstock Partnerships framework and additional work will be initiated for algae development. Feedstock logistics technologies will be developed and improved to reduce feedstock costs. Key analysis and sustainability activities will be further developed to evaluate program progress toward goals and environmental, social and economic impacts

The **Solar Energy** program is ramping up its activities to better enable U.S. competition in the global marketplace with cost-competitive solar energy by 2015. The PV R&D subprogram is advancing module and system manufacturing technologies to achieve higher performance and lower-cost products with faster throughput and research into continuing reliability, which increases the lifespan of PV components and systems and proves the bankability of new PV technologies. The CSP subprogram will develop low-cost systems with thermal storage to achieve cost competitiveness in the intermediate and baseload power markets; assist industry deployment by identifying land environmentally suitable for utility-scale solar projects and address issues related to water consumption and transmission; and launch an initiative to demonstrate new CSP technologies that could lead to over 1 GW of projects. The Systems Integration subprogram is addressing the technical barriers to wide scale deployment of solar technologies by modeling their performance and analyzing their effect on the grid, developing new technologies that integrate with the smart grid, testing fielded systems, measuring the solar resource to assess variability, and developing and implementing codes and standards. The Market Transformation subprogram is reducing installed cost and increasing market penetration of solar technologies by supporting workforce development and technical outreach that target key stakeholders such as States, utilities, and local governments.

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, addressing grid integration challenges, and expanding domestic manufacturing and supply chain capability. 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. In FY 2011, the program is launching a robust offshore wind R&D effort to address technical, scaling, environmental, regulatory, and public acceptance risks to accelerate clean energy contributions from the Nation’s untapped offshore wind resources.

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 that 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; and investigations of low temperature geothermal, induced seismicity and water availability.

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 through cost-effective increases in sustainable incremental conventional hydropower. Technology research, development, deployment and characterization, environmental impact studies, resource assessments and feasibility studies, and cost analyses will also continue.

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 will continue to focus on technologies for transportation electrification, which include 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). VT R&D will continue work in lightweight materials, advanced combustion engines, and fuels. The FY 2011 budget significantly increases the emphasis on technologies that facilitate cost effective PHEVs, and on deployment activities to develop

infrastructure for transportation electrification and to accelerate the use of maturing technologies such as alternative fuels.

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 promoting Energy Star labels for major appliances such as windows, refrigerators, dishwashers and compact fluorescent lights. The National Buildings Rating Program (NBRP) will provide guidance for energy retrofits of existing buildings based on state-of-the-art cost and performance data. DOE is taking all necessary steps, consistent with the consent decree, EPAct, 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's Save Energy Now effort conducted 2,421 assessments from 2006 through November 2009 that identified potential energy and cost savings for all types of manufacturers. The 2,260 plants with completed reports identified more than $1.3 billion in potential cost savings per year, with $231 million per year already implemented and $437 million per year underway or scheduled. 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. As directed by Executive Order 13514, FEMP will conduct activities associated with greenhouse gas accounting, reporting and guidance development for all Federal agencies.

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 Laboratory (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 (WAP), through a state-managed network of local weatherization providers, supports home energy retrofits for low-income families and career development opportunities for workers. The Innovations in Weatherization activity will continue to demonstrate new ways to increase the number of low-income homes weatherized that lower the Federal per-home cost for residential energy retrofits. The State Energy Program (SEP) 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 strategic corporate management, measurement planning and direction, as well as technology advancement and outreach. Planning, Analysis, and Evaluation activities provide timely information to integrate and 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 tools that accelerate and scale-up the 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, and transforming energy efficiency and renewable energy markets in key developing countries. Program Support functions are designed to provide the corporate support EERE technologies need to achieve the Nation's energy security, environmental and economic goals by accelerating clean energy innovation and cost reductions at scale.

PROGRAM HIGHLIGHTS

The FY 2011 request continues to support a balanced and diverse portfolio of solutions to address the Nation's urgent energy and environmental challenges 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 stimulate choices that will result in large and rapid changes in energy systems. The FY 2011 budget request 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 $2,355.5 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

Renewable Power

- Developing and demonstrating solutions to generation variability of renewable energy technologies;
- 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
- Pursuing water power technologies as part of EERE's R&D portfolio
- Continuing to research and develop critical fuel cell technologies that enable near term commercialization pathways

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
- Supporting the advancement of clean and efficient industrial technologies and processes

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Hydrogen and Fuel Cell Technologies (FY 2010 $174.0; FY 2011 $137.0)…… ..... -$37.0

The funding for Hydrogen and Fuel Cell Technologies decreases 21.3 percent. The decrease reflects a refocus of the programs efforts on technology-neutral fuel cell systems for diverse applications in the stationary, portable, and transportation sectors. This includes work formerly funded within Fuel Cell Stack Component R&D, Transportation Fuel Cell Systems, Distributed Energy Fuel Cell Systems, and Fuel Processor R&D. It also reflects a consolidation and focusing of the highest-priority Safety and Codes and Standards activities into Market Transformation. No Education funding is planned for FY 2011. Hydrogen fuel production, delivery and storage activities are consolidated into the new Hydrogen Fuel R&D subprogram.

Biomass and Biorefinery Systems R&D (FY 2010 $220.0; FY 2011 $220.0) ..... +$0.0
Modifications to the Biomass Program's budget structure are proposed to more accurately reflect program activities. In addition to continuing the RD&D projects that support EISA Renewable Fuel Standard (RFS) goals, Biomass is launching a large scale biopower program. Feedstock funding (formerly Feedstock Logistics) maintains key sustainable production, logistics, and new algae development. The Conversion Technologies subprogram (formerly Platform R&D) will enable new Thermochemical R&D in pyrolysis oil and continues multiyear projects in Biochemical R&D from prior fiscal years, which now includes former Products R&D subprogram. Analysis and Sustainability is a new activity that will highlight the vital role analysis, sustainability, and systems integration play in decision making, assessing progress toward its goals, and quantifying biomass environmental impacts.

Solar Energy (FY 2010 $247.0; FY 2011 $302.4) ..... +$55.4
The funding for Solar Energy increases by 22.4 percent. The increases within Photovoltaic R&D (+$23.5), Concentrating Solar Power (CSP) (+$48.5), and Systems Integration (+$7.4) reflect ramp-ups in the PV Manufacturing Initiative, which advances module and system manufacturing technologies to achieve higher performance and lower-cost products, the establishment of a pilot solar zone in the Southwest demonstrating new CSP technologies, the launching of an initiative to demonstrate new CSP technologies that could lead to over a GW of projects, and the development of new technologies that integrate solar with the smart grid. The decreases within Market Transformation (-$2.0) and the Fuels from Sunlight Energy Innovation Hub (-$22.0) reflect the transfer of Codes and Standards to Systems Integration and the funding of the Hub by the Office of Science in FY 2011.

Wind Energy (FY 2010 $80.0; FY 2011; $122.5)..... .... +$42.5
The funding for Wind Energy increases by 53.1 percent. In FY 2011 DOE will invest in specific activities that promote and accelerate responsible U.S. commercial offshore wind project development. Investments will address common barriers and risks to offshore projects, including financial, regulatory, technical, environmental, and social issues. Additional funds will be used to create partnerships and solicitations to accelerate the development of offshore wind technology. Additionally, U.S. wind technology supply chain analysis and facilitation, as well as wind turbine manufacturing process improvement R&D will be expanded.

Geothermal Technology (FY 2010 $44.0; FY 2011 $55.0) ..... +$11.0
The funding for Geothermal Technology increases by 25 percent. This increase funds collaborative R&D with the Department's Office of Science on geophysical R&D and modeling efforts which address induced seismicity, water availability, and other potential lifecycle risks associated with EGS (+$5.0), and an increased effort on low temperature geothermal including fluids coproduced from oil and gas operations and fluids from geopressured resources (+$6.0).

Water Power (FY 2010 $50.0; FY 2011 $40.5)..... -$9.5
The funding for Water Power decreases by 19 percent. Funds provided by Congress in FY 2010 are sufficient to continue resource and technology assessments initiated in 2008 and 2009, as well as a number of new projects. The FY 2011 request continues activities begun in FY 2010, as well as builds upon the significant investment of the Recovery Act, while also advancing work to support the development of cost-effective incremental hydropower opportunities identified in 2010. Ongoing marine and hydrokinetic activities include wave and hydrokinetic technology research, development, and testing; environmental impact assessments and permitting assistance; and comprehensive cost and resource assessments by resource and technology type. The program will also continue comprehensive resource assessments and project-level feasibility studies across the existing conventional hydropower infrastructure in order to identify opportunities for increased incremental generation, ancillary benefits, and improved environmental performance.

Vehicle Technologies (FY 2010 $311.4; FY 2011 $325.3)..... +$13.9
The funding for Vehicle Technologies increases by 4.5 percent. VT funding increases support for transportation electrification activities, including battery R&D and infrastructure development. A proposed structure change creates a new Batteries and Electric Drive Technologies subprogram that contains all of the activities of the former Hybrid Electric Systems subprogram, except for Vehicle Systems Simulation and Testing (VSST), which becomes a separate subprogram. The proposed budget structure change gives batteries and electric/hybrid vehicles a dedicated budget line, while separating the crosscutting and non-electric/hybrid activities that are included in VSST.

Building Technologies (FY 2010 $222.0; FY 2011 $230.7)..... +$8.7
The funding for Building Technologies increases by 3.9 percent. Requested funding represents a continuation of the Zero Energy Building initiative and a renewed focus of retrofit R&D to address the existing national building stock. Building Envelope R&D will provide technical support to help develop product rating and building code requirements to allow for greater potential for U.S. manufacturer investment in cool roofs. Funding for Building and Appliance Market transformation also grows the Energy Star and Equipment Standards and Analysis subprograms to reflect an emphasis on more efficient appliances. The Solar Decathlon is transferred to the RE-ENERGYSE Program.

Industrial Technologies (FY 2010 $96.0; FY 2011 $100.0)..... +$4.0
The funding for Industrial Technologies increases by 4.2 percent. Funding for the Industries of the Future (crosscutting) subprogram is redirected to the newly established Industrial Technical Assistance subprogram, a proposed budget structure change that better reflects ITP's technical assistance activities in FY 2011. Through the Save Energy Now Leaders activity, the subprogram will expand its partnership with leading corporations in energy management and begin a pilot American National Standards Institute-accredited voluntary standard to certify manufacturing facilities for energy efficiency through a third-party verification process. The decrease in funding for the Industries of the Future (specific) subprogram reflects a reprioritized program, emphasizing crosscutting technologies that provide significant savings across multiple energy intensive industries and the establishment of the Manufacturing Energy Systems.

Federal Energy Management (FY 2010 $32.0; FY 2011 $42.3) …… ..... +$10.3
The funding for FEMP increases by 32.1 percent. Additional funding for Planning, Reporting and Evaluation (+$2.0) supports an increased effort in greenhouse gas accounting through reporting and guidance development. Increased funding for Technical Guidance and Assistance (+$2.0) will support an expansion of continuous commissioning, design assistance and other supporting assistance for Federal agencies. Increased funding for DOE Specific Investments (+$6.0) will support DOE efforts to meet goals established by EPAct 2005, EISA 2007, Executive Order (E.O.) 13423 and the new E.O. 13514, and will focus on the following areas at DOE sites: (1) comprehensive energy assessments and support for advanced metering; (2) retrocommissioning, continuous commissioning and capital projects associated with these efforts; (3) hardware for capturing of fugitive emissions; and (4) pilot renewable projects in such areas as solar, biomass and alternative fueling stations.

RE-ENERGYSE (FY 2010 $0; FY 2011 $50.0) ..... +$50.0
The FY 2011 request proposes a new RE-ENERGYSE program. Significant funding changes include: initiating the Higher Education (+$35.0) subprogram, which includes the transfer of the Solar Decathlon activity from the Buildings Technology Program (+$5.0). The Technical Training, Education and Outreach subprogram will support the development of training programs at community colleges and other training centers (+$15.0).

Facilities and Infrastructure (FY 2010 $19.0; FY 2011 $57.5) ..... +$38.5
The funding for Facilities and Infrastructure increases by 202.6 percent. The FY 2011 request includes funding for the final installment required to complete the Energy Systems Integration Facility at NREL and to purchase/install essential research equipment in that facility. Additionally, NREL Operations and Maintenance decreases, reflecting the completion of the Upgrade East Access to South Table Mountain and funded maintenance and repair increases to address requirements of the expanding NREL complex.

Weatherization and Intergovernmental Activities (FY 2010 $270.0; FY 2011 $385.0)……..+$115.0
The funding for Weatherization and Intergovernmental Activities increases by 42.6 percent. Significant funding changes include: an increase for the State Energy Program (+$25.0) and an increase for the

Weatherization Assistance Grants program (+$90.0), which includes the continuation of the Innovations in Weatherization activity ($30.0).

Program Direction (FY 2010 $140.0; FY 2011 $200.0) ..... .+$60.0
The funding for Program Direction increases by 42.9 percent. The increase is due to the hiring of 392 additional Federal employees required to advance the Administration's 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 2010 $45.0; FY 2011 $87.3) ..... +$42.3
The funding for Program Support increases by 94.0 percent. In FY 2011 Program Support includes funding for Planning, Analysis and Evaluation (+$1.1); Strategic Priorities and Impact Analysis (+$21.0); Commercialization (+$3.2); and International (+$15.0) which contribute to meeting the need for the expansion of informed, transparent and results-based multidisciplinary analysis and support, which will enable and result in a portfolio effecting large scale national adoption of clean energy technologies and energy efficiency measures at a significantly accelerated pace. The increase to Technology Advancement and Outreach (+$2.0) 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

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Research and Development	83,119	0	124,900	144,293	+19,393	+15.5%
Operations and Analysis	11,451	0	0	0	——	——
Permitting, Siting and Analysis	0	0	6,400	6,400	——	——
Infrastructure Security & Energy Restoration	0	0	6,187	6,188	+1	+0.0%
Program Direction	21,180	22,500	21,420	29,049	+7,629	+35.6%
Congressionally Directed Projects	19,648	0	13,075	0	-13,075	-100.0%
Smart Grid Investment Program (EISA 1306)	0	3,375,700	0	0	——	——
Smart Grid Regional and Energy Storage Demos	0	700,000	0	0	——	——
Workforce Training	0	100,000	0	0	——	——
Interoperability Standards and Framework	0	10,000	0	0	——	——
Interconnection Planning and Analysis	0	80,000	0	0	——	——
State Asistance on Electricity Policy	0	50,000	0	0	——	——
Enhancing State and Local Gov. Energy Assurance	0	55,000	0	0	——	——
Other Recovery Act	0	102,512	0	0	——	——
Subtotal, Electricity Delivery & Energy Reliability	***135,398***	***4,495,712***	***171,982***	***185,930***	***+13,948***	***+8.1%***
Use of Prior Year Balances and Other Adjustments	-769	0	0	0	——	——
Total, Office Electricity Delivery & Energy Reliability	**134,629**	**4,495,712**	**171,982**	**185,930**	**+13,948**	**+8.1%**

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, Sitting and Analysis, and Infrastructure Security and Energy Restoration. In FY 2011, the Department requests $186 million to continue these efforts.

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

- **Clean Energy Transmission and Reliability** includes activities to develop advanced transmission-driven technologies to improve grid reliability, efficiency, and security. It supports the development of methodologies to better integrate variable and intermittent renewable resources, and the development of tools to enhance the understanding of the power system and enable responses to changing systems. It provides for the completion of significant technical milestones in High Temperature Superconductivity R&D allowing for orderly transition of the program. It also supports an Advanced Modeling Grid Research initiative to develop modeling and analytical capabilities using data available from phasor measurement units and other devices.

- **Smart Grid Research and Development** promotes the development of an efficient, fully integrated "smart grid" system by adapting and integrating the use of digital information and communication technologies to modernize the nation's electric delivery network. The program also supports the development of utility-scale power electronics that will provide faster switching capabilities, flexible power conversion, and better flow control resulting in improved grid performance, cost reductions and increased grid efficiency.

- **Energy Storage** is working to develop energy storage technologies that can reduce power disturbances, and improve system flexibility to better incorporate variable and intermittent renewable resources and reduce peak demand. The research pursues advances in the development of materials, components and systems for utility-scale storage systems such as batteries, flywheels, and electronic capacitors.

- **Cyber Security for Energy Delivery Systems** conducts research and development activities to address vulnerabilities within the Nation's energy delivery system to reduce the risk of energy disruptions due to cyber attacks, a critical need with the increased deployment of smart grid technologies and the growing sophistication of cyber threats.

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. In addition, the program implements applicable 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 ensures the reliability, survivability and resiliency of the energy infrastructure by coordinating the Department's response to energy emergencies ; providing assistance in securing critical energy infrastructure, coordinating technical and policy support for control systems security and collaborating with all levels of government and the private sector to restore and recover from energy supply disruptions and national security incidents. This program carries out the Department's responsibilities as the lead Energy Sector Specific Agency for protecting the nation's critical energy infrastructure.

Program Direction supports federal staff and contracted support services for management, oversight and technical direction for OE.

PROGRAM HIGHLIGHTS

The Research and Development (R&D) program will lead to technologies that improve the environment, 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 2011, the program reflects a significantly increased investment in energy storage to accelerate deployment in utility grade applications; a new initiative to develop the next generation of power electronic technologies; and an advanced grid modeling initiative to develop modeling and data analytical capabilities needed for the reliable integration of intermittent and variable renewable energy sources into the electric grid.

The Permitting, Siting and Analysis (PSA) program implements the transmission provisions of the Energy Policy Act of 2005; providing assistance to States, regions, and other Federal agencies to develop programs that facilitate access to clean energy resources. The program authorizes electricity exports and grants permits for international transmission lines.

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 energy infrastructure from all threats and hazards. It assists States and local governments with energy assurance planning and preparedness activities; and monitors and develops models to track emerging energy sector problems. It ensures the Nation's continuous and reliable energy supplies through energy security partnerships with key allies by coordinating efforts with other Federal agencies, States, local governments and the private sector. ISER builds partnerships with the energy sector's public and private partners, working to mitigate the risk of cyber, physical, and high impact low frequency attacks on the energy infrastructure. ISER collaborates with other agencies in the recovery and restoration of energy systems after disasters.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Research and Development

Clean Energy Transmission and Reliability (FY 2010 $38.5; FY 2011 $35.0) ..... -$3.5
Continues transmission reliability and renewables integration activities to develop advanced technologies that provide system operators and planners with real-time information on grid conditions, including the continued development of a prototype stability monitoring tool for system operators and ongoing research to expand the capabilities of a phasor measurement unit (PMU) based network. Additionally, FY 2011 will see the inauguration of an Advanced Modeling Grid Research initiative that will develop the analytical capability and mathematical models to make use of large volumes of data on grid behavior now being generated through the deployment of advanced sensor technologies (PMUs) and increasing deployment of smart grid technologies. This program will also help establish a university-level research base to draw upon for the future power engineering workforce. In FY 2011, funding decrease reflects completion of ongoing High Temperature Superconductivity wire development and an orderly transition to closeout the program.

Smart Grid Research and Development (FY 2010 $32.5; FY 2011 $39.3) ..... +$6.8
Continues efforts to achieve a coordinated deployment of smart grid technologies, including developing smart grid functionalities for renewable systems, plug-in hybrid electric vehicles, and other end use applications. Additionally, supports a new activity, the development of solid-state devices--Power Electronics--which gives utilities the ability to more effectively and quickly deliver power to their customers while increasing reliability, security and flexibility to the Nation's electric grid. Working closely with universities, efforts in FY 2011 will focus on development of wide bandgap semiconductors based on silicon carbide and gallium nitride materials.

Energy Storage (FY 2010 $14.0 FY 2011 $40.0) ..... +$26.0
Increase reflects an acceleration of materials research and development studies that will enter into a second phase to develop and test prototype electrodes and electrolytes to identify advantages and challenges to each new battery material. Analysis will start on new methods for identifying promising locations for pumped storage and Compressed Air Energy Storage systems. Research will also expand to support successful integration of renewable energy resources into the grid by modifying their variability. The testing of new storage technologies at the bench and field levels in collaboration with industry and utilities will be expanded.

Cyber Security for Energy Delivery Systems (FY 2010 $40.0; FY 2011 $30.0)..... -$10.0
Continue research and development of trustworthy systems as a transition strategy for legacy systems, continue test bed assessments, and conduct research on smart grid technologies to develop secure systems that can withstand cyber attacks. Decrease in FY 2011 funding levels reflects completion of several industry-led projects and no funding for the National Energy Sector Cyber Organization.

Program Direction (FY 2010 $21.4; FY 2011 $29.0)..... +$7.6
Supports 82 federal FTEs, as well as indirect 31 FTEs at National Energy Technology Laboratory. The increase primarily reflects an additional 29 new FTEs which are associated with management of Recovery Act projects.

Environmental Management

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010	
					$	%
Defense Environmental Cleanup	5,656,345	5,127,000	5,642,331	5,588,039	-54,292	-1.0%
Non-Defense Environmental Cleanup	261,819	483,000	254,673	225,163	-29,510	-11.6%
Uranium Enrichment D&D Fund	535,503	390,000	573,850	730,498	+156,648	+27.3%
Uranium Enrichment D&D Fund Discretionary Payments	-463,000	0	-463,000	-496,700	-33,700	-7.3%
Total, Environmental Management	**5,990,667**	**6,000,000**	**6,007,854**	**6,047,000**	**+39,146**	**+0.7%**

**The Defense Environmental Cleanup/Uranium Enrichment Decontamination and Decommissioning Fund accounts reflect correctly the Administration's policy for the Department's FY 2011 request. These accounts include $47 million that was inadvertently omitted from the official Budget request. A budget amendment is expected to be forthcoming to formally correct for this error.*

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 $6.0 billion in FY 2011.

EM is requesting program funds in three appropriation accounts: Defense Environmental Cleanup (FY 2010 $5,642 million; FY 2011 $5,588 million); Non-Defense Environmental Completion (FY 2010 $255 million; FY 2011 $225 million); and Uranium Enrichment Decontamination and Decommissioning Fund (FY 2010 $574 million; FY 2011 $730 million).

PROGRAM HIGHLIGHTS

The FY 2011 budget request totals $6.0 billion, an increase of $39 million from the FY 2010 appropriation. The FY 2011 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. EM pursues its cleanup objectives in a manner that maximizes risk reduction and overlays its regulatory compliance commitments and best business practices to maximize cleanup progress. EM's objective is to reduce the legacy footprint 40 percent by the end of FY 2011 and 80 to 90 percent by the end of FY 2015. The FY 2011 request continues EM's risk reduction strategy and focuses on footprint reduction by leveraging additional progress enabled by the American Reinvestment and Recovery Act. The FY 2011 request reflects the following priorities: 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

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Closure Sites	45,883	19,700	41,468	6,375	-35,093	-84.6%
Hanford Sites	966,976	1,634,500	990,080	968,929	-21,151	-2.1%
Idaho National Laboratory	475,761	467,875	464,168	407,100	-57,068	-12.3%
NNSA Sites and Nevada Off-sites	322,539	293,100	284,124	279,373	-4,751	-1.7%
Oak Ridge Reservation	262,835	558,110	178,768	202,298	+23,530	+13.2%
Office of River Protection	1,009,943	326,035	1,098,000	1,158,178	+60,178	+5.5%
Savannah River Sites	1,222,743	1,615,400	1,209,949	1,217,799	+7,850	+0.6%
Waste Isolation Pilot Plant	231,661	172,375	230,337	220,245	-10,092	-4.4%
Program Direction	309,807	25,635	345,000	323,825	-21,175	-6.1%
Program Support	33,930	0	34,000	25,143	-8,857	-26.1%
Safeguards and Security	266,141	0	279,437	249,754	-29,683	-10.6%
Technology Development	31,415	0	20,000	32,320	+12,320	+61.6%
Uranium Enrichment D&D Fund Contribution	463,000	0	463,000	496,700	+33,700	+7.3%
ARRA Defense Unallocated	0	14,270	0	0	——	——
Subtotal, Defense Environmental Cleanup	***5,642,634***	***5,127,000***	***5,638,331***	***5,588,039***	***-50,292***	***-0.9%***
Use of Prior Year Balances	-4,197	0	0	0	——	——
Congressionally Directed Projects	17,908	0	4,000	0	-4,000	-100.0%
Total, Defense Environmental Cleanup	**5,656,345**	**5,127,000**	**5,642,331**	**5,588,039**	**-54,292**	**-1.0%**

PROGRAM DESCRIPTION

The FY 2011 request for the Defense Environmental Cleanup appropriation is $5.6 billion. This request 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 (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 2010 to FY 2011 Request ($ in millions)

Closure Sites (FY 2010 $41.5, FY 2011 $6.4)..... -$35.1
Responsibility for post-closure administration at Rocky Flats and Fernald, including long-term stewardship of the remedy, contractor post-retirement benefits, and records management transferred to the Office of Legacy Management. Request reflects the transfer of Miamisburg (Mound) site in Ohio to the Office of Legacy Management.

Hanford Site (Richland) (FY 2010 $990.1; FY 2011 $968.9)..... -$21.2
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 newly proposed control points: Central Plateau Remediation ($423.6) and River Corridor and Other Cleanup Operations ($545.3).

Request includes increases for deactivation, decommissioning, and demolition of facilities and structures in the 100 and 300 Areas within the River Corridor Closure Project, barrier construction/installation at the Non-Radioactive Dangerous Waste Landfill and 600 Area Central Landfill at the Hanford Site and decreases associated with the completion of shipment of special nuclear material from the Plutonium Finishing Plant,

completion of the 200-BP-5 pump and treat system installation, deferment of construction of the phase two portion of the 200 West pump-and-treat system, and deferment of the 300-FF-5 Operable Unit characterization.

Office of River Protection (FY 2010 $1,098.0; FY 2011 $1,158.2)..... +$60.2
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 ($740.2) and Tank Farm Activities ($418.0).

Funds construction of the Waste Treatment and Immobilization Plant (WTP) to immobilize radioactive waste at Hanford. Design of the WTP is approximately 77 percent design complete and construction is approximately 48 percent complete. In FY 2010, the five subprojects for the Waste Treatment and Immobilization Plant Project were combined into two subprojects: 01-D-16A-D - Waste Treatment and Immobilization plant ($370.2), and 01-D-16E - Pretreatment Facility ($370.0). The FY 2011 request continues design and construction on the two subprojects. However, EM will continue to provide detailed information on the separate subprojects for Congressional review.

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 2011 request will accelerate completion of design and engineering that will directly support the completion of WTP engineering. Increased funding will support procurements for the accelerated incorporation of procured components into the final design. This accelerated completion will reduce risk and improve project confidence. Increased funding will allow initiation of the C-301 Catch Tank remediation, the C-200 Closure Demonstration project and the 242-CR Vault Characterization. The request also supports 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 2010 $464.2; FY 2011 $407.1)..... -$57.1
The FY 2011 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 increased volumes of remote-handled transuranic waste to be disposed in addition to shipping higher volumes of contact-handled transuranic waste to the Waste Isolation Pilot Plant. The decrease reflects the completion of construction activities at the Sodium Bearing Waste Treatment Facility as well as soil and groundwater scope of work included in the American Recovery and Reinvestment Act.

NNSA Sites (FY 2010 $284.1; FY 2011 $279.4)..... -$4.8
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 ($200.0), Lawrence Livermore National Laboratory ($0.9), Nevada Test Site ($66.0), and Separations Process Research Unit in New York ($12.5).

Los Alamos National Laboratory reflects an increase ($0.5) in FY 2011. The request continues shipments of contact-handled transuranic waste to the Waste Isolation Pilot Plant, package 6,000 containers of High Activity Transuranic Waste for disposition, disposition 300 cubic meters of mixed low-level and low level waste, install and start-up the Nuclear Filter Technology Drum Venting System, continue disposal of low level waste and pursue offsite disposal for majority of operational and environmental restoration/decontamination and decommissioning generated waste.

Lawrence Livermore National Laboratory reflects a decrease ($0.3) in FY 2011. The decrease reflects completion of the bench scale treatability study for cleanup of the Building 812 Firing Table.

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 increase of ($0.3) reflects no significant change from FY 2010.

The decrease for **Separations Process Research Unit** (-$2.5) reflects acceleration of the North Field land Remediation and completion of demolition of nuclear facility Buildings G2 and H2 to facilitate return of land to Naval Reactors for future use.

Oak Ridge Reservation (FY 2010 $178.8; FY 2011 $202.3) ..... +$23.5
FY 2011 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. Increases support construction activities of U-233 down-blending process and support for regulatory compliance operations for Federal Facility Agreement milestones. Increase reflects focus on expanded risk reduction activities at the Y-12 National Security Complex.

Savannah River (FY 2010 $1,209.9; FY 2011 $1,217.8) ..... +$7.9
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 two newly proposed control points Cleanup and Waste Disposition ($18.3), and Site Risk Management Operations ($1,217.8).

The FY 2011 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 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 ($256.9); 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 FY2011 budget are attributable to the Tank 48 Return to Service Project and Bulk Waste Removal to support tank closure acceleration. Decreases reflect completion of the californium shuffler and one time funding for the K Area purification vault in FY 2010, elimination of foreign and domestic fuel shipment receipts, and scopes of work included in the American Recovery and Reinvestment Act.

Waste Isolation Pilot Plant (FY 2010 $230.3; FY 2011 $220.2) ..... -$10.1
Funding supports the National Transuranic Waste Program, managed by Carlsbad Field Office, including the operation of the Waste Isolation Pilot Plant, the national repository for defense-generated transuranic waste, near Carlsbad, New Mexico. FY 2011 increases reflect greater level of characterization over FY 2010 levels, where American Recovery and Reinvestment Act funds supplied majority of characterization activities at generator sites. Decrease reflects the reallocation of WIPP resources necessary to optimize complex-wide TRU waste efforts and to support steady-state shipping rates in FY 2011.

Program Direction (FY 2010 $345.0; FY 2011 $323.8) ..... -$21.2
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, 1,140 of which are located in field offices, 344 in Headquarters, and 190 FTEs are assigned to the EM Consolidated Business Center. The funding decrease reflects the shift of responsibilities from support contractors to the more than 200 federal staff recently added to the EM workforce.

Program Support (FY 2010 $34.0; FY 2011 $25.1) ..... -$8.9
The FY 2011 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. Decrease reflects the exclusion of Congressionally Directed Activities as well as reduced requirements for various environmental impact statement activities and Secretarial initiatives.

Safeguards and Security (FY 2010 $279.4; FY 2011 $249.8) ..... -$29.7

The FY 2011 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. Decrease for Oak Ridge (-$15.1) reflects the use of projected carryover from FY 2010 to maintain the necessary level of security services through the close-coupling of security support and cleanup activities. Decrease for Portsmouth (-$1.5) is due to completing non-level of effort of work scope in FY 2010 by updating facilities for classified document storage area and classified conference room area. Decrease for Richland (-$13.5) due to off-site plutonium de-inventory completion and associated closure of the Plutonium Finishing Plant protected area, start-up of a new optimal protected area, completion of upgrades for Safeguards and Security life-cycle cost reductions, progress being made on environmental cleanup activities, and completion/implementation of new prime contracts and their alignment to a Richland baseline structure.

Technology Development and Deployment (FY 2010 $20.0; FY 2011 $32.3)..... +$12.3
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.

Non-Defense Environmental Cleanup

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Fast Flux Test Reactor Facility (WA)	10,755	0	7,652	3,659	-3,993	-52.2%
Gaseous Diffusion Plants	81,296	0	100,885	99,464	-1,421	-1.4%
Small Sites	100,436	404,880	88,062	63,966	-24,096	-27.4%
West Valley Demonstration Project	65,500	73,875	58,074	58,074	——	——
ARRA Non-Defense Program Direction	0	2,415	0	0	——	——
ARRA Non-Defense Unallocated	0	1,830	0	0	——	——
Subtotal, Non-Defense Environmental Cleanup	***257,987***	***483,000***	***254,673***	***225,163***	***-29,510***	***-11.6%***
Use of Prior Year Balances	-925	0	0	0	——	——
Congressionally Directed Projects	4,757	0	0	0	——	——
Total, Non-Defense Environmental Cleanup	**261,819**	**483,000**	**254,673**	**225,163**	**-29,510**	**-11.6%**

PROGRAM DESCRIPTION

The FY 2011 request for the Non-Defense Environmental Cleanup appropriation is $225.2 million, a decrease of $29.5 million from FY 2010. 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, Moab, and the Stanford Linear Accelerator Center.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

West Valley Demonstration Project (FY 2010 $58.1; FY 2011 $58.1.....$0
This project includes solid waste stabilization and disposition, and nuclear facility decontamination and decommissioning activities at West Valley, New York. The FY 2011 request supports continued processing and disposal of low level and transuranic waste generated from the decontamination and decommissioning activities at the Main Process Plant Building.

Gaseous Diffusion Plants (FY 2010 $100.9; FY 2011 $99.5).....-$1.4
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 2010 $47.5; FY 2011 $52.5).....+$5.0
The FY 2011 request supports completion of Operational Readiness of the Depleted Uranium Hexafluoride Conversion Facility and packaging of 7,750 metric tons of depleted uranium for disposition.

Portsmouth (FY 2010 $53.4; FY 2011 $47.0).....-$6.4
The FY 2011 request supports commencement of operations at the Depleted Uranium Hexafluoride Conversion Facility at Portsmouth, and packaging of 9,980 metric tons of depleted uranium for disposition.

Fast Flux Test Reactor Facility (FY 2010 $7.7; 2011 $3.7) ..... -$4.0
The FY 2011 request supports continued long-term surveillance and maintenance of the facility, pending substantial decontamination and decommissioning activities in the future.

Small Sites (FY 2010 $88.1; FY 2011 $64.0) ..... -$24.1
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, Moab site, and Stanford Linear Accelerator Center, and non-defense activities at the Idaho National Laboratory.

Argonne National Laboratory (FY 2010 $10.0; FY 2011 $0) ..... -$10.0
Legacy cleanup complete. Additional work scope associated with cleanup of Office of Science facilities is being completed with American Reinvestment and Recovery Act funds.

Brookhaven National Laboratory (FY 2010 $15.0; FY 2011 $13.9).....-$1.1
The FY 2011 request provides ongoing groundwater treatment and monitoring and additional work on decommissioning the **High Flux Beam Reactor**. Other soil remediation and nuclear facility decommissioning work is being completed with American Reinvestment and Recovery Act funds.

Idaho National Laboratory (FY 2010 $5.0; FY 2011 $4.9) ..... -$0.1
The FY 2011 request provides for ongoing stewardship of spent nuclear fuel from Three Mile Island and Fort Saint Vrain.

Energy Technology Engineering Center (FY 2010 $10.5 FY 2011 $10.7) +$0.2
The FY 2011 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.

Moab Site (FY 2010 $39.0; FY 2011 $31.0)..... -$8.0
FY 2011 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 as well as increase of efficiency of operations.

Stanford Linear Accelerator Center (FY 2010 $7.1; FY 2011 $3.5)..... -$3.6
This project scope includes remediation of chemical contamination of soil and groundwater resulting from decades of physics research at the site. FY 2011 activities include operation of groundwater treatment systems and soil remediation.

Post Closure Site Administration (FY 2010 $1.2; FY 2011 $0)..... -$1.2
Activities associated with contract closeout and post-closure litigation activities are complete.

Oakland Community and Regulatory Support (FY 2010 $0.3; FY 2011 $0)…-$0.3
Activities associated with State of California oversight of the cleanup of Lawrence Berkeley National Laboratory are complete.

Uranium Enrichment Decontamination and Decommissioning Fund

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Decontamination and Decommissioning	525,503	315,200	573,850	730,498	+156,648	+27.3%
Uranium/thorium Reimbursement	10,000	68,950	0	0	——	——
UE D&D ARRA Program Direction	0	1,950	0	0	——	——
UE D&D ARRA Unallocated	0	3,900	0	0	——	——
Total, Uranium Enrichment D&D Fund	**535,503**	**390,000**	**573,850**	**730,498**	**+156,648**	**+27.3%**

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 2011 is $730.5 million.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Decontamination and Decommissioning (FY 2010 $573.9; FY 2011 $730.5)……..+$156.6
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 2010 $225.0; FY 2011 $230.4) .....+$5.4
The FY 2011 request focuses on maintaining compliance with the ETTP safety basis requirements and continuing demolition of the K-25 process building. The increase reflects focus on demolition of K-25 East Wing process facilities.

Paducah (FY 2010 $116.4; FY 2011 $84.0)..... -$32.4
FY 2011 request supports continued landfill operations, pump and treat operations, remediation of groundwater, and demolition of C-340 and C-410 complexes. Decrease reflects completion of building C-400 Phase I and II and of enhanced groundwater monitoring facilities.

Portsmouth (FY 2010 $232.4; FY 2011 $416.1) .....+$183.7
The FY 2011 request supports ongoing gaseous diffusion plant decontamination and decommissioning and increased disposal of low-level waste associated with those activities. Increase reflects acceleration of decontamination and decommissioning activities to realize life-cycle cost savings.

Uranium/Thorium Reimbursements (FY 2010 $0; FY 2011 $0) ..... +$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).The remainder of responsibility in this area is included in the American Recovery and Reinvestment Act.

Legacy Management

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Other Defense Activities						
Legacy Management	174,397	0	177,618	176,122	-1,496	-0.8%
Program Direction	11,584	0	12,184	12,504	+320	+2.6%
Congressionally Directed Projects	0	0	1,000	0	-1,000	-100.0%
Total, Office Of Legacy Management	**185,981**	**0**	**190,802**	**188,626**	**-2,176**	**-1.1%**

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 2011 budget request of $189 million supports these activities.

PROGRAM HIGHLIGHTS

The FY 2011 request provides $189 million to carry out all legacy management functions. In FY 2011, post closure responsibility for long-term stewardship activities at 85 sites and pension and benefit claims for former contractor employees at 7 sites. Funding for the Mound, Ohio, and the Inhalation Toxicology Laboratory, NM, closure sites, are included within the LM budget.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Other Defense Activities

Legacy Management (FY 2010 $178.6; FY 2011 $176.1) ..... -$1.5
The decreased funding reflects an adjustment based on actual spending rates for post-retirement benefits associated with the Paducah and Portsmouth Gaseous Diffusion Plants and reduced cost estimates associated with funding pensions and post-retirement benefits to former contractor employees at the Rocky Flats site.

Program Direction (FY 2010 $12.2; FY 2011 $12.5) ..... +$0.3
The increased funding reflects new costs added to the Working Capital Fund for the telephone communications. Legacy Management continues to administer its programs consistent with its delegation as a High Performing Organization.

Civilian Radioactive Waste Management

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Defense Nuclear Waste Disposal						
Defense Nuclear Waste Disposal	143,000	0	98,400	0	-98,400	-100.0%
Nuclear Waste Disposal						
Repository Program	74,983	0	28,400	0	-28,400	-100.0%
Program Direction	68,552	0	70,000	0	-70,000	-100.0%
Congressionally Directed Projects	1,855	0	0	0	——	——
Subotal, Nuclear Waste Disposal	*145,390*	*0*	*98,400*	*0*	*-98,400*	*-100.0%*
Total, Civilian Radioactive Waste Management	**288,390**	**0**	**196,800**	**0**	**-196,800**	**-100.0%**

The President identified the Yucca Mountain Project in the Terminations and Reductions section of the FY 2010 budget request submitted to Congress in May 2009. Since that time, the Department of Energy has been evaluating a range of options for bringing the project to an orderly close. In FY 2010, the Department of Energy will withdraw from consideration by the Nuclear Regulatory Commission the license application for construction of a geologic repository at Yucca Mountain, Nevada, in accordance with applicable regulatory requirements.

Remaining funding available from the FY 2010 Nuclear Waste Disposal and Defense Nuclear Waste Disposal appropriations will be dedicated to project closeout. The Office of Civilian Radioactive Waste Management will prepare the Yucca Mountain site for stewardship and remediation. The Department will work closely with state and federal agencies to develop and implement a remediation plan for the site that adheres to all applicable statutes and regulations. The Office of Environmental Management will support remediation planning for the Yucca Mountain repository site.

Per the Office of Nuclear Energy's FY 2011 budget request, that organization will develop and execute a research and development program that will address critical scientific and technical issues associated with the long-term management of used nuclear fuel. The Office of Nuclear Energy will support the work of the Blue Ribbon Commission and the development of an integrated approach to waste management options.

Nuclear Energy

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Nuclear Energy Enabling Technologies	0	0	0	99,300	+99,300	N/A
Integrated University Program	5,000	0	5,000	0	-5,000	-100.0%
RE-ENERGYSE	0	0	0	5,000	+5,000	N/A
Reactor Concepts RD&D	0	0	0	195,000	+195,000	N/A
Generation IV Nuclear Energy Systems	178,649	0	220,137	0	-220,137	-100.0%
Nuclear Power 2010	177,500	0	105,000	0	-105,000	-100.0%
Nuclear Hydrogen Initiative	7,343	0	0	0	——	——
Advanced Fuel Cycle Initiative	142,652	0	0	0	——	——
Fuel Cycle Research and Development	0	0	136,000	201,000	+65,000	+47.8%
International Nuclear Power Programs	0	0	0	3,000	+3,000	N/A
Radiological Facilities Management	66,146	0	72,000	66,818	-5,182	-7.2%
Idaho Facilities Management	140,000	0	173,000	162,482	-10,518	-6.1%
Idaho Sitewide Safeguards and Security	78,811	0	0	0	——	——
Program Direction	73,000	0	73,000	91,452	+18,452	+25.3%
Transfer from State Department	3,300	0	0	0	——	——
Congressional Directed Projects	2,854	0	2,500	0	-2,500	-100.0%
Subtotal, Nuclear Energy	***875,255***	***0***	***786,637***	***824,052***	***+37,415***	***+4.8%***
Adjustments:						
Use of Prior Year Balances	-5,000	0	0	0	——	——
Funding from Other Defense Activities	-78,811	0	0	0	——	——
Total, Nuclear Energy	***791,444***	***0***	***786,637***	***824,052***	***+37,415***	***+4.8%***
Other Defense Activities						
Defense-Related Activities	78,811	0	83,358	88,200	+4,842	+5.8%
Mixed Oxide Fuel Fabrication Facility	487,008	0	0	0	——	——
Total, Other Defense Activities	***565,819***	***0***	***83,358***	***88,200***	***+4,842***	***+5.8%***
Total, Office of Nuclear Energy	**1,357,263**	**0**	**869,995**	**912,252**	**+42,257**	**+4.9%**

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 $912.3 million for NE activities in FY 2011.

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 programs 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.

The suite of technologies pursued by NE are designed to support the development of advanced reactor designs and technologies, including reactors that could be capable of meeting electricity generation, co-generation of process heat, and performance demands beyond current base load nuclear power plants and advanced fuel cycle technologies. Additional activities in these programs will address barriers to the long-term operation of nuclear plants, as well as the technical, cost, safety, security and proliferation resistance issues associated with novel designs and innovative reactor concepts. A prominent influence on R&D direction again will be on improving our understanding of proliferation risks as well as developing the technical means to mitigate them.

PROGRAM HIGHLIGHTS

The FY 2011 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 **RE-ENERGYSE** program ($5 million) encourages students to pursue careers in science, engineering, and entrepreneurship related to clean energy. NE is requesting funds to support competitively-selected, merit-based one-year undergraduate scholarships and three-year graduate degree fellowships to M.S. and Ph.D. students enrolled in nuclear, science, engineering, and related fields at U.S. universities.

The **Reactor Concepts RD&D** program ($195 million) supports research and development for a diverse set of advanced fission power systems capable of producing electricity (MWe) and, in the case of the Next Generation Nuclear Plant, generating process heat (BTUs) sustainably and economically. Reactor concepts include Small Modular Reactors, the Next Generation Nuclear Plant, and other advanced reactor concepts. R&D activities will also form the scientific basis for extending the life of the current fleet of nuclear plants. Development of each reactor concept will seek to improve performance, economics, fuel cycle options, and safety.

The **Fuel Cycle R&D** program ($201 million) supports long-term, science-based research and development of nuclear fuel and waste management technologies that will enable a safe, secure, and economic fuel cycle. These long-term, science based efforts could enable beneficial changes to the way in which nuclear fuel and waste is managed.

The **Nuclear Energy Enabling Technologies** program ($99.3 million) investigates crosscutting technologies and transformative breakthroughs across a broad spectrum of areas with applicability to multiple reactor concepts and fuel cycle approaches. Crosscutting technology R&D will focus on a variety of such as advanced fuels and reactor materials and creative approaches to further reduce proliferation risks. The Transformative Nuclear Concepts R&D activity will support, via an open, competitive solicitation process, investigator-initiated projects that relate to any aspect of nuclear energy generation including, but not limited to, reactor and power conversion technologies, enrichment, fuels and fuel management, waste disposal, and nonproliferation to ensure that good ideas have sufficient outlet for exploration. The Modeling and Simulation Energy Innovation Hub, supported within this program, is a prime example of the type of crosscutting, transformative activity that will enhance many research areas within NE.

The **Radiological Facilities Management** program ($66.8 million) maintains important DOE nuclear technology facilities in a safe, secure, environmentally compliant and cost-effective manner. This includes $15 million, as part of a 50/50 cost share project with the National Aeronautics and Space Administration (NASA) to begin reestablishing domestic capability to produce Plutonium (Pu)-238 for use in radioisotope power systems for NASA missions and national security applications. NASA uses 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 ($162.5 million) supports 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.

The **Idaho Site-Wide Safeguards and Security** program ($88.2 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 ($91.7 million) provides the federal staffing resources and associated costs required to provide overall direction and execution of the Department's Nuclear Energy program, including funding for oversight of Nuclear Waste Policy Act requirements.

The **International Nuclear Energy Cooperation** program ($3 million) helps ensure the safe and secure deployment of civilian nuclear power world-wide by supporting U.S. treaty obligations and other relevant U.S. international commitments in civilian nuclear energy matters.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Nuclear Power 2010 (FY 2010 $105.0; FY 2011 $0.0)..... -$105.0
Decrease reflects successful completion of the Nuclear Power 2010 program in FY 2010. The program was a joint government/industry cost-shared effort established in 2002 to demonstrate untested NRC regulatory and licensing processes.

Reactor Concepts RD&D (FY 2010 $0.0; FY 2011 $195.0) ..... +$195.0
The new Reactor Concepts RD&D program will carry on activities previously requested under the Generation IV Nuclear Energy Systems program, including the Next Generation Nuclear Plant project, R&D on Generation IV and other advanced nuclear reactor concepts, and R&D to support extending the life of the current LWR fleet. In addition, program scope includes work on Small Modular Reactors.

Fuel Cycle R&D (FY 2010 $136.0; FY 2011 $201.0)..... +$65.0
Increase reflects a shift toward longer-term, science-based R&D focused on waste storage and disposal options. R&D in fuel forms and fuel/waste management approaches will provide important information to inform future waste management decisions.

Nuclear Energy Enabling Technologies (FY 2010 $0.0; FY 2011 $99.3) ..... +$99.3
The new Nuclear Energy Enabling Technologies program will develop cross cutting technologies and transformative breakthroughs across a broad spectrum of areas with applicability to multiple reactor concepts and fuel cycle approaches. Activities will be carried out through directed research projects, as well as through investigator-initiated projects to enhance many research areas within NE.

Radiological Facilities Management (FY 2010 $72.0; FY 2011 $66.8) ..... -$5.2
Net decrease reflects a reduction in the request for research reactors and reflects the elimination of Congressionally directed funding for ORNL and LANL infrastructure. The decrease is offset by initial funding for reestablishment of Pu-238 production capability to support future NASA missions and potential national security applications and an increase for space and defense infrastructure to fully fund the full-cost recovery space charge at LANL. The Pu-238 project will be 50/50 cost-shared with NASA.

Idaho Facilities Management (FY 2010 $173.0; FY 2011 $162.5) ..... -$10.5
Decrease reflects the completion of several one-time planning, preparation, and purchasing activities (e.g., completion of disposition surplus non-radiological facilities, completion of the purchase and installation of glove boxes, and the completion of a one-time purchase of an Atom Probe). An additional decrease of $1.7M reflects a transfer from IFM to S&S for personnel security investigation activities which was offset by a $4.7M increase to process EBR-II used nuclear fuel, originally funded under the Fuel Cycle R&D program.

Idaho Sitewide Safeguards and Security (FY 2010 $83.4; FY 2011 $88.2)..... +$4.8
Increase reflects escalation in costs associated with anticipated union contract negotiations, and labor rate increases, as well as a $1.7M transfer from IFM to fund personnel security investigation activities.

Program Direction (FY 2010 $73.0; FY 2011 $91.5) ..... +$18.5
Increase reflects projected cost of living adjustment, salary increases, and other payroll escalation as well as additional funds to support federal staffing resources and other costs associated with oversight of ongoing responsibilities under the Nuclear Waste Policy Act.

International Nuclear Energy Cooperation (FY 2010 $0; FY 2011 $3.0) ..... +$3.0
Increase reflects creation of a new program to support NE's engagement with officially approved international agreements and other relevant U.S. international commitments in civilian nuclear energy matters.

Fossil Energy

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Fossil Energy Research And Development	863,104	3,398,607	672,383	586,583	-85,800	-12.8%
Clean Coal Technology	0	0	0	0	——	——
Naval Petroleum & Oil Shale Reserves	19,099	0	23,627	23,614	-13	-0.1%
Strategic Petroleum Reserve	226,586	0	243,823	138,861	-104,962	-43.0%
Strategic Petroleum Reserve - Petroleum Account	-21,586	0	0	0	——	——
Northeast Home Heating Oil Reserve	9,800	0	11,300	11,300	——	——
Total, Fossil Energy	**1,097,003**	**3,398,607**	**951,133**	**760,358**	**-190,775**	**-20.1%**

The **Office of Fossil Energy (FE)** manages Fossil Energy Research and Development 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

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Coal	681,264	3,388,607	404,000	403,850	-150	-0.0%
Natural Gas Technologies	19,440	0	17,833	0	-17,833	-100.0%
Petroleum - Oil Technologies	4,860	0	0	0	——	——
Unconventional Fossil Energy Technologies	0	0	20,000	0	-20,000	-100.0%
Program Direction	152,000	10,000	158,000	152,033	-5,967	-3.8%
Plant and Capital Equipment	18,000	0	20,000	20,000	——	——
Fossil Energy Environmental Restoration	9,700	0	10,000	10,000	——	——
Special Recruitment Programs	656	0	700	700	——	——
Cooperative Research and Development	4,860	0	5,000	0	-5,000	-100.0%
Congressionally Directed Projects	42,634	0	36,850	0	-36,850	-100.0%
Subtotal, Fossil Energy Research and Development	***933,414***	***3,398,607***	***672,383***	***586,583***	***-85,800***	***-12.8%***
Use of Prior Year Balances	-70,310	0	0	0	——	——
Total, Fossil Energy Research And Development	**863,104**	**3,398,607**	**672,383**	**586,583**	**-85,800**	**-12.8%**

The mission of the **Fossil Energy Research and Development** (FER&D) program is to create technology and technology-based policy options for public benefit by enhancing U.S. economic, environmental, and energy security. This mission is achieved by developing technologies to enhance the clean use of domestic fossil fuels and to reduce emissions from fossil-fueled electricity generation plants to achieve near-zero atmospheric emissions power production, with specific focus on dramatic reductions of global 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 storage (CCS). CCPI projects can help accelerate development and deployment of fossil technologies that could economically meet environmental standards and increase the efficiency and reliability of fossil power plants. CCPI demonstrates technologies that have successfully been developed at smaller scale including those developed 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 fossil power plant emissions (including CO_2) and significantly improve efficiency, which would also reduce CO_2 emissions, through cost-competitive technologies.

The **Innovations for Existing Plants (IEP)** activity develops technologies to economically capture post-combustion, separate, and compress CO_2 from coal-fired utility boilers or other low concentration CO_2 streams while reducing the impact of water usage associated with carbon capture.

The **Integrated Gasification Combined Cycle (IGCC)** activity develops advanced gasification-based technologies to reduce the cost, increase the efficiency and improve the operability of coal-based IGCC plants, thus facilitating market acceptance. IGCC technology for new capacity offers the prospects of

being easily adaptable with CCS. Consequently, IGCC technologies will be an integral part of CCS demonstration projects.

The **Advanced Turbines** activity advances hydrogen turbine technology to operate at higher efficiency, capacity output, and ultra-low NO_x (2 ppm or less) when using coal-derived hydrogen fuels coupled with CCS.

The **Carbon Sequestration** activity develops economical ways to separate, compress and permanently store CO_2 emissions from the use of fossil fuels. The program is aimed at reducing the cost and energy penalty of CCS for existing and future fossil fuel power generating facilities and providing the necessary protocols for safe, effective capture, transport, long term storage, and monitoring of CO_2 injected in geologic formations.

The **Fuels** activity develops technologies to produce ultra-pure hydrogen derived from coal for advanced coal-fueled power facilities that produce and utilize hydrogen from coal for electricity generation applications with a focus on cost-effective production and separation of hydrogen from carbon dioxide.

The **Fuel Cells** activity develops low cost, highly efficient, scalable fuel cell systems for deployment in full scale central power generation applications to encourage a domestic manufacturing capability for megawatt size fuel cells to generate electricity from coal-derived hydrogen with near-zero atmospheric emissions of carbon dioxide and air pollutants in central station applications, offsetting the energy penalties of CCS. This activity also provides the technology base to permit megawatt-scale distributed power applications.

The **Advanced Research** activity serves as a bridge between basic and applied research. Projects foster the development of innovative materials, computational simulations, technologies and systems concepts to provide revolutionary improvements in efficiency and environmental performance while reducing the costs of advanced coal-based systems with CCS. 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 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 and other useful Applications; Geologic Site Characterizations; and Geologic Sequestration Research and Training.

The **Natural Gas Technologies** R&D program has developed technologies to exploit large gas hydrate resources. Consistent with Administration policy to phase out fossil fuel subsidies, the Natural Gas Technologies program is requesting no funding in FY 2011.

The **Petroleum – Oil Technology** R&D program, consistent with Administration policy to phase out fossil fuel subsidies and zero funding provided in FY 2010 appropriations, is requesting no funding in FY 2011.

Strategic Petroleum Reserve

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
SPR - Facilities Development	226,586	0	243,823	209,861	-33,962	-13.9%
Use of Prior Year Balances	0	0	0	-71,000	-71,000	N/A
Total, Strategic Petroleum Reserve	**226,586**	**0**	**243,823**	**138,861**	**-104,962**	**-43.0%**

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 2011 budget proposes a SPR program that is environmentally responsible and fully responsive to the needs of the Nation and the public. The FY 2011 budget

initiates activities to integrate into site operations the Bayou Choctaw replacement cavern, planned for purchase with FY 2010 appropriations. Additionally, FY 2011 provides for the assessment of energy efficiency and Greenhouse Gas (GHG) control at SPR facilities to meet DOE goals for 15 percent LEED buildings by 2015, for application of wind/solar, and to lower GHG emissions of all DOE facilities. FY 2011 budget continues vapor pressure mitigation activities to ensure the availability of crude oil inventories at SPR sites within environmental and safety constraints and includes funding needed to move degas plant to West Hackberry site beginning in FY 2011. Program level of $209.9 million assumes cancellation of $71 million in balances from prior years appropriated for billion barrel expansion at Richton, MS site and use of these balances to partially fund required operations and management activities.

Strategic Petroleum Reserve Petroleum Account

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Use of Prior Year Balances	-21,586	0	0	0	——	——
Total, Strategic Petroleum Reserve-Petroleum Account	**-21,586**	**0**	**0**	**0**	**——**	**——**

In FY 2009, $21,585,723 of unobligated balances was transferred from the Strategic Petroleum Reserve Petroleum Account to the Strategic Petroleum Reserve facility development and operations account for necessary repairs related to site hurricane damage.

Northeast Home Heating Oil Reserve

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Northeast Home Heating Oil Reserve	9,800	0	11,300	11,300	——	——
Total, Northeast Home Heating Oil Reserve	**9,800**	**0**	**11,300**	**11,300**	**——**	**——**

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

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Production Operations	8,185	0	14,166	13,919	-247	-1.7%
Management	10,914	0	9,461	9,695	+234	+2.5%
Total, Naval Petroleum & Oil Shale Reserves	**19,099**	**0**	**23,627**	**23,614**	**-13**	**-0.1%**

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 while identifying and analyzing options for RMOTC becoming a fully self-sustaining user facility, and perform environmental remediation on those facilities that no longer have value to either the production or testing missions. Since the NPOSR no longer served the national defense purpose envisioned in the early 1900s, 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).

PROGRAM HIGHLIGHTS

Fossil Energy Research and Development

Coal activities include research, development and demonstration of technologies that will improve the competitiveness of near-zero emissions coal-fueled electricity generation in future energy supply markets through technologies that cost-effectively capture and store CO_2, providing a domestic, low-cost, low-CO_2 energy supply option.

In FY 2011 and through the Recovery Act, the Coal program continues aggressive funding for CCS activities, including large-scale demonstration of injection and storage of CO_2 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 2011 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. The FY 2011 budget includes funding to integrate the Bayou Choctaw replacement cavern into site operations and to move the degas plant from Bryan Mound to West Hackberry site. FY 2011 provides for the assessment of energy efficiency and Greenhouse Gas (GHG) control at SPR facilities, for application of wind/solar, and to lower GHG emissions of all DOE facilities.

Northeast Home Heating Oil Reserve

The FY 2011 budget request continues operation of the Reserve, including lease of commercial storage space, and provides funding for the award of new storage contracts in late FY 2011.

Naval Petroleum and Oil Shale Reserves

In FY 2011, 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 2011 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. Oil production from NPR-3 is expected to average 239 barrels per day. Funding for RMOTC testing is discontinued in FY 2011as it transitions to a self-sustaining user testing facility. Environmental remediation will be initiated on those facilities that no longer have value to either the production or testing missions.

SIGNIFICANT FUNDING CHANGES – FY 2010 to 2011 Request ($ in millions)

Fossil Energy Research and Development

Fuels and Power Systems

Innovations for Existing Plants (FY 2010 $52.0; FY 2011 $65.0).....+$13.0
The increase in funding will be directed towards a second solicitation for pilot-scale slipstream testing (0.5 to 5 MW electric equivalent) of advanced post- and oxy- combustion capture technologies that were not tested in the FY2010 pilot-scale solicitation.

Advanced Integrated Gasification Combined Cycle (FY 2010 $63.0; FY 2011 $55.0) -$8.0
Construction of the 600-ton/day coal feed pump will be completed in FY 2010. The program will complete a detailed report based on site characterization and environmental assessments completed in FY 2010 for the 50 MWe high temperature test unit. A novel syngas chemical looping project for hydrogen production and carbon dioxide capture will be suspended.

Carbon Sequestration (FY 2010 $154.0; FY 2011 $143.0).....-$11.0
Due to a programmatic prioritization of post-combustion carbon capture technologies, less funding is requested for pre-combustion carbon capture technologies. The program plans to achieve the pre-combustion performance target two years later than previously projected.

Fuels (FY 2010 $25.0; FY 2011 $12.0).....-$13.0
The program will focus laboratory and early engineering design studies of hydrogen production modules on applications to advanced coal-fueled facilities that produce and utilize hydrogen for electricity generation.

Advanced Research (FY 2010 $28.0; FY 2011 $47.9)…… +$19.9
The increase in funding supports high priority computational studies that will focus on backend stack gas (post-combustion) capture to reduce or mitigate harmful pollutants, modeling of geologic CO_2 storage and reservoir plumes, and the development of a scientific basis to allow successful modeling and simulation of reservoir integrity. Additional modeling efforts to quantify and reduce uncertainties and address issues associated with CO_2 in the reservoir will be developed.

Natural Gas Technologies (FY 2010 $17.8; FY 2011 $0)…….....-$17.8
Consistent with Administration policy to phase out fossil fuel subsidies, no funding is being requested.

Unconventional Fossil Energy Technologies (FY 2010 $20.0; FY 2011 $0)……..-$20.0
Consistent with Administration policy to phase out fossil fuel subsidies, no funding is being requested.

Program Direction (FY 2010 $158.0; FY 2011 $152.0)..... -$6.0
The decrease reflects a reduction in FTEs, travel activities, and contractual services at headquarters and the NETL field office. This reduction is an effort by FE to reduce program direction costs.

Cooperative Research and Development (FY 2010 $5.0; FY 2011 $0.0)..... -$5.0
In FY 2011, the Department anticipates that these centers would compete successfully for Fossil Energy funding through the competitive solicitation process.

Congressionally Directed Projects (FY 2010 $36.9; FY 2011 $0.0) ..... -$36.9
No Congressionally Directed Projects were requested for the FY 2011 Budget.

Strategic Petroleum Reserve

Strategic Petroleum Reserve (FY 2010 $243.8; FY 2011 $138.9).....-$104.9
The decrease assumes cancellation of $71 million in balances from prior year appropriations for a billion barrel expansion at Richton, MS site and the use of these balances to partially fund operations and management activities. Program decrease is attributable to a difference in funding to purchase Bayou Choctaw replacement cavern in FY 2010 versus proposed activity to begin integrating the cavern into operations during FY 2011; to a reduced level of planned, discrete maintenance tasks and smaller major maintenance construction program to accommodate funding requirement for the degas plant move; and, due to no funding being requested for Expansion. Year over year change in expansion funding is a -$25M which is part of the $71M in balances from prior year appropriations for expansion. Decrease is offset by the funding needed for moving degas plant from the Bryan Mound to West Hackberry site.

Innovative Technology Loan Guarantee Program

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Title 17 - Innovative Technology Loan Guarantee Program						
Administrative Operations	19,880	0	26,000	38,000	+12,000	+46.2%
Administrative Operations, Offsetting Collections	-19,880	0	-26,000	-38,000	-12,000	-46.2%
Cost of Loan Guarantees	0	0	0	500,000	+500,000	N/A
Total, Title 17 - Innovative Technology Loan Guarantee	*0*	*0*	*0*	*500,000*	*+500,000*	*N/A*
Section 1705 Temporary Loan Guarantee Program						
Cost of Loan Guarantees	0	3,935,000	0	0	——	——
Administrative Operations	0	25,000	17,000	20,000	+3,000	+17.6%
Administrative Operations, Offsetting Collections	0	0	-17,000	-20,000	-3,000	-17.6%
Total, Section 1705 Temporary Loan Guarantee Program	*0*	*3,960,000*	*0*	*0*	——	——
Total, Innovative Technology Loan Guarantee Program	**0**	**3,960,000**	**0**	**500,000**	**+500,000**	**N/A**

PROGRAM DESCRIPTION

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 EPAct. 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. In addition, Section 406 of the American Recovery and Reinvestment Act of 2009, Pub. L. No. 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. 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.

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 FY 2011 request supports additional loan guarantees for renewable and energy efficiency projects and nuclear power projects. For renewable energy systems and efficient end-use energy technology projects, the Department is requesting $500.0 million in credit subsidy to support an estimated $3 to $5 billion in eligible project costs. These funds will stimulate investment in a range of promising, innovative technologies. The Department also requests an additional $36 billion in loan guarantee authority for nuclear power projects (for a total of $54.5 billion). This additional authority will support the deployment of advanced nuclear technology and help to demonstrate that the factors contributing to financing risk premiums are manageable, thereby clearing the way to affordable private sector financing. Since inception, the DOE Title XVII Loan Guarantee Program has issued eight competitive solicitations and is evaluating the applications received in the following solicited sectors:

- The 2006 mixed technologies solicitation for up to $4.0 billion in loan guarantees closed in November 2008.
- The 2008 front-end nuclear facilities solicitation for up to $2.0 billion in loan guarantees closed in December 2008.
- The 2008 nuclear power facilities solicitation for up to $18.5 billion in loan guarantees closed in December 2008.

- The 2008 advanced fossil technologies solicitation for up to $8 billion in loan guarantees closed in March 2009.
- The 2008 energy efficiency, renewables, advanced transmission and distribution technologies solicitation for up to $10 billion in loan guarantees closed in April 2009.
- The 2009 electric power infrastructure transmission solicitation closed in October 2009. Up to $750 million in appropriated credit subsidy under Section 1705 is available to support projects under this solicitation.
- The 2009 energy efficiency, renewables, advanced transmission and distribution technologies solicitation was issued in July 2009 and is open until December 2010. Up to $8.5 billion in loan guarantee authority to support Section 1703 eligible projects and $2.5 billion in appropriated credit subsidy to support Section 1705 eligible projects is available under this solicitation.
- The Financial Institution Partnership Program for renewable energy generation projects was issued in October 2009 and is open until January 2011. Up to $750 million in appropriated credit subsidy under Section 1705 is available to support projects under this solicitation

The Department has offered four conditional commitments for loan guarantees under the Title XVII Loan Guarantee Program to date:

- $535 million to Solyndra, Inc. in March 2009 for construction of a solar PV manufacturing plant. The loan guarantee was finalized in September 2009.
- $43 million in July 2009 to Beacon Power to construct a flywheel energy storage plant.
- $16 million in July 2009 to Nordic Windpower, Inc. to scale up an assembly plant.
- $245 million in December 2009 to Red River Environmental Products, LLC to construct an activated carbon manufacturing facility with co-generation.

Current loan authority to support Section 1703 eligible projects totals $51 billion divided as follows: $4 billion for mixed technologies, $18.5 billion for renewable, energy efficiency, and transmission projects, $18.5 billion for nuclear power projects, $2 billion for front-end nuclear projects, and $8 billion for advanced fossil projects. In addition, $3.935 billion in appropriated credit subsidy is available to support Section 1705 eligible projects. The Department is requesting $500 million in appropriated credit subsidy to support energy efficiency and renewable energy projects eligible under Section 1703 as well as an additional $36 billion loan guarantee authority for nuclear power projects in FY 2011.

The Department requests $58 million in funding in FY 2011 for administrative expenses. This request will be offset by collections authorized under EPAct.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Loan Guarantee Program Office (FY 2010 $0; FY 2011 $500).....$500

Sec. 1703 Credit Subsidy Costs – Energy Efficiency Renewables Projects (FY 2010 $0; FY 2011 $500)…….....+$500
This increase in Section 1703 appropriated credit subsidy will continue support of the renewable energy sector after the expiration of the Section 1705 program in 2011, and will provide additional support to energy efficiency projects.

Nuclear Power Loan Authority (FY 2010 $0; FY 2011 $0) .....+$0
The Department requests an additional $36 billion in loan guarantee authority for nuclear power projects to promote near-term deployment of new nuclear power plants in support of clean energy goals and to demonstrate that the factors responsible for financing risk premiums are manageable.

Administrative Operations (FY 2010 $43; FY 2011 $58).....+$15
Increase in administrative operations supports an additional 54 FTEs from 84 FTEs in FY 2010 to 138 FTEs in FY 2011 to adequately staff the office to support current loan authority levels as well as additional loan guarantee authority and credit subsidy requested in FY 2011.

Offsetting Collections (FY 2010 -$43; FY 2011 -$58) .....-$15

Advanced Technology Vehicle Manufacturing Loan Program

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Direct Loan Subsidy Costs	7,500,000	0	0	0	——	——
Administrative Expenses	10,000	10,000	20,000	9,998	-10,002	-50.0%
Total, Advanced Technology Vehicles Manufacturing Loan Program	**7,510,000**	**10,000**	**20,000**	**9,998**	**-10,002**	**-50.0%**

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 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.

As required by the Federal Credit Reform Act of 1990 (as amended), 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 percent of the base year[3] CAFE fuel efficiency standards) than similarly classed conventional technology vehicles.

PROGRAM HIGHLIGHTS

The ATVM Loan Program has awarded five conditional loan commitments for a total of $8.5 billion to date. The loan commitments include $5.9 billion for Ford Motor Company to transform factories across Illinois, Kentucky, Michigan, Missouri, and Ohio to produce 13 more fuel efficient models; $1.6 billion to Nissan North America, Inc. to retool their Smyrna, Tennessee factory to build advanced electric automobiles and to build an advanced battery manufacturing facility; $465 million to Tesla Motors to manufacture electric drive trains and electric vehicles in California; $24 million to Tenneco, Inc. to develop fuel efficient emission control components for advanced technology vehicles; and $528.7 million to Fisker Automotive for the development of two lines of plug-in hybrids. On September, 17, 2009, the ATVM Loan Program closed on its loan offer of $5.9 billion to Ford Motor Company. On January 20, 2010, the Program closed on its loan to Tesla Motors.

The Department requests $10 million in funding in fiscal year 2011 to operate the office and support personnel and associated costs. DOE is not seeking additional appropriations for credit subsidy costs in FY 2011.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Advanced Technology Vehicle Manufacturing Loan Program (FY 2010 $20.0; FY 2010 $10.0)
Administrative Expenses.....-$10.0
The program plans to transition from loan origination to portfolio management activities in FY 2011.

[3] The interim final rule for the program, promulgated on November 12th, 2008, set the base year for this requirement as the model year 2005. The final rule has not yet been promulgated.

National Nuclear Security Administration

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Weapons	6,410,000	0	6,384,431	7,008,835	+624,404	+9.8%
Defense Nuclear Nonproliferation	1,545,071	0	2,136,709	2,687,167	+550,458	+25.8%
Naval Reactors	828,054	0	945,133	1,070,486	+125,353	+13.3%
Office of the Administrator	439,190	0	420,754	448,267	+27,513	+6.5%
Subtotal, National Nuclear Security Administration	***9,222,315***	***0***	***9,887,027***	***11,214,755***	***+1,327,728***	***+13.4%***
Transfer of prior year balances (OMB scoring)			-10,000		+10,000	+100.0%
Total, National Nuclear Security Administration	**9,222,315**	**0**	**9,877,027**	**11,214,755**	**+1,337,728**	**+13.5%**

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 separately organized agency within DOE. NNSA is critical to ensuring the security of our nation. NNSA implements programs for three major national security endeavors: leveraging science to maintain a safe, secure and effective arsenal of nuclear weapons and capabilities to deter any adversary and guarantee that defense to our allies; accelerating and expanding our efforts at home and abroad to reduce the global threat posed by nuclear weapons, nuclear proliferation and unsecured or excess nuclear materials; and, providing safe and effective nuclear propulsion for the U.S. Navy. NNSA also provides supporting capabilities, infrastructure and Federal program management for the nationwide nuclear security enterprise.

PROGRAM HIGHLIGHTS

NNSA is requesting a total of $11.2 billion in FY 2011, an increase of $1.3 billion over the FY 2010 Current Appropriation. NNSA is requesting program funds in four accounts: Weapons Activities (FY 2010 $6,384.4 million; FY 2011 $7,008.8 million); Defense Nuclear Nonproliferation (DNN) (FY 2010 $2,136.7 million; FY 2011 2,687.2 million); Naval Reactors (FY 2010 $945.1 million; FY 2011 $1,070.5 million), and Office of the Administrator (FY 2010 $410.8 million; FY 2011 $448.3 million).

The Weapons Activities appropriation request reflects a multi-year increase necessary to meet the Administration's nuclear security strategy. Increased funding supports the nuclear weapon Stockpile Management program, the scientific, technical and engineering capabilities supporting national security objectives, and critical major infrastructure improvements. For DNN, the increase is driven by the imperative for U.S. leadership in nonproliferation initiatives both here and abroad. Emphasis shifts from work completed under the Bratislava agreement to additional Second Line of Defense sites, including Megaports, continued expansion of efforts to secure vulnerable nuclear materials around the world, and continuing domestic construction on the MOX Fuel Fabrication Facility and its supporting facilities. For Naval Reactors, the increase supports reactor plant development for the OHIO class submarine replacement and commencement of a recapitalization effort for spent nuclear fuel infrastructure. For Office of the Administrator, the request fully supports the staffing and Federal support needed to meet increased requirements in the programs.

The FY 2011-2015 President's request for the NNSA is a funding increase over the current appropriations, reflecting the importance of the Presidential priorities for global nuclear nonproliferation and nuclear security. NNSA is a key player in the implementation of the President's vision to reduce the role of nuclear weapons in U.S. national security strategy. NNSA will enable an evolving strategic posture where stewardship, nonproliferation, counterterrorism efforts, missile defense, and arms control objectives are integrated into one comprehensive strategy.

Weapons Activities – NNSA

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Directed Stockpile Work	1,590,152	0	1,505,859	1,898,379	+392,520	+26.1%
Science Campaign	316,690	0	295,646	365,222	+69,576	+23.5%
Engineering Campaign	150,000	0	150,000	141,920	-8,080	-5.4%
Inertial Confinement Fusion and High Yield Campaign	436,915	0	457,915	481,548	+23,633	+5.2%
Advanced Simulation and Computing Campaign	556,125	0	567,625	615,748	+48,123	+8.5%
Readiness Campaign	160,620	0	100,000	112,092	+12,092	+12.1%
Readiness in Technical Base and Facilities	1,674,406	0	1,842,870	1,848,970	+6,100	+0.3%
Secure Transportation Asset	214,439	0	234,915	248,045	+13,130	+5.6%
Nuclear Counterterrorism Incident Response	215,278	0	221,936	233,134	+11,198	+5.0%
Facilities and Infrastructure Recapitalization Program	147,449	0	93,922	94,000	+78	+0.1%
Site Stewardship	0	0	61,288	105,478	+44,190	+72.1%
Environmental Projects and Operations	38,596	0	0	0	——	——
Safeguards and Security	856,494	0	891,555	844,299	-47,256	-5.3%
Science, Technology and Engineering Capability	30,000	0	0	20,000	+20,000	N/A
Congressionally Directed Projects	22,836	0	3,000	0	-3,000	-100.0%
Subtotal, Weapons	***6,410,000***	***0***	***6,426,531***	***7,008,835***	***+582,304***	***+9.1%***
Use of Prior Year Balances	0	0	-42,100	0	+42,100	+100.0%
Total, Weapons Activities	**6,410,000**	**0**	**6,384,431**	**7,008,835**	**+624,404**	**+9.8%**

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 2011 is $7.01 billion, an increase of $624.4 million above the FY 2010 funding level. 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; Cyber Security and Science, Technology and Engineering Capability. Program Direction activities, except for Secure Transportation Asset, are funded in a separate appropriation under the Office of the Administrator account.

Directed Stockpile Work (DSW) activities provide for the Stockpile Management program that ensures the operational readiness of the nuclear weapons in the nation's stockpile through maintenance, surveillance, evaluation, refurbishment, reliability assessment, weapon dismantlement and disposal, research, development, and certification activities. The FY 2011 request is organized by Life Extension Programs, Stockpile Systems, Weapons Dismantlement and Disposition, and Stockpile Services.

Campaigns are focused on maintaining capabilities to support the scientific and technical efforts essential for the certification, maintenance and life extension of the stockpile. The NNSA supports the science, technology and engineering required to maintain a safe, secure and reliable stockpile without underground nuclear testing. These dual goals are accomplished by the NNSA pursuing a "science-based" certification and assessments process which relies on surveillance, experiments, modeling, simulation, and historical test data. The Campaign activities for Science, Inertial Confinement Fusion and Advanced Simulation and Computing increase slightly from their FY 2010 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 laboratory thermonuclear ignition These extreme conditions of temperature, pressure, and radiation approach those in a nuclear explosion are essential to weapons related research to provide critical scientific data to support

the stockpile without underground nuclear testing. 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 the Stockpile Management program and science, technology and engineering 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. RTBF also plans, prioritizes, and constructs state-of-the-art facilities, infrastructure, and scientific tools for the enterprise within approved baseline costs and schedule.

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 complementary 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 consolidates 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 encompasses environmental projects, nuclear materials integration, energy modernization and stewardship-related line item construction projects.

Defense Nuclear Security provides physical protection for NNSA personnel, facilities, and nuclear weapons from a full spectrum of threats, most notably from terrorism attacks in the United States.

Cyber Security provides the guidance needed to ensure that sufficient information technology and information management security and safeguards are implemented throughout the NNSA enterprise.

Science, Technology and Engineering Capability makes strategic investments in the national security science, technology and engineering capabilities and infrastructure base that are necessary to address current and future global security issues.

PROGRAM HIGHLIGHTS

The FY 2011 request continues significant efforts to meet nuclear security priorities, to conduct the Stockpile Management program, and leverage science to enhance national security.

The investment strategy in this budget request provides a strong basis for transitioning to a smaller nuclear stockpile that continues to be safe, secure and effective. This request strengthens the science, technology and engineering base, modernizes key nuclear facilities, and streamlines the enterprise's physical and operational footprint. These investments are critical in order to strengthen the nation's security while supporting a reduced reliance on nuclear weapons and to bolster confidence in the ability to certify the stockpile under a Comprehensive Test Ban Treaty. Targeted increases are therefore provided for Stockpile Support, Science Technology and Engineering, and Infrastructure.

The increase in Stockpile Support provides for the Stockpile Management program. It meets current commitments to DoD through the W76 Life Extension Program and support for the B61 study. This budget will also increase support for current systems, including significant efforts in weapon surveillance, certification and production activities, while continuing to dismantle retired systems.

The support for Science, Technology and Engineering (ST&E) is crucial to provide the technical and scientific basis to ensure that the nation's nuclear weapons are safe, secure and reliable, without the use of underground nuclear testing. The budget supports increases for the science necessary for certification, including the work toward ignition at the National Ignition Facility and the computational and simulation capability which are essential to supporting the ratification of a Comprehensive Test Ban Treaty.

Infrastructure and construction support in the budget request is targeted toward maintaining and improving current infrastructure and support, increased support for nuclear material consolidation, and construction of replacement plutonium research and uranium manufacturing and waste facilities.

Although there is a decrease in the Defense Nuclear Security budget, it continues to provide protection in the areas of physical and cyber security from a full spectrum of threats. The reduction in the physical security budget is based on risk-informed decisions and is fully consistent with the Department's Graded Security Protection policy. The corresponding increase in the cyber and nuclear counterterrorism budgets continues support for emerging threats in those areas.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Weapons Activities (FY 2010 $6,384.4; FY 2011 $7,008.8) ..... +$624.4
FY 2011 request is $624.4 million above the FY 2010 appropriation.

Directed Stockpile Work (FY 2010 $1,505.9; FY 2011 $1,898.4) .....+$392.5
FY 2011 request is 26.1 percent above the FY 2010 level. The NNSA will continue the Stockpile Management program to meet the immediate needs of the stockpile, enhance stockpile surveillance, and continue annual assessment and Life Extension Programs (LEP). In September 2008, the Nuclear Weapons Council directed the commencement of the B61 Phase 6.2/6.2A 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 2010 $223.2; FY 2011 $249.5). FY 2011 request is $26.3 or 11.8 percent above the FY 2010 level. The increase represents funding to continue to scale-up to full production of the W76 LEP by the end of FY 2013.

Stockpile Systems (FY 2010 $357.8; FY 2011 $649.4). FY 2011 request is $291.6 or 81.5 percent above the FY 2010 level. The increase is associated with a life extension study of the B61 that meets all safety, security, use control, and reliability objectives. Funding is also provided for a study to evaluate future options and approaches to maintaining the W78, consistent with the principles of the Stockpile Management Program defined in Section 3113(a)(2) of the National Defense Authorization Act for FY 2010. Surveillance efforts are enhanced, including a wide range of laboratory tests, component and material testing, to provide critical state-of-health data for annual assessment to certify the stockpile without underground nuclear testing.

Weapons Dismantlement and Disposition (FY 2010 $96.1; FY 2011 $58.0). FY 2011 request is $38.1 or 39.6 percent below the FY 2010 level. The decrease reflects a reduction in weapon and Component/Canned Subassembly (CSA) dismantlements and associated component disposition.

Stockpile Services (FY 2010 $828.8; FY 2011 $941.5). FY 2011 request is $112.8 or 13.6 percent above the FY 2010 level. The increase primarily funds the restoration of the capability to build 10 pits per year and additional activity for subcritical and other plutonium experiments at NTS.

Campaigns (FY 2010 $1,571.2; FY 2011 $1,716.5) ..... +$145.3
FY 2011 request is 9.3 percent above the FY 2010 level.

Science Campaign (FY 2010 $295.6; FY 2011 $365.2). FY 2011 request is $69.6 or 23.5 percent above the FY 2010 level. Increased emphasis is placed on Advanced Certification in the FY 2011 request, which will include the accomplishment of additional experiments at the Nevada Test Site, DARHT and other experimental facilities that contribute to analysis and modeling of failure modes and margin-to-failure.

Engineering Campaign (FY 2010 $150.0; FY 2011 $141.9). FY 2011 request is $8.1 or 5.4 percent below the FY 2010 level. Decreased emphasis is placed on Weapons Systems Engineering Assessment Technology and Enhanced Surveillance in the FY 2011 request.

Inertial Confinement Fusion Ignition and High Yield Campaign (FY 2010 $457.9; FY 2011 $481.5). FY 2011 request is $23.6 or 5.2 percent above the FY 2010 level. The request supports the significant increase in experimental activity as NIF provides critical scientific data to support the stockpile without underground nuclear testing.

Advanced Simulation and Computing Campaign (FY 2010 $567.6; FY 2011 $615.7). FY 2011 request is $48.1 or 8.5 percent above the FY 2010 level, and will provide for growth in Physics and Engineering models as support shifts away from new hardware and software procurements.

Readiness Campaign (FY 2010 $100.0; FY 2011 $112.1). FY 2011 request is $12.1 or 12.1 percent above the FY 2010 level. The FY 2011 Request 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 2010 $1,842.9; FY 2011 $1,849.0) ..... +$6.1
FY 2011 request is 0.3 percent above the FY 2010 level.

Operations of Facilities (FY 2010 $1,348.3; FY 2011 $1,258.0). FY 2011 request is $90.3 or 6.7 percent above the FY 2010 level. Operates and maintains NNSA-owned programmatic capabilities in a state of readiness, ensuring each capability (workforce and facility) is operationally ready to execute identified programmatic tasks. Approximately $318.5 is requested for the Los Alamos National Laboratory (+2.1 percent), $220.9 for the Y-12 complex (-3.9 percent), $117.4 for the Sandia National Laboratory (+12.7 percent), $186.1 for the Kansas City Plant (+19.3 percent), $80.1 for the Lawrence Livermore National Laboratory (-7.6 percent), $121.3 for the Pantex Plant (-7.9 percent), $92.7 for the Savannah River Site (-27.9 percent), $80.1 for the Nevada Test Site (+0.6 percent), and $41.0 for Institutional Site Support (-65.9 percent). 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. The increase for Los Alamos supports waste risk reduction. The Sandia increase supports capabilities at the Tonopah Test Range and Primary Standards Laboratory.

Program Readiness (FY 2010 $73.0; FY 2011 $69.3). FY 2011 request is $3.7 or 5.1 percent below the FY 2010 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 decrease is due to shifts in programmatic priorities related to test readiness.

Material Recycle and Recovery (FY 2010 $69.5; FY 2011 $70.4). FY 2011 request is $0.9 or 1.3 percent above the FY 2010 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.

Containers (FY 2010 $23.4; FY 2011 $28.0). FY 2011 request is $4.6 or 19.7 percent above the FY 2010 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 2010 $24.7; FY 2011 $24.2). FY 2011 request is $0.5 or 1.9 percent below the FY 2010 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. Repackaging of material has been completed and is being moved into HEUMF.

Construction (FY 2010 $303.9; FY 2011 $399.0). FY 2011 request is $95.1 or 31.3 percent above the FY 2010 level, primarily to sustain ongoing line item construction and project engineering and design activities. Increases are requested for the Chemistry and Metallurgy Research Facility Replacement at the Los Alamos National Laboratory, the Uranium Processing Facility (UPF) at the Y-12 National Security Complex, and the High Explosive Pressing Facility at the Pantex Plant. One new construction project, the TA-55 Reinvestment Project Phase II at LANL, is requested to refurbish/replace major facility and infrastructure systems at the LANL Plutonium Facility. Funding for the PDCF has been relocated from RTBF to DNN Fissile Materials Disposition.

Secure Transportation Asset (FY 2010 $234.9; FY 2011 $248.0) ..... +$13.1
FY 2011 request is 5.6 percent above the FY 2010 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 salary escalation and overtime, general site support to all STA federal agents, the procurement of escort vehicles, and the purchase of one replacement aircraft.

Nuclear Counterterrorism Incident Response (FY 2010 $221.9; FY 2011 $233.1)..... +$11.2
FY 2011 request is 5 percent above the FY 2010 level and provides funding for emergency management and response activities and for technical expertise supporting Homeland Security and counterterrorism efforts. This program is the central point of contact and integrated response to emergencies requiring DOE assistance, including the Nuclear Emergency Support Team, which responds to nuclear terrorist threats, and provides unique capabilities in National Technical Nuclear Forensics. The increase is focused on counterterrorism activities, and enables specialized R&D for technical analysis, equipment, and procedures necessary to maintain the nation's capabilities for research on non-stockpile nuclear weapons designs; e.g. Improvised Nuclear Devices or Radiological Dispersal Devices and the laboratory analysis of their aftermath, as well as ensures the capability to meet worldwide render safe support.

Facilities and Infrastructure Recapitalization Program (FIRP) (FY 2010 $93.9; FY 2011 $94.0)
……..+$0.1
FY 2011 request is essentially the same as the FY 2010 level and provides funding for recapitalization, infrastructure planning and construction. The program will continue to restore the condition of mission essential facilities and infrastructure across the nuclear security enterprise to an acceptable condition.

Site Stewardship (FY 2010 $61.3; FY 2011 $105.5) ..... +$44.2
The FY2011 request is 72.1 percent above the FY 2010 level and provides funding for energy efficiency and site utility upgrade projects. The Sanitary Effluent Reclamation Facility (SERF) Expansion at the Los Alamos National Laboratory will begin. The Nuclear Materials Integration program will initiate the treatment and disposition of NNSA materials currently stored at non-NNSA sites including the Idaho National Laboratory and Oak Ridge National Laboratory and energy conservation projects that will reduce energy consumption, enhance energy independence and security and provide life-cycle cost effective benefits will be initiated.

Safeguards and Security (FY 2010 $891.6; FY 2011 $844.3) ..... -$47.3
FY 2011 request is 5.3 percent below the FY 2010 level. 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 $720.0 is a decrease of $49.1 or 6.4 percent below the FY 2010 level. Funding supports materials control and accountability, application of emerging technologies, and physical security at NNSA sites. The funding decrease reflects efficiencies achieved through risk-informed decisions regarding staffing levels and procurement of equipment and supplies.

Cyber Security funding of $124.3 is an increase of $1.8, or 1.5 percent above the FY 2010 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 for technology application development supports the implementation of risk mitigation processes across the enterprise.

Science, Technology and Engineering Capability (FY 2010 $0; FY 2011 $20) ..... +$20.0
This subprogram, created by the Congress in 2009, provides a focal point for science, technology and engineering in NNSA, and facilitates a point of entry for the wider national security community into NNSA's programs and facilities. Supplemental funding was provided in FY 2009, and there is a request for continuing funding in FY 2011. The funding will support strategic investments in national security science, technology and engineering capabilities and infrastructure including collaboration with the Defense Threat Reduction Agency, to address NNSA missions and current and future global security issues, including counterterrorism.

Congressionally Directed Projects (FY 2010 $3; FY 2011 $0)..... -$3.0
No funds are requested.

Defense Nuclear Nonproliferation – NNSA

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Nonproliferation and Verification R&D	356,281	0	317,300	351,568	+34,268	+10.8%
Nonproliferation and International Security	150,000	0	187,202	155,930	-31,272	-16.7%
International Nuclear Materials Protection and Cooperation	460,592	0	572,050	590,118	+18,068	+3.2%
Elimination of Weapons-Grade Plutonium Production Program	141,299	0	24,507	0	-24,507	-100.0%
Fissile Materials Disposition	41,774	0	701,900	1,030,713	+328,813	+46.8%
Global Threat Reduction Initiative	404,640	0	333,500	558,838	+225,338	+67.6%
Congressionally Directed Projects	1,903	0	250	0	-250	-100.0%
Subtotal, Defense Nuclear Nonproliferation	***1,556,489***	***0***	***2,136,709***	***2,687,167***	***+550,458***	***+25.8%***
Use of Prior Year Balances (NN)	-11,418	0	0	0	——	——
Total, Defense Nuclear Nonproliferation	**1,545,071**	**0**	**2,136,709**	**2,687,167**	**+550,458**	**+25.8%**

PROGRAM DESCRIPTION

NNSA's **Defense Nuclear Nonproliferation** (**NN)** appropriation provides funding for five 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 2011 is $2.687 billion, $550.5 million above the FY 2010 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 (NIS) prevents weapons of mass destruction (WMD) proliferation by states and non-state actors. NIS provides 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 (GTRI)** mission is to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide. GTRI works to prevent terrorists from acquiring nuclear and radiological materials that could be used in weapons of mass destruction or other acts of terrorism by converting research reactors and isotope production facilities from using highly enriched to low enriched uranium; removing and disposing of excess nuclear and radiological materials; and, protecting high priority nuclear and radiological materials from theft and sabotage.

PROGRAM HIGHLIGHTS

The FY 2011 request includes $1.03 billion for **Fissile Materials Disposition**, to eliminate surplus Russian plutonium and surplus U.S. plutonium and highly enriched uranium. Funding is included for the Mixed Oxide Fuel Fabrication Facility, Pit Disassembly and Conversion Project, and the Waste Solidification Building. These projects are vital to the nation's arms control and nuclear nonproliferation efforts as they provide the means to dispose of U.S. plutonium declared excess to our national defense needs. Funding is also included for the U.S. to continue to work with the Russian Federation on plutonium disposition in Russia pursuant to the Plutonium Management and Disposition Agreement signed in September 2000. The FY 2011 request includes $100 million of a total commitment of $400 million to support plutonium disposition in Russia once a protocol amending the 2000 Agreement, and a document setting forth the key elements of a monitoring and inspection regime are signed. The balance of more than $2 billion remaining cost of Russian plutonium disposition would be borne by Russia and non-U.S. contributions, if available.

The International Nuclear Materials Protection and Cooperation (INMP&C) program 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 650 international crossings 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 335 sites have been equipped with radiation detection equipment to date, which represents 221 international crossing points in Russia, 87 sites in 15 countries outside Russia, including airports, rail, pedestrian and vehicle crossings, and 27 ports in 23 international locations.

For the MPC&A program, the FY 2011 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 2011 request provides support for the installation of radiation detection equipment at an additional 55 foreign sites, and 4 Megaports, for a total of 463 sites.

The Global Threat Reduction Initiative (GTRI) addresses the global nature of the nuclear proliferation threat by focusing resources on high value, near term risk reduction activities. GTRI directly supports the international effort to accelerate efforts to secure and remove all vulnerable nuclear material from the most vulnerable sites within four 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 2011 budget includes $558.8 million for activities to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide, including $145.2 million for Russia-origin fuel return and $119 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 Seversk reactors were shutdown more than six months early (June 2008), and EWGPP will be completed when the Zheleznogorsk reactor is shut down in FY 2011.

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. A total of $3.855 billion has been costed from FY 2002 through FY 2009. A total of $403.8 million is planned for FY 2010, and the FY 2011 request provides an additional $383.9 million toward the total U.S. commitment to the Global Partnership.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Defense Nuclear Nonproliferation (FY 2010 $2,136.7; FY 2011 $2,687.2)..... +$550.5
FY 2011 request is increased by 26 percent over the FY 2010 level, with emphasis shifting from work completed under the Bratislava agreement to the Second Line of Defense work, including Megaports, further acceleration of efforts to secure vulnerable nuclear materials around the world, and continued construction of the U.S. plutonium disposition facilities.

Nonproliferation and Verification R&D (FY 2010 $317.3; FY 2011 $351.6)..... +$34.3
FY 2011 request includes:

Proliferation Detection (FY 2010 $181.8; FY 2011 $225.0).....+$43.2
Increase for testing and evaluation of technologies in support of treaty monitoring and verification.

Nuclear Detonation Detection (FY 2010 $135.5; FY 2011 $126.6).....-$8.9
Decrease reflects a return to baseline funding after a one-time Congressional increase in FY 2010

Nonproliferation and International Security (FY 2010 $187.2; FY 2011 $155.9) ..... -$31.3
FY 2011 request includes:

Dismantlement and Transparency (FY 2010 $72.8; FY 2011 $49.2).....-$23.6
Decrease reflects a reduction to activities in the Democratic People's Republic of Korea.

Global Security Engagement and Cooperation
(FY 2010 $50.7; FY 2011 $47.3).....-$3.4
Decrease from efficiencies achieved within the program, and completion of export control training curricula development for recent outreach initiatives.

International Regimes and Agreements (FY 2010 $42.7; FY 2011 $39.8).....-$2.9
Decrease reflects refinement of analytical tools resulting in greater efficiencies in reviewing export and interdiction cases. The decrease also reflects the accomplishments from previous year investments in human capital development efforts.

Treaties and Agreements (FY 2010 $21.0; FY 2011 $19.6) .....-$1.4

International Nuclear Materials Protection and Cooperation
(FY 2010 $572.1; FY 2011 $590.1)..... +$18.1

Navy Complex (FY 2010 $33.9; FY 2011 $34.3).....+$0.4
Increase reflects retrofit of MPC&A equipment at the end of its service life at 1 site and upgrades to address insider threats at another site.

Strategic Rocket Forces (FY 2010 $48.6; FY 2011 $51.4) .....+$2.7
Increase reflects additional infrastructure support for the sustainability of installed MPC&A upgrades.

Rosatom Weapons Complex (FY 2010 $71.5; FY 2011 $105.3).....+$33.8
Increase reflects selected MPC&A upgrades at Rosatom Weapons Complex sites added after the Bratislava Agreement and expanded MPC&A upgrades to address both outsider and insider threats and comprehensive upgrades to the external perimeter of the K-26 site in support of the international effort to secure all nuclear material within 4 years.

Civilian Nuclear Sites (FY 2010 $63.5; FY 2011 $59.0).....-$4.5
Decrease reflects programmatic shift from large-scale MPC&A upgrades at Russian sites towards more sustainability support.

Material Consolidation and Conversion (FY 2010 $13.6; FY 2011 $13.9).....+$0.3
Increase reflects a higher projected availability of excess HEU to be downblended to LEU.

National Programs and Sustainability (FY 2010 $68.5; FY 2011 $60.9).....-$7.5
Decrease reflects the completion of the procurement of railcars and trucks to provide physical security protection for the transportation of Russian nuclear material.

Second Line of Defense (SLD) (FY 2010 $272.4; FY 2011 $265.3).....-$7.1
Decrease reflects offset to Megaports program to fund high-priority activities in other program areas

Elimination of Weapons-Grade Plutonium Production
(FY 2010 $24.5; FY 2011 $0)..... -$24.5
Decrease reflects program completion.

Fissile Materials Disposition (FY 2010 $701.9; FY 2011 $1030.7)..... +$328.8
Funding for the Pit Disassembly and Conversion (PDC) Project is requested in NN.

U.S. Surplus Fissile Materials Disposition
(FY 2010 $700.9; FY 2011 $917.7).....+$216.8
The increase supports the continuation of design and/or construction for the MFFF, WSB, and PDC projects and all related supporting activities.

Russian Surplus Fissile Materials Disposition
(FY 2010 $1.0; FY 2011 $113.0).....+$112.0
Increase provides $100 million of the $400 million U.S. pledge to support plutonium disposition in Russia, $12 million research and development (R&D) of the GT-MHR in Russia as required under the Plutonium Management and Disposition Agreement, as well as funding for DOE management and oversight of the Russian plutonium disposition program.

Global Threat Reduction Initiative (FY 2010 $333.5; FY 2011 $558.8)..... +$225.3

HEU Reactor Conversion (FY 2010 $102.8; FY 2011 $119.0).....+$16.2
Increase reflects increasing reactor conversions and shutdowns from 4 in FY 2010 to 7 in FY 2011, and support for the production of Molybdenum-99 without the use of HEU.

Nuclear and Radiological Material Removal (FY 2010 $144.8; FY 2011 $355.7)…+$210.9
Increase accelerates the removal or disposition of high-priority, vulnerable nuclear materials in support of the international effort to secure all vulnerable nuclear material worldwide within four years.

Nuclear and Radiological Material Protection
(FY 2010 $85.9; FY 2011 $84.1).....-$1.7
Decrease largely due to completion of the BN-350 Nuclear Material Protection material shipments by the end of FY 2010.

Congressionally Directed Projects (FY 2010 $0.3; FY 2011 $0)..... -$0.3
No funds are requested to continue congressionally directed projects.

Office of the Administrator – NNSA

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Office of the Administrator	415,878	0	418,074	448,267	+30,193	+7.2%
Congressionally Directed Projects	23,312	0	13,000	0	-13,000	-100.0%
Use of Prior Year Balances	0	0	-10,320	0	+10,320	+100.0%
Subtotal, Office of the Administrator	***439,190***	***0***	***420,754***	***448,267***	***+27,513***	***+6.5%***
Transfer of prior year balances (OMB scoring)	0	0	-10,000	0	+10,000	+100.0%
Total, Office of the Administrator	**439,190**	**0**	**410,754**	**448,267**	**+37,513**	**+9.1%**

PROGRAM DESCRIPTION

NNSA's **Office of the Administrator** request provides for a well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital; cost-effective utilization of information technology; and integration of budget and performance. The workforce is a highly educated and skilled cadre of federal managers who oversee the operations of the nuclear security enterprise and perform 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 that oversee NNSA contractor operations 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 and Headquarters. The FY 2011 request for this program is $448.3 million.

PROGRAM HIGHLIGHTS

This program provides funding for federal staff and required support for NNSA activities at Headquarters and field locations, as well as support for Departmental administrative activities through the Working Capital Fund. NNSA continues with its five year DEMO project with the Office of Personnel Management on pay for performance.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Office of the Administrator (FY 2010 $410.8; FY 2011 $448.3)..... +$37.5

Program Direction (FY 2010 $418.1; FY 2011 $448.3)..... +$30.2
The FY 2011 request provides salaries and benefits for 1,970 FTEs, including the projected cost of living adjustment, performance base salary increases, and other payroll escalation; fully funding all NNSA site office space requirements; building maintenance and lease requirements at the Service Center; and NNSA international program expansion under the Defense Nuclear Nonproliferation programs.

Congressionally Directed Projects (FY 2010 $13.0; FY 2011 $0)..... -$13.0
Decrease reflects the Congressionally Directed projects in support of HBCU programs in the FY 2010 Energy and Water Development and Related Agencies Appropriations Act (P.L. 111-85). In FY 2011, the Office of the Administrator request will provide $4.7 million ($3.6 million for the Massie Chairs of Excellence and $1.1 million for HBCU activities); the Weapons Activities appropriation plans to provide up to $6 million; the Defense Nuclear Nonproliferation appropriation plans to provide up to $3 million; and the Naval Reactors program plans to provide up to $1 million for HBCU efforts.

Use of Prior-Year Balances (FY 2010 -$10.3; FY 2011 $0.0) ……+$10.3

Transfer of Prior Year Balances to Non-Defense Environmental Cleanup (FY 2010 -$10.0; FY 2011 $0.0) ……..+$10.0

Naval Reactors

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Naval Reactors Development	793,600	0	908,333	1,030,486	+122,153	+13.4%
Program Direction	34,454	0	36,800	40,000	+3,200	+8.7%
Total, Naval Reactors	**828,054**	**0**	**945,133**	**1,070,486**	**+125,353**	**+13.3%**

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 2011 is $1.1 billion**, an increase of $125.4 million over the FY 2010 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, design for the next-generation reactor plant for the GERALD R. FORD aircraft carrier, and commencement of the design and development efforts for the OHIO Class submarine replacement. The OHIO replacement will have significant improvements in life-cycle costs, advanced power capabilities, and increased endurance compared to current plants.

PROGRAM HIGHLIGHTS

The FY 2011 request provides $1,070.5 million for Naval Reactors; an increase of $125.4 million above the FY 2010 funding level.

The increase in funding supports several important new initiatives: design work for the OHIO-class ballistic missile submarine replacement, 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 104 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 2010 to FY 2011 Request ($ in millions)

Naval Reactors Development (FY 2010 $945.1; FY 2011 $1,070.5) ..... +$125.4
Increase in Operations and Maintenance and overall increase in Construction and Program Direction funding, as follows:

Operations and Maintenance (FY 2010 $877.5; FY 2011 $997.9) ..... +$120.4
FY 2011 request is 13.7 percent above the FY 2010 level. Increases in all Operations and Maintenance activities reflect support for several research and development initiatives, including: 1) DOE-cognizant design work for the reactor plant for the OHIO-class ballistic missile submarine replacement ($91.0); 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 ($70.6); and 3) NEPA and conceptual design efforts in support of recapitalization of the Program's spent nuclear fuel infrastructure ($40.6).

Construction (FY 2010 $30.8; FY 2011 $32.6) ..... **+$1.8**
FY 2011 request is 5.8 percent above the FY 2010 level. Overall increase supports line item construction funding for the Expended Core Facility M-290 Receiving and Discharge Station at NRF (+$15.5), which is partially offset by decreases in construction funding for the Materials Research and Technology Complex at the Bettis Atomic Power Laboratory (-$9.0), the Production Support Complex at NRF (-$2.4), infrastructure upgrades at the Naval Reactors Facility (NRF) in Idaho (-$.2), infrastructure upgrades at Knolls Atomic Power Laboratory (-$1.0) and KSO security upgrades (-$1.1).

Program Direction (FY 2010 $36.8; FY 2011 $40.0) ..... **+$3.2**
FY 2011 request is 8.7 percent above the FY 2010 level. Increase reflects inflationary-based salary adjustments and achievement of the FY 2011 target of 217 FTEs, an increase of 2 FTEs, to support oversight of new projects and escalation of travel costs.

Energy Information Administration

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
National Energy Information System	110,595	0	110,595	128,833	+18,238	+16.5%
Total, Energy Information Administration	**110,595**	**0**	**110,595**	**128,833**	**+18,238**	**+16.5%**

PROGRAM DESCRIPTION

The **Energy Information Administration (EIA)** is the statistical and analytical agency within the U.S. Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment. EIA is the Nation's premier source of energy information and, by law, its data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government.

PROGRAM HIGHLIGHTS

The FY 2011 request for EIA is $128.8 million, which is an $18.2 million increase over the FY 2010 current appropriation of $110.6 million. EIA conducts a comprehensive data collection program that covers the full spectrum of energy sources, end uses, and energy flows; generates short- and long-term domestic and international energy projections; and performs informative energy analyses. EIA disseminates its data products, analyses, reports, and services to customers and stakeholders primarily through its website.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Energy Information Administration (FY 2010 $110.6; FY 2011 $128.8)..... +$18.2
Increased funding improves capability to close energy information gaps, strengthen analysis, and address significant data quality issues. Provides for improved surveys of energy use in commercial buildings, manufacturing, and homes that will provide more data for more states, as well as baseline information critical to understanding energy use and are the basis for benchmarking and performance measurement for energy efficiency programs (+$8.1), expanded analysis of energy market behavior and data to address the interrelationship of energy and financial markets (+$1.3), continued implementation of improvements in data coverage, quality and integration (+$3.1), upgrades to the National Energy Model (+$1.9), and initiation of efforts to track and analyze the adoption of "Smart Grid" technologies (+$1.5).

Power Marketing Administrations

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Southeastern Power Administration						
Southeastern Power Administration	70,942	0	92,866	96,649	+3,783	+4.1%
Less Alternative Financing (for PPW)/Offsetting Collection	-63,522	0	-92,866	-96,649	-3,783	-4.1%
Cost of Implementing Reclassification of Receipts	0	0	7,638	0	-7,638	-100.0%
Subtotal, Southeastern Power Administration	***7,420***	***0***	***7,638***	***0***	***-7,638***	***-100.0%***
Southwestern Power Administration						
Southwestern Power Administration	89,186	0	94,944	99,130	+4,186	+4.4%
Less Alternative Financing/Offsetting Collection	-60,772	0	-81,868	-86,431	-4,563	-5.6%
Cost of Implementing Reclassification of Receipts	0	0	31,868	0	-31,868	-100.0%
Subtotal, Southwestern Power Administration	***28,414***	***0***	***44,944***	***12,699***	***-32,245***	***-71.7%***
Western Area Power Administration						
Western Area Power Administration	901,634	10,000	899,317	912,890	+13,573	+1.5%
Less alternative financing/Offsetting collection (P.L. 108-477/109-103)	-683,288	0	-790,136	-807,332	-17,196	-2.2%
Cost of Implementing Reclassification of Receipts	0	0	147,530	0	-147,530	-100.0%
Subtotal, Western Area Power Administration	***218,346***	***10,000***	***256,711***	***105,558***	***-151,153***	***-58.9%***
Falcon and Amistad Operating and Maintenance Fund						
Operation and Maintenance	2,959	0	2,568	3,715	+1,147	+44.7%
Offsetting Collections	0	0	-2,348	-3,495	-1,147	-48.9%
Cost of Implementing Reclassification of Receipts	0	0	2,348	0	-2,348	-100.0%
Subtotal, Falcon and Amistad Fund	***2,959***	***0***	***2,568***	***220***	***-2,348***	***-91.4%***
Colorado River Basins Power Marketing Fund						
Spending Authority from Offsetting Collections	240,284	0	261,723	227,303	-34,420	-13.2%
Offsetting Collections	-263,284	0	-284,723	-250,303	+34,420	+12.1%
Subtotal, Colorado River Basins	***-23,000***	***0***	***-23,000***	***-23,000***	———	———
Total, Power Marketing Administrations	**234,139**	**10,000**	**288,861**	**95,477**	**-193,384**	**-66.9%**

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 and participates with other water resource users in an effort to balance diverse interests with power needs. To deliver power to its customers, Southwestern maintains 1,380 miles of high-voltage transmission lines, 25 substations/switchyards, and 51 microwave and VHF radio sites. The President's budget request for Southwestern provides for maintenance, additions, replacements, and interconnections ensuring 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 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 2011 budget continues the use of receipts 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. The Bonneville Power Administration (Bonneville), unlike the other PMAs, is "self-financed" by the ratepayers of the Pacific Northwest and receives no direct, annual appropriations from Congress. Under the Federal Columbia River Transmission System Act of 1974, Bonneville funds the expense portion of its budget and repays the federal investment and bonds issued to the Treasury with revenues from electric power and transmission rates.

In the Recovery Act, Section 402 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. 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 increases borrowing authority to $7.7 billion.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Southeastern Power Administration (FY 2010 $7.6; FY 2011 $0.0) ..... -$7.6

Program Direction (FY 2010 $7.6; FY 2011 $8.0) ..... +$0.4
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 2011 funding level allows Southeastern to maintain its current level of 44 FTEs in FY 2011.

Purchase Power and Wheeling (FY 2010 $85.2; FY 2011$88.6) ..... +$3.4
(FY 2010 alternative financing $14.4; use of receipts $70.8; FY 2011 alternative financing $14.4; use of receipts $74.2). 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 and bill crediting 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 2010 -$14.4; FY 2011 -$14.4)..... -$0
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 2010 -$78.4; FY 2011 -$82.2)..... -$3.8
The FY 2011 budget includes the use of Southeastern's receipts to offset appropriations for annual expenses in the Program Direction (-$8.0) activity. Southeastern will continue to use receipts to

fund a portion of Purchase Power and Wheeling program expenses (-$74.2), which enables Southeastern to meet its annual operation and maintenance requirements and purchase power and wheeling needs.

Southwestern Power Administration (FY 2010 $44.9 FY 2011 $12.7)..... -$32.2

Operations and Maintenance (FY 2010 $13.8; FY 2011 $13.7) .....-$0.1
(FY 2010 offsetting collections $5.6; FY 2011 alternative financing $1.5, offsetting collections $6.7) Small decrease reflects efforts to minimize rate impacts while replacing the necessary equipment to ensure system reliability.

Program Direction (FY 2010 $27.2; FY 2011 $28.4) .....+$1.2
(FY 2010 offsetting collections $26.2; FY 2011 alternative financing $0.3, offsetting collections $26.9) The increase in salaries and benefits reflect wage survey-based, union-negotiated, Administratively Determined pay adjustments, and mission related travel to maintain the transmission system. Reflects an increase of 10 FTEs.

Purchase Power and Wheeling (FY 2010 $48.0; FY 2011 $49.0) .....+$1.0
(FY 2011 alternative financing $10.0; use of receipts $39.0 (+1.0)). Increase supports Southwestern's anticipated needs to ensure adequate funding to fulfill its 1200-hour peaking power contractual obligations based on volatile market prices, limited availability of energy banks, and all but the most severe hydrological conditions. The amount of alternative financing will offset the costs of purchase power and wheeling, system support and other contractual obligations. When hydro generation is below normal, Southwestern will utilize the Continuing Fund to defray emergency expenses to ensure continuity of electric service.

Construction (FY 2010 $6.0; FY 2011 $8.1) ..... +$2.1
(FY 2010 alternative financing $2.0; FY 2011 alternative financing $2.0) The increase in funding reflects greater emphasis being placed on transmission line repair and upgrade.

Alternative Financing (FY 2010 -$12.0; FY 2011-$13.8)..... -$1.8
Alternative financing will be used to offset Program Direction (-$0.3), Operations and Maintenance (-$1.5), Construction (-$2.0) and Purchase Power and Wheeling (-$10.0). The amounts identified will allow Southwestern to continue to meet their annual operation and maintenance requirements.

Offsetting Collections (FY 2010 -$69.9; FY 2011 -$72.6)..... -$2.7
Includes the use of Southwestern's receipts to offset appropriations for annual expenses in the Operations and Maintenance (-$6.7) and Program Direction (-$26.9) activities. Southwestern will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-$39.0), which enable Southwestern to meet its annual hydroelectric contractual obligations.

Western Area Power Administration (FY 2010 $256.7; FY 2011 $105.6)..... -$151.2
FY 2011 Construction, Rehabilitation, Operation, and Maintenance program level is $912.9 (compared to $899.3 in FY 2010) and will be funded by $105.6 in budget authority, $531.2 in offsetting collections, $4.2 through a reimbursable agreement with the Bureau of Reclamation using offsetting collections from P.L. 98-381 from the Colorado River Dam Fund (CRDF), and $271.9 of alternative financing.

Construction and Rehabilitation (FY 2010 $105.0; FY 2011 $109.9).....+$4.9
(FY 2010 alternative financing $83.8, appropriations $21.2; FY 2011 alternative financing $72.8, appropriation $37.1) Relies significantly on alternative customer financing for the growing capital program requirements. Increase provides for new and ongoing transmission line and substation construction to address Western's aging transmission system infrastructure and reliability concerns due to expansive load growth in the surrounding areas.

Operation and Maintenance (FY 2010 $57.2; FY 2011 $57.8) .....+$0.6
(FY 2010 alternative financing $0.4, offsetting collections $37.0, offsetting collections from CRDF $0.9, appropriations $18.9; FY 2011 alternative financing $3.6, offsetting collections $31.3, offsetting collections from CRDF $1.0, appropriations $21.9.) The increase in regular Operation

and Maintenance activities is attributed to inflation with a decrease to cyclical maintenance activities and a corresponding increase to replacement and additions to equipment.

Purchase Power and Wheeling (FY 2010 $548.8; FY 2011 $543.6).....-$5.2
(FY 2010 alternative financing $199.0; use of receipts $349.8; FY 2011 alternative financing $192.7; use of receipts $350.9). FY 2011 decrease in purchase power and wheeling reflects a reduction in the amount of power purchased in continued anticipation of an end to the long-term drought conditions experienced in the Pick-Sloan Missouri River Basin.

Utah Reclamation Mitigation & Conservation (FY 2010 $7.6; FY 2011 $7.6) .+$0.0
Provides for Western's annual transfer of funding to the Utah Reclamation Mitigation and Conservation account from the Construction Rehabilitation, Operations and Maintenance account.

Program Direction (FY 2010 $180.7; FY 2011 $194.0) .....+$13.2
(FY 2010 alternative financing $5.7, offsetting collections $110.5, offsetting collections from CRDF $3.0, appropriations $61.5; FY 2011 alternative financing $2.7, offsetting collections $149.0, offsetting collections from CRDF $3.3, appropriations $39.0.) Increase reflects the full effect of Western's pay raise in the base, to include those salaries determined by prevailing rates in the electric utility industry. Increase also reflects additional work scope in economic and environmental analysis in support of Western's capital mission needs, and ADP program support associated with Western's financial system upgrade.

Offsetting Collections (FY 2010 -$501.2; FY 2011 -$535.4).....-$34.2
Includes the use of Western's receipts (-$180.3) to offset appropriations for annual expenses in the Operation and Maintenance and Program Direction activities. In FY 2011, Western will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-$350.9) and use CRDF receipts (-$4.2) to support Boulder Canyon Project activities.

Alternative Financing (FY 2010 -$288.9; FY 2011 -$271.9).....+$17.0
Alternative financing methods, including cash advances from customers, will be used to offset Program Direction (-$2.7); Operation and Maintenance (-$3.6); Construction (-$72.8); and Purchase Power and Wheeling (-$192.7) appropriation requirements.

Bonneville Power Administration (self financed through revenues)
Budget Obligations (FY 2010 $4,327; FY 2011 $4,598) ..... +$271.0
No direct annual appropriations are received from Congress. In FY 2011, total requirements of all Bonneville programs include estimated budget obligations of $4,598 million. This amount includes operating expenses of $3,763 million, capital investments of $758 million, and $77 million in projects funded in advance; with $387 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 Fish and Wildlife costs and a significant capital project at the region's only nuclear power plant, which will also require a significant increase in power purchases while the plant is out of service.

Power Services-Capital (FY 2010 $262.4; FY 2011 272.8).....+$10.4
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. Slight increase is due primarily to reshaping of funding requirements for Associated Project costs.

Transmission Services-Capital (FY 2010 $450.5; FY 2011 $462.2) .....+$11.7
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 2011 reflects increase primarily in Main Grid projects.

Departmental Administration

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Administrative Operations:						
Salaries and Expenses:						
Office of the Secretary						
Program Direction	5,700	4,800	5,864	5,864	——	——
Management Reform	0	0	0	2,000	+2,000	N/A
Subtotal, Office of the Secretary	*5,700*	*4,800*	*5,864*	*7,864*	*+2,000*	*+34.1%*
Chief Financial Officer	43,257	15,000	62,981	62,731	-250	-0.4%
Office of Management	67,790	10,000	78,456	74,783	-3,673	-4.7%
Human Capital Management	31,436	2,800	29,537	27,560	-1,977	-6.7%
Chief Information Officer	115,500	5,700	103,063	102,163	-900	-0.9%
Congressional & Intergovernmental Affairs						
Program Direction	4,700	0	4,826	4,826	——	——
Office of Indian Energy Policy and Programs	1,500	0	5,500	1,500	-4,000	-72.7%
Subtotal, Congressional & Intergovernmental Affairs	***6,200***	***0***	***10,326***	***6,326***	***-4,000***	***-38.7%***
Economic Impact and Diversity	4,400	500	6,671	6,337	-334	-5.0%
General Counsel	31,233	3,200	32,478	36,654	+4,176	+12.9%
Policy and International Affairs	23,000	0	30,253	30,253	——	——
Public Affairs	3,780	0	4,500	4,500	——	——
Subtotal, Administrative Operations	*332,296*	*42,000*	*364,129*	*359,171*	*-4,958*	*-1.4%*
Cost of Work for Others	48,537	0	47,537	48,537	+1,000	+2.1%
Subtotal, Departmental Administration	*380,833*	*42,000*	*411,666*	*407,708*	*-3,958*	*-1*
Other Defense Related Activities						
Funding from Other Defense Activities	-108,190	0	-122,982	-118,836	+4,146	+3.4%
Subtotal, Departmental Administration (gross)	***272,643***	***42,000***	***288,684***	***288,872***	***188***	***-1***
Miscellaneous Revenues						
Revenues Associated with Cost of Work	-48,537	0	-48,537	-48,537	——	——
Other Revenues	-68,780	0	-71,203	-71,203	——	——
Subtotal, Miscellaneous Revenues	***-117,317***	***0***	***-119,740***	***-119,740***	——	——
Subtotal, Cost of Work/Revenue	***-176,970***	***0***	***-195,185***	***-190,039***	***+5,146***	***+2.6%***
Total, Departmental Administration (net)	**155,326**	**42,000**	**168,944**	**169,132**	**+188**	**+0.1%**

PROGRAM DESCRIPTION

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

DOE also operates a Working Capital Fund (WCF) as a financial tool to improve management of common administration services. The objectives of the WCF are to fairly allocate costs to mission programs; to offer better choices on amount, quality, and sources of services; and to provide flexibility for service providers to respond to customer needs. Increases to Mail, Printing, Building, and Procurement are below inflation and can be traced back to increased customer requirements. Telecommunication charges increase by $2.6 million due to adding the Wide Area Network. PMCDP charges increase $0.4 million to finance course development. iManage charges increase $0.8 million due to fixed charges related to the corporate procurement system.

PROJECTED CUSTOMER COSTS FY 2011
Comparison of Annual Estimates by Business Line

ORG CODE	FY 2009 Actual	FY 2010 Estimates	FY 2011 Estimates
Supplies	3,484	3,127	3,127
Mail	3,312	4,091	4,151
Copy	3,244	3,050	3,050
P&G	3,749	3,214	3,292
Building	90,075	86,547	88,048
Phones	9,320	15,504	18,140
Network	7,550	0	0
Proc Mgt	6,679	15,655	15,902
Payroll/CHRIS	7,182	7,148	7,148
Corp Training	296	2,175	2,175
PMCDP	1,522	1,000	1,400
STARS	7,695	7,697	8,520
A-123	4,000	4,000	4,000
FS Audit	0	12,000	12,000
Indirect	120	120	120
TOTAL	$148,223	$165,326	$171,072

PROGRAM HIGHLIGHTS

The FY 2011 request provides $5.8 million for 34 full time equivalent employees (FTEs) within the Office of the Secretary. This request also provides $163.3 million for salaries and benefits, travel, contractual services, and program support expenses for 1,249 FTEs for the other organizations within the DA account.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Office of the Secretary (FY 2010 $5.9; FY 2011 $7.9) ..... +$2.0
Increase due to the expansion of Management Reform efforts.

Chief Financial Officer (FY 2010 $63.0; FY 2011 $62.7) ..... -$0.3
The FY 2011 funding supports 246 full time equivalent employees (FTEs) and associated costs. The $0.8M increase in salaries and benefits provides cost of living as well as promotions and within-grade adjustments. The $0.6M decrease in Other Related Expenses reflects a reduction in systems infrastructure, applications support; maintenance of equipment; information technology materials such as printers, memory upgrades, scanners, and fax machines; and staff training. In addition, iManage system development activities are reduced with the deployment of STRIPES. The $0.5M decrease in support services reflects an overall reduction in contractual services across the entire CFO organization.

Chief Information Officer

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Departmental Administration						
Program Direction	53,738	5,700	38,146	36,238	-1,908	-5.0%
Cyber Security and Secure Management	34,512	0	33,365	35,872	+2,507	+7.5%
Corporate Management Information Program	27,250	0	9,403	8,933	-470	-5.0%
Energy Information Technology Services	0	0	22,149	21,120	-1,029	-4.6%
Total, Chief Information Officer	**115,500**	**5,700**	**103,063**	**102,163**	**-900**	**-0.9%**

Office of the Chief Information Officer (FY 2010 $103.1; FY 2011 $102.2)..... -$0.9

Program Direction (**FY 2010 $38.1; FY 2011 $36.2)**…….....**-$1.9**
Decrease in Program Direction is related to Salary and Benefits (-$0.6). Along with a decrease to Travel (-$0.2). The decrease also reflects a reduction for Training and Working Capital Fund activities (-$0.6), along with overall decrease to Support Services Activities (-$0.5).

Cyber Security (FY 2010 $33.4; FY 2011 $35.9)……..……..**+$2.5**
A new business line item, Cyber Security Training, lead to an increase in Cyber Security (+1.4). Along with another Program increase to Enterprise Services (+.9) and Incident Management (+$7.7). The decrease for Cyber Security were for Policy, Guidance, and Planning (-$7.5) and Program Support and Special Projects (-$.03). Accordingly, funding previously allocated to Policy, Guidance, and Planning has been reprioritized to support Incident Management and Enterprise Services. Areas of focus will be the development of specialized computing environment infrastructures (computers, networks, and software) needed for the capture, isolation, reverse engineering, analysis and visualization of the malicious software used in the cyber attacks.

Corporate Management Information Program (FY 2010 $9.4; FY 2011 $8.9)…..**-$0.5**
Minor changes; decrease to DOE IT Modernization ($-2.1) and increase to Architecture and Planning (+$1.6). Funding increase in FY 2011 is due to a shift in prioritization away from identification of new E-Gov solutions toward maximizing the leveraging and reuse of Departmental IT capabilities via increasingly mature, integrated Enterprise Architecture and Capital Planning and Investment Control agency processes.

Energy Information Technology Services (FY 2010 $22.2; FY 2011 $21.1)……...**-$1.0**
Energy Information Technology Services created new business line, Information Technology Management (+$3.0). Along with slight decreases to User Support and Workstation Management (-$0.5), Server Administration (-$0.8), Operations Cyber Security (-$0.6), CIO Contracted Services outside PWS (-$0.2), and Converged Networks (-$1.9). Funding and responsibilities were redistributed to support Information Technology Management.

Office of Economic Impact and Diversity FY 2010 $6.7; FY 2011 $6.3) ..... -$0.4
This funding level supports salaries, benefits and cost of living expense for 20 FTE (+$0.1) offset by decreases in the number of technical assistance workshops for minority educational institutions (-$0.2). In addition, there were slight decreases to business and community development (-0.2), data analysis development (-$0.1) and bank deposit financial assistance (-$0.1).

General Counsel (FY 2010 $32.5; FY 2011 $36.7)..... +$4.2
The significant portion of the increase reflects salaries and benefits. It is due to general pay increases, promotions, within-grade increases of 153 FTEs, and the addition of 21 FTEs. This level of funding will provide for the currently approved 153 FTEs plus 5 additional FTEs for the new GC Office of Enforcement that will ensure compliance of Departmental elements with the laws under which DOE operates and 13 FTEs to provide legal services in the following areas, all of which presently, and will continue to, require increasing levels of legal services; NEPA compliance (3), Procurement (3), Intellectual Property (2), Legislative & Regulatory Law (1), Energy Efficiency (4), Electricity & Fossil Energy (1), and Personnel Law (2).

Human Capital Management (**FY 2010 $29.5; FY 2011 $27.6) ..... -$1.9**
This funding level supports salaries, benefits and cost of living expenses for 189 FTEs (+$0.1). Other major changes which offset the overall decrease include: Travel (-$0.2); and Support Services (-$1.8).

Office of Management (FY 2010 $78.5; FY 2011 $74.8)..... -$3.7
Increase of $2.5M supports salaries, benefits and cost of living expenses for 285 FTEs, slight increase for travel $0.3M offset by a decrease of $6.5 in support service activities.

Office of Policy and International Affairs (FY 2010 $30.3; FY 2011 $30. 3) $0
There is no change between FY 2010 and FY 2011.

Office of Public Affairs (FY 2010 $4.5; FY 2011 $4.5) **$0**
There is no change between FY 2010 and FY 2011.

Congressional and Intergovernmental Affairs (FY 2010 $10.3; FY 2011 $6.3) ..... **-$4.0**

Supports salaries, benefits, and cost of living for 46 FTES in FY 2011, as well as office operation expenses. Included is funding for the **Office of Indian Energy Policy & Programs (FY 2010 $5.5; FY 2011 $1.5)** to support salaries, benefits and cost of living for 5 FTES, office operation expenses, and provide follow-up support for DOE's Indian Energy Summit held during FY 2010.

Cost of Work for Others (FY 2010 $47.5; FY 2011 $48.5)..... +$1.0
The increase is due to additional costs associated with shipment of the Foreign Research Reactor Spent Nuclear Fuel from other countries.

Revenues (FY 2010 -$119.7; FY 2011 -$119.7) $0
There is no change between FY 2010 and FY 2011.

Defense Related Administrative Support (FY 2010 -$123.0; FY 2011 -$119.0)..... -$4.0
Change reflects the proportional contribution from Other Defense Activities appropriation for Departmental Administration (DA) costs. FY 2011 funding represents 33 percent of DA administrative costs.

Domestic Utility Fee

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Domestic Utility Fees	0	0	0	-200,000	-200,000	N/A
Total, Domestic Utility Fees	**0**	**0**	**0**	**-200,000**	**-200,000**	**N/A**

The Energy Policy Act of 1992 (the Act) established the Uranium Enrichment Decontamination and Decommissioning Fund (the Fund) and authorized annual contributions of a special assessment on domestic utilities and Congressional appropriations to fund the cleanup of uranium enrichment gaseous diffusion plants at Paducah, Kentucky, Portsmouth, Ohio, and Oak Ridge, Tennessee, which were operated by the Federal government to provide uranium products for both commercial and government purposes from the 1950s through the 1990s. Utilities concluded paying their original obligations under the Act in 2007.

The decontamination and decommissioning of these facilities is expected to cost substantially more than provided for in collections authorized under the Act. Per the 2007 Report to Congress on the Uranium Enrichment Decontamination and Decommissioning Fund, the Department of Energy estimates an $8 billion to $21 billion funding shortfall over the next 30 years.

The Administration is proposing an amendment to section 1802 of the Atomic Energy Act of 1954 (42 U.S.C. 2297g-1) to reinstate a special assessment on domestic utilities starting in fiscal year 2011, as well as additional Federal deposits into the Fund. Collections resulting from the reinstatement would be deposited into the Uranium Enrichment Decontamination and Decommissioning Fund. The total amount collected from industry for a fiscal year shall not exceed $200,000,000 (to be annually adjusted for inflation beginning in fiscal year 2012 using the Consumer Price Index for all-urban consumers published by the Department of Labor), and total annual deposits from industry and the Federal government shall not exceed $663,000,000 (also adjusted for inflation, with the remainder above the industry assessment to come from appropriated funds). This proposal reiterates the ongoing need to decontaminate, decommission and remediate the uranium processing facilities, and the shared responsibility of both industry and the Federal government for these costs.

Inspector General

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Office of Inspector General	51,927	15,000	51,927	42,850	-9,077	-17.5%
Total, Office Of The Inspector General	**51,927**	**15,000**	**51,927**	**42,850**	**-9,077**	**-17.5%**

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 IG received $15 million from the Recovery 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. The 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 2011 request for the Office of Inspector General is $42.9 million, which is a $9 million decrease over the FY 2010 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 2011 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 2010 to FY 2011 Request ($ in millions)

Inspector General (FY 2010 $51.9; FY 2011 $42.9)..... …… -$9.0
Reflects decreased costs due to additional funds received in FY 2010 for the IG to cover the costs of unfunded ARRA requirements.

Health, Safety and Security

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Health, Safety and Security	346,874	0	337,757	356,471	+18,714	+5.5%
Program Direction	99,597	0	104,125	107,740	+3,615	+3.5%
Congressionally Directed Projects	999	0	2,000	0	-2,000	-100.0%
Total, Health, Safety and Security	**447,470**	**0**	**443,882**	**464,211**	**+20,329**	**+4.6%**

PROGRAM DESCRIPTION

The **Health, Safety and Security** program demonstrates the unwavering commitment of DOE to maintain a safe and secure work environment for all Federal and contractor employees; to ensure that its operations preserve the health, safety, and security of the surrounding communities; and protect national security and other assets entrusted to the Department. HSS assists the Department in achieving its mission in a safe, secure, environmentally responsible manner by providing sound and consistent policy, technical assistance, training, independent oversight, enforcement, and corporate leadership for health, safety and security program areas. The total request for the program in FY 2011 is $464.2 million.

PROGRAM HIGHLIGHTS

The **Health and Safety** subprogram provides technical and analytical expertise used to protect and enhance the safety of DOE workers, the public, and the environment in support of Departmental missions and goals. Policies and guidance are maintained for the promotion of safe, environmentally sustaining work practices throughout the Department to ensure best-in-class performance in the areas of occupational, facility, nuclear, and radiation safety; cultural and natural resources; environment; and quality assurance. Health and Safety provides assistance to DOE program and site offices and laboratories through site-specific activities such as nuclear facility safety bases reviews and through corporate-wide services such as accrediting commercial laboratories used by DOE sites for regulatory compliance and employee monitoring programs; maintaining radiological standards used to calibrate radiation monitors; and the operation of the Filter Test Facility. Other support is provided through the maintenance of corporate safety and environmental databases, administration of the accident investigation program, funding to the radiation emergency accident center, administration of the DOE voluntary protection program and development of environmental management systems. Health activities support domestic and international research pertaining to the exposures of workers and the public to nuclear, radiological, and other materials. Health and environmental services are also provided to the people of the Marshall Islands. This subprogram provides for medical screenings for former DOE and DOE-related vendor employees and supports the Department of Labor in implementation of the Energy Employee Occupational Illness Compensation Act. Health and Safety also provides support for the implementation of Congressionally mandated worker safety and health, nuclear safety, and classified information security enforcement programs to ensure contractors' adherence to applicable regulations and promote proactive improvement of safety and security performance.

The **Security** subprogram provides technical and analytical expertise support to develop and assist in the implementation of safeguards and security programs that provide protection to national security and other vital national assets entrusted to the Department; and to implement the U.S. government's nuclear weapons-related technology classification and declassification program. Policies and guidance related to physical, personnel, and information security and nuclear materials accountability are maintained in order to be responsive to national security needs and changing threat environments. Assistance is provided to DOE program and site offices and laboratories to implement cost effective security measures tailored to mission accomplishment. Department wide assistance is provided via training programs to develop and maintain the proficiency and competency of DOE safety and security personnel. Support is also provided in the development and deployment of security technologies to diminish the Department's reliance on labor intensive practices. Corporate security-related information management systems are maintained to

determine the potential for an undue risk to individual sites, the Department, and national security. The Security subprogram also provides for the protection of DOE facilities and information in the National Capital Area and access authorization investigations for DOE Headquarters and other U.S. government personnel. Additionally, the information control program is implemented by DOE for the U.S. government to mitigate national security threats by preventing the release of information regarding weapons of mass destruction or other data that has the potential to damage the Nation's energy infrastructure and ensuring the release of information that is not sensitive.

Program Direction provides the federal staffing, travel, support services, and other resources and associated costs required to provide overall direction and execution of HSS activities. In addition, program direction provides for security; cyber security; emergency management and environment, safety, and health independent oversight performance assistance to senior Departmental leadership, program and site offices, and site contractors; Headquarters security support; and Defense Nuclear Facilities Safety Board issue resolution.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

The FY 2011 Health Safety and Security budget request is $464.2, an increase of $20.3, or 4.6 percent over the FY 2010 enacted funding level.

Health, Safety, and Security (FY 2010 $337.8; FY 2011 $356.5)..... +$18.7
The overall funding increase is a result of increases in specialized security activities (+$20.2); an increase in the number and cost of access authorization investigations for DOE Headquarters and other U.S. government personnel (+$1.0); offset by a decrease in security technology systems development and deployment (-$1.5) based on a shrinking nuclear footprint and the value of systems previously deployed; reduced need for DOE operational data provided to the Department of Labor for the employee compensation program (-$0.8); and a decrease in Russian health studies (-$0.2) due to the project activities shifting from data collection to report writing.

Program Direction (FY 2010 $104.1; FY 2011 $107.7)..... +$3.6
Funding reflects an increase in cost of living adjustments for the Federal workforce (+$1.0); an increase in executive protection travel (+$0.8) supporting the Secretary, Deputy Secretary and other designated dignitaries; increased independent oversight activities (+$2.0) to implement nuclear safety enhancements in response to the Government Accountability Office; offset by an overall decrease in other related expenses (-$0.2).

Congressionally Directed Projects (FY 2010 $2.0; FY 2011 $0.0)..... -$2.0
Funding is not requested for Congressionally directed projects.

Hearings and Appeals

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Other Defense Activities						
Program Direction	6,603	0	6,444	6,444	——	——
Total, Hearing and Appeals	**6,603**	**0**	**6,444**	**6,444**	**——**	**——**

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. OHA'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 exceptions from the appliance efficiency regulations. 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 2011 request for OHA is $6.4 million, the same as its FY 2010 enacted appropriation.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

Hearings and Appeals (FY 2010 $6.4; FY 2011 $6.4)..... $0
The FY 2011 request supports salaries and benefits and cost of living expenses for 36 FTEs, which include the 9 FTEs who support the civil rights function.

Federal Energy Regulatory Commission

(dollars in thousands)

	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Current Approp.	FY 2011 Congressional Request	FY 2011 vs. FY 2010 $	FY 2011 vs. FY 2010 %
Federal Energy Regulatory Commission	273,400	0	298,000	315,600	+17,600	+5.9%
FERC Revenues	-273,400	0	-298,000	-315,600	-17,600	-5.9%
Subtotal, Federal Energy Regulatory Commission	***0***	***0***	***0***	***0***	———	———
Excess Fees and Recoveries, FERC						
Fees & Recoveries in Excess of Annual Appropriations	-23,080	0	-28,886	-29,111	-225	-0.8%
Total, Federal Energy Regulatory Commission	**-23,080**	**0**	**-28,886**	**-29,111**	**-225**	**-0.8%**

PROGRAM DESCRIPTION

The **Federal Energy Regulatory Commission (FERC or the Commission)** is an independent agency that regulates the interstate transmission and wholesale sales of electricity; the transmission and sale of natural gas for resale in interstate commerce; and the transportation of oil by pipeline in interstate commerce. FERC also reviews proposals to build liquefied natural gas (LNG) terminals as well as interstate natural gas pipelines and licenses and inspects hydropower projects. The Commission protects the reliability of the Nation's bulk-power system and oversees environmental matters related to natural gas and hydroelectric projects. The Commission enforces its regulatory requirements on jurisdictional entities through civil penalties and other means.

FERC's mission is to assist consumers in obtaining reliable, efficient and sustainable energy services at a reasonable cost through appropriate regulatory and market means. FERC seeks to ensure that rates, terms and conditions of service are just, reasonable and not unduly discriminatory or preferential, relying on competitive markets where appropriate. Through its oversight and enforcement authorities, FERC seeks to increase compliance with its rules and regulations and deter market manipulation. FERC's responsibilities also include promoting the development of safe, reliable and efficient infrastructure that serves the public interest.

PROGRAM HIGHLIGHTS

To ensure just and reasonable rates, terms and conditions of service, the Commission will rely on competition and appropriate regulatory policies. Competition will benefit energy consumers by encouraging new entry among supply-side and demand-side resources, spurring innovation and deployment of new technologies, improving operating performance and exerting downward pressure on costs. The Commission will pursue policy reforms to ensure that all types of resources operate on a level playing field in jurisdictional markets.

The Commission's reforms will specifically address the emergence of demand resources and renewable resources, barriers to participation by such resources in wholesale electric markets and best practices in organized markets to help achieve the potential benefits associated with demand response. The Commission ensures that its market and other regulatory rules are clear, enforceable, and fully understood by the regulated entities. While the obligation to comply with those rules lies with the regulated entity itself, the Commission is actively pursing a strategy to promote rigorous internal compliance programs. The Commission identified elements of an effective compliance program and is engaged with regulated entities to create a "culture of compliance."

In its enforcement role, the Commission takes proactive steps to reduce the probability that violations will occur, including conducting compliance audits and performing investigations. FERC will continue to place additional emphasis on activities that disrupt or impair the functioning of competitive energy markets. Where appropriate, FERC will exercise its civil penalty authority of up to $1 million per day for the duration of the violation. Penalties of this magnitude are applicable to any entity that manipulates wholesale gas or electric markets by engaging in fraud or deceit in connection with jurisdictional transactions.

The Commission has an important role in the development of an efficient, safe and reliable energy infrastructure. As directed by Congress, FERC will adopt standards and protocols to govern the implementation of smart grid technologies that can enhance the reliability and efficiency of the Nation's electric transmission grid operations. The Commission also will implement rate treatment policies that support certain investments in smart grid technologies. FERC will continue to support an open and transparent electric transmission planning process. Such coordination between transmission providers will support the development of an efficient transmission system and enhance competition in wholesale electric markets.

Maintaining the reliability of the Nation's electric transmission grid is a critical responsibility of the Commission. FERC will oversee the development and enforcement of mandatory electric reliability standards and critical infrastructure protection standards.

SIGNIFICANT FUNDING CHANGES – FY 2010 to FY 2011 Request ($ in millions)

FERC (FY 2010 $298.0; FY 2011 $315.6)..... +$17.6
The FY 2011 request funds 1,539 FTEs that will support FERC in its reliability and critical infrastructure protection standards development and compliance processes; enforcement efforts; and policy reforms related to renewable resources and advanced technologies. 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 2011.