DOE/CF-0077

Department of Energy

FY 2013 Congressional Budget Request

Budget Highlights

February 2012

Office of Chief Financial Officer

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Letter from the Secretary

February 13, 2012

On behalf of President Obama, it is my pleasure to submit the Department of Energy Congressional Budget Justification for Fiscal Year (FY) 2013.

The United States is competing in a global race for the clean energy jobs of the future. The choice we face as a nation is simple: do we want the clean energy technologies of tomorrow to be invented in America by American innovators, made by American workers and sold around the world? Do we want an America built to last? Or do we want to concede those jobs to our competitors? We believe we can and must compete for those jobs. We must double-down on American energy.

In order to renew our global leadership on clean energy, America must accelerate the transformation of our energy infrastructure and champion domestic advances in science and technology. As the President said in December, "the world is shifting to an innovation economy and nobody does innovation better than America." The President's FY 2013 Budget for the U.S. Department of Energy outlines the programs and priorities we believe will enable America's leadership on innovation. It totals $27.2 billion, a 3.2 percent increase over the FY 2012 enacted levels.

Reflecting our commitment to being good stewards of limited taxpayer resources, this budget is the result of significant deliberation and difficult choices across the Department's science and technology and national security missions. We have focused our resources on areas that will yield the greatest benefit over time for the United States' prosperity and security. Central to this request is the alignment of the Department's budget with the Strategic Plan released in May 2011, ensuring that the programs and activities we are proposing will drive real progress toward achieving our economic, energy, national security, and management goals. I believe that with the funding requested in this budget, we can demonstrate the United States' world-class commitment to science and research and ensure these are the cornerstones of our nation's economic prosperity.

The resources requested in the FY 2013 budget are essential to executing the President's "Blueprint for a Secure Energy Future" released in March 2011, particularly for critical investments to innovate our way to a clean energy future and to provide consumers with choices to reduce costs and save energy. The Department's first Quadrennial Technology Review, released in September 2011, provides a framework and principles for planning and budgeting for technology development efforts across the Department's Energy and Science programs. Innovation begins with breakthroughs in basic science, and the FY 2013 request increases our investment in science programs by 2.4 percent, in support of fundamental discovery and the frontier research essential to developing the next generation of energy technologies. Specifically, the FY 2013 request accelerates investments in transportations systems and alternative fuel development through coordinated R&D efforts across all DOE programs. With this request, DOE will triple funding for groundbreaking research in the transportation sector for alternative domestic sources of sustainable fuels, electrification of vehicles, and advanced manufacturing. DOE requests $60 million, or a $20 million increase, to perform critical research on the limitations for current energy storage systems and devise new approaches for battery storage. The request more than doubles funding for R&D on innovative manufacturing processes and advanced industrial materials that will enable U.S. companies to cut the costs of manufacturing by using less energy, while improving product quality and accelerating product development. In his 2011 State of the Union address, President Obama called on us to out-innovate, out-educate, and out-build the rest of the world as the United States faces "our generation's Sputnik moment." The Department is on the front lines of mobilizing America's innovation machine to bring technologies from the laboratory to the marketplace.

As the lead agency in the international effort to secure vulnerable nuclear materials around the world and maintain the nation's nuclear stockpile, the FY 2013 request for the National Nuclear Security Administration demonstrates leadership in advancing the United States' expertise in addressing global nuclear security challenges with the most advanced science and technical skills available through our National Laboratory system. The Department requests $11.54 billion, an increase of $536 million over the FY 2012 enacted levels, to

protect Americans by maintaining U.S. nuclear deterrence capabilities, reducing nuclear dangers in an increasingly unstable and unpredictable world, and providing for the Navy's nuclear propulsion needs. In addition, the Department's request includes $5.65 billion in order to advance legacy environmental cleanup efforts across the country and $60 million for R&D on storage, transportation, and disposal of nuclear waste that aligns with recommendations put forward by the Blue Ribbon Commission on America's Nuclear Future.

This budget also highlights our commitment to improving the way we do business. I am proud of the record of results in management excellence the Department has delivered to the American taxpayer over the last three years. We reconstituted the Secretary of Energy Advisory Board to bring the best minds together on the many energy challenges facing our nation. We overhauled the Energy.gov website, making it a better vehicle for engaging the public in the dialogue on our nation's energy future, producing what GovLoop called the "Top Federal Website of 2011," and saving the Department more than $10 million annually. In fiscal year 2011, we avoided more than half a billion dollars in costs through bulk purchasing, disposition of excess properties, more efficient vehicles, and reduced travel costs.

We hope to build on this record with improved management excellence. I look forward to working with Congress during the FY 2013 process to ensure we are making the best use of taxpayer dollars and delivering maximum results on the critical missions we oversee.

Steven Chu
Secretary of Energy

Introduction

INNOVATION FOR AMERICA'S SECURITY AND PROSPERITY

The United States is in a fierce global competition to capture the energy jobs of the 21st century. Other nations are moving aggressively to lead. So must the United States. In March of 2011, President Obama presented his "Blueprint for a Secure Energy Future" and challenged the United States to unleash American innovation to secure our energy supplies and to strengthen U.S. competitiveness in the global clean energy economy. The Department of Energy (DOE) brings the nation's best scientific minds and capabilities to bear to address energy challenges and to help the United States compete and win in the clean energy race.

Think about the America within our reach: A country that leads the world in educating its people. An America that attracts a new generation of high-tech manufacturing and high-paying jobs. A future where we're in control of our own energy, and our security and prosperity aren't so tied to unstable parts of the world. An economy built to last, where hard work pays off, and responsibility is rewarded.

The Administration will not walk away from the promise of clean energy. The Administration will not cede leadership in clean energy. Nowhere is the promise of innovation greater than in American-made energy. We have subsidized oil companies for a century. That's long enough. It is time to end the taxpayer giveaways to an industry that's rarely been more profitable, and double-down on a clean energy industry that has never been more promising. The Administration is proposing new investment tax credits and other incentives to make this vision come about.

Innovation is similarly fundamental to the national security missions of the Department. The National Nuclear Security Administration (NNSA) harnesses science and technology to reduce nuclear dangers and to maintain a safe, secure, and effective nuclear stockpile, without the use of underground nuclear testing. NNSA supports the domestic and international effort to meet the President's pledge of securing all vulnerable nuclear weapons and materials by December 2013. This budget request would fulfill the President's commitment.

The Department's Fiscal Year (FY) 2013 budget request of $27.2 billion, a 3.2 percent or $856 million increase over FY 2012 enacted levels, supports the President's goals of leading in clean energy innovation and strengthening national security. This budget includes over $7 billion in mandatory funding to support efforts in local communities to build the infrastructure to support a clean energy economy. The FY 2013 request supports the President's goal to increase American competitiveness and reduce our reliance on oil by making strategic investments in critical research and technology sectors for clean energy and to make significant national security advances to leave future generations with a country that is safer, healthier, and more prosperous. Further, the President aims for the United States to lead the world in research, development, demonstration, and deployment of clean energy technologies to reduce its dependence on oil and to mitigate the impact of climate change.

A Clean and Sustainable Energy Budget

The FY 2013 request charts a path to accomplishing the President's goals of enhancing American competitiveness and ensuring domestic energy security by making strategic investments in clean and sustainable energy. DOE research on innovative energy technologies will continue to lead to game-changing breakthroughs, helping speed the arrival of tomorrow's U.S. energy economy.

Investments in Advanced Vehicles and Biofuels research will:

- ✓ Reduce oil consumption in the transportation sector
- ✓ Provide new opportunities for U.S. manufacturing

Investments in Carbon Capture Technology research will:

- ✓ Enhance U.S. energy security through the environmentally responsible use of abundant domestic coal

Investments in Energy Efficiency will:

- ✓ Reduce harmful emissions in the stationary sector
- ✓ Save money for American families and businesses

Investments in Solar Energy Systems research will:

- ✓ Advance DOE's SunShot Initiative to make solar energy cost-competitive with conventional power generation
- ✓ Speed the adoption of clean solar power across the U.S.

The Administration's comprehensive strategy on clean energy starts with basic and applied research to address some of the fundamental unknowns to advancing clean energy technologies, such as developing advanced light-weight, ultra-strong materials. The strategy also includes research and development to create clean energy products, such as solar panels, batteries and electric vehicles, wind turbines, and advanced small modular nuclear reactors. In addition, the Administration's clean energy strategy provides appropriate assistance to American entrepreneurs to commercialize the technologies that will lead the world in a new, clean energy economy.

The President has called for advancing research on clean energy technologies, promoting manufacturing, doubling the share of electricity generated from clean energy supplies by 2035, and putting one million electric vehicles on the road by 2015. With his "Blueprint for a

Secure Energy Future", the President set forth an ambitious agenda to reduce our dependence on oil by one-third by 2025. The Department's request supports the President's challenge for America to seize "our generation's Sputnik moment" and lead in advanced technology research and development to help build a sustainable energy future.

Guided by the Department's May 2011 Strategic Plan, the President's FY 2013 Budget supports the following priorities:

- **Accelerating the transformation of America's energy system and securing U.S. leadership in clean energy technologies**
- **Investing in science and innovation to promote our nation's economic prosperity**
- **Keeping Americans safe by enhancing nuclear security through defense, nonproliferation and environmental cleanup**

These priorities will be enabled through a continuing commitment to management excellence.

Accelerating the Transformation of America's Energy System and Securing U.S. Leadership in Clean Energy Technologies

"If we are going to be able to compete in the 21st century, then we must dominate cutting-edge technologies, we must dominate cutting-edge manufacturing. Clean energy is a part of that package of technologies of the future that must be based here in the United States if we are going to be able to succeed." – President Obama, October 6, White House news conference

The SunShot Initiative

The DOE SunShot Initiative aims to make solar energy cost competitive with other forms of energy by the end of the decade. Reducing the installed cost of solar energy systems by about 75% could drive widespread, large-scale adoption of this renewable energy technology and restore U.S. leadership in the global clean energy race. Launched in January 2011, SunShot has advanced competitiveness and job growth in the United States.

Creating Jobs through SunShot Incubator – Through its incubator, SunShot has completed six successful rounds of competitive solicitation, leveraged more than $1.3 billion in private capital with a $60.0 million EERE investment, and spurred innovation through 20+ cutting-edge U.S. solar start-up companies, that together now employ more than 1,200 people in the U.S. This number is expected to increase as planned manufacturing comes online.

Shaping Next-Generation Solar - In September 2011, the program awarded more than $145 million for competitively selected projects to help shape the next generation of solar energy technologies. Sixty-nine projects in 24 states will accelerate research and development to increase efficiency, lower costs, and advance cutting-edge technologies. Some of these investments also support efforts that will shorten the overall timeline from prototype to production and streamline building codes, zoning laws, permitting rules, and business processes for installing solar energy systems.

Demonstrating Gains for Concentrating Solar Power - SunShot launched one of its largest CSP research and develop solicitations in the fall of 2011. This solicitation of up to $60 million is focused on revolutionary applied scientific research that develops highly disruptive Concentrating Solar Power (CSP) technologies to meet 6¢/kWh cost target by the end of the decade. The SunShot CSP program is designed to look beyond incremental near-term innovation and explore transformative concepts with the potential to break through performance barriers as known today, such as efficiency and temperature limitations.

To enhance our security and promote economic prosperity, the United States needs to compete in the growing clean energy economy. This requires us to develop and deploy clean energy technologies, promote energy efficiency, and reduce our dependence on oil. As part of this effort, President Obama has called for America to lead in energy innovation and set goals to diversify our electricity sector and reduce our reliance on oil.

Transportation is the second most costly expense for most American families, and it is responsible for more than 70 percent of U.S. petroleum consumption. To break our reliance on imported oil and help families save at the pump, the Administration has made historic investments in advanced vehicle and fuel technologies, proposed landmark fuel economy standards, and set a goal of having 1 million electric vehicles on the road by 2015. The FY 2013 budget continues investments in these areas in order to create energy efficient and cost-saving transportation options for American families.

In FY 2013, the Department's request moves the United States farther down the path to a clean energy economy that will address some of challenges facing American families and businesses and transform those challenges into economic opportunities.

- **Making Solar Power More Affordable:** The Department is focusing efforts on making solar power affordable for all Americans. In its SunShot Initiative, the Department aims to reduce the cost of solar energy by 75 percent and make it cost competitive with other forms of energy, without subsidies, by the end of the decade. In the Rooftop Solar Challenge, DOE challenges teams to align local and regional permit requirements, land use codes, and zoning ordinances to clear a path for rapid expansion of solar energy and lowering installation costs for homes and businesses. Together these efforts will drive adoption of this renewable energy technology and stimulate domestic industrial growth.

- **Leadership in Nuclear Energy:** Nuclear energy currently supplies approximately 20 percent of the Nation's electricity and 70 percent of its clean, non-carbon electricity. The request for the Office of Nuclear Energy includes $466 million for research and development and related infrastructure. In addition, the Department is engaging in cost-shared activities with industry that may help accelerate commercial deployment of small modular reactors. For these efforts, the request includes $65 million for cost-shares toward first-of-a-kind engineering costs associated with design certification and

licensing of light water reactor-based small modular reactors, the deployment of which could help increase the generation of clean energy on a cost competitive basis. Through our Loans Program Office, we continue to work with nuclear power loan guarantee applicants to evaluate projects for potential government financial support.

- **Applied Research and Development for Industrial and Manufacturing Efficiencies:** The Department will launch competitive research to develop breakthrough technologies in manufacturing processes and materials and in energy efficiency diagnostics and retrofits to help business owners, industries, and manufacturers around the country save money on energy costs.

- **Experience in Advanced Fossil Energy:** The world will continue to rely on coal-fired and natural gas electrical generation to meet a growing energy demand for some time. It is, therefore, imperative that the United States develop technology to ensure that base-load electricity generation is as clean and reliable as possible. The Office of Fossil Energy requests $275.9 million for research and development of advanced fossil fuel power systems and carbon capture and storage technologies. Also, DOE will undertake a collaborative R&D initiative, with the Environmental Protection Agency and the Department of Interior's US Geological Survey to understand and minimize the potential environmental, health, and safety impacts of shale gas development and production. Advances in these areas will allow for the continued use of our abundant domestic coal and natural gas resources in the U.S. while reducing greenhouse gas emissions.

The President's Blueprint has also prioritized cutting energy bills for American homes and communities, through investments from the Recovery Act and passing critical legislation. The FY13 budget also supports critical grid modernization and energy efficiency efforts in order to make electricity delivery more reliable and manage energy consumption costs for American families.

- **Promoting efficient energy use in our everyday lives**: To date, we have weatherized over 750,000 homes for American families, providing energy cost savings and financial relief to households that need it most. Of those homes, more than 600,000 upgrades were supported by Recovery Act funding. The weatherization program supported more than 14,000 jobs in the last quarter of 2011. And, according to a study by Oak Ridge National Laboratory, weatherization services save families an average of more than $400 in energy costs per year. The FY 2013 request of $139 million will continue this record of progress.

- **Pursuing the passage of HOME STAR**: Enactment of this program will create jobs by providing strong short-term incentives for energy efficiency improvements in residential buildings. The HOME STAR program has the potential to accelerate our economic recovery by boosting demand for energy efficiency products and installation services. The program will provide rebates of $1,000 to $3,000 per household to encourage immediate investment in energy-efficient appliances, build mechanical systems and insulation, and whole-home energy efficiency retrofits. This program will help families save hundreds of dollars a year in energy costs while improving the comfort and value of their most important investment – their homes. In addition, the program would help reduce our country's dependence on oil and support the development of an energy efficiency services sector.

- **Electricity Reliability and Energy Management:** Reliable, affordable, efficient, and secure electric power is vital to expanding economic recovery, protecting critical infrastructures, and enabling the transition to renewable energy sources. DOE's FY 2013 request invests $143 million to bring the next generation of grid modernization technologies closer to deployment and commercialization, to assist states and regional partners in grid modernization efforts, and to facilitate recovery from energy supply disruptions when they occur. The FY 2013 request also works through the President's Better Buildings Initiative to make non-residential buildings more energy efficient by catalyzing private sector investment.

Investing in energy efficiency, renewable energy generation, and grid modernization are fundamental steps necessary for creating a clean energy economy. The Administration again proposes to repeal a number of inefficient tax preferences available for fossil fuels production and to help transition to a clean energy economy by investing in the improvement of existing sources of energy that will provide a bridge between current and future technologies. These technologies are already a major segment of our energy mix and will play a critical role in providing a solid foundation that will make possible the creation of a new, improved energy economy.

Investing in Science and Innovation To Promote Our Nation's Economic Prosperity

"The world is shifting to an innovation economy, and nobody does innovation better than America. In today's innovation economy, we also need a world-class commitment to science and research." – President Obama, Osawatomie, KS, December 6, 2011

Science, engineering, and technology are a cornerstone of our nation's economy. To compete in the global marketplace, we must maintain leadership in these areas. The FY 2013 budget supports a coordinated strategy for research and development across all of the Department's programs to keep the United States at the forefront of energy technology development and to make sure that taxpayers get the most out of every dollar we spend. In FY 2013, we will build on our previous efforts to emphasize cross-cutting initiatives and to deliver results to the American people.

Leading in Materials and Biology by Design

New materials are the drivers in reaching new science frontiers and fueling technology innovations. Throughout our history, America's leadership in manufacturing has depended on having the best materials. The U.S. has the world's most powerful suite of tools for materials and biology synthesis, characterization, and computation to support these efforts.

In alignment with the President's Materials Initiative and with recent breakthroughs in nanotechnology and biotechnology, the Department of Energy will integrate the most sophisticated modeling and simulation methods to target long-standing barriers in employing new materials and biosystems for advanced energy technologies. Future research will focus on:

- **Materials by Design** to utilize nanoscale structures and syntheses for fundamentally changing the ways we generate, supply, transmit, store, and use energy, from carbon capture to radiation-resistant and self-healing materials for nuclear energy systems, highly efficient photovoltaics, and white-light emitting LEDs.
- **Biosystems by Design** to establish new biological molecular toolkits to enable the predictive construction of innovative natural and hybrid systems for clean energy production of biofuels and bioproducts.
- **Modeling and Simulation** to facilitate materials and chemistry by design to address technology challenges such as the optimization of internal combustion engines using advanced transportation fuels.

Discovery and design of new materials and biosystems are crucial to U.S. competitiveness in virtually all industries—crossing the spectrum of transportation, electronics, buildings, chemicals and pharmaceuticals, health, and consumer products.

The FY 2013 budget prioritizes coordinated research and development initiatives across the Department that hold the greatest promise for achieving our energy goals. The budget supports integrated research across multiple programs, such as the SunShot initiative aimed at making solar energy cost competitive. The Energy Systems Simulation for internal combustion engines will give automotive design engineers the tools they need to optimize the next generation of cleaner, more efficient combustion engines. Energy Department examinations of extreme environments will close the gap between actual and ideal performance of materials in nuclear environments. And the Exascale Computing initiative through the Office of Science and NNSA will allow the Department to take the lead in developing the next generation of scientific tools and solving practical problems, as well as applications for national security.

To promote continued U.S. leadership in basic research, the Department requests $5 billion, a 2.4 percent or $118 million increase over the FY12 enacted levels, for the Office of Science. We will invest in core research activities for energy technologies, the advancement of high performance computing, and the development of general biological design principles and new synthetic molecular toolkits to improve understanding of natural systems. Underlying these investments in research is the education and training of thousands of scientists and engineers who contribute to the skilled scientific workforce needed for a 21st century innovation economy.

The President's FY 2013 budget supports additional research models to improve America's competitiveness and drive economic growth and prosperity through innovation:

- **Expanding ARPA-E to Spur Innovation:** The President's request proposes $350 million for the Advanced Research Projects Agency – Energy (ARPA-E) program. ARPA-E performs high-risk, high-reward energy research with real-world applications in areas ranging from grid technology and power electronics to batteries and energy storage.

- **Supporting Essential Funding for Energy Innovation Hubs and Energy Frontier Research Centers:** The President's request supports research through Energy Innovation Hubs to solve specific energy challenges as part of DOE's overall research and development strategy. Five Energy Innovation Hubs focus top scientific and engineering talent on the specific problems of **improving batteries and energy storage**, **reducing constraints from critical materials**, **developing fuels that can be produced directly from sunlight**, **improving energy efficient building systems design**, and **using modeling and simulation for advanced nuclear reactor operations**. In FY 2013, the Department is proposing $20 million to create a new Energy Innovation Hub on Electricity Systems to focus on grid systems and the tie between transmission and distribution systems. 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 plans in FY 2013 to continue coordination with the Office of Science's Energy Frontier Research Centers, which tackle the toughest scientific hurdles to building a new 21st century clean energy economy.

Keeping Americans Safe by Enhancing Nuclear Security through Defense, Nonproliferation, and Environmental Efforts

"In many ways, nuclear weapons represent both the darkest days of the Cold War, and the most troubling threats of our time. Today, we've taken another step forward … in leaving behind the legacy of the 20th century while building a more secure future for our children. We've turned words into action. We've made progress that is clear and concrete. And we've demonstrated the importance of American leadership -- and American partnership -- on behalf of our own security, and the world's". – President Obama, upon signing the April 2010 New Strategic Arms Treaty (New START) with Russia

As outlined in the Nuclear Posture Review and echoed in the 2012 Department of Defense Strategic Guidance, the United States seeks to maintain a safe, secure and effective nuclear deterrent, while reducing the role and number of nuclear weapons and countering the threat of nuclear proliferation by both regional state actors and terrorists. As a component of this agenda, the Administration is reducing its nuclear force to comply with the limits of the New Strategic Arms Reduction Treaty (New START) with Russia, which reduces the maximum number of strategic nuclear weapons each country can deploy to 1,550.

The Department's National Nuclear Security Administration (NNSA) achieved significant milestones during FY 2011, and will build on those accomplishments in FY 2012, to leverage science to maintain our nation's nuclear deterrence and reduce the risks of proliferation. Additionally, the Environmental Management program made progress advancing responsible nuclear cleanup from the Cold War and has reduced DOE's footprint by 66 percent, or 613 square miles. The Department's FY 2013 request seeks to build upon these successes and further advance the President's nuclear security agenda.

Leverage Science to Maintain Nuclear Deterrence

The FY 2013 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 as a consequence of the New START Treaty and promotes the goal to reduce the role of nuclear weapons in our national security strategy. As the United States reduces its nuclear stockpile, the science, technology and engineering capabilities and intellectual capacity within the nuclear security enterprise become more critical to sustaining the U.S. nuclear deterrent. NNSA continues to emphasize these capabilities, including functioning as a national science, technology, and engineering resource to other agencies with national security responsibilities. Through the NNSA, the Department requests $7.6 billion for the Weapons Activities appropriation, a 5 percent, or $363 million, increase over the FY 2012 enacted levels. This increase reflects an investment strategy that provides a strong basis for maintaining a safe, secure and effective nuclear stockpile without additional nuclear testing; strengthening the science technology and engineering base; modernizing the physical infrastructure; and streamlining the enterprise's physical and operational footprint.

The Naval Reactors program ensures the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers, constituting over 40 percent of the U.S. Navy's combatants, and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements. The FY 2013 request for Naval Reactors of $1.1 billion is an increase of $8.6 million, or 0.8 percent, over the FY 2012 enacted level. Specific goals in FY 2013 include OHIO-class Replacement reactor design maturity to support long-lead procurements for ship construction beginning in 2021, refueling overhaul of the land-based prototype by 2021, and evaluation of alternatives to facilitate progress of the Spent Fuel Handling Recapitalization Project.

Reduce the Risk of Proliferation

In 2009, President Obama committed the United States to an international effort to secure vulnerable nuclear material worldwide in four years. To solidify international support for this effort, and to address the threat of nuclear terrorism, the President convened leaders from 47 countries at a Nuclear Security Summit in April 2010. The Summit resulted in a Communiqué which stated, "Nuclear terrorism is one of the most challenging threats to international security, and strong nuclear security measures are the most effective means to prevent terrorists, criminals, or other unauthorized actors from acquiring nuclear materials."

The FY 2013 request for the NNSA Defense Nuclear Nonproliferation program will further advance work that is needed to meet the goals of President Obama and the Nuclear Security Summit, recognizing the urgency of the threat and making the full commitment to global cooperation on nonproliferation. The request provides $2.5 billion in FY 2013 to detect, secure, and dispose of dangerous nuclear and radiological material worldwide. This request is an increase of 7.1 percent, or $163 million, over the FY 2012 enacted levels. This request will enable the United States to complete efforts to secure vulnerable nuclear materials by December 2013 and support efforts to design new technologies in support of treaty monitoring and verification,

which will contribute to implementation of New START. In addition, the request expands investments in fissile materials disposition, including beginning of cold start-up activities at the Mixed Oxide (MOX) Fuel Fabrication Facility in South Carolina in FY 2013. The request also broadens cooperative nonproliferation initiatives with foreign governments and international organizations in support of the President's objective of a world without nuclear weapons. The request shifts to sustaining the security upgrades at completed sites, both within the United States and in foreign countries, to address outsider and insider threats, and accelerates the pace of research reactor conversions from use of highly-enriched uranium fuel to low-enriched uranium fuel.

Advance Responsible Environmental Cleanup

The FY 2013 budget includes $5.65 billion for the Office of Environmental Management (EM) 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 clean up and close sites, focusing on activities with the greatest risk reduction. Acceleration of clean up at sites where funding would have an immediate impact was established as the overarching objective of the $6 billion in Recovery Act funding. EM will use the remaining $470 million in Recovery Act funding during FY 2013 to further reduce its footprint and to complete near-term cleanup activities, specifically at the Savannah River and Oak Ridge sites.

As the Department continues to make progress in environmental cleanup, the FY 2013 budget request of $178 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.

Mission Execution and Management Excellence

In order to carry out the vital and urgent missions for ensuring America's security and prosperity, the Department believes it must pursue the most rigorous management and oversight agenda. This management excellence agenda is anchored and aligned to the Department's Strategic Plan, which was released in May 2011, and provides our missions with strategic direction, coordination and oversight and the most capable stewardship of taxpayer dollars.

The Strategic Plan identifies seven Management Principles, including:

1. Our Mission is Vital and Urgent
2. Science and Technology are at the heart of our missions
3. We will treat our people as our greatest asset
4. We will pursue our mission in a manner that is safe, secure, legally and ethically sound, and fiscally responsible
5. We will manage risk in fulfilling our mission
6. We will apply validated standards and rigorous peer review
7. We will succeed only through teamwork and continuous improvement

The Department holds taxpayer funds to the highest level of scrutiny, and DOE will continue to issue audited financial statements in an accelerated timeframe and provide assurance that our financial management meets the highest standards of integrity. We are meeting significant reform milestones in contract management sourcing, multimedia communications, human resources, and operational efficiencies. In addition, the Department has made progress in areas such as management of legacy pension plans, contract management, and project management with scheduled milestones and aggressive performance metrics.

DOE Mission Execution and Management Excellence

Department of Energy leaders are taking a proactive systems approach to align DOE's Strategy, Processes, Structure and People such that they are better focused on Mission. As a result of alignment to improve Mission execution, the following key accomplishments were made:

Strategic Sourcing Program (Bulk Purchasing) - DOE expanded its use of strategic sourcing to provide a common approach to core supplies and services to leverage purchasing power and gain pricing and process efficiencies through enterprise-wide strategic sourcing.

Website Reform - DOE reduced, consolidated and moved 40% of its websites to the Energy.gov platform to more effectively communicate and increase transparency, and pursue modern technology solutions and streamline website infrastructure processes across the Department. This will save DOE more than $10 million each year. GovLoop named Department of Energy as their top pick for the best government agency website.

Disposition of Excess Real Property - The Department exceeded their FY 2011 target by over 3M Gross Square Feet (GSF), with 4.6 million gross square feet eliminated, allowing future operations and maintenance costs to be avoided and refocused on mission accomplishment.

Reduce Time to Hire - DOE was ranked second among federal agencies in improvements to its time-to-hire statistics by the Federal Times (August 2, 2011) for achieving a 45% decrease.

Fleet Reduction - In an effort to reduce scope 1 greenhouse gas emissions, DOE headquarters reduced its fleet in the Washington DC metropolitan area by 43.5% in FY 2011. Additionally, DOE is continuing efforts to promote hybrid electric vehicles and alternative fuel vehicles when replacing conventional vehicles. In FY 2011, DOE had 1,276 hybrid vehicles and consumed 1.5 million gallons of alternative fuel.

Department of Energy FY 2013 Program Office Highlights

Office of Science: Leading the Nation's Competitiveness through Discovery and Innovation

The Department of Energy's Office of Science (SC) delivers scientific discoveries and major scientific tools to transform our understanding of energy and matter and advance the energy, economic, and national security of the United States. SC is the largest Federal sponsor of basic research in the physical sciences, supporting programs in areas such as physics, chemistry, biology, environmental sciences, applied mathematics, and computational sciences. In FY 2013, the Department requests $5.0 billion, an increase of 2.4 percent over the FY 2012 appropriation, to invest in basic research.

In FY 2013, SC continues to support fundamental research for scientific discovery, but today our country needs to move strongly to solve our energy problems. Therefore, the central theme of this year's budget increases in SC is research directed at approaches to creating new technologies for a clean energy future that address competing demands on our environment. These efforts, coordinated with the DOE technology programs and with input from the scientific community and industry, will emphasize research underpinning advances in non-carbon emitting energy sources, carbon capture and sequestration, transportation and fuel switching, transmission and energy storage, efficiency, and critical materials for energy applications.

Advances in clean energy, particularly non-carbon energy sources, frequently are driven by advances in material science whether it be inventing a new material or understanding the interface between materials or the chemical reactions of materials. Therefore, SC places a strong emphasis on searches for new materials and the characterization of their properties relevant to solar photovoltaics, batteries or storage elements, or for active responses such as carbon capture and sequestration. SC will advance materials discovery and characterization through predictive modeling using high performance computing and using the world-leading characterization capabilities at our national Laboratories. SC will advance genomics-based research creating synthetic biology tools to underpin bio-based energy solutions such as biofuels through the Bioenergy Research Centers, which are nationally recognized for their advances. SC will place additional emphasis on finding alternative approaches to carbon capture, which is fundamental to our energy future. We will continue our Energy Frontier Research Centers, which are bringing a new approach to university-based research in energy technologies. Finally, SC supports two Energy Innovation Hubs, one for fuels from sunlight and the other for batteries and energy storage.

The budget request also provides for foundational science in condensed matter and materials physics, chemistry, biology, climate and environmental sciences, applied mathematics, computational and computer science, high energy physics, nuclear physics, plasma physics, and fusion energy sciences, and it provides for research facilities and capabilities that keep U.S. researchers at the forefront of science. The request supports targeted increases in computational materials and chemistry by design and in integrated application-hardware-software co-design for achieving Exascale and positioning the U.S. to secure a competitive advantage in high-tech industries and maintain international leadership in scientific computing. Underlying these investments is the education and training , through core research activities, of thousands of scientists and engineers who contribute to the skilled scientific workforce needed for the 21st century innovation economy.

The Office of Science supports about 27,000 investigators from more than 300 academic institutions and from all of the DOE laboratories. About 26,000 researchers from universities, national laboratories, industry, and international partners are expected to use the Office of Science scientific user facilities in FY 2013.

Advanced Research Projects Agency – Energy: Building on Indicators of Success

The FY 2013 budget request includes $350 million for the Advanced Research Projects Agency – Energy (ARPA-E). ARPA-E sponsors specific high-impact 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. ARPA-E is funding transformational research to create revolutionary 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.

ARPA-E: Building on Indicators of Success

Catalyzing the Private Sector: ARPA-E's initial investment of $365 million has attracted more than $200 million in outside private capital investment. The private sector financing reflects the progress these companies have made over the past two years toward developing innovative new energy technologies, and highlight how small but strategic investments by the federal government could pay big dividends in the not-too-distant future.

Transportation Systems: ARPA-E's BEEST (Batteries for Electrical Energy Storage in Transportation) program invested in ten projects investigating different battery chemistries that would allow electric vehicles to have a range of 300-500 miles, and be less expensive than cars based on internal combustion engines, thus overcoming "range anxiety" and enabling electric vehicles to be market-competitive

In FY 2013, ARPA-E will expand its support of electric vehicle technologies, continuing to support research into batteries and systems for electric vehicle, but also:

- Transportation fuels from domestic resources (e.g. CH4, CO2, H) with 5-10x less land and water use than biofuels or algae.
- Cost-effective power generation or propulsion systems, with significantly higher efficiency than internal combustion engines.

Office of Energy Efficiency and Renewable Energy: Investing in Breakthrough Technology and a Clean Energy Future

The Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) supports applied Research, Development, Demonstration and Deployment (RDD&D) for energy efficiency and renewable energy technologies. Through the resulting technologies and practices, EERE will help address our Nation's energy security, environmental, and economic goals by:

Rooftop Solar Challenge

Non-hardware or "soft" costs - including permitting, installation, and design - of solar energy systems can account for up to 40% of the total cost. Soft costs will be a major cost driver in the future as hardware prices drop. During the past year, the Department of Energy has made investments that spur solar power deployment by supporting teams throughout the country that are streamlining, standardizing, and digitizing the processes required to install residential and small commercial rooftop solar systems.

Across the nation there are more than 18,000 local jurisdictions with their own PV permitting requirements. More than 5,000 utilities are implementing standards for connecting and selling energy back to the grid. In 2012, the Department's Rooftop Solar Challenge made awards to 22 diverse teams, covering a total population of 51 million to bring together city, county, and state officials, regulatory entities, private industry, universities, local utilities and other regional stakeholders to clear a path for solar expansion. Challenge participants are developing processes and requirements that make sense based on their unique jurisdictions

In 2013, these activities will continue, and best practices will be expanded on a regional basis. Teams will reduce the homeowner and business installation costs and save local governments money and time by:

- Implementing transparent, consistent, and expedient permitting and interconnection process for residential and small commercial rooftop PV systems.
- Improving interconnection and net metering standards
- Making available models other than self-financed ownership by enabling direct financing options, community solar programs, and/or utility distributed generation.

- Providing American businesses and households with low-cost energy services by creating low cost renewable electricity and energy efficient products and systems;
- Developing cost competitive alternatives in the transportation sector to reduce our Nation's dependence on petroleum;
- Ensuring diversity and choice in the way energy services are produced; and
- Developing approaches that can accelerate economic growth and job creation while improving the environment both by reducing greenhouse gas emissions and improving air and water quality.

EERE achieves this by developing and accelerating the adoption of advanced energy technologies for the power generation, buildings, industrial and transportation sectors that are clean, safe, efficient, and productive. These are the technologies of the world's future and there is an intense international race underway that will determine where these systems are invented and produced. EERE supports innovation that will allow U.S. manufacturers and U.S. workers to lead the race and secure the benefits of clean, domestic energy systems as a foundation for a prosperous American future. The Department's FY 2013 budget request supports these objectives.

The FY 2013 budget request of $2.34 billion, an increase of 29.1 percent from the FY 2012 appropriation of $1.81 billion, is aimed at accelerating innovative change within the Nation's energy economy. The request includes funding for programs associated with meeting the President's goals of investing in the next generation of renewable energy technologies, advanced vehicles and fuels, and energy efficiency measures that reduce energy use in Federal agencies and the industrial and building sectors.

<u>Energy Efficiency</u>

The Department implements a number of efforts to increase energy efficiency in homes, transportation, and industry. The FY 2013 budget requests $1.25 billion to accelerate development and deployment of clean, cost-effective, and rapidly deployable energy efficiency measures in order to reduce energy consumption in residential and commercial buildings, and the industrial and Federal sectors. Within the energy efficiency portfolio, we are emphasizing investment in vehicle technologies ($420M) to make conventional liquid-fuel vehicles more efficient through a wide array

of technologies, and to promote electric vehicle development by supporting research in battery and other related technologies.

Since residential and commercial buildings drive our electricity consumption, we continue to emphasize building technologies and efforts to deploy existing energy efficient products and techniques, both in new construction and in retrofits of existing buildings ($310M). The Energy Information Administration, which is a separate organization within DOE, will conduct the 2012 Commercial Buildings Energy Consumption Survey (CBECS) to provide for initial data release in 2014 to inform DOE's policy decisions on building usage and consumption. In addition, this request includes $32 million for the Federal Energy Management Program, which helps Federal agencies achieve their energy efficiency goals.

The Advanced Manufacturing Office ($290 million) focuses on new technologies and production techniques that have broad applications for energy-intensive manufacturing methods. These new approaches will reduce energy consumption and, therefore, reduce manufacturing costs, making American industries more competitive. In FY 2013, EERE will continue to provide Federal assistance through the Weatherization and Intergovernmental Program ($195M).

Renewable Energy

The FY 2013 budget request continues work to transform the Nation's energy infrastructure by investing over $840M in renewable energy programs. The renewable energy portfolio is comprised of a broad range of renewable energy investments and has the overarching goal of ensuring those technologies can compete with conventional sources of electricity and fuels without subsidies. The FY 2013 budget request will enable diversification of the Nation's power generation sector by investing in Solar ($310M), Wind ($95M), Water ($20M), and Geothermal ($65M) energy technologies. These technologies will significantly reduce emissions of greenhouse gases and criteria pollutants. FY 2013 funding will also promote advances in Biomass and Biorefinery ($270M) and Hydrogen and Fuel Cell ($80M) technologies that will lead to less dependence on petroleum and diversified transportation fuel options. We are expanding our investments in research, development, and demonstration of cellulosic ethanol and other advanced biofuels such as algae-derived biofuels and "drop-in" replacements for diesel and jet fuel, including through collaborations with the Navy and US Department of Agriculture.

Office of Electricity Delivery and Energy Reliability: Enabling a Clean Energy Economy

The Office of Electricity Delivery and Energy Reliability (OE) is responsible for leading national efforts to modernize the electricity grid, enhance the security of energy infrastructure, and facilitate recovery from disruptions to the energy supply. The Department's FY 2013 budget request for OE of $143 million, a 3% increase over the FY 2012 enacted level, ensures that progress continues toward one of the Nation's key enablers of a clean energy economy – the electricity delivery system. These efforts build upon the Recovery Act investments that will have successfully deployed more than 26 million smart meters and 1,000 phasor measurement units in FY 2013, laying the foundation for a modernized electricity grid.

The U.S. electricity grid, built with technology designed for the demands of an earlier era, is facing many new and complex challenges. To increase efficiency and enable greater use of renewable and other energy sources while maintaining the reliability, security, and affordability of electric power delivery, OE develops 'next generation' technologies and management approaches, works with stakeholders to facilitate development of reliable electricity infrastructure, and strengthens the physical and cyber security of the Nation's energy delivery system. The FY 2013 budget request includes $20 million to establish a new Energy Innovation Hub. The Electricity Systems Hub will bring together a diverse, multi-disciplinary group to address the challenges associated with modernizing the grid through a systems approach, focusing on the 'seam' between the transmission and distribution systems, where power flows, information flows, markets and regulations converge.

Office of Environmental Management: Meeting Commitments 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 110 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:

- 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 2013 budget request for $5.65 billion will fund activities to maintain a safe and secure posture in the EM complex and positions EM to meet its FY 2013 enforceable agreement milestones. EM continues to reduce the greatest risks to the environment and public health, invest in science and technology to reduce lifecycle costs, and make progress towards the goal of reducing EM's geographic footprint 90 percent by 2015. EM will develop new processes to enhance the capability for the disposition of tank waste, nuclear material, and spent (used) nuclear fuel. The FY 2013 budget request includes the construction of two unique and complex tank waste processing plants and the operation of another facility 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 EM cleanup activities.

Environmental Management Progress

During FY 2011, the Environmental Management (EM) program made significant progress towards cleaning up Cold War legacy environmental contamination. EM funded cleanup work at 17 sites in 11 states. The EM program is tasked with cleaning up some of the most dangerous materials in the world, and continued progress cleaning up facilities, land and water resources frees them up for potential future use. The President's FY 2013 EM budget request of $5.65 billion enables the program to continue this progress.

Key EM accomplishments in FY 2011 included:

- Radioactive Tank Waste Stabilization, Treatment, and Disposal
  - ✓ Processed 412,000 gallons of high-level liquid waste and produced 266 cans of vitrified high-level waste at the Savannah River Site.
  - ✓ Continued progress on the closure of two noncompliant tanks to successfully meet the FY 2013 Federal Facilities Agreement tank closure commitment at the Savannah River Site.
  - ✓ Completed construction of the Sodium Bearing Waste Facility in Idaho where hot operations will commence in FY 2012, enabling closure of the final four waste tanks.
- **Footprint Reduction**
  - ✓ Significantly exceeded the DOE footprint reduction goal of 40% by reducing its footprint by 66% (613 square miles).
  - ✓ Characterized, shipped and disposed of over 7,300 cubic meters of TRU waste at WIPP, processed and disposed of approximately 3,000 cubic meters of legacy TRU as mixed low-level waste, and removed all legacy TRU waste from three small quantity sites (Lawrence Berkeley National Laboratory, Nuclear Radiation Development, LLC, and Bettis Atomic Power Laboratory).

EM carries out its cleanup activities with the interests of its stakeholders in mind. Most importantly, EM continues to fulfill its responsibilities by conducting cleanup within a "Safety First" culture that integrates environment, safety, and health requirements and controls all work activities to ensure protection of the workers, public, and the environment, and adheres to sound project and contract management principles. EM remains focused on strengthening its project and planning analyses to better assess existing priorities and identify opportunities to accelerate cleanup work. EM will seek aggressive but achievable strategies for accelerating cleanup of discrete sites or segments of work.

After the EM program completes cleanup and closure of sites that no longer have an ongoing DOE mission, post closure stewardship activities and legacy related costs, where applicable, 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. Legacy related costs also include the administration of pension and post-retirement benefits for contractor retirees.

Loan Programs Office: Managing Clean Energy Investments and Financing Vehicles Technologies

Innovative Technology Loan Guarantee Program – Pending completion and delivery of the Loan Guarantee Program review and recommendations by the U.S. Department of Treasury, the Department of Energy is requesting to continue origination activities under section 1703 of the Energy Policy Act of 2005 while fully supporting its portfolio management team to carry out oversight missions of the program. The Department does not request new loan authority or credit subsidy in FY 2013. In FY 2012, as well as FY 2013, the Department's focus will be on effectively deploying its remaining $170 million in credit subsidy and $34 billion in loan authority in the nuclear power, front-end nuclear, fossil, and renewable and energy efficiency sectors. The FY 2013 budget requests $38 million to

support both continuing origination activities and a fully staffed portfolio management function. The request is expected to be offset by collections from borrowers authorized under the Title XVII of the Energy Policy Act of 2005 (P.L. 109-8).

Advanced Technology Vehicles Manufacturing Program – The Department requests $9 million to support ongoing monitoring activities associated with the program mission of loans made 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 Innovation and Technical Leadership

The Department requests $770.4 million in Fiscal Year 2013 for the Office of Nuclear Energy (NE), including $10 million from the Nuclear Waste Fund. In FY 2013, the Department is requesting funding for Idaho National Laboratory Site Wide Safeguards and Security ($95M) within the NE appropriation. Previously INL Safeguards and Security was requested within the Other Defense Activities appropriation. Thus, the NE total request is $88 million, about 10%, below the comparable FY 2012 enacted appropriation (Nuclear Energy + INL Safeguards and Security). NE 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.

Nuclear Power and Our Clean Energy Future

The Department's nuclear energy budget supports progress on short and long-term technical challenges and advanced research to continue safe nuclear power generation and delivery in the United States, which will help us achieve many of our country's clean energy goals.

Small Modular Reactors (SMR) - In FY 2013, NE's SMR Licensing Technical Support program will continue providing engineering support related to design certification and licensing for two SMR designs through cost-shared arrangements with industry partners. This program may help enable the U.S. industry . to gain leadership role in this new, innovative area of nuclear technology.

Nuclear Energy University Programs (NEUP) - Through the NEUP program, NE designates up to 20 percent of its funds appropriated to its research and development programs for work to be performed at university and research institutions, through open, competitive solicitations for investigator-led projects. In the past three years, these programs have awarded more than $170 million in competitive awards to support innovative research, infrastructure grants, and scholarships and fellowships at our universities.

Energy Innovation Hub for Nuclear Modeling and Simulation - The Modeling and Simulation Energy Innovation Hub applies existing modeling and simulation capabilities to create a "virtual" nuclear reactor user environment based on actual TVA-owned, Westinghouse-designed reactors to simulate an operating reactor. In FY 2011, NE released Version 1.0 of the Virtual Environment for Reactor Analysis (VERA) and completed design and construction of the Hub facility at ORNL. This is a prime example of the type of crosscutting, transformative activity that will enhance many research areas within NE.

In FY 2010, the Secretary of Energy chartered a Blue Ribbon Commission (the Commission) on America's Nuclear Future composed of experts from government, academia and industry. The Commission was charged with conducting a comprehensive review of policies for managing the back end of the nuclear fuel cycle, including consideration of all alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel, high-level waste, and materials derived from nuclear activities as well as providing advice and recommendations for how to address these issues. The Commission issued its final report in January 2012. Finding a safe, long-term solution to managing the nation's nuclear waste and used nuclear fuel is a significant challenge but a necessary one to ensure the viability of a carbon-free energy supply and further strengthen America's standing as a global leader on issues of nuclear safety and nonproliferation. During FY 2012, the Administration will work with Congress and stakeholders to fully evaluate the Commission's recommendations and assess implementation scenarios for management of used nuclear fuel and other nuclear waste. The Department will communicate to Congress the outcome of this assessment within six months of the Commission's report, as requested in the FY 2012 Appropriations Act.

There are a number of key elements that the Department has recognized as foundational to the nation's used fuel management and high-level waste disposal program, and has been pursuing even prior to the release of the Commission's recommendations. The research and development-related priorities align with how the funding in the Office of Nuclear Energy's Used Nuclear Fuel Disposition program is allocated in FY 2012. The Department's FY 2013 Congressional budget request builds on these efforts by including $60 million to continue activities initiated in FY 2012 and specifically focus on evaluating consolidated interim storage and transportation issues focused initially on decommissioned sites; working with industry to develop standardized approaches to used fuel management; conducting material testing to support extended storage of used fuel; initiating actions identified by

the National Academy of Sciences transportation report; and initiating research on geologic disposal alternative environments, e.g. system modeling, engineered barriers, natural barriers, evaluation of design concepts, and experiments. In this budget the Department is requesting the appropriation of $10 million from the Nuclear Waste Fund to support nuclear waste storage activities, consistent with the Nuclear Waste Policy Act.

Office of Fossil Energy: Sustaining American Energy Options through U.S. Ingenuity

The FY 2013 budget request of $651 million for the Office of Fossil Energy (FE) will help ensure that the United States can continue to rely on energy from traditional domestic fuel resources when they can be produced and consumed in clean and affordable ways. The United States has 25 percent of the world's coal reserves, and fossil fuels currently supply over 80 percent of the Nation's energy.

The Department is committed to developing technologies and providing technology-based options having public benefits including enhanced economic, environmental and energy security impacts. In FER&D, the emphasis, in keeping with Presidential priorities, is in supporting long-term, high risk initiatives targeted at carbon capture and storage as well as advanced energy systems and cross-cutting research.

In addition, $196 million of the $651 million request will be to provide for national energy security through the continued operations of the Strategic Petroleum Reserve.

The National Nuclear Security Administration: Reaffirming Commitment to Stockpile Modernization; Leading Global Partners on Nonproliferation by Securing Vulnerable Nuclear Materials

The National Nuclear Security Administration (NNSA) is critical to ensuring the security of our nation. The NNSA implements programs for three major national security endeavors: (1) 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; (2) accelerating and expanding our efforts at home and around the world to reduce the global threat posed by nuclear weapons, nuclear proliferation, and unsecured or excess nuclear materials; and (3) providing safe and effective nuclear propulsion for the United States Navy.

The Department's May 2011 Strategic Plan identifies the following three NNSA objectives, which align to the Department's strategic goal to secure our nation by enhancing nuclear security through defense, nonproliferation, and environmental efforts:

- Support the U.S. Nuclear Stockpile and Future Military Needs
- Reduce Global Nuclear Dangers
- Apply our Capabilities for Other Critical National Security Missions

The FY 2013 President's budget request for NNSA is $11.5 billion, an increase of $535.9 million (4.9%) from FY 2012 enacted levels. Funds are requested in four accounts:

- Weapons Activities: $7.6 billion, $363.2 million (5%) higher than FY 2012 enacted level of $7.2 billion.
- Defense Nuclear Nonproliferation: $2.5 billion, $162.8 million (7.1%) higher than FY 2012 enacted level of $2.3 billion.
- Naval Reactors: $1.1 billion, $8.6 million (0.8%) higher than FY 2012 enacted level
- Office of the Administrator: $411.3 million, $1.3 million (0.3%) higher than FY 2012 enacted level of $410 million

The FY 2013 budget request for Weapons Activities (WA) is $7.6 billion. WA maintains an enterprise of people, programs, and infrastructure that provides specialized scientific, technical, and engineering capabilities for stewardship of

Reaffirming Our Commitment to Stockpile Modernization

The President's New Global Military Strategy released in January 2012 reiterated that deterrence goals can be achieved with a smaller nuclear force. The Administration has also pledged to modernize the U.S. nuclear weapons inventory over the next decade. This Request continues to support such ambitious goals.

- Under the terms of the New Strategic Arms Reduction Treaty (New START) with Russia, the maximum number of deployed strategic nuclear weapons will be reduced from 2,200 to 1,550 by both the U.S. and Russia. These actions will strengthen the foundation of trust and help to build on cooperative international nonproliferation efforts.
- NNSA physically dismantles weapons to meet the U.S. obligations under New Start and is on schedule to dismantle all weapons retired prior to 2009 by 2022.
- As long as nuclear weapons remain in existence, the U.S. will maintain a safe, secure, and effective arsenal. To that end, the request funds our Stockpile Stewardship and Management Program, including high priority Life Extension Programs (LEPs) for the B61 and W76 warheads, as well as to continue studies on the W78/W88.
- The budget funds critical infrastructure modernization efforts including the Uranium Processing Facility (UPF) and commits NNSA to optimizing the use of existing facilities to accomplish its missions and provide the capabilities needed to sustain the Nuclear Security Enterprise now and in the future.

the nuclear weapons stockpile and to support U.S. leadership in science and technology. Requested activities include providing direct support for 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. 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 and construct new facilities that will allow the United States to maintain a credible nuclear deterrent.

The FY 2013 request for Defense Nuclear Nonproliferation (DNN) is $2.5 billion. DNN is responsible for implementing key U.S. Government nuclear security, nonproliferation, and arms control activities. These critical national security missions include: securing vulnerable nuclear and radiological material at facilities throughout the world; removing plutonium and highly enriched uranium from partner countries; eliminating U.S. nuclear material declared surplus to defense needs; negotiating and providing the technical capability to verify arms control treaties and agreements; strengthening other countries' capacities to implement nonproliferation obligations; enhancing other nations' capabilities to deter and detect illicit movement of nuclear and radiological materials; and supporting research and development to provide advanced technologies that support all of the DNN national security missions. The budget request supports the President's commitment to lead an international effort to secure all vulnerable nuclear materials around the world by the end of 2013. This funding level acknowledges the convergence of heightened terrorist activities and the ease of moving materials, technology, and information across borders, making the potential for terrorism involving weapons of mass destruction (WMD) a serious threat facing the Nation. As part of its national security strategy, the Administration has prioritized keeping WMD material and information out of the hands of terrorists. The FY 2013 budget request for DNN reflects the need to protect the United States (U.S.) and its allies from this threat.

Leading Global Partners on Nonproliferation

This budget request also represents the fourth year of the President's pledge in Prague of securing vulnerable nuclear materials. With this request, the United States will ensure its goals in support of this pledge are completed by December 2013. By the end of 2013, NNSA will have led the effort to remove or dispose of 4,353 kilograms of vulnerable nuclear material (HEU and plutonium) in foreign countries and complete security upgrades on 229 buildings containing weapons-usable nuclear material in the former Soviet Union (FSU).

- As of the end of FY 2011, NNSA's Global Threat Reduction Initiative (GTRI) removed 3,125 kgs of vulnerable nuclear material (HEU/Pu) to secure locations, provided security upgrades to global nuclear and radiological facilities, and converted research reactors to use non-weapons-usable fuel. Through FY 2012, GTRI will have converted or verified as shutdown 81 research reactors, removed 3,455 kilograms of vulnerable nuclear material, and secured an estimated 1,355 buildings containing high priority nuclear or radiological materials.
- As of the end of FY 2011, NNSA's International Nuclear Material Protection and Cooperation (INMP&C) program had secured 218 buildings containing weapons-usable nuclear material to reduce the threat of nuclear terrorism. Through FY 2012 INMP&C will have completed nuclear security upgrades at 221 buildings containing weapons-usable nuclear material in the FSU.

The FY 2013 request for Naval Reactors (NR) is $1.1 billion. NR is responsible for all naval nuclear propulsion work, beginning with reactor plant technology development and design, continuing through reactor plant operation and maintenance, and ending with reactor plant disposal. The program ensures the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers (constituting over 40 percent of the Navy's combatants) and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements. NR's request supports the core objective of ensuring the safe and reliable operation of the Nation's nuclear fleet and includes continued execution of the OHIO-class Ballistic Missile Submarine Replacement project, Land-based Prototype Refueling Overhaul, and the recapitalization of NR's spent fuel handling infrastructure.

The FY 2013 request for the Office of the Administrator (OA) is $411.3 million. The Office of the Administrator appropriation provides for federal program direction and support for NNSA's Headquarters and field installations. This request provides for a well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital, enhanced cost-effective utilization of information technology, and integration of budget and performance through transparent financial management practices. The FY 2013 Request provides for a NNSA Federal staff level of 1,922 Full-Time Equivalents (FTEs), a slight decrease from the projected FY 2012 level of 1,928 FTEs. The Office of the Administrator provides the Federal personnel and resources necessary to plan, manage, and oversee the operation of the National Nuclear Security Administration (NNSA). The Nation benefits from having a highly educated and skilled cadre of Federal managers overseeing the operations of the national security mission activities and performing many specialized duties including leading Emergency Response teams, nuclear nonproliferation coordination, safeguards and security oversight, information management and the managing the NNSA procurement process.

A more detailed summary description of the Department of Energy's FY 2013 budget request follows:

Department of Energy Budget by Organization

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [1]	FY 2013 Request	FY 2013 vs. FY 2012 $	FY 2013 vs. FY 2012 %
National Security					
Weapons Activities	6,865,775	7,214,120	7,577,341	+363,221	+5.0%
Defense Nuclear Nonproliferation	2,281,371	2,295,880	2,458,631	+162,751	+7.1%
Naval Reactors	985,526	1,080,000	1,088,635	+8,635	+0.8%
Office of the Administrator	393,293	410,000	411,279	+1,279	+0.3%
Total, National Nuclear Security Administration	***10,525,965***	***11,000,000***	***11,535,886***	**+535,886**	**+4.9%**
Energy and Environment					
Energy Efficiency and Renewable Energy	1,771,721	1,809,638	2,337,000	+527,362	+29.1%
Electricity Delivery and Energy Reliability	138,170	139,103	143,015	+3,912	+2.8%
Fossil Energy	572,525	564,435	650,792	+86,357	+15.3%
Nuclear Energy	805,996	858,741	770,445	-88,296	-10.3%
Total, Energy	***3,288,412***	***3,371,917***	***3,901,252***	**+529,335**	**+15.7%**
Environment					
Environmental Management	5,667,722	5,710,436	5,650,000	-60,436	-1.1%
Civilian Radioactive Waste Management	-2,800	0	0	0	0
Office of Legacy Management	170,873	169,600	177,946	+8,346	+4.9%
Total, Environment	***5,835,795***	***5,880,036***	***5,827,946***	**-52,090**	**-0.9%**
Total, Energy and Environment	***9,124,207***	***9,251,953***	***9,729,198***	**+477,245**	**+5.2%**
Science	4,897,283	4,873,634	4,992,052	+118,418	+2.4%
Advanced Research Projects - Energy	179,640	275,000	350,000	+75,000	+27.3%
Corporate Management					
Office of the Secretary	4,495	5,030	4,986	-44	-0.9%
Cost of Work and Revenues	-159,668	-63,086	-59,651	+3,435	+5.4%
Chief Information Officer	92,744	85,928	90,575	+4,647	+5.4%
Chief Financial Officer	56,318	53,204	51,043	-2,161	-4.1%
Management	67,353	62,693	53,257	-9,436	-15.1%
Chief Human Capital Officer	24,464	23,089	23,286	+197	+0.9%
Hearings and Appeals	6,015	4,142	4,801	+659	+15.9%
Congressional and Intergovernmental Affairs	3,052	4,690	4,076	-614	-13.1%
Public Affairs	3,383	3,801	3,310	-491	-12.9%
Indian Energy Policy and Programs	-328	2,000	2,506	+506	+25.3%
General Counsel	31,292	33,053	33,256	+203	+0.6%
Policy and International Affairs	27,068	26,961	27,281	+320	+1.2%
Economic Impact and Diversity	5,485	7,473	7,506	+33	+0.4%
Total, Corporate Management	***161,673***	***248,978***	***246,232***	***-2,746***	**-1.1%**
Credit Programs					
Innovative Technology Loan Guarantee Program	169,660	0	0	0	0
Advanced Technology Vehicles Manufacturing Loan	9,978	6,000	9,000	+3,000	+50.0%
Total, Credit Programs	***179,638***	***6,000***	***9,000***	**+3,000**	**+50.0%**
Health, Safety and Security	262,494	250,737	245,500	-5,237	-2.1%
Specialized Security Activities	163,008	186,699	188,619	+1,920	+1.0%
Energy Information Administration	95,009	105,000	116,365	+11,365	+10.8%
Inspector General	42,764	42,000	43,468	+1,468	+3.5%
Power Marketing Administrations	99,276	85,080	85,242	+162	+0.2%
Federal Energy Regulatory Commission	-36,461	-25,534	-25,823	-289	-1.1%
Rescission of Balances	0	0	-360,667	-360,667	N/A
Cancellation of Prior Year Unobligated Balances	-1,663	0	0	0	0
Total, Discretionary Funding by Organization	**25,692,833**	**26,299,547**	**27,155,072**	**+855,525**	**+3.2%**

[1] The FY 2012 Enacted reflects a rescission of $73,300 associated with savings from the contractor pay freeze; $600M ($500M Strategic Petroleum Reserve, $100M Northeast Home Heating Oil) was rebased as mandatory after enactment.

Department of Energy Budget by Appropriation

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [1]	FY 2013 Request	FY 2013 vs. FY 2012 $	FY 2013 vs. FY 2012 %
Energy And Water Development, And Related Agencies Appropriation Summary					
Energy Programs					
Energy Efficiency and Renewable Energy	1,771,721	1,809,638	2,337,000	+527,362	+29.1%
Electricity Delivery and Energy Reliability	138,170	139,103	143,015	+3,912	+2.8%
Nuclear Energy	717,817	765,391	770,445	+5,054	+0.7%
Fossil Energy Programs					
Clean Coal Technolgy	-16,500	0	0	0	0
Fossil Energy Research and Development	434,052	346,703	420,575	+73,872	+21.3%
Naval Petroleum and Oil Shale Reserves	20,854	14,909	14,909	0	N/A
Elk Hills School Lands Fund	0	0	15,580	+15,580	+100.0%
Strategic Petroleum Reserve	123,141	192,704	195,609	+2,905	+1.5%
Northeast Home Heating Oil Reserve	10,978	10,119	4,119	-6,000	-59.3%
Subtotal, Fossil Energy Programs	***572,525***	***564,435***	***650,792***	**+86,357**	**+15.3%**
Uranium Enrichment D&D Fund	497,084	472,180	442,493	-29,687	-6.3%
Energy Information Administration	95,009	105,000	116,365	+11,365	+10.8%
Non-Defense Environmental Cleanup	225,106	235,306	198,506	-36,800	-15.6%
Science	4,897,283	4,873,634	4,992,052	+118,418	+2.4%
Advanced Research Projects Agency-Energy	179,640	275,000	350,000	+75,000	+27.3%
Nuclear Waste Disposal	-2,800	0	0	0	0
Departmental Administration	48,894	126,000	122,595	-3,405	-2.7%
Inspector General	42,764	42,000	43,468	+1,468	+3.5%
Innovative Technology Loan Guarantee Program	169,660	0	0	0	0
Advanced Technology Vehicles Manufacturing Loan	9,978	6,000	9,000	+3,000	+50.0%
Total, Energy Programs	***9,362,851***	***9,413,687***	***10,175,731***	**+762,044**	**+8.1%**
Atomic Energy Defense Activities					
National Nuclear Security Administration:					
Weapons Activities	6,865,775	7,214,120	7,577,341	363,221	+5.0%
Defense Nuclear Nonproliferation	2,281,371	2,295,880	2,458,631	162,751	+7.1%
Naval Reactors	985,526	1,080,000	1,088,635	8,635	+0.8%
Office of the Administrator	393,293	410,000	411,279	1,279	+0.3%
Total, National Nuclear Security Administration	***10,525,965***	***11,000,000***	***11,535,886***	**+535,886**	**+4.9%**
Environmental and Other Defense Activities					
Defense Environmental Cleanup	4,979,165	5,002,950	5,472,001	+469,051	+9.4%
Other Defense Activities	795,670	823,364	735,702	-87,662	-10.6%
Total, Environmental & Other Defense Activities	***5,774,835***	***5,826,314***	***6,207,703***	**+381,389**	**+6.5%**
Total, Atomic Energy Defense Activities	***16,300,800***	***16,826,314***	***17,743,589***	**+917,275**	**+5.5%**
Power Marketing Administration					
Southwestern Power Administration	13,050	11,892	11,892	0	0
Western Area Power Administration	109,006	95,968	96,130	+162	+0.2%
Falcon & Amistad Operating & Maintenance Fund	220	220	220	0	0
Colorado River Basins	-23,000	-23,000	-23,000	0	0
Total, Power Marketing Administrations	***99,276***	***85,080***	***85,242***	**+162**	**+0.2%**
Subtotal, Energy And Water Development and Related Agencies	***25,762,927***	***26,325,081***	***28,004,562***	**+1,679,481**	**+6.4%**
Uranium Enrichment D&D Fund Discretionary Payments	-33,633	0	-463,000	-463,000	N/A
Excess Fees and Recoveries, FERC	-36,461	-25,534	-25,823	-289	-1.1%
Rescission of Balances	0	0	-360,667	-360,667	N/A
Total, Discretionary Funding by Appropriation	**25,692,833**	**26,299,547**	**27,155,072**	**+855,525**	**+3.2%**

[1] The FY 2012 Enacted reflects a rescission of $73,300 associated with savings from the contractor pay freeze; $600M ($500M Strategic Petroleum Reserve, $100M Northeast Home Heating Oil) was rebased as mandatory after enactment.

Science

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Advanced Scientific Computing Research	410,317	440,868	455,593	+14,725	+3.3%
Basic Energy Sciences	1,638,511	1,688,093	1,799,592	+111,499	+6.6%
Biological and Environmental Research	595,246	609,557	625,347	+15,790	+2.6%
Fusion Energy Sciences Program	367,257	400,996	398,324	-2,672	-0.7%
High Energy Physics	775,578	790,860	776,521	-14,339	-1.8%
Nuclear Physics	527,684	547,387	526,938	-20,449	-3.7%
Workforce Development for Teachers and Scientists	22,600	18,500	14,500	-4,000	-21.6%
Science Laboratories Infrastructure	125,748	111,800	117,790	+5,990	+5.4%
Safeguards and Security	83,786	80,573	84,000	+3,427	+4.3%
Science Program Direction	202,520	185,000	202,551	+17,551	+9.5%
Small Business Innovation Research (SBIR)	163,036	0	0	0	N/A
Subtotal, Office of Science	***4,912,283***	***4,873,634***	***5,001,156***	***+127,522***	***+2.6%***
Adjustments	-15,000	0	-9,104	N/A	N/A
Total, Office of Science	**4,897,283**	**4,873,634**	**4,992,052**	**+118,418**	**+2.4%**

PROGRAM DESCRIPTION

The mission of the **Office of Science (SC)** is the delivery of scientific discoveries and major scientific user facilities and 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 FY 2013 budget request for the Office of Science is $5.0 billion. SC supports several ongoing initiatives such as the U.S. Global Change Research Program ($230 million); Clean Energy ($1,066 million); Networking and Information Technology Research and Development ($491 million); and the National Nanotechnology Initiative ($330 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 Program Direction (PD).

PROGRAM HIGHLIGHTS

Advanced Scientific Computing Research (ASCR) supports research to discover, develop, deploy, and optimally use 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 energy and environmental 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. Computing also supports efficient management and analysis of increasingly large data sets produced by DOE-supported research and scientific user facilities. A particular challenge of the ASCR program is fulfilling the science potential of emerging computing systems and other novel computing architectures, which will require numerous and significant modifications to today's tools and techniques to deliver on the promise of exascale science. The architecture of future computing systems, from desktops to exascale, will be transformed by changes in the underlying semiconductor technology and will be constrained by the need for greater energy efficiency. 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 2013, ASCR will continue to make balanced investments, driven by science needs, across its portfolio. New research will be supported to address the challenges of data-intensive science. The FY 2013 request includes funds in the research and evaluations prototypes activity to focus on critical technologies that reduce technical risk for exascale computing. These efforts will be closely coordinated with NNSA investments to ensure complementary and efficient use of resources. In FY 2013, ASCR will initiate new SciDAC research to address data-intensive science challenges at the science application level. The FY 2013 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 a 2.33 petaflops system and in FY 2013 will complete phase 2 of the upgrade to the next generation of machine which will be 5-10 times more capable than their current system. The Argonne Leadership Computing Facility operates a 556 teraflop system and in FY 2012 completed the acquisition, installation and testing of 10 petaflop IBM Blue Gene/Q, developed through a joint partnership with IBM, NNSA, and ASCR's research and evaluation prototype activity. The National Energy Research Scientific Computing (NERSC) facility at Lawrence Berkeley National Laboratory will operate high-end systems with an aggregate capability of 1 petaflop. NERSC funding will increase in FY 2013 for site preparation for a planned relocation. ESnet will continue to advance the next generation of network capability, critical to DOE applications and facilities, and continue to deploy 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 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. In FY 2013, the BES program will support expanded efforts in basic research for transformational energy applications with an emphasis on addressing fundamental knowledge gaps that directly impact the performance limitations, cost, and reliability of clean energy technologies. Along with other activities, these new efforts will be coordinated with the Office of Energy Efficiency and Renewable Energy and the Energy Frontier Research Centers (EFRC). EFRCs focus research on the pursuits of broad science challenges for energy. Two Energy Innovation Hubs are supported in FY 2013 by BES, part of the set of Hubs initiated by DOE in FY 2010. The DOE Hubs assemble multidisciplinary teams from universities, national laboratories, and the private sector to address systemic energy challenges, and will result in new materials, systems, and knowledge critical to developing a robust industrial base leading the next generation of energy technology. The two BES Hubs will focus on fuels from sunlight and on batteries and energy storage. BES also plans, designs, constructs, and operates scientific user facilities that use x-ray, neutron, and electron beam scattering techniques to probe the most fundamental electronic and atomic properties of materials at the 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. BES continues support for the operations of its suite of scientific user facilities and for the construction of the National Synchrotron Light Source II. In FY 2013, increases are requested to operate facilities at near optimal levels. The upgrade of the Advanced Photon Source is continued, is

continued, as well as the NSLS-II Experimental Tools (NEXT). The project to expand capabilities at the Linac Coherent Light Source is continued as a line item construction project. These efforts aim at ensuring that these world-class scientific tools stay at the technological forefront and continue to charter new paths for scientific pursuits.

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 the understanding of how biological systems work and interact with each other; to learning how systems can be manipulated to harness their processes and products and implement them in new strategies for producing biofuels, cleaning up legacy waste, and sequestering carbon dioxide. BER plays a unique and 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 biogeochemical processes play in controlling the cycling and mobility of materials in the Earth's subsurface and across key surface-subsurface interfaces in the environment. In FY 2013, BER's increased investment in foundational research will accelerate the development of new clean energy solutions that identify and articulate general biological design principles, allowing researchers to understand the fundamental genetic and physical rules that make biological components and multi-component systems (from cells to organisms to ecosystems) perform reliably under widely varying conditions. The knowledge of these design principles or rules will then serve as the foundation for subsequent redesign to optimize for function under different conditions that can lead to sustainable clean energy. The research will include the development of new synthetic molecular toolkits and test beds for understanding natural systems and computer-aided design. BER expands climate observations at the Atmospheric Radiation Measurement Climate Research Facility to understand the role of clouds and aerosols in climate; research to define the noise in the currently observed global carbon system, given the spatial and temporal variability due to both anthropogenic and natural carbon emissions; and research to accelerate the resolution of critical uncertainties involved in the prediction of climate change and to increase the accuracy of projections Observational research increases to improve ecosystem-level understanding of the priority climatic sensitive regions of the Arctic and tropics. BER will also continue research in systems biology, radiochemistry, climate simulations and analyses needed for part of the Intergovernmental Panel on Climate Change Fifth Assessment. Support is reduced for subsurface biogeochemistry for contaminant mobility and on geologic barriers to groundwater contaminant transport. Support is provided for the three DOE Bioenergy Research Centers started in FY 2007, the Joint Genome Institute, and operation of the Environmental Molecular Sciences Laboratory.

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 self-sustained burning plasma. FES also supports enabling R&D to improve the components and systems that are used to build fusion facilities. The most notable changes in the FY 2013 budget include increases to support the U.S. contribution to the ITER project. The funding increase for the U.S. contribution to the ITER Project is required to enable long-lead procurements needed as the project enters a period of rapid construction. The majority of the U.S. contributions to the ITER Project will be spent on in-kind hardware sourced from U.S. industries, national laboratories, and universities. Proposed funding for domestic research in most areas is reduced, while program balance is retained consistent with the previous recommendations of the National Academies for the Office of Science to promote overall federal stewardship for plasma science, including and beyond magnetic fusion energy science. The savings from the termination of Alcator C-Mod research operations at MIT offsets increases for ITER and allow capturing new opportunities in materials science and long pulse plasma research to be conducted on emergent overseas superconducting-magnet-based research facilities.

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 researches and develops innovative new particle accelerator and detector technologies to meet the

challenges of research at the frontiers. The Tevatron Collider at Fermi National Accelerator Laboratory (Fermilab) completed operations in FY 2011, and the data set will continue to be analyzed in FY 2013. The Fermilab accelerator complex will operate during the first half of FY 2012 to support the neutrino program and then be shut down to install planned upgrades to the neutrino beam lines. Support for LHC detector operations, maintenance, computing, and R&D continues in FY 2013 in order to maintain a significant U.S. role in the program. Fabrication of the NuMI Off-Axis Neutrino Appearance (NOvA) project to enable key measurements of neutrino properties continues in FY 2013. Project engineering and design continues for the Muon to Electron Conversion Experiment (Mu2E). The Office of Science is undertaking a thorough review of the costs and alternatives for future underground neutrino experiments, including the proposed Long Baseline Neutrino Experiment (LBNE), and expects to make decisions concerning a future intensity frontier project in 2012. Minimal sustaining operations at the Homestake mine will continue through FY2013 while completing existing experiments at Homestake. Several national and international collaborative projects to pursue questions in dark matter, dark energy, and neutrino properties continue in FY 2013, including the Dark Energy Survey experiment in Chile and the Reactor Neutrino Detector in Daya Bay, China. Fabrication of the Large Synoptic Survey Telescope and technology and design studies for second-generation dark matter experiments will be initiated in FY 2013. Fabrication of the High Altitude Water Cherenkov (HAWC) will continue through FY2013 to meet the goal of full operations in FY2014. HEP also continues support for advanced accelerator and detector R&D with new efforts to coordinate across scientific disciplines and including development of 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. By providing support for tools, facilities, and research opportunities, the NP program challenges the imagination and the scientific and technical abilities of U.S. scientists and the international scientific community. The FY 2013 request continues support for an energy upgrade of the Continuous Electron Beam Accelerator Facility (CEBAF) and construction of the Facility for Rare Isotope Beams. The three NP national user facilities, RHIC, TJNAF and ATLAS, are operated for an estimated 5,360 hours of beam time for research, 38% of optimal utilization for the operating facilities and a decrease of about 6,800 hours compared with the beam hours planned for FY 2012. The decrease is a result of reduced RHIC and ATLAS operations and a planned shutdown period at CEBAF associated with the construction of the 12 GeV CEBAF Upgrade. Funding for research across the program is reduced compared with FY 2012.

Within the **Workforce Development for Teachers and Scientists** funding is proposed to increase participation in the Science Undergraduate Laboratory Internship program by 11 percent over the FY 2012 level; no funding is proposed for the DOE Office of Science Graduate Fellowship program in FY 2013. 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 project starts and four ongoing projects. The **Safeguards and Security** program continues to address the highest security needs of the SC complex. Finally, **Program Direction** requests additional funding to support total staffing of 1,048 FTEs at headquarters, field sites, and the Office of Scientific and Technical Information.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Advanced Scientific Computing Research (FY 2012 $440.9; FY 2013 $455.6).....+$14.7
Increased funding in Applied Mathematics supports new research efforts to develop new mathematical models, methods, and algorithms that address the challenges of data-intensive science ($49.5; +$3.9). Computer Science also increases to support new research efforts to develop tools and software to address the challenges of data-intensive science ($54.6; +$7.2). Computational Partnerships increases to support an additional Co-Design Center and new Science Applications which will focus on the challenges of data-intensive science at scientific user facilities ($56.8; +$12.5). Next Generation Networking for Science increases to support research efforts addressing the challenges of massive quantities of data from DOE scientific user facilities and large scale collaborations ($16.2; +$3.4). Support for NERSC operations is increased for site preparations related to the planned relocation to a new computing facility ($65.6; +$7.8) while support for the Leadership Computing Facilities at ORNL and ANL is decreased due to reduced support for infrastructure upgrades ($145.0; -$11.0). Support for Research and Evaluation Prototypes has been slowed to allow for investments in other areas to address the

urgent challenges of data-intensive science ($22.5; -$7.5). Support for ESnet decreases while continuing to deploy increased bandwidth to SC facilities ($32.0; -$2.5). SBIR/STTR increases ($13.4; +$0.9).

Basic Energy Sciences (FY 2012 $1,688.1; FY 2013 $1,799.6) ..... +$111.5
Materials Sciences and Engineering ($420.6) increases to continue the Energy Innovation Hub focused on Batteries and Energy Storage ($24.2; +$4.8). Scattering and Instrumentation Sciences Research ($73.7; +$9.0); Condensed Matter and Materials Physics Research ($148.7; +$25.0), Materials Discovery, Design and Synthesis Research ($84.6; +$8.0), and EFRCs ($68.0; +$10.0). Support for EPSCoR continues at FY 2012 level ($8.5). SBIR/STTR is increased ($12.8; +$2.1)

Chemical Sciences, Geosciences, and Biosciences ($349.4) increases for Fundamental Interactions Research ($71.5; +$4.0); Photochemistry and Biochemistry Research ($77.8; +$6.0); Chemical Transformations Research ($110.9; +$10.0); and EFRC's ($52.0; +$10.0). Other activities are increased ($26.6; +$2.1). SBIR/STTR is increased ($10.6; +$1.3)

Scientific User Facilities ($918.9) increases for the Synchrotron Radiation Light Sources ($438.8; +$59.8); Nanoscale Science Research Centers ($113.5; +$11.0); High-Flux Neutron Sources ($257.7; +$8.6) and Other Project Costs related to NSLS-II ($24.4; +$16.7). Funding is decreased for Major Items of Equipment ($32.0; -$41.5). Other activities are increased ($27.0; +$2.5). SBIR/STTR is increased ($25.5; +$2.7)

Construction ($110.7) funding increases as construction of the Linac Coherent Light Source-II ramps up ($63.5; +$63.5). Funding for construction of the National Synchrotron Light Source-II decreases as ramp down is scheduled ($47.2; -$104.2)

Biological and Environmental Research (FY 2012 $609.6; FY 2013 $625.3)..... +$15.8
Biological Systems Science research ($309.8) includes increases in Genomic Science in the areas of foundational genomics for development of synthetic biology tools and biodesign technologies ($188.1; +$4.2). Funding is decreased for Radiological Sciences ($28.2; -$6.8). The Joint Genome Institute and Structural Biology Infrastructure funding is increased ($84.1; +$0.7). SBIR/STTR increases ($9.4; +$0.2)

Climate and Environmental Sciences ($315.5) support continues for Atmospheric System Research for improved formulations for aerosols, clouds, and aerosol-cloud interactions ($26.4). Environmental System Science is increased ($79.3; +$11.7). Climate and Earth System Modeling funding increases to improve model resolution and enhance model validation and verification as well as continue improving the efficiency of data management and analysis ($78.4; +$4.4). Climate and Environmental Facilities and Infrastructure provides continued support for the ARM Climate Research Facility and the Environmental Molecular Sciences Laboratory ($122.0; -$0.1). SBIR/STTR increases ($9.4; +$1.5)

Fusion Energy Sciences (FY 2012 $401.0; FY 2013 $398.3)..... -$2.7
Within Science ($154.2: -$26.3) domestic research in most areas is reduced, while program balance is retained. A small new initiative in International Collaborations is started. The growth in Facility Operations ($221.5; +$26.9) is driven by the increased U.S. Contributions to ITER project as the pace of construction increases and significant procurement contracts are placed with domestic suppliers for component fabrication. Research in most areas of Enabling R&D ($22.6; -$3.3) is reduced, although a small new initiative in fusion materials research is retained.

High Energy Physics (FY 2012 $790.9; FY 2013 $776.5)..... -$14.3
In Proton Accelerator-Based Physics ($411.5; -$10.1), The end of Tevatron Collider running in September 2011 and planned shutdown to install neutrino beamline upgrades in 2013 drive the funding changes.

In Electron Accelerator-Based Physics ($29.1; +$6.1) the beginning of the U.S. contribution to the BELLE-II detector upgrade as an MIE accounts for the funding increase.

In Non-Accelerator Physics ($97.4; +$13.4) the start of the MIE for the camera fabrication for the Large Synoptic Survey Telescope and R&D funding for next-generation dark matter experiments are the major drivers of the increase in this subprogram.

Theoretical Physics subprogram funding ($68.5; +$1.7) increases slightly in the areas of Computational HEP and theory research.

In Advanced Technology Research and Development ($149.9; -$17.4) the International Linear Collider (ILC) R&D program is completed in FY 2013, which is the driver for the decrease.

In Construction ($20.0: -$8.0) PED funding continues for the Muon to Electron Conversion Experiment according to the planned profile. No PED funding is requested in FY 2013 for the Long Baseline Neutrino Experiment.

Nuclear Physics (FY 2012 $547.3; FY 2013 $526.9) .....-$20.4
Within the Medium Energy Nuclear Physics subprogram ($135.3; +$2.7) the increase is dominated by Other Project Costs for the 12 GeV CEBAF Upgrade project for pre-operations and commissioning according to the project baseline as CEBAF is shutdown during FY 2013 for 12 GeV installation activities. Research efforts are reduced.

Within the Heavy Ion Nuclear Physics subprogram ($197.2; -$3.4) research efforts are reduced and operation of RHIC is decreased by about 50 percent relative to FY 2012.

Within the Low Energy Nuclear Physics subprogram ($98.0; -$7.7) research efforts are reduced, and no funding is provided within Nuclear Physics for dewatering activities at the Homestake Mine.

In the Nuclear Theory subprogram ($37.2; -$2.2) funding for theoretical research activities and the National Nuclear Data Center is reduced.

In the Isotope Development and Production for Research and Applications subprogram ($18.7; -$0.4) research efforts are reduced.

Construction of the 12 GeV CEBAF Upgrade project ($40.6; -$9.4) continues in FY 2013.

Workforce Development for Teachers and Scientists (FY 2012 $18.5; FY 2013 $14.5) .....-$4.0
The Student Undergraduate Laboratory Internship program ($7.3; +$0.8) will support 720 students; an increase of 11 percent (+70) from FY 2012 participation levels. No funding is proposed for the Science Graduate Fellowship Program ($0.0; -$5.0). Funding ($1.3; +$0.1) for the Visiting Faculty Program (formerly Faculty and Student Teams) is increased to support student participation in the Visiting Faculty Program. Funding for the National Science Bowl® ($2.8; +$0.1) is increased to help defray increased housing, transportation, and other logistical expenses for the national event.

Science Laboratories Infrastructure (FY 2012 $111.8; FY 2013 $117.8) .....+$6.0
Infrastructure Support ($8.2; +$1.3) increases to support for facilities and infrastructure at the OSTI and NBL facilities that was previously funded through SC Program Direction. Construction funding ($109.6, +$4.7) increases to support two new FY 2013 projects, the Utilities Upgrade at FNAL ($2.5, +$2.5) and the Utility Infrastructure Modernization at TJNAF ($2.5; +$2.5).

Safeguards and Security (FY 2012 $80.6; FY 2013 $84.0) .....+$3.4
Funding increases to support infrastructure investments in access control systems and to address cyber security threats.

Program Direction (FY 2012 $185.0; FY 2013 $202.6) .....+$17.6
Funding for salaries and benefits for headquarters and field staffing, including support for 48 additional FTEs over projected FY 2012 usage for total FY 2013 staffing of 1,048 FTEs ($149.8; +$11.9); support services ($22.0; +$1.9); and other related expenses ($27.4; +$3.8) including office space, communications, utilities and goods and services provided by the DOE Working Capital Fund.

Advanced Research Projects Agency – Energy

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
ARPA-E Projects	165,640	255,000	325,000	+70,000	+27.5%
Program Direction	14,000	20,000	25,000	+5,000	+25.0%
Total, Advanced Research Projects Agency - Energy (ARPA-E)	**179,640**	**275,000**	**350,000**	**+75,000**	**+27.3%**

PROGRAM DESCRIPTION

The **Advanced Research Projects Agency – Energy (ARPA-E)** focuses exclusively on high-impact innovations, translating science into breakthrough technologies that promise genuine transformation in the ways we generate, store, and utilize energy. ARPA-E has a mission to support early-stage energy technology innovations that will enhance the economic and energy security of the United States through the development of transformational technologies that reduce America's dependence on energy imports; reduce U.S. energy related emissions; improve energy efficiency across all sectors of the U.S. economy; and ensure the U.S. maintains· a technological lead In the development and deployment of advanced energy technologies.

ARPA-E was created to be a catalyst for innovation and is a priority for the Administration. ARPA-E's objective is to tap into the pioneering American ethos and to identify and support the energy entrepreneurs 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 to address the U.S.'s technological gaps and leapfrog over current energy approaches.

ARPA-E selects potential investment areas by considering the science and technology landscape, the market landscape, and the regulatory landscape. ARPA-E will invest in technology development only in instances where circumstances in each of these areas are aligned to enable transformational, breakthrough discoveries that have the potential to then be brought to market scale. ARPA-E programs are created through a detailed process that begins with a thorough vetting of a particular technology concept and coordination with other DOE entities and the private sector.

The FY 2013 budget request of $350 million provides funding for Projects that support the mission of ARPA-E and Program Direction that supports these projects.

PROGRAM HIGHLIGHTS

Funding Innovation: In FY 2011, ARPA-E issued its fourth round of Funding Opportunity Announcements (FOAs) and announced 60 cutting-edge research projects aimed at dramatically improving how the U.S. produces and uses energy. In total, ARPA-E now has issued twelve FOAs and funded over 180 projects. After ARPA-E's initial broad open FOA, ARPA-E has targeted specific end technologies in:

- Electrofuels
- Batteries for Electrical Energy Storage in Transportation (BEEST)
- Building Energy Efficiency Through Innovative Thermodevices (BEETIT)
- Agile Delivery of Electrical Power Technology (ADEPT)
- Innovative Materials and Processes for Carbon Capture Technologies (IMPACCT)
- Grid-Scale Rampable Intermittent Dispatchable Storage (GRIDS)
- Plants Engineered to Replace Oil (PETRO)
- Solar Agile Delivery of Electrical Power Technology (SOLAR ADEPT)
- Green Electricity Network Integration (GENI)
- High Energy Advanced Thermal Storage (HEATS)

- Rare Earth Alternatives in Critical Technologies (REACT)

ARPA-E programs generally fall into two categories:

- New Areas of Science and Technology—for example, ARPA-E's current Electrofuels program. The goal of this program is to create a biological non-photosynthetic process to produce liquid fuels. This is not being done anywhere else in the government, and, if successful, could create an entirely new industry.

- New Generation Technology—for example, ARPA-E's current program called Batteries for Electrical Energy Storage in Transportation, or BEEST. While DOE and most outside R&D is focused on lithium batteries, ARPA-E is looking for other battery chemistries that, if successful, would yield batteries that are less expensive and provide longer range and storage capabilities than today's approaches.

Catalyzing the Private Sector: Less than two years after ARPA-E's initial investment in 121 projects of $365 million, eleven of those projects have garnered over $200 million in follow-on funding (not including cost share) to support the further development and deployment of the ARPA-E-funded technologies. ARPA-E's initial funding and active program management have been critical components to the program's success and have empowered these innovators to meet their research goals and overcome technical barriers ahead of schedule. While ARPA-E projects have yet to show ultimate success as deployed technologies, a possibility that may be 10-15 years away, ARPA-E considers follow-on funding to be an early indicator of success and highlights how small but strategic investments by the federal government could pay big dividends in the not-too-distant future.

Efficiency of Operation: ARPA-E is a small, flat and nimble agency that has shown speed, agility and efficiency in creating new programs with a sense of "fierce urgency" that will make the U.S. globally competitive in the energy sector. It has demonstrated that within a span of 6-8 months, it can organize a technical workshop, create and announce a Funding Opportunity Announcement (FOA), conduct a transparent and thorough proposal review process via a panel of experts, and carry out an expedited contracting process. We plan to further refine this process in the future.

Summit: Now in its third year, the ARPA-E Energy Innovation Summit is designed to bring together key players from all sectors of the nation's energy innovation community to share ideas for developing and deploying the next generation of clean energy technologies. The Summit connects businesses with clean energy researchers and entrepreneurs with the goal of building lasting partnerships for bringing energy technologies to the market. Last year's Summit attracted more than 90 speakers and 2,000 attendees from 49 states and 20 countries. Attendees included members of research and development institutions, global corporations, technology entrepreneurs, investors, policymakers and government officials. This year the Summit will again feature a technology showcase with more than 150 exhibits from ARPA-E-funded projects and applicants. A wide range of other energy technologies and new topic areas will also be discussed at the Summit, which will be held in Washington, DC on February 27-29.

Potential Future Programs

Reflecting refinements to ARPA-E's internal strategic thinking on the focus of future projects, ARPA-E has incorporated a project management model hierarchy of thrust-portfolio-program-project. ARPA-E will have two primary thrusts: Transportation Systems and Stationary Power Systems. Specific goals in the outyears include making substantial progress in the areas of:

Transportation Systems:

- Batteries and systems for electric vehicles
- Sustainable and market-competitive transportation fuels from domestic resources
- Information technology related to transportation
- Cost-effective power generation or propulsion systems
- Natural gas fueled transportation systems

Stationary Power Systems:

- Stationary Power
- Electrical Infrastructure
- End Use Efficiency
- Embedded Efficiency

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

ARPA-E Projects (FY 2012 $255; FY 2013 $325) .....+$70.0
ARPA-E plans to increase the number of programs in two broad areas: Transportation Systems and Stationary Power, with a priority on Transportation Systems including advanced manufacturing and vehicles research and development. Additionally, ARPA-E will continue to build on the already strong cooperative relationship with the U.S. Department of Defense to develop advanced clean energy technologies.

ARPA-E Program Direction (FY 2012 $20; FY 2013 $25) .....+$5.0
In FY 2013, the Program Direction element of ARPA-E's request will accommodate the hiring of federal employees and support service contractors, with commensurate increases in information technology purchases and costs for leased space, to allow ARPA-E to fulfill the mission of the program.

Energy Efficiency and Renewable Energy

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Biomass and Biorefinery RD&D	179,979	199,276	270,000	+70,724	+35.5%
Geothermal Technology	36,992	37,862	65,000	+27,138	+71.7%
Hydrogen and Fuel Cell Technologies	95,847	103,624	80,000	-23,624	-22.8%
Solar Energy	259,556	288,951	310,000	21,049	+7.3%
Water Power	29,201	58,787	20,000	-38,787	-66.0%
Wind Energy	78,834	93,254	95,000	+1,746	+1.9%
Advanced Manufacturing*	105,899	115,580	290,000	+174,420	+150.9%
Building Technologies	207,310	219,204	310,000	+90,796	+41.4%
Federal Energy Management Program	30,402	29,891	32,000	+2,109	+7.1%
Vehicle Technologies	293,151	328,807	420,000	+91,193	+27.7%
Weatherization and Intergovernmental Activities	231,300	128,000	195,000	+67,000	+52.3%
Facilities and Infrastructure	51,000	26,311	26,400	+89	+0.3%
Program Direction	170,000	165,000	164,700	-300	-0.2%
Strategic Programs**	32,000	25,000	58,900	+33,900	+135.6%
Subtotal, Energy Efficiency and Renewable Energy	***1,801,471***	***1,819,547***	***2,337,000***	***+517,453***	***+28.4%***
Adjustments***	-29,750	-9,909	0	N/A	N/A
Total, Energy Efficiency And Renewable Energy	**1,771,721**	**1,809,638**	**2,337,000**	**+527,362**	**+29.1%**

*Note: Industrial Technologies Program renamed as Advanced Manufacturing in FY 2013.

**Note: Program Support renamed as Strategic Programs in FY 2012.

***Note: The FY 2013 Request does not include a general provision which cancels $69,667 in prior year balances.

The **Office of Energy Efficiency and Renewable Energy (EERE)** supports clean energy research, development, demonstration, and deployment activities on technologies and practices that help meet national security, environmental, and economic goals. EERE-supported technologies further these goals by reducing dependence on oil, minimizing the emissions associated with energy production and use, and stimulating economic growth and job creation in the US through the reduction of energy costs and investment in next generation renewable energy and manufacturing. The EERE portfolio emphasizes work areas where the potential impact is largest, and where federal funds are most critical. It balances investments in high-risk early-stage research with partnerships with private firms that speed the translation of innovations into practical business opportunities. The diverse set of technologies supported by EERE helps ensure that the US has many options for meeting its energy goals. Program management is designed to identify the best groups in the country to address these challenges and supports work in universities, companies, national laboratories, and consortia.

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 foci: 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 security and environmental quality. The FY 2013 discretionary budget request is $2.34 billion, an increase of 527.4 million, or approximately 29.1 percent from the FY 2012 enacted appropriation of $1.81 billion.

RENEWABLE ENERGY

The **Biomass and Biorefinery Systems** program funds research, development, and demonstration (RD&D) projects to advance biofuels technologies and to validate and assist in the commercialization of integrated biorefinery technologies that will help transform the Nation's transportation sector. The program's activities include the development of biomass conversion technologies to produce a variety of biofuels, bioproducts, and biopower. The program also works to evaluate environmentally

sustainable feedstocks and to develop economically viable feedstock logistics systems to sustainably supply the biofuels industry.

The **Geothermal Technologies** program conducts RD&D in partnership with industry, academia and the National Laboratories to discover new geothermal resources, develop innovative methods of accessing and using those resources for base-load electricity production, and demonstrate high-impact technologies. The program's geothermal work will concentrate on improved exploration technologies and on developing new technologies for enhanced geothermal systems (EGS) that offer the potential for tapping into enormous resources for base-load power across America.

The **Hydrogen and Fuel Cell Technologies** program aims to reduce petroleum use, greenhouse gas emissions, and criteria air pollutants, and to contribute to a more diverse and efficient energy infrastructure by supporting the development of hydrogen and fuel cell technologies for widespread commercialization. The program supports applied RD&D of transformative advances in hydrogen and fuel cell technologies, as well as efforts to overcome economic and institutional barriers to their commercial deployment.

The **Solar Energy Technologies** program's main objective under the SunShot Initiative is to make solar energy cost competitive with other sources of electricity, across the Nation and without subsidies, by 2020 – a goal of approximately 5-6 cents per kWh for installed systems. To achieve this objective, the Program supports solar energy RD&D at Universities and National Laboratories and in collaboration with industry and industry-led consortia. The Photovoltaic (PV) subprogram focuses on lowering the cost of PV through conversion efficiency and manufacturing improvements. Concentrating Solar Power (CSP) supports development of thermal storage and the systems research and optimization to enable CSP to provide base-load power on demand. Additionally, Systems Integration and Market Transformation support cost goals for the deployment of solar technologies by addressing grid integration issues, balance-of-systems and non-hardware costs of installation, and other market barriers.

The **Water Power** program conducts research, development, and validation testing and demonstration of innovative water power technologies to accelerate market penetration of cost-effective and environmentally responsible renewable power generation from water. The program focuses primarily on a diverse array of marine and hydrokinetic technologies for producing electricity from waves, tides, and currents in oceans and rivers. The program also supports resource assessments, cost assessments, environmental studies, and advanced modeling aimed at determining and demonstrating the viability of emerging water power technologies and reducing the market barriers to their deployment.

The **Wind Energy** program develops technology in partnership with industry to improve the reliability and affordability of land-based and offshore wind energy systems, with an increased focus on next generation technologies that will enable the capture of America's sizable offshore wind resources at a competitive price. The program also supports wind resource assessments and modeling, advanced turbine and system modeling, and approved approaches to systems interconnection and integration to the electric transmission grid. It also helps to reduce barriers to technology acceptance and its deployment and growth in the market.

ENERGY EFFICIENCY

The **Advanced Manufacturing** Office, formerly known as the Industrial Technologies Program, supports RD&D focused on innovative energy-efficient manufacturing processes and materials technologies. The program is accelerating activities to develop cross-cutting manufacturing process technologies and advanced industrial materials that will enable U.S. companies to reduce the costs of manufacturing by using less energy while improving quality and accelerating product development. The program seeks to demonstrate materials and processes at a convincing scale to prove reductions in energy intensity and in the life-cycle energy consumption of manufactured products, plus promote a corporate culture of continuous improvement in energy efficiency among existing facilities and manufacturers. The Critical Materials Energy Innovation Hub, initiated in FY 2012, is continued within this program in FY 2013.

The **Building Technologies** program develops, promotes, and integrates energy technologies and practices, in partnership with the buildings industry, to make buildings more efficient and affordable. The program accelerates the availability of innovative, highly efficient building technologies and practices through R&D; increases the minimum efficiency of buildings and equipment through the promotion of model building efficiency codes and the promulgation of national lighting and appliance standards; and encourages the use of energy-efficient and renewable energy technologies and practices in residential and commercial buildings through market integration activities such as Better Buildings, Building America, the Energy Efficient Building and Systems Design Energy Innovation Hub, and the ENERGY STAR partnership with EPA.

The **Federal Energy Management Program** enables the Federal Government to meet the relevant energy, water, greenhouse gas, and transportation goals defined in existing legislation and Executive Orders by providing interagency coordination, technical expertise, training, financing resources, and performance contracting support.

The **Vehicle Technologies** program's R&D seeks technology breakthroughs that will enable the U.S. to greatly reduce transportation petroleum use and greenhouse gas emissions. The program focuses on a suite of technologies that ranges from transportation electrification and lightweight materials, to advanced combustion engines and non-petroleum fuels and lubricant technologies. The program also supports early demonstration, field validation, and deployment of advanced technologies and efforts to reduce the vehicle miles traveled by the public.

The **Office of Weatherization and Intergovernmental Activities** supports clean energy deployment in partnership with State, local, U.S. territory, and tribal governments. The State Energy Program provides technical and financial resources to States to help them achieve their energy efficiency and renewable energy goals through interactions with utilities and by addressing building codes and other local policies. Funding also supports energy efficiency and renewable energy projects that meet local needs. The Tribal Energy Program supports feasibility assessments and development of implementation plans for clean energy projects on Tribal lands. The Weatherization Assistance Program lowers energy use and costs for low income families by supporting energy-efficient home retrofits through State-managed networks of local weatherization providers.

CROSSCUTTING

Facilities and Infrastructure supports EERE's laboratory infrastructure and its efforts to transform the Nation's energy systems by providing funding for general plant projects, maintenance and repair, general purpose equipment, upgrades to accommodate new research requirements, and safeguards and security operations for the National Renewable Energy Laboratory.

Program Direction provides personnel and operational resources for executive and technical direction and oversight for the programs described above, including operations at headquarters and in the field. EERE is increasing headquarters FTEs, while decreasing field FTEs, in order to strengthen program and project management as well as to improve communication and coordination across the EERE portfolio.

Strategic Programs funds crosscutting analysis and activities that are important for effective EERE corporate management and communication and outreach. Communication and Outreach helps to raise awareness, overcome barriers, and speed adoption of new energy efficiency and renewable energy technologies and practices. Strategic Priorities and Impact Analysis provides analysis of technology and program innovation and ensures consistency in analysis conducted within EERE programs. These activities include analysis of energy costs, energy markets, and energy-systems and supply chain issues, including their relationships to energy policy and climate change. Innovation and Deployment activities focus on tools that accelerate the adoption and widespread deployment of EERE technology and systems innovations by looking at financing, utility policy, urban policy, and other factors. The International Program funds targeted bilateral and multilateral collaborative efforts to accelerate R&D progress and to accelerate development of global markets for energy efficient and renewable technologies in support of U.S. industries.

PROGRAM HIGHLIGHTS

The FY 2013 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 guide and stimulate choices that will result in large and rapid changes in energy systems. The FY 2013 budget request advances clean energy technologies and deployment activities that are essential to reducing our dependence on oil, and changing the way we power our homes, businesses, and vehicles. The proposed Office of Energy Efficiency and Renewable Energy budget of $2,337.0M provides a diverse portfolio of activities.

SIGNIFICANT FUNDING CHANGES – FY 2012 to FY 2013 Request ($ in millions)

Hydrogen and Fuel Cell Technologies (FY 2012 $103.6; FY 2013 $80.0) ..... -$23.6

The reduction in funding reflects substantial progress made in research innovations in the areas of fuel cells and hydrogen fuel production, delivery, and storage. A robust R&D program remains in fuel cells and renewable hydrogen production. In addition, FY 2013 activities will focus on some high impact fuel cell deployments, such as ground-support equipment and other early market fuel cells, with industry and government partners.

Biomass and Biorefinery Systems R&D (FY 2012 $199.3; FY 2013 $270.0) ..... +$70.7

The overall increase in funding will support expanding efforts in research to produce hydrocarbon fuels from biomass, as well as the innovative pilot program that will support the transition of promising new technologies for the production of drop-in hydrocarbon fuels into pilot-scale biorefineries. In addition, DOE is seeking authority to transfer funds under the Defense Production Act to more closely coordinate drop-in biofuel development for military applications with the Navy and USDA. FY 2013 activities also include an increased focus on bio-oil and downstream process technologies to produce final products. The FY 2013 request provides an additional installment for the full-fledged construction of demonstration and commercial scale integrated biorefinery projects that were competitively awarded in 2007 and 2008 and that will be operational in 2014.

Solar Energy (FY 2012 $289.0; FY 2013 $310.0) .....+$21.0

Under the Solar program, innovative research on photovoltaic (PV) and concentrated solar power (CSP) energy technologies continues, to drive the advancements that will make solar energy cost competitive, across the nation and without subsidies, before the end of the decade. In FY 2013, efforts to address PV module manufacturing cost drivers will be increased since modules make up 50 percent of the cost structure for this $1/W goal. There will also be increased effort to address "soft" market barriers such as the permitting time and costs associated with solar installation.

Wind Energy (FY 2012 $93.3; FY 2013 $95.0) ..... +$1.7

With the commercial success of on-shore wind energy, EERE's efforts will now focus on the next generation of wind technologies and on capturing America's enormous offshore wind resources at a competitive price. The FY 2013 request reflects the shift from on-shore to offshore wind technology research. FY 2013 activities will focus on advanced technologies and designs and on offshore wind demonstration projects that will help inform applied R&D priorities and reduce the technical and economic risks of offshore wind power plants in U.S. waters.

Geothermal Technology (FY 2012 $37.9; FY 2013 $65.0) ..... +$27.1

Geothermal work will concentrate on exploration and on developing new technologies for enhanced geothermal systems (EGS) that offer the potential for enormous resources for base-load power across America. The increase in funding in FY 2013 will support the EGS field test site activities and projects and improved resource characterization efforts in EGS that offer the potential for round-the-clock renewable electricity. In addition, FY 2013 activities will focus on: safely accessing geothermal reservoirs faster and at lower costs, identifying and characterizing blind hydrothermal resources, and innovative means by which EGS reservoirs can be created and monitored throughout their lifetime.

Water Power (FY 2012 $58.8; FY 2013 $20.0) ..... -$38.8

The reduction in funding reflects the substantial progress and completion of multiyear projects associated with Conventional Hydropower research and development. FY 2013 activities will focus primarily on marine and hydrokinetic (MHK) power, which includes a suite of technologies that harness the energy of wave, tidal, and current resources. Specifically, MHK research will focus on maintenance and development of advanced open water test infrastructure for MHK devices and research into the costs and performance of innovative, early-stage MHK systems and components.

Vehicle Technologies (FY 2012 $328.8; FY 2013 $420.0) ..... +$91.2

In FY 2013, there will be increased emphasis on advanced battery technology and manufacturing to significantly improve performance and reduce system cost. Additional R&D will focus on high performance and low cost power electronics, improved motor drive technologies that require reduced or no rare earth materials, and technology that allows electric drive vehicles to charge from the electric grid conveniently and efficiently.

In addition, other R&D will focus on high-efficiency Heating Ventilation Air Conditioning (HVAC) system technologies, and lightweight materials. The materials research will be targeted to high performance light-metal joints, manufacturing of low-cost carbon fiber composite components, and application of modeling and simulation techniques to the design of lightweight vehicle structures.

Building Technologies (FY 2012 $219.2; FY 2013 $310.0) ..... +$90.8

In FY 2013, there will be increased emphasis on research for advanced building HVAC systems, the building envelope and windows, and enhanced sensor and control technologies for building energy management. Additional emphasis will be placed on demonstrating and testing new, cost-effective technologies in retrofitting commercial and residential buildings, to validate the significant energy savings that can be achieved in these sectors.

In addition, FY 2013 funding will increase the scope and effectiveness of energy conservation standards by accelerating the test procedure and standards rulemakings that are currently scheduled, allowing for the increased use of DOE's existing authorities to establish standards for additional products that have large energy savings potentials.

Advanced Manufacturing (formerly Industrial Technologies) **(FY 2012 $115.6; FY 2013 $290.0) .....+$174.4**

In FY 2013, Advanced Manufacturing initiatives will support the important role the Department, and the U.S. Government as a whole, play in creating and maintaining a pipeline of innovative manufacturing ideas though its investments in research. Increased funding will support development and demonstration of innovative energy efficient manufacturing processes and materials technologies. Increased funding will allow the program to accelerate development of cross-cutting manufacturing process technologies and advanced industrial materials that will enable U.S. companies to cut the costs of manufacturing by using less energy while improving product quality and accelerating product development. Increased funding will include support for later stage scale up of manufacturing processes and advanced material technologies seeking to demonstrate these materials and processes at a convincing scale to prove reductions in energy intensity and in the life-cycle energy consumption of manufactured products.

The program will fund partnerships with industry to support these pre-competitive, high-risk, next generation innovations through the technology pipeline. Government support for these activities is critical due to the high cost and risk associated with the development and demonstration of complex technologies at relevant scales under time, quality and cost constraints. The transition to commercially-relevant manufacturing requires significant investments to create processing innovations, prototypes and ultimately produce the data that can support the case for commercialization.

Federal Energy Management (FY 2012 $29.9; FY 2013 $32.0) ..... +$2.1

This increase will support the restart of the Federal Energy Efficiency Fund (FEEF), which has been authorized since 1992. The FEEF will provide direct funding and leveraged cost-sharing for other Federal agencies for capital projects and other initiatives to increase the energy efficiency, water conservation and renewable energy investments at agency facilities.

Weatherization and Intergovernmental Activities (FY 2012 $128.0; FY 2013 $195.0) .....+$67.0

In FY 2012, Congress provided the latitude to allocate weatherization appropriations reflecting the balances accumulated while States were drawing down Recovery Act awards. With the anticipated expenditure of accumulated balances, the increase in the FY 2013 request will sustain essential weatherization production, training, and infrastructure for grantees as Recovery Act projects are completed and old balances are drawn down.

Strategic Programs (FY 2012 $25.0; FY 2013 $58.9) ..... +$33.9

This substantial increase will allow for new collaborative work with the DOE Office of Science through joint solicitations to accelerate the transition of novel scientific discoveries into innovative, prototype clean energy technologies. It will also accelerate deployment and adoption of these technologies through improved collaboration with education and training institutions. The Program will also continue to guide, strengthen, and communicate work on EERE technologies, and to help build U.S. businesses' domestic and international competitiveness in these technologies.

Electricity Delivery and Energy Reliability

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Research and Development	102,060	99,136	103,400	+4,264	+4.3%
Permitting, Siting and Analysis	6,000	6,976	6,000	-976	-14.0%
Infrastructure Security and Energy Restoration	6,100	5,981	6,000	+19	+0.3%
Program Direction	27,610	27,010	27,615	+605	+2.2%
Subtotal, Electricity Delivery & Energy Reliability	***141,770***	***139,103***	***143,015***	***+3,912***	***+2.8%***
Adjustments	-3,600	0	0	N/A	N/A
Total, Office Electricity Delivery & Energy Reliability	**138,170**	**139,103**	**143,015**	**+3,912**	**+2.8%**

PROGRAM DESCRIPTION

The **Office of Electricity Delivery and Energy Reliability (OE)** leads national efforts to modernize the electric grid, enhance security and reliability of energy infrastructure, and facilitate recovery from disruptions to the energy supply. As stated in the President's *A Policy Framework for the 21st Century Grid*, a smarter, modernized electric grid is fundamental to transforming the Nation's energy system and securing US leadership in a clean energy future. OE supports activities that enable innovation across the energy sector, empower American consumers, and secure our energy future. OE consists of three programs: Research and Development; Permitting, Siting and Analysis; and Infrastructure Security and Energy Restoration.

The **Research and Development (R&D)** program works with industry, academia, and government to develop technologies that enhance the electric grid. It consists of five subprograms. Clean Energy Transmission and Reliability focuses on grid modernization technologies at the transmission level, while the Smart Grid Research and Development subprogram focuses at the distribution level. The Electricity Systems Hub addresses the interconnection between transmission and distribution. The Energy Storage and Cyber Security subprograms support technologies that are applied across the entire grid space.

The **Permitting, Siting, and Analysis (PSA)** program provides expert technical assistance to states, tribes and regions on electricity policies, programs and market mechanisms that increase access to reliable, affordable and sustainable energy sources. PSA provides analysis for the long-term, interconnection-level planning required for the continued growth and integration of renewable and other clean energy resources. In addition, the program implements the transmission provisions of the Energy Policy Act of 2005, and administers the international electricity regulatory program through cross-border permitting.

The **Infrastructure Security and Energy Restoration (ISER)** program leads national efforts to secure the Nation's critical infrastructure against threats and hazards. It ensures the reliability, survivability and resiliency of 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 industry to facilitate recovery 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 funds federal staff and support services for the management, oversight and technical direction of OE.

PROGRAM HIGHLIGHTS

The FY 2013 budget request represents the Department's commitment to fiscal discipline and management efficiency, while ensuring that progress towards modern electric infrastructure is maintained. The request focuses on activities that increase electricity reliability and security nationwide by taking a systems-level approach to grid modernization, developing the computational capabilities to improve system planning and operations, and emphasizing the physical and cyber security of both new technologies and legacy energy systems.

FY 2013 will see the establishment of the Electricity Systems Hub to address the grand challenges associated with seamlessly integrating, coordinating and facilitating the modernization of the electric transmission and distribution systems. The Hub will focus on the seam between transmission and distribution systems, physically manifest as a substation, as the convergence of power flows, information flows, markets and regulations. The Hub will bring together a broad, multidisciplinary group of experts in applied science, technology, economics, and policy, an approach that serves well to address the barriers associated with this "pinch point" of grid modernization.

To address the growing complexity of the electric system, the FY 2013 request highlights the development of the computational, mathematical, and scientific understanding of grid operations and interdependencies necessary to improve system planning and operations. The program will accelerate the performance and predictive capabilities of operational tools, using real-time data from sensors nationwide, to enhance grid resilience to events that drive cascading blackouts. It will enable system models that better predict system behavior and improve large-scale system planning, reducing operational redundancies and maximizing the use of existing electric infrastructure.

The FY 2013 request continues to emphasize the security of electric systems and infrastructure as fundamental to the process of grid modernization. The program works closely with electric sector stakeholders to develop advanced cyber security technologies and risk mitigation solutions designed to address the unique needs of energy delivery systems. In close collaboration with the energy industry, national labs and academic community, the FY 2013 request will include support for cutting edge cybersecurity research into resilient networks and communications, integrated threat analyses, and the development of mechanisms to share actionable threat information among stakeholders in real-time.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Electricity Systems Hub (FY 2012 $0; FY 2013 $20M) .....+$20.0M
The increase reflects the initial year of funding for a new Hub that will address the critical issues and barriers associated modernization of the electric grid.

Clean Energy Transmission and Reliability (FY 2012 $25.4M; FY 2013 $24M) .....-$1.4M
Supports continued efforts to develop advanced transmission-driven technologies to improve grid reliability, efficiency, and security. Decrease primarily reflects the closeout of research activities focused on the integration of variable resources into the transmission system. The request continues the advancement of modeling and computational capabilities needed to transform the tools and algorithms that underpin electric system function to improve grid planning and operations.

Smart Grid Research and Development (FY 2012 $23.9M; FY 2013 $14.4M) .....-$9.5M
Supports ongoing research targeted to modernization of the electric system at the distribution level. The decrease reflects the closeout of funding for power electronics research, consistent with the Department's shift in emphasis from applied research in power electronics for grid-scale applications to focus on current device compositions and foundational research carried out by ARPA-E and the Office of Science. It also reflects reduced funding for microgrid research, and scaled back research into smart charging of electric vehicles, integration of distributed energy resources and standards development, and communication and control technologies.

Energy Storage (FY 2012 $19.9M; FY 2013 15.0M)..... -$4.9M
Continues efforts to lower the cost and improve the performance of energy storage technologies for utility-scale applications. The reduction results from discontinuation of projects on Na-ion batteries and low cost, long life Li-ion batteries for community energy storage, and greater leveraging of State funding and collaboration with other DOE offices.

Permitting, Siting and Analysis (FY 2012 $7.0M; FY 2013 $6.0M) .....-$1.0M
Supports continued efforts to assist states, regional entities, and tribes to facilitate the development of reliable and affordable electricity infrastructure, as well as regulatory responsibilities for electric energy exports and international transmission permits. The decrease reflects an increase in FY 2012 to support enhanced collaborative efforts with states, regional entities, and tribes on advanced transmission systems and market approaches, and a one-time litigation settlement.

Environmental Management

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Defense Environmental Cleanup	4,991,065	5,006,331	5,494,124	+487,793	+9.7%
Non-Defense Environmental Cleanup	226,006	235,306	198,506	-36,800	-15.6%
Uranium Enrichment D&D Fund	506,984	472,180	442,493	-29,687	-6.3%
UED&D Transfer Payment	-33,633	0	-463,000	-463,000	N/A
Subtotal, Environmental Management	***5,690,422***	***5,713,817***	***5,672,123***	***-41,694***	***-0.7%***
Adjustments	-22,700	-3,381	-22,123	N/A	N/A
Total, Environmental Management	**5,667,722**	**5,710,436**	**5,650,000**	**-60,436**	**-1.1%**

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.

PROGRAM HIGHLIGHTS

The FY 2013 EM budget request totals $5.65 billion, approximately level with the FY 2012 enacted amount. The request funds three appropriations accounts: Defense Environmental Cleanup (FY 2012 $5.006 billion; FY 2013 $5.494 billion); Non-Defense Environmental Cleanup (FY 2012 $235 million; FY 2013 $199 million); and Uranium Enrichment Decontamination and Decommissioning Fund (FY 2012 $472 million; FY 2013 $443 million). The request includes the use of $12.1 million in prior year uncosted balances and $10 million in prior year unobligated balances to offset ongoing mission work in the EM program. The request also includes a $463 million net neutral transfer from Defense Environmental Cleanup to the Uranium Enrichment Decontamination and Decommissioning Fund.

This funding level ensures that EM can position itself to meet its FY 2013 enforceable environmental compliance milestones. The FY 2013 budget request supports the operation of one facility at Idaho and construction of two unique and complex tank waste processing plants at the Savannah River Site and Office of River Protection to treat approximately 88 million gallons of radioactive tank waste for ultimate disposal. Combined, these facilities have an estimated construction cost of $14.2 million and represent one of the primary risk and cost drivers in the program. The FY 2013 budget request will also fund the solid waste disposal infrastructure needed to support disposal of transuranic and low-level wastes generated by high-risk activities, footprint reduction, soil and groundwater remediation, and decontamination and decommissioning activities.

Defense Environmental Cleanup

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Closure Sites	175	4,703	1,990	-2,713	-57.7%
Hanford Sites	967,197	950,043	963,323	+13,280	+1.4%
Idaho National Laboratory	398,666	384,669	399,607	+14,938	+3.9%
NNSA Sites and Nevada Off-sites	309,041	281,993	334,268	+52,275	+18.5%
Oak Ridge Reservation	152,136	198,409	181,495	-16,914	-8.5%
Office of River Protection	1,134,197	1,181,800	1,172,113	-9,687	-0.8%
Savannah River Sites	1,172,384	1,187,782	1,181,516	-6,266	-0.5%
Waste Isolation Pilot Plant	215,714	213,334	198,010	-15,324	-7.2%
Program Direction	320,007	321,628	323,504	+1,876	+0.6%
Program Support	21,101	20,380	18,279	-2,101	-10.3%
Safeguards and Security	247,945	250,968	237,019	-13,949	-5.6%
Technology Development	18,869	10,622	20,000	+9,378	+88.3%
Uranium Enrichment D&D Fund Contribution	33,633	0	463,000	+463,000	N/A
Subtotal, Defense Environmental Cleanup	***4,991,065***	***5,006,331***	***5,494,124***	***+487,793***	***+9.7%***
Adjustments	-11,900	-3,381	-22,123	N/A	N/A
Total, Defense Environmental Cleanup	**4,979,165**	**5,002,950**	**5,472,001**	**+469,051**	**+9.4%**

PROGRAM DESCRIPTION

The FY 2013 request for the Defense Environmental Cleanup appropriation is $5.47 billion, approximately $470 million above the enacted FY 2012 levels. 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 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, the Hanford Reservation, the Savannah River Site, the Waste Isolation Pilot Plant (WIPP), Other Sites such as Rocky Flats and the legacy cleanup at National Nuclear Security Administration (NNSA) sites.

SIGNIFICANT FUNDING CHANGES – FY 2012 Appropriation to FY 2013 Request ($ in millions)

Other Sites (FY 2012 $4.7; FY 2013 $2.0) .....-$2.7
Responsibility for post-closure administration at Rocky Flats, including ongoing litigation support for two legal suits.

Hanford Site (Richland) (FY 2012 $950.0; FY 2013 $963.3) ..... +13.3
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.

At Richland, progress will continue to be made along the River Corridor. EM will complete interim response actions for the 100 N Area, complete interim remedial actions for the 300-FF-2 waste sites, complete removal and/or remedial actions for thirteen high priority facilities in the 300 Area, complete K-West Basin debris removal and complete the T-Plant modifications for storage of the K Basin sludge. In addition, the request supports continuing progress towards deactivation and decommissioning of facilities in the Plutonium Finishing Plant complex, commencing construction of the sludge transfer system, placement of KE Reactor in Interim Safe Storage, field remediation in the K Reactor Areas, and obtaining a final Record of Decision for the 100 and 200 Areas. These efforts are aimed at reducing the Richland site cleanup footprint by approximately 90 percent by FY 2015.

The Fiscal Year 2013 request increases the levels for deactivation and decontamination activities at the Plutonium Finishing Plant ($+22.6M); supports increased K-West Basin activities for the Spent Nuclear Fuel-Stabilization and Disposition Project (+$3.0M), and supports mission critical infrastructure upgrades, replacements and repairs (+$12.5M). This request decreases the Nuclear Facility Deactivation and Decommissioning Projects due to the completion of interim remedial actions in the 100 and 300 Areas (-$8.4M) and completion of new groundwater pump and treatment systems (-$4.4M). In addition, the request decreases the levels for community and Regulatory Support for emergency preparedness grants, environmental oversight activities, and county payments in lieu of taxes (-$4.4M), and reduces support for waste management operations (-$7.7M).

Office of River Protection (FY 2012 $1,181.8; FY 2013 $1,172.1) .....-$9.7
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 177 underground storage tanks at Hanford. Funding for the Office of River Protection activities is funded in three control points: two for Waste Treatment and Immobilization Project ($690.0M) and one for Tank Farm Activities ($482.1M).

At the Office of River Protection Site, the FY 2013 request will support continued construction of the Waste Treatment and Immobilization Plant. As of November 2011, the Waste Treatment and Immobilization Plant construction is approximately 62 percent complete. Additionally, the request provides increased funding critical for tank farm infrastructure upgrades and waste feed delivery projects in support of hot operations for the Waste Treatment and Immobilization Plant.

At the Office of River Protection Site, the FY 2013 request includes $690 million for the Waste Treatment and Immobilization Plant. Following the most recent construction project review, a rebaseline effort is underway in FY 2012 and should be completed later this fiscal year. Upon completion the new baseline will be available for an external independent review (estimated to take about three months). The results will be reported to the DOE Acquisition Executive and Congress. In addition, in FY 2013 the request provides increased funding critical for tank farm infrastructure upgrades, waste feed delivery projects, and large-scale integrated testing to provide required systems for start-up commissioning of hot operations for the Waste Treatment and Immobilization Plant.

Idaho National Laboratory (FY 2012 $384.7; FY 2013 $399.6) .....+$14.9
The Idaho Cleanup Project is responsible for the treatment, storage and disposition of a variety of radioactive and hazardous waste streams, removal and disposition of targeted buried waste, protection of the Snake River Plain Aquifer, removal or deactivation of unneeded facilities, and the removal of DOE's inventory of spent (used) nuclear fuel and high level waste from Idaho.

The FY 2013 request supports operations of the Sodium Bearing Waste treatment facility at Idaho. Testing and readiness verification will be completed by the end of the first quarter of FY 2012 in preparation for hot startup in the second quarter of FY 2012. This project will treat approximately 900,000 gallons of sodium bearing waste stored in tanks that are 35 to 45 years old. The treatment of this waste will enable EM to close the final four tanks, complete treatment of all liquid tank waste at Idaho, and meet the Notice of Noncompliance – Consent Order Modification to cease use of the Tank Farm Facility by December 31, 2012.

Additionally, Idaho's request will support requirements of the Idaho Settlement Agreement to dispose of remote-handled low-level waste at the Radioactive Waste Management Complex and mixed low-level waste at appropriate off-site disposal facilities; and characterize and certify remote-handled transuranic waste at the Idaho Nuclear Technology and Engineering Center in preparation for shipment to the Waste Isolation Pilot Plant. The request will provide for shipping stored contact-handled transuranic waste to the Waste Isolation Pilot Plant using the Advanced Mixed Waste Treatment Facility.

The FY 2013 request is a 4 percent increase over the FY 2012 enacted level and includes decreases for Spent (used) Nuclear Fuel by retrieving less EBR-II fuel (-$7.5M), Solid Waste Stabilization and Disposition (-$.6M), and Radioactive Liquid Tank Waste Stabilization and Disposition -- treatment of sodium bearing waste will be complete in early FY 2013 (-$44.8M), and Idaho Community and Regulatory Support (-$1.1M). These decreases are offset by an increase for Soil and Water Remediation to allow the retrieval of buried waste and shipment activities to be returned to the base program from the American Recovery and Reinvestment Act (+$68.9M).

NNSA Sites (FY 2012 $282.0; FY 2013 $334.3) .....+$52.3
The request provides for cleanup of the legacy of environmental contamination and waste at National Nuclear Security Administration (NNSA) sites. Included are Los Alamos National Laboratory ($239.1M), Lawrence Livermore National Laboratory ($1.5M), Nevada National Security Site and the Nevada Test and Training Range ($64.6M), and Separations Process Research Unit in New York ($24.0M).

Los Alamos National Laboratory reflects an increase (+$50.6M) in FY 2013. This increase positions EM to aggressively pursue cleanup at LANL in accordance with the Consent Order while working with regulators to facilitate cleanup as quickly as possible. The FY 2013 request is a 27 percent increase over the FY 2012 enacted level and includes the following increases: Solid Waste Stabilization and Disposition- to expedite the de-inventory and disposal of above ground transuranic waste (+$36.5M); Soil and Water Remediation- to meet increased enforceable agreement milestones (+$13.4M); and Miscellaneous Programs and Agreements in Principle (+$.7M).

Lawrence Livermore National Laboratory request reflects an increase of (+$.6M) to ensure regulatory compliance requirements associated with Building 812-Firing Table.

Nevada National Security Site and the Nevada Test and Training Range request supports the operation of the low-level waste disposal facility and ongoing characterization and remediation activities. The decrease (-$.9M) is primarily driven by a reduction in the number of investigation activities for soil contamination sites.

Separations Process Research Unit request is the same as the FY 2012 current level. DOE is currently evaluating a path forward that may indicate completion of demolition later than FY 2013, due to poor contractor performance, impacts from Hurricane Irene, and enclosure design changes which prevented the project from being decontamination and decommissioning ready in FY 2011.

Oak Ridge Reservation (FY 2012 $198.4; FY 2013 $181.5) ..... -$16.9
In FY 2013, Oak Ridge will support continued base operations at the East Tennessee Technology Park to provide infrastructure support for decontamination and decommissioning of excess facilities and remediation of contaminated sites at the former gaseous diffusion plant to meet Federal Facility Agreement milestones and safety requirements. The FY 2013 request also funds continued demolition of the East Wing of Building K-25 which is the highest priority activity at Oak Ridge. In FY 2012, the operation of the Transuranic Waste Processing Center will transfer from the American Reinvestment Recovery Act program back into the base program and will allow EM to continue processing contact-handled and remote-handled transuranic waste in order to meet the Site Treatment Plan milestone in preparation for certification, shipment, and disposal at the Waste Isolation Plant Project. U-233 direct disposition activities will be initiated in FY 2012 and continue into FY 2013. Finally, this request will maintain Building 3019 in a safe and operating condition.

The FY 2013 request is an 8.5 percent decrease compared to the FY 2012 enacted level. The request reflects a realignment from PBS OR-0011Z (-$37.0M) to PBS OR-0013B; increase of waste management activities for direct disposition scope for U-233 material (+$23.6M); and increase at the Oak Ridge National Laboratory to focus more on decontamination and decommissioning activities (+$1.9M). These increases are offset by decreases in anticipated efficiencies of waste operations at the Y-12 National Security Complex (-$3.5M) and a decrease in Community and Regulatory Support (-$1.9M).

Savannah River (FY 2012 $1,187.8; FY 2013 $1,181.5) ..... -$6.3
At the Savannah River Site, the largest portion of the request supports the Tank Waste Liquid Waste Management Program, which includes the operation of the Defense Waste Processing Facility, as well as, operation of the Actinide Removal Process and Modular Caustic Side Extraction units. These units will be needed through construction of the Salt Waste Processing Facility. The request also supports the operations of the Saltstone Facility. In addition, the request supports continued construction of Saltstone Disposal Units 3 and 5 and the Salt Waste Processing Facility.

In FY 2012, H Canyon will be transitioned to a modified operational mode. Plutonium that does not meet the criteria for disposition via the National Nuclear Security Administration (NNSA) mixed-oxide fuel program will be packaged for disposition to the Waste Isolation Pilot Plant. Feed fuel for the MOX Facility will be processed in the H Canyon. The site will also continue to support the Global Threat Reduction Initiative through continued receipt of foreign and domestic research reactor spent (used) nuclear fuel.

The FY 2013 request is a 0.5 percent decrease from the FY 2012 enacted level and provides for a decrease in the last year of funding for the Salt Waste Processing Facility by $147.5M and a decrease for the Glass Waste Storage Building project by $3.5M. These decreases are offset by a number of increases for Radioactive Liquid Tank Waste Stabilization and Disposition-2035 for increased tank farm operations (+$33.3M), Community and Regulatory Support increased state regulatory oversight (+$7.0M), NM Stabilization and Disposition increased nuclear fuel operations (+$40.6M), SNF Stabilization and Disposition reduced treasury receipt for foreign fuel receipts (+$4.3M), Solid Waste Stabilization and Disposition increased waste disposition (+$38.3M), and Soil and Water Remediation additional environmental compliance requirements (+$21.3M).

Waste Isolation Pilot Plant (FY 2012 $213.3; FY 2013 $198.0) ..... -$15.3
Funding supports the National Transuranic Waste Program, managed by Carlsbad Field Office, which includes the operation of the Waste Isolation Pilot Plant, designated as the national repository for defense-generated transuranic waste, near Carlsbad, New Mexico. The FY 2013 request is a 7.2 percent decrease over the FY 2012 enacted level and provides decreases for: cost efficiencies through privatization of mobile loading teams performing Central Characterization Project activities at TRU Waste Sites (-$15.1M); decreases in reduced transportation services, consistent with the closure of small quantity sites; and cost efficiencies at the remaining TRU Waste Sites performing characterization activities (-$18.2M). These decreases are offset by an increase to operate the facility (+$18.0M).

Program Direction (FY 2012 $321.6; FY 2013 $323.5) .....+$1.9
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 1,518 FTEs; 1,030 FTEs in field offices, 322 FTEs in Headquarters, and 166 FTEs at the EM Consolidated Business Center.

Safeguards and Security (FY 2012 $251; FY 2013 $237.0) ..... -$13.9
The FY 2013 request ensures 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. The FY 2013 request is a 6 percent decrease below the FY 2012 enacted level and provides for more efficient security response strategies (-$1.7M), funding efficiencies achieved with the return of the gaseous diffusion plant to DOE's control from USEC (-$7.8M); decreases achieved through protective force program optimization (-$8.0M); offset by an increase for site administrative fees within the Mission Support Alliance site services contract (+$2.7M) and other miscellaneous adjustments (+$0.9M).

Technology Development and Deployment (FY 2012 $10.6; FY 2013 $20.0) ..... +$9.4
EM has requested $20.0 million in technology development and deployment funding in FY 2013. This program provides key investments in short and long-range research and development projects focused on reducing the cost and schedule contract of high priority cleanup issues. This research is aimed at improving the technical maturity for current baseline technologies; develop cost-effective transformational alternative technologies and improving ongoing next-generation technologies for insertion into program projects. The results of this research and development will address technology gaps and reduce technical uncertainty in the EM program while reducing the life-cycle cost of cleanup.

The FY 2013 request is an 88.2 percent increase from the FY 2012 enacted level and provides for additional research investments for Nuclear Materials Disposition, Tank Waste, and Deactivation and Decommissioning.

Non-Defense Environmental Cleanup

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Fast Flux Test Reactor Facility (WA)	3,652	2,703	2,704	+1	0%
Gaseous Diffusion Plants	99,302	100,438	90,109	-10,329	-10.3%
Small Sites	65,386	67,430	57,831	-9,599	-14.2%
West Valley Demonstration Project	57,666	64,735	47,862	-16,873	-26.1%
Subtotal, Non-Defense Environmental Cleanup	***226,006***	***235,306***	***198,506***	***-36,800***	***-15.6%***
Adjustments	-900	0	0	N/A	N/A
Total, Non-Defense Environmental Cleanup	**225,106**	**235,306**	**198,506**	**-36,800**	**-15.6%**

PROGRAM DESCRIPTION

The FY 2013 request for the Non-Defense Environmental Cleanup appropriation is $198.5 million, a decrease of $36.8 million from FY 2012. 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 2012 Enacted to FY 2013 Request ($ in millions)

West Valley Demonstration Project (FY 2012 $64.7; FY 2013 $47.9 ..... -16.9
This project includes solid waste stabilization and disposition, and nuclear facility decontamination and decommissioning activities at West Valley, New York. The FY 2013 request supports continued processing and disposal of legacy and remediation low-level waste and storage of legacy and remediation transuranic waste.

Gaseous Diffusion Plants (FY 2012 $100.4; FY 2013 $90.1) ..... -$10.3
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 2012 $52.3; FY 2013 $40.8) ..... -$11.5
The FY 2013 request supports maintaining the DUF6 Conversion Facility operations at full capacity. Decrease reflects reduction due to deferral of off-site disposition of converted uranium.

Portsmouth (FY 2012 $48.1; FY 2013 $49.3) ..... +$1.2
The FY 2013 request supports operation of the DUF6 Conversion Facility at full capacity.

Fast Flux Test Reactor Facility (FY 2012 $2.7; 2013 $2.7) ..... +$0.0

The FY 2013 request supports site wide services of general utilities, fire department and analytical services.

Small Sites (FY 2012 $67.4; FY 2013 $57.8) ..... -$9.6
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.

Brookhaven National Laboratory (FY 2012 $9.6; FY 2013 $7.8) ..... -$1.8
The FY 2013 request will support surveillance and maintenance activities for the Soil and Water Remediation Project during FY 2013 and in FY 2014 will initiate the transfer back to the Office of Science.

Idaho National Laboratory (FY 2012 $5.1; FY 2013 $5.8) ..... +$0.7
The FY 2013 request provides for ongoing stewardship of spent nuclear fuel from Three Mile Island and Fort Saint Vrain. The increase allows for implementation of the Nuclear Regulatory Commission license renewal for Ft. Saint Vrain.

Energy Technology Engineering Center (FY 2012 $9.6; FY 2013 $9.5) ..... -$0.1
The FY 2013 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 2012 $31.0; FY 2013 $30.9) ..... -$0.1
FY 2013 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.

Stanford Linear Accelerator Center (FY 2012 $2.4; FY 2013 $3.8) ..... +$1.4
This project scope includes remediation of chemical contamination of soil and groundwater resulting from decades of physics research at the site. FY 2013 activities include operation of groundwater treatment systems and soil remediation. EM will support surveillance and maintenance activities during FY 2013 and in FY 2014 will initiate the transfer back to the Office of Science.

Uranium Enrichment Decontamination and Decommissioning Fund

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Uranium Enrichment Decontamination and Decommissioning					
Oak Ridge	231,706	200,856	207,798	+6,942	+3.5%
Paducah	83,506	81,357	90,142	+8,785	+10.8%
Portsmouth	191,772	189,967	127,038	-62,929	-33.1%
Pension and community and regulatory support	0	0	17,515	+17,515	N/A
Subtotal, Decontamination and Decommissioning	***506,984***	***472,180***	***442,493***	***-29,687***	***-6.3%***
Adjustments	-9,900	0	0	N/A	N/A
Total, Uranium Enrichment D&D Fund	**497,084**	**472,180**	**442,493**	**-29,687**	**-6.3%**

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 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 2013 is $442.5 million.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Decontamination and Decommissioning (FY 2012 $472.2; FY 2013 $442.5) .....-$29.7
The 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) (FY 2012 $200.9; FY 2013 $207.8)..... +$6.9
The FY 2013 request focuses on maintaining compliance with the ETTP, (formerly K-25), safety basis requirements and continuing demolition of the K-25 process building. Increase reflects acceleration of demolition activities in the East Wing of the K-25 Building and associated waste disposal.

Paducah (FY 2012 $81.4; FY 2013 $90.1) .....+$8.7
FY 2013 request supports continued landfill operations, pump and treat operations, remediation of groundwater, and demolition of C-340 and C-410 complexes. Increase reflects the selection and implementation of a different remedy for the trichloroethylene contamination in the regional groundwater aquifer by the C-400 facility which supports the landfill operations.

Portsmouth (FY 2012 $190.0; FY 2013 $127.0) .....-$62.9
The FY 2013 request supports ongoing gaseous diffusion plant decontamination and decommissioning and increased disposal of low-level waste associated with those activities. Decrease reflects a reduction of deactivation and decommissioning activities in Buildings X-330, X-333 and other site facilities as well as a completion of disposition of uranium materials.

Legacy Management

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Legacy Management	159,117	157,514	164,477	+6,963	+4.4%
Program Direction	12,504	12,086	13,469	+1,383	+11.4%
Subtotal, Office Of Legacy Management	**171,621**	**169,600**	**177,946**	**+8,346**	**+4.9%**
Adjustments	-748	0	0	N/A	N/A
Total, Office Of Legacy Management	**170,873**	***169,600**	**177,946**	**+8,346**	**+4.9%**

* This amount does not include use of $12M in office of Environmental Management (EM) unobligated prior year funding.

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 postretirement benefit continuity for contractor retirees. The FY 2013 budget request of $178 million supports these activities.

PROGRAM HIGHLIGHTS

The FY 2013 request provides $178 million to carry out all legacy management functions. In FY 2013, this includes post closure responsibility for long-term stewardship activities at 91 sites and pension and postretirement benefit claims for former contractor employees at 8 sites.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Other Defense Activities

Legacy Management (FY 2012 $157.5; FY 2013 $164.5) .....+$7.0
The increased funding reflects the payment during FY 2013 of the full cost of pensions and postretirement benefits for contractor employees from the Mound site (FY 2012 included a one-time use of $12 million of prior year balances from the Office of Environmental Management for the Mound, Ohio site). These increased payments will be partially offset by reduced cost estimates for pensions and postretirement benefits.

Program Direction (FY 2012 $12.1; FY 2013 $13.5) ..... +$1.4
The funding level reflects the addition of Federal staff to manage additional site responsibility and increase payments to the working capital fund. Legacy Management is in the process of recertifying its 5 year designation as a High Performing Organization.

Nuclear Energy

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Nuclear Energy Enabling Technologies	50,891	74,670	65,318	-9,352	-12.5%
Integrated University Program	0	5,000	0	-5,000	N/A
Light Water Reactor Small and Modular Reactor Licensing Technical Support	0	67,000	65,000	-2,000	-3.0%
Reactor Concepts RD&D	164,706	114,871	73,674	-41,197	-35.9%
Fuel Cycle R&D	182,428	186,260	175,438	-10,822	-5.8%
International Nuclear Energy Cooperation	2,994	2,983	3,000	+17	+0.6%
Radiological Facility Management	51,715	69,510	51,000	-18,510	-26.6%
Idaho Facilities Management	183,604	154,097	152,000	-2,097	-1.4%
Idaho Sitewide Safeguards and Security	0	0	95,000	+95,000	N/A
Program Direction	86,279	91,000	90,015	-985	-1.1%
Subtotal, Nuclear Energy	***722,617***	***765,391***	***770,445***	***+5,054***	***+0.7%***
Adjustments	-4,800	0	0	N/A	N/A
Subtotal, Nuclear Energy	***717,817***	***765,391***	***770,445***	***+5,054***	***+0.7%***
Other Defense Activities					
Idaho Sitewide Safeguards and Security	88,752	93,350	0	-93,350	-100.0%
Adjustments	-573	0	0	N/A	N/A
Subtotal, Other Defense Activities	***88,179***	***93,350***	***0***	***-93,350***	***-100.0%***
Total, Nuclear Energy	**805,996**	**858,741**	**770,445**	**-88,296**	**-10.3%**

The **Office of Nuclear Energy (NE)** was funded in two accounts within the Energy and Water Development Appropriation: Nuclear Energy and Other Defense Activities. Starting in FY 2013 all Office of Nuclear Energy funding is requested within the Energy and Water Development Appropriation. DOE is requesting a total of $770.4 million for NE activities in FY 2013. Within this amount, the Department is requesting that $10 million be appropriated from the Nuclear Waste Fund.

PROGRAM DESCRIPTION

NE conducts research and development activities for 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 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 avoiding greenhouse gas emissions.

The suite of technologies pursued by NE are designed to support the development of advanced reactor designs and technologies and advanced fuel cycle technologies. This includes a program that is engaging in cost-shared activities with industry that may help accelerate commercial deployment of small modular reactors. Additional activities in NE's R&D programs will help 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 2013 request supports the development of new nuclear technologies and advanced proliferation-resistant nuclear fuel and waste management technologies, and maintains national nuclear capabilities to meet future challenges.

The **SMR Licensing Technical Support** program ($65.0 million) supports first-of-a-kind engineering support for design certification and licensing activities for Small Modular Reactors (SMR) through cost-shared arrangements with industry partners. This program may help accelerate the commercialization of these SMRs and if so, help meet energy security and climate change goals.

The **Reactor Concepts RD&D** program ($73.7 million) supports research, development and where appropriate demonstration for a diverse set of advanced fission power systems capable of producing electricity (MWe) and generating high temperature process heat (BTUs) sustainably and economically. Reactor Concepts include advanced SMRs, high temperature gas cooled reactors under the Next Generation Nuclear Plant (NGNP) Demonstration Project, and other advanced reactor concepts. RD&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 ($175.4million) supports a suite of technology options that will enable future decision makers to make informed decisions about how best to manage nuclear waste and used fuel from reactors. The program employs a long-term, science-based approach to foster innovative, transformational technology solutions to achieve this mission. This program includes $60 million for continued R&D to enable storage, transportation, and disposal of used nuclear fuel and all radioactive wastes. This work also aligns with recommendations made in the January 2012 report by the Blue Ribbon Commission on America's Nuclear Future.

The **Nuclear Energy Enabling Technologies** program ($65.3 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 focuses on a variety of areas such as reactor materials, creative approaches to further reduce proliferation risks, and establishing advanced modeling and simulation capabilities to complement physical experimentation. The Modeling and Simulation Energy Innovation Hub applies existing modeling and simulation capabilities to create a "virtual" reactor user environment to simulate an operating reactor and is a prime example of the type of crosscutting, transformative activity that will enhance many research areas within NE. The National Scientific User Facility promotes the use of unique nuclear research facilities for university, industry and national laboratory collaboration research.

The **Radiological Facilities Management** program ($51.0 million) maintains the infrastructure and capabilities to provide radioisotope power systems for space exploration missions and potential future national security applications. This program also supports the continued operation of U.S. research reactors by providing research reactor fuel services and maintenance of fuel fabrication equipment.

The **Idaho Facilities Management** program ($152.0 million) supports 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, as well as managing all special nuclear materials contained in these facilities.

The **Idaho Site-Wide Safeguards and Security** program ($95.0 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 ($90.0 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 ($3.0 million) serves as the Office of Nuclear Energy's (NE) overall lead for all NE international activities, including analysis, development, and implementation of international civil nuclear energy policy and coordination and integration of NE's international nuclear technical activities.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Integrated University Program (FY 2012 $5.0; FY 2013 $0) .....-$5.0
This program is not continued in FY 2013.

Reactor Concepts RD&D (FY 2012 $114.9; FY 2013 $73.6) .....-$41.2
The Reactor Concepts RD&D program will carry on activities previously funded under the Generation IV Nuclear Energy Systems program, including the NGNP 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 R&D on advanced SMR's.

Fuel Cycle R&D (FY 2012 $186.3; FY 2013 $175.4).....-$10.8
The majority of the decrease reflects a one-time activity funded in FY 2012 to initiate a multi-year effort in assessing issues related to the aging and safety of storing used nuclear fuel; related activities beyond FY 2012 will be funded within Used Nuclear Fuel Disposition. In addition, some of the decrease reflects a revised focus on a spectrum of fuels to support the NE Accident Tolerant Fuel Initiative. This program includes $60 million for continued R&D to enable storage, transportation, and disposal of used nuclear fuel and all radioactive wastes. This work also aligns with recommendations made by in the January 2012 report by the Blue Ribbon Commission on America's Nuclear Future.

Nuclear Energy Enabling Technologies (FY 2012 $74.7; FY 2013 $65.3).....-$9.4
The 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 at a reduced level. 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 2012 $69.5; FY 2013 $51.0).....-$18.5
Net decrease reflects completion of infrastructure activities at Oak Ridge National Laboratory.

Idaho Facilities Management (FY 2012 $154.1; FY 2013 $152.0) .....-$2.1
Decrease primarily reflects the completion of activities to improve accident response and defense in depth at Idaho National Laboratory (INL) nuclear facilities Priorities for IFM will focus on a long-term sustainment model for R&D needs, consistent with the DOE Strategic Plan and Roadmap.

Idaho Sitewide Safeguards and Security (FY 2012 $93.4; FY 2013 $95.0) ..... +$1.6
The FY 2013 request transfers the Idaho Sitewide Safeguards and Security account from Other Defense Activities to the Nuclear Energy Appropriation. The Increase reflects adjustments for the INL five year protective force wage agreement negotiated in October 2010, protective force equipment and investments for critical physical security systems equipment life-cycle replacement.

Fossil Energy

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted[1]	FY 2013 Request	FY 2013 vs. FY 2012 $	FY 2013 vs. FY 2012 %
Fossil Energy Research and Development	434,052	346,703	420,575	+73,872	+21.3%
Naval Petroleum and Oil Shale Reserves	20,854	14,909	14,909	0	N/A
Strategic Petroleum Reserve	123,141	192,704	195,609	+2,905	+1.5%
Northeast Home Heating Oil	10,978	10,119	4,119	-6,000	-59.3%
Elk Hills - California Teachers' Pension Fund Settlement	0	0	15,580	+15,580	N/A
Adjustments	-16,500				
Total, Fossil Energy	**572,525**	**564,435**	**650,792**	**+86,357**	**+15.3%**

[1] FY 2012 Enacted has been adjusted to reflect that $600M ($500M Strategic Petroleum Reserve, $100M Northeast Home Heating Oil) was rebased as mandatory after enactment.

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 and Oil Shale Reserves. Each of these activities is in a separate appropriation account.

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012 $	FY 2013 vs. FY 2012 %
Coal	389,688	368,395	275,869	-92,526	-25.1%
Natural Gas Technology	0	14,991	17,000	+2,009	+13.4%
Unconventional FE Technology	0	4,997	0	-4,997	N/A
Program Direction	164,725	119,929	115,753	-4,176	-3.5%
Plant and Capital Equipment	19,960	16,794	13,294	-3,500	-20.8%
Fossil Energy Environmental Restoration	9,980	7,897	5,897	-2,000	-25.3%
Special Recruitment Programs	699	700	700	0	0
Subtotal, Fossil Energy Research and Development	***585,052***	***533,703***	***428,513***	***-105,190***	***-19.7%***
Adjustments	-151,000	-187,000	-7,938	N/A	N/A
Total, Fossil Energy Research & Development	**434,052**	**346,703**	**420,575**	**+73,872**	**+21.3%**

PROGRAM DESCRIPTION

The mission of the **Fossil Energy Research and Development** (FER&D) program is to create technology and technology-based policy options having public benefit through 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. FER&D will also address concerns associated with shale gas development and investigate natural gas hydrates as a potential fossil fuel source.

The **CCS Demonstrations Program** enables and accelerates the deployment of advanced carbon capture and storage (CCS) technologies to ensure clean, reliable, and affordable electricity for the United States. The Clean Coal Power Initiative (CCPI) is a cost-shared partnership between the government and industry to develop and demonstrate advanced coal-based power generation technologies at the commercial scale. The 2013 budget request does not provide any demonstration funds, because these projects are already strongly supported through the 2009 American Recovery and Reinvestment Act (ARRA). ARRA provided $3.4 billion for CCS, of which $800 million supported CCPI demonstration projects.

The **Carbon Capture & Storage (CCS) and Power Systems** program directly supports the mission of FER&D by providing research to significantly reduce coal power plant emissions (including carbon dioxide (CO_2)) and substantially improve efficiency to reduce carbon emissions, leading to a viable near-zero atmospheric emissions coal energy system and supporting carbon capture and storage.

The **Carbon Capture** activity is focused on the development of post-combustion and pre-combustion CO_2 capture technology for new and existing power plants as well as industrial sources. Post-combustion CO_2 capture technology is applicable to pulverized coal (PC) power plants, which is the current standard industry technology for coal-fueled electricity generation. Pre-combustion CO_2 capture is applicable to gasification-based systems such as Integrated Gasification Combined Cycle (IGCC), a potential technology for future generation of electricity from coal-fueled plants.

The **Carbon Storage** activity advances safe, cost effective, permanent geologic storage of CO_2. Activities in this area were previously funded under the Greenhouse Gas Control activities. The technologies developed through the activity will be used to benefit the existing and future fleet of fossil fuel power generating facilities by reducing the cost-of-electricity impacts and providing protocols for CCS demonstrations as they are designed to capture, transport, store, and monitor the CO_2 injected in geologic formations and developing technologies for the beneficial utilization of CO_2. No funding is provided for reforestation or other terrestrial carbon sequestration.

The **Advanced Energy Systems** activity focus is on reducing the cost of gasification and enabling affordable CO_2 capture while increasing plant availability and efficiency and maintaining the highest environmental standards. The program supports gasification-related R&D to convert coal into ultra-clean synthesis gas (syngas) that can in turn be converted into chemicals, hydrogen, liquid fuels and electricity.

The **Crosscutting Research** activity serves as a crosscutting bridge between basic and applied research by fostering the development and deployment of innovative systems for improving efficiency and environmental performance through the research and development of instrumentation, sensors, and controls targeted at enhancing the availability of advanced power systems while reducing costs of advanced CCS and Power Systems. This program area also develops computation, simulation, and modeling tools focused on optimizing plant design and shortening developmental timelines.

The **Natural Gas Technologies** R&D program focuses on a collaborative priority research and development initiative by the Department of Energy, the Environmental Protection Agency, and the Department of the Interior's U.S. Geological Service to understand and minimize the potential environmental, health, and safety impacts of gas development through hydraulic fracturing (fracking). The program is also studying methane gas hydrates in the Arctic. The testing of this well will take place in 2012 and be completed in FY2013.

Strategic Petroleum Reserve

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Facilities development and operations	186,873	170,914	171,932	+1,018	+0.6%
Management for SPR operations	22,568	21,790	23,677	+1,887	+8.7%
Subtotal, Strategic Petroleum Reserve	***209,441***	***192,704***	***195,609***	***+2,905***	***+1.5%***
Adjustments	-86,300	0	0	N/A	N/A
Total, Strategic Petroleum Reserve	**123,141**	**192,704**	**195,609**	**+2,905**	**+1.5%**

The **Strategic Petroleum Reserve** (SPR) provides strategic and economic security against foreign and domestic disruptions in oil supplies via an emergency stockpile of crude oil. The program fulfills U.S. obligations under the International Energy Program, which avails the U.S. of International Energy Agency assistance through its coordinated energy emergency response plans, and provides a deterrent against energy supply disruptions. The FY 2013 budget provides for the management, maintenance, security, and operational readiness of the SPR's oil storage and distribution facilities, the degasification plant move from the Bryan Mound to West Hackberry site, and a capacity maintenance program to enable the SPR to regain the cavern volume lost to geologically induced cavern creep.

SPR Petroleum Account

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [1]	FY 2013 Request	FY 2013 vs. FY 2012 $	FY 2013 vs. FY 2012 %
Strategic Petroleum Reserve Cancellations	0	0	-291,000	N/A	N/A
Total, Strategic Petroleum Account	**0**	**0**	**-291,000**	**-291,000**	**N/A**

[1] FY 2012 Enacted has been adjusted to reflect that $500M was rebased as mandatory after enactment.

The **SPR Petroleum Account** funds all SPR petroleum inventory acquisitions, associated transportation costs, U.S. Customs duties, terminal throughput charges and other related miscellaneous costs. During an emergency drawdown and sale, the SPR Petroleum Account is the source of funding for the incremental costs of withdrawing oil from the storage caverns and transporting it to the point where purchasers take title. The SPR has storage capacity for 727 million barrels (MB) of oil. Mandatory budget authority of $3.2 billion was created by the emergency SPR Drawdown in 2011. The FY 2012 Omnibus Appropriations Act included a $500 million rescission of these balances. The FY 2013 budget proposes a $291 million rescission. The remaining balances will be used to repurchase about 27 MB of oil for the SPR, resulting in approximately a 723 MB SPR, and about 85 days of net oil import protection. The Budget also proposes repeal of authorities related to placement of the Department of the Interior's royalty in-kind oil into the SPR.

Northeast Home Heating Oil Reserve

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [1]	FY 2013 Request	FY 2013 vs. FY 2012 $	FY 2013 vs. FY 2012 %
Northeast Home Heating Oil	10,978	10,119	10,119	0	0
Subtotal, Northeast Home Heating Oil Reserve	***10,978***	***10,119***	***10,119***	***0***	***0***
Cancellations	0	0	-6,000	N/A	N/A
Total, Northeast Home Heating Oil Reserve	**10,978**	**10,119**	**4,119**	**-6,000**	**-59.3%**

[1] FY 2012 Enacted has been adjusted to reflect that $100M was rebased as mandatory after enactment.

In FY 2011, the **Northeast Home Heating Oil Reserve** (NEHHOR) completed the sale of all the high sulfur heating oil in commercial storage and awarded new contracts for commercial storage leases for one million barrels of ultra-low sulfur distillate (ULSD). Contracts were awarded in November 2011 for procuring 650,000 barrels. The remaining 350,000 barrels were solicited in the November timeframe, with estimated award in January FY 2012. The FY 2012 Omnibus Appropriations Act cancelled the net sale receipts. The FY 2013 budget continues operation of the Reserve, including the extension of the lease of commercial storage space, and proposes cancellation of $6 million in prior year unobligated balances.

Naval Petroleum and Oil Shale Reserves

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Naval Petroleum and Oil Shale Reserves	22,954	14,909	14,909	0	0
Adjustments	-2,100	0	0	N/A	N/A
Total, Naval Petroleum & Oil Shale Reserves	**20,854**	**14,909**	**14,909**	**0**	**0**

The **Naval Petroleum and Oil Shale Reserves** (NPOSR) will continue to work on environmental remediation at NPR-1. NPOSR will continue disposition activities, including environmental remediation, at NPR-3. NPR-3 will begin implementing the disposition plan prepared in FY 2012. Production facilities will remain operational as long as they remain economically viable. The program will continue Rocky Mountain Oilfield Testing Center (RMOTC) testing for 100% funds-in projects and projects wholly funded by EERE's Geothermal Technology Program. Environmental remediation of NPR-3 facilities will continue to facilitate the sale/disposition of the property in a manner consistent with an approved property sale/disposition plan. Final disposition of the property is estimated to occur in FY 2015.

Elk Hills School Land Fund

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Elk Hills - California Teachers' Pension Fund Settlement	0	0	15,580	+15,580	N/A
Total, Elk Hills	**0**	**0**	**15,580**	**+15,580**	**N/A**

The **Elk Hills School Land Fund** provides a source of compensation for the California State Teachers' Retirement System as a result of a settlement with the State of California with respect to its longstanding claim to title of two sections of land within NPR-1. In FY 2011, the Department and the State of California agreed on the final, last payment of $15,579,815. Funding for this payment is requested in the FY 2013 Budget.

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 2013 and through the Recovery Act, the Coal program continues 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, FutureGen, and Industrial CCS activities.

Strategic Petroleum Reserve **-** In 2011, DOE executed an SPR Drawdown of roughly 30 million barrels (MB) under an IEA Collective Action, reducing the current SPR petroleum stockpile to 696 MB. This SPR petroleum stockpile level provides approximately 82 days of net petroleum import protection. The FY 2013 budget includes funding for the degasification plant move from the Bryan Mound to West Hackberry site. The FY 2013 budget request maintains the operational readiness of the SPR to ensure a 4.25 million barrel per day drawdown rate.

Northeast Home Heating Oil Reserve **-** The FY 2013 budget request continues operation of the Reserve, including lease of commercial storage space for one million barrels of ultra low sulfur distillate to provide a short-term supplement to the Northeast systems' private supply of heating oil for deployment in the event of an emergency supply interruption.

Naval Petroleum and Oil Shale Reserves **-** In FY 2013, the NPOSR program will continue environmental closeout efforts, plus activities related to the settlement of ownership equity shares with the former unit partner in NPR-1, Chevron U.S.A., Inc. In April, 2011, the Department of Energy settled NPR-1 final equity with Chevron. Under the terms of settlement, Chevron paid $108,000,000 to the U.S. That, in turn, increased the net proceeds of the sale, and in August 2011, the Department and the State of California agreed to the final payment of $15,579,815 with respect to longstanding claims on two sections of "school lands" within the reserve. Payment is due to occur in FY 2013. The Department also operates the NPR-3 field and the Rocky Mountain Oilfield Testing Center (RMOTC). Since production costs at NPR-3 are expected to exceed oil revenues, production operations at NPR-3 are no longer economically viable, and by the end of FY 2012, a disposition plan will be developed for the sale or transfer of the property, which is estimated to occur in the FY 2015 timeframe. In the interim, the NPR-3 site facilities will be utilized by production and testing operations in order to maintain asset value, including incidental oil production associated with produced water needed for geothermal testing and other demonstrations of renewable energy technologies having oil field applications. These opportunities will be funded through 100% funds-in agreements from private sources and by fully funded EERE projects. Environmental remediation at NPR-3 will continue to facilitate the sale/disposition of the property in manner consistent with the intent of the sale/disposition plan.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to 2013 Request ($ in millions)

Fossil Energy Research and Development

Carbon Capture & Storage (CCS) and Power Systems

Carbon Capture (FY 2012 $68.9; FY 2013 $60.4) .....-$8.5

The decrease in funding (-$6.5) for *Post-Combustion* goes to a level sufficient to maintain focus on the current scope of activities while the decrease in funding (-$2) for *Pre-Combustion Capture Systems* represents program prioritization on post-combustion capture technology development. The program plans to achieve its pre-combustion capture targets later than previously projected.

Carbon Storage FY 2012 $115.4; FY 2013 $95.5).....-$19.9

A decrease in funding (-$16.2) for the *Regional Carbon Sequestration Partnerships* maintains funding for the Regional Partnerships and reduces the funding levels for small and large scale field tests. The decrease in funding (-$3.7) for *Geological Storage* gives greater priority to near-term research areas to meet goals for safe, permanent storage.

Advanced Energy Systems (FY 2012 $99.9; FY 2013 $55.2).....-$44.7

Advanced Combustion Systems (FY 2012 $15.9; FY 2013 $10.7) ..... -$5.2

The decrease in funding represents the shift in focus towards technologies that have potential benefits to both existing and new fossil-fueled power plants.

Gasification Systems (FY 2012 $39.0; FY 2013 $31.9) .....-$7.1

The decrease in funding represents the shift in focus towards technologies that have potential benefits to both existing and new fossil-fueled power plants.

Hydrogen Turbines (FY 2012 $15.0; FY 2013 $12.6) .....-$2.4

The decrease in funding represents the shift in focus towards technologies that have potential benefits to both existing and new fossil-fueled power plants.

Coal and Coal Biomass to Liquids (FY 2012 $5.0; FY 2013 $0.0) ..... -$5.0

No new activities are planned.

Solid Oxide Fuel Cells (FY 2012 $25.0; FY 2013 $0.0) ..... -$25.0

The program has prioritized near-term CCS technologies available for demonstration in the 2015 timeframe. As a result, 2013 funding for longer term Fuel Cell technologies has not been requested. SECA Core Technology R&D will complete existing work - no new Core Technology effort shall be initiated in 2013.

Crosscutting Research (FY 2012 $35.0; FY 2013 $35.0) ..... -$0.0

No funding change.

Natural Gas Technologies (FY 2012 $15.0; FY 2013 $17.0).....+$2.0

The increase in funding will be focused on a priority research and development initiative by the Departments of Energy, the Environmental Protection Agency, and the Department of the Interior's U.S. Geological Survey to understand and minimize the potential environmental, health, and safety impacts of shale gas development through hydraulic fracturing (fracking), including the key research recommendations received from the Subcommittee of the Secretary of Energy Advisory Board (SEAB).

Unconventional Fossil Energy Technologies (FY 2012 $5.0; FY 2013 $0).....-$5.0

No funding is being requested.

Program Direction (FY 2012 $119.9; FY 2013 $115.8)..... -$4.2

The decrease in funding reflects a reduction in FTEs, a mandatory civilian pay freeze, and a decrease in support services due to the government objective of reducing support services costs.

Plant and Capital Equipment (FY 2012 $16.8; FY 2013 $13.3).....-$3.5

The reduction in funding reflects a reprioritization that will permit continued support of an infrastructure compliant with safety, health and environmental regulations.

Environmental Restoration (FY 2012 $7.9; FY 2013 $5.9) .....-$2.0

The decrease in funding reflects a reprioritization that will permit continued support and oversight for federally mandated safety, health, and security programs

Strategic Petroleum Reserve

Strategic Petroleum Reserve (FY 2012 $192.7; FY 2013 $195.6) ..... +$2.9

The FY 2013 increase is attributable to movement of the degasification plant from the Bryan Mound to West Hackberry site, a capacity maintenance program, and an increased cavern remediation program. The increase is offset by no additional funding required for the Bayou Choctaw cavern replacement project and a reduction in security and power costs.

Elk Hills School Land Fund

Elk Hills School Land Fund (FY 2012 $0.0; FY 2013 $15.6).....+$15.6

It was necessary for DOE to settle NPR-1 final equity with Chevron before the final net proceeds from the sale of DOE's share of NPR-1 could be determined, and that has now been accomplished.

Innovative Technology Loan Guarantee Program

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Title 17 - Innovative Technology Loan Guarantee Program					
Administrative operations	38,000	38,000	38,000	0	0
Loan guarantee, offsetting collections	-38,000	-38,000	-38,000	0	0
S.1703 Appropriated Credit Subsidy					
Renewable or Efficient End-Use Tech	169,660	0	0	0	N/A
Total, Innovative Technology Loan Guarantee	**169,660**	**0**	**0**	**0**	**0**

PROGRAM DESCRIPTION:

The Loan Guarantee Program (LGP), as authorized under Title XVII of the Energy Policy Act of 2005, encourages early commercial use of new or significantly improved technologies in energy projects. Projects supported by DOE loan guarantees must avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; employ new or significantly improved technologies compared to commercial technologies in service in the United States at the time the guarantee is issued; and offer a reasonable prospect of repayment of the principal and interest on the guaranteed obligation.

Section 1703 of the Act authorizes DOE to provide loan guarantees for innovative clean energy projects in categories including renewable energy systems, advanced nuclear facilities, coal gasification, carbon sequestration, energy efficiency, and various other types of projects. Section 406 of the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5 (Recovery Act), amended the Loan Guarantee Program Office's (LGPO) authorizing legislation, by establishing Section 1705 as a temporary program for the rapid deployment of renewable energy and electric power transmission projects, as well as leading edge biofuels projects. The authority to enter into loan guarantees under Section 1705 expired on September 30, 2011.

PROGRAM HIGHLIGHTS:

The Loan Guarantee Program has committed or closed almost $27 billion in loan guarantees to support over 30 clean energy projects. These projects are projected to fund over 22,000 permanent and construction jobs across the United States. The Loan Guarantee Program's 20 power generation projects will produce nearly 30 million megawatt-hours of clean energy – enough to power over 3 million homes and avoid over 19 million metric tons of carbon dioxide annually.

In FY 2012-2013, the Loan Guarantee Program will focus on portfolio management and monitoring activities on the existing portfolio as well as originating new loan guarantees to utilize remaining loan authority in the nuclear power, front-end nuclear, fossil, and renewable and energy efficiency sectors.

SIGNIFICANT FUNDING CHANGES – FY12 Enacted to FY13 Request ($ in millions):

Loan Guarantee Programs Office (FY 2012 $38; FY 2013 $38) $0.0
The Department requests $0 in FY 2013 for the Innovative Technology Loan Guarantee Program, which is no change from the FY 2012 enacted budget. The Department requests $38 million for administrative expenses in FY 2013. These administrative expenses are expected to be offset by an estimated $38 million in collections from borrowers for a net zero appropriation. This represents no change from the FY 2012 enacted budget.

Advanced Technology Vehicles Manufacturing Loan Program

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Advanced Technology Vehicles Manufacturing Loan Program	9,978	6,000	9,000	+3,000	+50.0%
Total, Advanced Technology Vehicles Manufacturing Loan	**9,978**	**6,000**	**9,000**	**+3,000**	**+50.0%**

PROGRAM DESCRIPTION

Section 136 of the Energy Independence and Security Act of 2007 established the Advanced Technology Vehicles Manufacturing (ATVM) Loan Program, consisting of direct loans of up to $25 billion in total loan authority to support the development of advanced technology vehicles and associated components in the United States. The ATVM Loan Program evaluates the technical merit of the proposed advanced technology vehicles or qualifying components. Technical Program Factors such as economic development and diversity in technology, company, risk, and geographic location are also considered. In making loans to those manufacturers that have existing facilities, priority will be given to those facilities that are oldest or have been in existence for at least 20 years, even if such facilities are idle at the time of application. The program aims to help revitalize the auto industry and encourage the manufacture of environmentally responsible products through providing growth capital in an economic downturn.

PROGRAM HIGHLIGHTS

The ATVM Loan Program has committed over $8 billion to support five projects. These projects are projected to fund over 38,000 jobs in the United States and save approximately 281 million gallons of gasoline annually.

In FY 2012-2013, the ATVM Loan Program will focus on portfolio management and monitoring activities on the existing portfolio as well as originating new loans to utilize remaining loan authority and appropriated credit subsidy.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to 2013 Request ($ in millions)

Administrative Operations (FY 2012 $6.0; FY 2013 $9.0) ..... +$3.0
The Department requests $9 million, a $3 million increase over FY 2012 enacted levels, to cover administrative operations for the ATVM program, recognizing the need to meet demand by maintaining existing loan due diligence and monitoring capacity.

National Nuclear Security Administration

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Weapons Activities	6,865,775	7,214,120	7,577,341	+363,221	+5.0%
Defense Nuclear Nonproliferation	2,281,371	2,295,880	2,458,631	+162,751	+7.1%
Naval Reactors [1]	985,526	1,080,000	1,088,635	+8,635	+0.8%
Office of the Administrator	393,293	410,000	411,279	+1,279	+0.3%
Total, National Nuclear Security Administration	**10,525,965**	**11,000,000**	**11,535,886**	**+535,886**	**+4.9%**

[1] The Conference Report of H.R. 2055 Military Construction and Veterans Affairs, and Related Agencies Appropriations Act, 2012 established new funding controls for Naval Reactors: OHIO Replacement Reactor Systems Development, S8G Prototype Refueling, Naval Reactors Development, and Naval Reactors Operations and Infrastructure.

PROGRAM DESCRIPTION

The **National Nuclear Security Administration (NNSA)** is critical to ensuring the security and safety of our nation. The 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 around the world 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.

PROGRAM HIGHLIGHTS

NNSA is requesting a total of **$11.5 billion** in **FY 2013**, an increase of **$536 million** over the FY 2012 appropriation. NNSA is requesting program funds in four appropriation accounts: **Weapons Activities** (FY 2012 $7,214.1 million; FY 2013 $7,577.3 million); **Defense Nuclear Nonproliferation** (FY 2012 $2,295.9 million; FY 2013 $2,458.6 million); **Naval Reactors** (FY 2012 $1,080.0 million; FY 2013 $1,088.6 million), and **Office of the Administrator** (FY 2012 $410.0 million; FY 2013 $411.3 million).

The **Weapons Activities** request reflects an increase to meet the Administration's commitments to the programs and capabilities required to maintain a safe, secure, and effective nuclear stockpile. Increases are requested for Directed Stockpile Work for the B61 LEP and W78 life extension study and Readiness in Technical Base and Facilities to ensure the infrastructure is in place to execute the program mission. The **Defense Nuclear Nonproliferation** request is driven by the imperative for U.S. leadership in nonproliferation initiatives both here and abroad. Emphasis continues to be on efforts to secure vulnerable nuclear materials around the world, and domestic construction on the MOX Fuel Fabrication Facility. The **Naval Reactors** request reflects continued support for execution of three major projects (i.e., OHIO Replacement, Land-based Prototype Refueling Overhaul, and Spent Fuel Handling Recapitalization) which are needed to deliver Navy-established mission requirements. For **Office of the Administrator,** the request supports the staffing and Federal support needed to meet requirements in the programs.

The FY 2013 President's Request for the NNSA is a funding increase over the FY 2012 enacted level, reflecting the importance of the Presidential priorities in meeting the objectives of the Nuclear Posture Review, cooperative global nuclear nonproliferation, modernization of the nuclear complex, and the reactor design and development activities for the Navy's nuclear fleet. 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 further this goal by maintaining a safe, secure and effective arsenal to deter any adversary as long as nuclear weapons exist.

Weapons Activities – NNSA

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Directed Stockpile Work	1,905,078	1,873,694	2,088,274	+214,580	+11.5%
Science Campaign	366,167	332,958	350,104	+17,146	+5.1%
Engineering Campaign	142,010	142,636	150,571	+7,935	+5.6%
Inertial Confinement Fusion and High Yield Campaign	478,105	474,812	460,000	-14,812	-3.1%
Advanced Simulation and Computing Campaign	613,620	618,076	600,000	-18,076	-2.9%
Readiness Campaign	91,695	128,406	130,095	1,689	+1.3%
Readiness in Technical Base and Facilities	1,842,519	2,004,785	2,239,828	+235,043	+11.7%
Secure Transportation Asset	251,806	242,802	219,361	-23,441	-9.7%
Nuclear Counterterrorism Incident Response	232,503	220,969	247,552	+26,583	+12.0%
Facilities and Infrastructure Recapitalization Program	93,574	96,120	0	-96,120	N/A
Site Stewardship	104,727	78,581	90,001	+11,420	+14.5%
Defense Nuclear Security	717,722	695,679	643,285	-52,394	-7.5%
Cyber Security	124,231	126,370	0	-126,370	N/A
NNSA CIO Activities	0	0	155,022	+155,022	N/A
Science, Technology & Engineering Capability	19,794	0	0	0	0
National Security Applications	0	10,000	18,248	+8,248	+82.5%
Legacy Contractor Pensions	0	168,232	185,000	+16,768	+10.0%
Subtotal, Weapons Activities	***6,983,551***	***7,214,120***	***7,577,341***	***+363,221***	***+5.0%***
Adjustments	-117,776	0	0	N/A	N/A
Total, Weapons Activities	**6,865,775**	**7,214,120**	**7,577,341**	**+363,221**	**+5.0%**

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 (DoD), with NNSA providing research, development, and production activities supporting the U.S. nuclear weapons stockpile.

The **Weapons Activities** request for FY 2013 is $7.58 billion, an increase of $363.2 million above the FY 2012 appropriation. The main components of the Weapons Activities budget request are listed below. 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 request is organized by Life Extension Programs (LEPs), 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 effective 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 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, which will 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 programs 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 National Security 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 required of 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 secure transportation workforce which includes the Federal Agents.

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) will conclude its eleven year effort in FY 2012 after fulfilling its commitment to restore, rebuild, and revitalize the physical infrastructure of the nuclear security enterprise.

Site Stewardship ensures the viability of necessary site-wide infrastructure to support NNSA, Department of Energy, and other national missions, with a focus on maintaining environmental compliance, achieving energy efficiency, dispositioning nuclear materials, and establishing a new standardized corporate project management enterprise.

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

Cyber Security will integrate its activities into the NNSA OCIO activities.

NNSA CIO Activities supports the diverse civilian nuclear security enterprise of the U.S. DOE/NNSA, leading Federal efforts to research and develop information technology and cyber security solutions, including continuous monitoring, enterprise wireless and security technologies (such as: identity, credential, and access management) to help meet energy security, proliferation resistance, and climate goals.

National Security Applications supports leadership in science and technology to serve national security needs by making strategic technical investments which utilize the science, technology and engineering capabilities and infrastructure of the nuclear security enterprise.

PROGRAM HIGHLIGHTS

The FY 2013 request continues significant efforts to meet nuclear security priorities, to conduct the Stockpile Management program, and to continue leveraging 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. The key stockpile initiatives are continuations of the W76 warhead life extension program (LEP) and the B61 bomb LEP. 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 without the use of underground nuclear testing. 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 and reflects the ramp up of Phase 6.3 activities for the B61 LEP, W78 Study activities, and an increase for current systems, including maintenance (Neutron Generator Activities), surveillance, and W88 ALT 370 arming, fuzing, and firing (AF&F) set development efforts.

The sustained support for *Science, Technology and Engineering* 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 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 stockpile.

Infrastructure and construction support in the budget request is targeted toward maintaining and improving current infrastructure and support, and construction of replacement uranium manufacturing and waste facilities.

The Defense Nuclear Security and NNSA CIO Activities budgets continue to provide protection in the areas of physical and cyber security from a full spectrum of threats. The physical security budget is based on risk-informed decisions and is fully consistent with the Department's Graded Security Protection policy. The increase in the NCIO budget reflects the current total cost for information technology services unclassified business operations and records management support.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Weapons Activities (FY 2012 $7,214.1; FY 2013 $7,577.3) .....+$363
FY 2013 request is $363 million above the FY 2012 enacted appropriation.

Directed Stockpile Work (FY 2012 $1,873.7; FY 2013 $2,088.3) ..... +$215
FY 2013 request is 11.5 percent above the FY 2012 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.

Life Extension Programs (FY 2012 $479.1; FY 2013 $543.9). FY 2013 request is $64.8 or 13.5 percent above the FY 2012 level. Partly, the increase represents a ramp up of B61-12 activities in response to the NWC expected approval and entry into Phase 6.3 Development Engineering in FY 2012. Partly, this reflects cost increases and modest delays in both the B61-12 and the W76 life extension programs.

Stockpile Systems (FY 2012 $486.1; FY 2013 $590.4). FY 2013 request is $104.3 or 21.5 percent above the FY 2012 level. The increase reflects planned intensification of the W78/W88 life extension study. The increase also represents the W88 enduring Stockpile System planning and development of Limited Life Component Exchanges (LLCEs) including Gas Transfer Systems and Neutron Generators.

Weapons Dismantlement and Disposition (FY 2012 $56.6; FY 2013 $51.3). FY 2013 request is -$5.3 or 9.4 percent below the FY 2012 level. The decrease reflects a reduced characterization and disposition of

legacy weapon components and component disposition of on-going dismantlement activity. Supports NNSA's commitment to complete the dismantlement of all warheads retired as of FY 2009 by FY 2022.

Stockpile Services (FY 2012 $851.9; FY 2013 $902.7). FY 2013 request is $50.8 or 6.0 percent above the FY 2012 level. The increase reflects additional neutron generator (SNL) and detonator cable (LANL) production to meet DoD requirements as specified in the National Defense Authorization Act (NDAA) Section 1251 Report.

Campaigns (FY 2012 $1,696.9; FY 2013 $1,690.8)..... -$6.1
FY 2013 request is 0.4 percent below the FY 2012 level.

Science Campaign (FY 2012 $333.0; FY 2013 $350.1). FY 2013 request is $17.1 or 5.1 percent above the FY 2012 level. Increased emphasis is placed on Advanced Certification and Primary Assessment Technologies, which will support the National Boost Initiative. The request expands and refines predictive capabilities to broaden the applicability of stockpile assessment tools and supports broader national security efforts and close coordination with other government agencies in the national security arena. The request continues an increased emphasis on experiments, and plans in the first quarter 2013 for its first subscale, sub-critical experiment since the 1980s.

Engineering Campaign (FY 2012 $142.6; FY 2013 $150.6). FY 2013 request is $7.9 or 5.6 percent above the FY 2012 level. The increase reflects the need for validation-related testing and surety options required for current and future refurbishments.

Inertial Confinement Fusion Ignition and High Yield Campaign (FY 2012 $474.8; FY 2013 $460.0). FY 2013 request is -$14.8 or 3.1 percent below the FY 2012 level. The request contains a decrease in Ignition since the National Ignition Campaign will be complete in FY 2012 in the sense that either fusion ignition will have been achieved, or a determination as to what challenges remain if ignition is not achieved. Also, the program is balancing efforts with -ignition by resuming funding with non-ignition, high-energy density physics research and experiments in support of stockpile science.

Advanced Simulation and Computing Campaign (FY 2012 $618.1; FY 2013 $600.0). FY 2013 request is -$18.1 or 2.9 percent below the FY 2012 level, and will provide for continued support of the National Code Strategy and foundational simulation capabilities needed for future LEPs, significant findings investigations and a CTBT environment.

Readiness Campaign (FY 2012 $128.4; FY 2013 $130.1). FY 2013 request is $1.7 or 1.3 percent above the FY 2012 level. The increase supports Tritium Readiness planned level of production, fabrication, operations and irradiation services.

Readiness in Technical Base and Facilities (FY 2012 $2,004.8; FY 2013 $2,239.8)..... +$235.0
FY 2013 request is 11.7 percent above the FY 2012 level.

Operations of Facilities (FY 2012 $1,281.8; FY 2013 $1,419.4). FY 2013 request is $137.6 or 10.7 percent above the FY 2012 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 $336.0 is requested for the Los Alamos National Laboratory (+5.8 percent), $255.1 for the Y-12 complex (+4.0 percent), $167.4 for the Sandia National Laboratory (+39.1 percent), $163.6 for the Kansas City Plant (+5.0 percent), $89.0 for the Lawrence Livermore National Laboratory (+6.3 percent), $172.0 for the Pantex Plant (+4.7 percent), $120.6 for the Savannah River Site (+23.7 percent), and $115.7 for the Nevada National Security Site (+18.9 percent). The increase for LANL provides full-year radiological operations of the Radiological Laboratory/Utility/Office Building (RLUOB), increased Radioactive Liquid Waste operations and strategies within TA-50, and support closure of Area G. The Nevada increase supports the full suite of Stockpile Stewardship mission requirements while concurrently maintaining experimental capabilities. The increase for SNL supports the requirements of base operations at the site to support the B61 LEP, W88 ALT, and the W78 LEP. The increase

for SRS supports the initial projects related to Tritium Responsive Infrastructure Modifications, which will result in right-sized operations, relocation into existing modern facilities, and the centralization of operations control.

Program Readiness (FY 2012 $74.0; FY 2013 $0). FY 2013 request is $0. This subprogram was transferred to the Science, Technology and Engineering Capability Support.

Material Recycle and Recovery (FY 2012 $77.8; FY 2013 $0). FY 2013 request is $0. This subprogram was transferred to the Nuclear Operations Capability Support.

Containers (FY 2012 $28.9; FY 2013 $0). FY 2013 request is $0. This subprogram was transferred to the Nuclear Operations Capability Support.

Storage (FY 2012 $31.2; FY 2013 $0). FY 2013 request is $0. This subprogram was transferred to the Nuclear Operations Capability Support.

Nuclear Operations Capability Support (FY 2012 $0; FY 2013 $203.3). Provides the critical cross-cutting support for the safe, secure and effective processing, transportation and storage of nuclear materials. The scope includes the Material Recycle and Recovery (MRR), Containers, and Storage activities.

Science, Technology and Engineering Capability Support (FY 2012 $0; FY 2013 $166.9). Provides the critical science, technology, and engineering capabilities to sustain the nation's nuclear deterrent into the future. The subprogram includes Program Readiness and the new initiative, Capability Based Facilities and Infrastructure, a facility investment strategy that provides targeted, incremental investments for life-extension of enduring facilities and infrastructure required to sustain required program capability.

Construction (FY 2012 $511.1; FY 2013 $450.1). FY 2013 request is -$61.0 or 11.9 percent below the FY 2012 level. This primarily reflects the deferral of the Chemistry and Metallurgy Research Replacement (CMRR) Nuclear Facility for at least five year. NNSA has determined, in consultation with the national laboratories, that the existing infrastructure in the nuclear complex has the inherent capacity to provide adequate support. As a result of the decision to defer CMRR, the estimated cost avoidance from FY 2013 to FY 2017 totals approximately $1.8 billion. Increases are requested for the Uranium Processing Facility (UPF) at Y-12 and the TRU Waste Facility at Los Alamos National Laboratory (LANL). Funding will also provide for the start of construction of the Electrical Infrastructure Upgrades project at Lawrence Livermore National Laboratory (LLNL) and LANL. Funding will provide continued construction activities for various projects at LANL, Y-12, Sandia National Laboratories, and Pantex.

Secure Transportation Asset (FY 2012 $242.8; FY 2013 $219.4) ..... -$23.4
FY 2013 request is 9.7 percent below the FY 2012 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 decrease is due to the deferral of vehicle fleet production and finalization of the aviation fleet upgrades and based upon the expected cost savings resulting from the fleet upgrades and pilot federalization.

Nuclear Counterterrorism Incident Response (FY 2012 $221.0; FY 2013 $247.6) ..... +$26.6
FY 2013 request is 12.0 percent above the FY 2012 level and provides funding for emergency management and response activities and for technical expertise supporting Homeland Security and counterterrorism efforts. The increase is focused on additional render safe capabilities, nuclear threat devise assessments, international outreach, and modeling. It also 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 (FY 2012 $96.1; FY 2013 $0) ..... -$96.1
This program ends in FY 2012.

Site Stewardship (FY 2012 $78.6; FY 2013 $90.0) ..... +$11.4

The FY 2013 request is 14.5 percent above the FY 2012 level and provides funding for Environmental Projects and Operations associated with waste disposal to complete the regulatory required closure of Building 419 at LLNL. Additionally, the Energy Modernization and Investment Program funded priority sustainability projects at NNSA sites in support of sustainability mandates. Corporate Project Management provides for direct funding of common project management resources and assets. These increases are offset by the Nuclear Materials Integration program and the completion of the removal of security category I/II from LLNL.

Defense Nuclear Security (FY 2012 $695.7; FY 2013 $643.3) ..... -$52.4
FY 2013 request is 7.5 percent below the FY 2012 level. The decrease reflects the transition of LLNL from a Category I to a Category III special nuclear material site, and a 5% overall reduction to Protective Forces at Category I sites based upon the risk-based physical security policy reviews with the DoD. This is partially offset by increased management of security program operations at Category I sites as they downsize and transition activities associated with the Department's revised protection policy.

Cyber Security (FY 2012 $126.4; FY 2013 $0) ..... -$126.4
FY 2013 request is a decrease of $126.4, or 100 percent below the FY 2012 level. This support was realigned in FY 2013 to NNSA CIO (NCIO) Activities.

NCIO Activities (FY 2012 $0; FY 2013 $155.0) ..... +$155.0
FY 2013 request is an increase of $155.0, or 100 percent above the FY 2012 level. Funding provides for research and development of information technology and cyber security solutions to help meet energy security, proliferation resistance, and climate goals such as: identity, credential, and access management. This support was realigned in FY 2013 from Cyber Security Activities and the IT portion of the Office of the Administrator.

National Security Applications (FY 2012 $10.0; FY 2013 $18.2) ..... +$8.2
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. The funding supports 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.

Legacy Contractor Pensions (FY 2012 $168.2; FY 2013 $185.0) ..... +16.8
This program provides the annual Weapons Activities share of the Department of Energy's payment to the University of California for reimbursement of payments made to the University of California Retirement Plan (UCRP) for former University of California employees and annuitants who worked at the Lawrence Livermore (LLNL) and Los Alamos (LANL) National Laboratories.

Defense Nuclear Nonproliferation – NNSA

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Nonproliferation and Verification R&D	355,407	354,150	548,186	+194,036	+54.8%
Nonproliferation and International Security	147,494	153,594	150,119	-3,475	-2.3%
International Nuclear Materials Protection and Cooperation	578,633	569,927	311,000	-258,927	-45.4%
Fissile Materials Disposition	802,198	685,386	921,305	+235,919	+34.4%
Global Threat Reduction Initiative	444,689	498,000	466,021	-31,979	-6.4%
Legacy Contractor Pensions	0	55,823	62,000	+6,177	+11.1%
Subtotal, Defense Nuclear Nonproliferation	***2,328,421***	***2,316,880***	***2,458,631***	***+141,751***	***+6.1%***
Adjustments	-47,050	-21,000	0	N/A	N/A
Total, Defense Nuclear Nonproliferation	**2,281,371**	**2,295,880**	**2,458,631**	**+162,751**	**+7.1%**

PROGRAM DESCRIPTION

NNSA's **Defense Nuclear Nonproliferation** (**DNN)** 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 (WMD) or weapons-usable material, dual-use production technology, or weapons of mass destruction expertise. The request in FY 2013 is $2,458.6 million, an increase of +$162.8 million or 7.1% above the FY 2012 appropriation 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 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.

Nonproliferation and International Security (NIS) supports NNSA efforts to prevent and counter the proliferation or use of WMD, including materials, technology, and expertise, by states and non-state actors. NIS focuses on strengthening the nonproliferation regime in order to reduce proliferation and counter terrorist risks by applying its unique expertise to safeguard nuclear material and strengthen its physical security; control the spread of WMD-related material, equipment, technology, and expertise; verify nuclear reductions and compliance with nonproliferation treaties and agreements; and develop and implement Department of Energy (DOE/NNSA) nonproliferation and arms control policy.

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 to sustain detection equipment under the Second Line of Defense Program at international border crossings and major seaports to prevent illicit transfer of nuclear material.

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. The 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 2013 request supports national security priorities articulated in the National Security Strategy, and reflected in the Department of Energy and National Nuclear Security Administration Strategic Plans. These priorities include the four-year effort to secure or eliminate the world's most vulnerable nuclear weapon materials; disposing of excess nuclear weapon materials in the United States; supporting the development of new technologies for nonproliferation; promoting the secure expansion of nuclear energy; and improving capabilities worldwide to deter and detect the illicit movement of nuclear and radiological materials.

The Nonproliferation and Verification Research and Development (R&D) program will continue to advance the state of the art in proliferation detection technology and reinvigorate the research and development efforts in treaty verification and monitoring through the development of two additional nonproliferation and nuclear arms control test beds at the Nevada National Security Site (NNSS). R&D will begin a complex warhead counting experiment with NNSA's Defense Programs and conduct field tests at NNSS to further demonstrate expanded remote sensing capabilities for detecting uranium solids, which have persistent signatures even when facilities are not operating. The R&D program will continue the Nuclear Science and Security Consortium (NSSC) for developing university research that is complementary with Lab research through technical graduate and post-graduate efforts in nonproliferation technology development. R&D will also complete the following: improve fundamental material properties of plastic-based radiation detectors that potentially allow production of cheap, large-scale plastic portal monitors capable of isotope identification; conduct early on-orbit testing of a newly fielded nuclear detonation detection payload, Global Positioning System (GPS) - IIF block, that provides better and more sensitive geo-location capabilities; deliver the first nuclear detonation detection payload planned for GPS-III, maintaining the capability of the constellation for global surveillance; and complete radioactive decay measurements for operational post-detonation forensics that is critical to weapon attribution. Finally, R&D will support domestic uranium enrichment research, development and demonstration (RD&D), which will improve our understanding of the scale-up limits of centrifuge technology for enhanced efficiency, support a domestic capacity for uranium enrichment, and contribute to U.S. leadership in nuclear fuel technology to help discourage the proliferation of this weapons-usable technology.

The Nonproliferation and International Security program request supports the implementation of the Next Generation Safeguards Initiative to strengthen IAEA safeguards and to revitalize the U.S. technical and human capital base that supports them; efforts to reduce proliferation risks associated with the expansion of nuclear power; and the development and implementation of reliable fuel services as an alternative to further the spread of enrichment and reprocessing capabilities. This funding will also support applied development and evaluation of technologies to support U.S. arms control and nonproliferation initiatives, including treaty verification and transparency. Lastly, the funding profile provides for activities that prevent and counter WMD proliferation including continued support of U.S. efforts to address proliferation by Iran, North Korea, and proliferation networks; implement nuclear arms reduction and associated agreements; strengthen international nonproliferation agreements and standards; implement statutory export control and safeguards requirements; encourage global adherence to and implementation of international nonproliferation requirements; and support high priority diplomatic initiatives.

The International Nuclear Materials Protection and Cooperation (INMP&C) program will complete MPC&A upgrades in Russia on approximately 229 buildings containing weapons usable nuclear material by the end of CY 2013; blend-down a total of approximately 15 MTs of HEU by the end of FY 2013; and to complete installation of detection equipment at a cumulative of 496 SLD sites, including 45 Megaports in FY 2013.

The Fissile Materials Disposition program is vital to the nation's arms control and nuclear nonproliferation efforts, which includes major construction projects (Mixed Oxide Fuel Fabrication Facility and the Waste Solidification Building) as they provide the means to dispose of U.S. plutonium declared excess to our national defense needs. Funding also supports continued work with the Russian Federation on its plutonium disposition pursuant to the amended Plutonium Management and Disposition Agreement (PMDA).

GTRI directly supports the international efforts to secure and/or remove the most vulnerable nuclear material within four years, by December 2013. The FY 2013 budget includes funding to convert or shutdown a cumulative total of 88 HEU Reactors (additional 7), remove a cumulative total of 3,455 kilograms of vulnerable nuclear material (HEU and plutonium) (additional 380), and protect a cumulative total of 1,505 buildings with high priority nuclear and radiological materials (additional 150).

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Defense Nuclear Nonproliferation (FY 2012 $2,295.9; FY 2013 $2,458.6) .....+$162.8
FY 2013 request is 7.1% percent above the FY 2012 enacted appropriation reflecting the milestones brought forward into FY 2012 to meet the President's objective in securing vulnerable nuclear materials world-wide. The program will continue to focus on this high risk reduction objective as well as support construction of the U.S. plutonium disposition facilities.

Nonproliferation and Verification R&D (FY 2012 $354.2; FY 2013 $548.2)..... +$194.0
FY 2013 request includes:

Proliferation Detection (FY 2012 $222.2; FY 2013 $240.5)..... +$18.4
The increase allows progress on all six R&D goals to reduce nuclear danger by the timelines indicated in the 2011 NNSA Strategic Plan and to increase effectiveness of multi-lab, interagency, and large-scale field experimentation critical for nonproliferation test monitoring and arms control.

Nuclear Detonation Detection (FY 2012 $132.0; FY 2013 $157.7) ..... +$25.7
Increase sustains a satellite sensor production rate of two Global Burst Detector payloads per year.

Domestic Uranium Enrichment Research, Development and Demonstration (RD&D) (FY 2012 $0; FY 2013 $150.0) ..... +$150.0
Increase primarily reflects support of domestic uranium enrichment RD&D activities to be coordinated with DOE's Office of Nuclear Energy. Activities will help to better assess potential proliferation of new centrifuge programs worldwide and contribute to U.S. leadership in nuclear fuel technology to help discourage the proliferation of this weapons-usable technology. No out-year funding is expected within DNN.

SBIR/STTR (non-add FY 2012 [$6.2]; FY 2013 [$11.7])..... +$5.5
Increase reflects new SBIR and STTR contribution percentages as reauthorized. Reflects the contribution of R&D funding for SBIR/STTR, previously calculated from and included in the non-production portions of the lines above. Final calculations and decisions are made during the year of execution.

Nonproliferation and International Security (FY 2012 $153.6; FY 2013 $150.1)..... -$3.4
FY 2013 request includes:

Nuclear Safeguards and Security (FY2012 $54.9; FY2013 $54.7) ..... -$0.2
The funding decrease is due to the maturation of certain NGSI-sponsored safeguards technology development projects which will allow the reduction in testing and evaluation costs.

Nuclear Controls (FY 2012 $47.4; FY 2013 $45.4)..... -$2.0
The decrease is due to deceleration of the pace of engagement for foreign partner export control outreach and training efforts.

Nuclear Verification (FY 2012 $40.0; FY 2013 $40.6)..... +$0.6
The increase will allow for development of additional advanced technology for treaty verification and monitoring.

Nonproliferation Policy (FY 2012 $11.3; FY 2013 $9.4) ..... -$1.9
The decrease is due to an elimination of lower priority policy studies/analyses undertaken in support of the Department's implementation of high level nonproliferation and counter proliferation initiatives, including the global expansion of nuclear energy and evolution of the nuclear fuel cycle.

International Nuclear Materials Protection and Cooperation
(FY 2012 $569.9; FY 2013 $311.0) ..... -$258.9

Navy Complex (FY 2012 $33.7; FY 2013 $39.9) ..... +$6.2
Increase reflects the beginning of a series of replacements of outdated security equipment that has reached the end of its serviceable life to bring Navy sites to the level of upgrades established at the 12th Main Directorate Bratislava Initiatives sites.

Strategic Rocket Forces/12th Main Directorate (FY 2012 $59.1; FY 2013 $8.3) ..... -$50.8
Decrease reflects the planned FY 2012 completion of ongoing Maintenance and Sustainability support to the Russian Ministry of Defense (MOD). Installation of Training and Logistic Management systems at all MOD locations are also projected to be completed in FY 2012.

Weapons Material Protection (FY 2012 $80.7; FY 2013 $47.0) ..... -$33.8
Decrease reflects the completion in funding for a number of major upgrade and sustainability initiatives at several sites.

Civilian Nuclear Sites (FY 2012 $59.1; FY 2013 $60.1) ..... +$1.0
Increase represents greater support for retrofits of MPC&A equipment installed early in the program, which by FY 2013 will be obsolete; retrofit costs are expected to be higher in FY 2013 than FY 2012 due to equipment age.

Material Consolidation and Conversion (FY 2012 $14.3; FY 2013 $17.0) ..... +$2.7
Increase represents a greater amount of HEU downblended to LEU. Downblending process upgrades in FY 2011 and FY 2012 should increase capacity by 50%, allowing for greater downblending in FY 2013 (approximately 1.5 metric tons (MT) compared to the current rate of approximately 1MT per year).

National Infrastructure and Sustainability Program (FY 2012 $60.9; FY 2013 $46.2) ..... -$14.7
Decrease reflects the cessation of funding for two projects – MOD Regulations and MPC&A Operations Monitoring (MOM) – that will be transitioned to Russian responsibility at the end of FY 2012. It also reflects reduced support for equipment sustainability by the transportation security project and protective force project teams.

Second Line of Defense (SLD) (FY 2012 $262.1; FY 2013 $92.6) ..... -$169.5

Core Program (FY2012 $129.4; FY2013 $73.0) ..... -$56.4
Decrease reflects completion of installation of detection equipment at 449 sites and transition to mobile detection deployment and sustainability activities.

Megaports (FY2012 $132.7; FY2013 $19.6) ..... -$113.1
Decrease reflects completion of installation of detection equipment at 45 sites and a transition to sustainability activities.

Fissile Materials Disposition (FY 2012 $685.4; FY 2013 $921.3) ..... +$235.9

U.S. Surplus Fissile Materials Disposition
(FY 2012 $684.4; FY 2013 $917.5) ..... +$235.9
The increase primarily supports the beginning of cold start-up activities for the MOX project, the shift of work scope to provide steady state feedstock to MFFF in lieu of the cancelled PDCF Project, the initiation of activities to convert depleted uranium required for MOX operations, and qualification of alternative MOX fuel designs by multiple vendors. This increase is partially offset by the completion of the WSB project and the completion of long-lead procurements for the MOX project.

Russian Surplus Fissile Materials Disposition
(FY 2012 $1.0; FY 2013 $3.8) ..... +$2.8
This increase reflects U.S. commitments to support disposition of weapon-grade plutonium in Russia as uncosted balances are depleted.

Global Threat Reduction Initiative (FY 2012 $498.0; FY 2013 $466.0) ..... -$32.0

HEU Reactor Conversion (FY 2012 $148.3; FY 2013 $161.0) ..... +$12.7
Increase reflects support to accelerate the establishment of a reliable domestic production capability for the critical medical isotope Mo-99 without the use of HEU.

Nuclear and Radiological Material Removal (FY2012 $246.7; FY2013 $200.0) ..... -$46.7
Decrease in funding for nuclear efforts is consistent with the four-year plan. Funding was requested in FY2012 for removal efforts that will occur in early 2013 to meet the President's goal. Decrease in funding for radiological efforts reflects a reduced number of RTGs recovered from 64 in FY2011 to 8 in FY2013 and a reduced number of excess radiological sources recovered in the U.S. from 2,571 in FY2011 to 1,900 in FY2013.

Nuclear and Radiological Material Protection (FY 2012 $103.0; FY 2013 $105.0)..... +12.0
Reflects an increase for Domestic Material Protection to complete security upgrades at an additional 100 research reactor and radiological buildings, and to support sustainability of previously installed upgrades.

Naval Reactors - NNSA

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted [1]	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Naval Reactors Operations and Infrastructure	0	358,300	366,961	+8,661	+2.4%
Naval Reactors Development	914,071	421,000	418,072	-2,928	-0.7%
S8G Prototype Refueling	0	99,500	121,100	+21,600	+21.7%
OHIO Replacement Reactor Systems Development	0	121,300	89,700	-31,600	-26.1%
Program Direction	39,920	40,000	43,212	+3,212	+8.0%
Construction	32,535	39,900	49,590	+9,690	+24.3%
Subtotal, Naval Reactors	***986,526***	***1,080,000***	***1,088,635***	***+8,635***	***+0.8%***
Adjustments	-1,000	0	0	N/A	N/A
Total, Naval Reactors	**985,526**	**1,080,000**	**1,088,635**	**+8,635**	**+0.8%**

[1] The Conference Report of H.R. 2055 Military Construction and Veterans Affairs, and Related Agencies Appropriations Act, 2012 establishing new funding controls for Naval Reactors: OHIO Replacement Reactor Systems Development, S8G Prototype Refueling, Naval Reactors Development, and Naval Reactors Operations and Infrastructure.

PROGRAM DESCRIPTION

The Naval Reactors (NR) program has responsibility for all naval nuclear propulsion work, beginning with reactor plant technology development and design, continuing through construction, testing, operation, maintenance, and ultimately, reactor plant disposal. The **Naval Reactors request for FY 2013 is $1.1billion**, an increase of $8.6 million over the FY 2012 enacted 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 continued support for three major initiatives: the OHIO Ballistic Missile Submarine Replacement, Land-based Prototype Refueling Overhaul, and the Spent Fuel Handling Recapitalization Project which are needed to deliver Navy-established mission requirements.

PROGRAM HIGHLIGHTS

The FY 2013 request provides $1,088.6 million for Naval Reactors; an increase of $8.6 million above the FY 2012 enacted appropriation.

The small increase in funding supports continued execution of three major projects (i.e., OHIO Replacement, Land-based Prototype Refueling Overhaul, and Spent Fuel Handling Recapitalization) which are needed to deliver Navy-established mission requirements. The features and military capabilities for the new ballistic missile submarine are enabled by the ongoing development of a new core and reactor plant as part of Naval Reactors' OHIO Replacement and Land-based Prototype Refueling Overhaul programs. Recapitalization of the spent fuel handling infrastructure located at the Idaho

National Laboratory preserves the capability to refuel and defuel aircraft carriers and submarines, which is critical to ensuring their operational availability for national security missions.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2032 Request ($ in millions)

Naval Reactors (FY 2012 $1,080.0; FY 2013 $1,088.6) ..... **+$8.6**
Naval Reactors Operations and Infrastructure (FY 2012 $358.30; FY 2013 $367.0) ..... **+$8.7**
Naval Reactors Development (FY 2012 $421.0; FY 2013 $418.1) ..... **-$2.9**
S8G Prototype Refueling (FY 2012 $99.5; FY 2013 $121.1) ..... **+$21.6**
OHIO Replacement Reactor Systems Development (FY 2012 $121.3; FY 2013 $89.7) ..... **-$31.6**

FY 2013 request is 0.8 percent above the FY 2012 level. The increases in Naval Reactors Operations and Infrastructure is for continued conceptual design for the Spent Fuel Handling Recapitalization Project and for the Land-based Prototype Refueling Overhaul core design consistent with the project's objective of supporting the OHIO Replacement reactor design and refueling overhaul completion in 2021 (21.6). The reduction in OHIO Replacement funding is due to the DOD-initiated two-year slip of the program (-31.6).

Construction (FY 2012 $39.9; FY 2013 $49.6) ..... **+$9.7**
FY 2013 request is 14.3 percent above the FY 2012 level. Overall increase supports line item construction funding for KS Radiological Prototype Staff Building (+14.0), KS Radiological Work and Storage Building (+2.0), Remote-Handled Low-Level Waste Disposal Project (+8.9) and 10-D-903 Security Upgrades, KAPL (+18.9), which is partially offset by decreases in construction funding for the ECF M-290 Receiving/Discharge Station (-26.1).

Program Direction (FY 2012 $ 40.0; FY 2013 $43.2) ..... **+$3.2**
FY 2013 request is 8.0 percent above the FY 2012 level. Increase reflects enhanced oversight of new projects and initiatives as well as sustainment of critical skills and corporate knowledge in light of attrition.

Office of the Administrator – NNSA

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Office of the Administrator	398,993	410,000	411,279	+1,279	+0.3%
Adjustments	-5,700	0	0	N/A	N/A
Total, Office of the Administrator	**393,293**	**410,000**	**411,279**	**+1,279**	**+0.3%**

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, safeguards and security oversight, and policy and strategic coordination of counterterrorism and counter proliferation initiatives. 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 National Security Site. The FY 2013 request for this program is $411.3 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.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Office of the Administrator (FY 2012 $410.0; FY 2012 $411.3).....+$1.3

The FY 2013 request provides support for 1,922 Full-Time Equivalents and other expenses of the Federal staff. The budget reflects several major changes including, the functional transfer of Federal Unclassified Information Technology to Weapons Activities and the transfer of overseas office support to the Working Capital Fund and the Massie Chairs of Excellence Historically Black Colleges and Universities (HBCU) program to a separate line item from Program funds. These transfers are offset by Working Capital Fund increases for work scope for iPad and blackberry enhancements and escalation in space and occupancy charges in the field for rental expenses and maintenance requirements and office improvements at headquarters.

Energy Information Administration

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
National Energy Information System	95,409	105,000	116,365	+11,365	+10.8%
Adjustments	-400	0	0	N/A	N/A
Total, Energy Information Administration	**95,009**	**105,000**	**116,365**	**+11,365**	**+10.8%**

PROGRAM DESCRIPTION

The **U.S. 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 2013 request** for EIA is **$116.4 million**, which is an $11.4 million increase over the FY 2012 enacted appropriation of $105.0 million. EIA conducts a data collection program with the goal of covering 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. The work of EIA is to further understanding of the energy complex and its interactions with the economy and the environment using state of the art analytical tools and the most comprehensive and timely data possible for both supply and demand. Given that the data products, analyses, reports, and services are primarily disseminated to customers and stakeholders through its website, EIA endeavors to provide continuous improvement for users with an emphasis on enabling access to desired information in a format and structure usable with minimal additional effort.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Energy Information Administration (FY 2012 $105.0; FY 2013 $116.4) ..... +$11.4
Increased funding restores important data collection and analysis programs, modernizes the systems and methods used in data collection and processing to improve operational efficiency, strengthens analysis capabilities, and enhances customer access and usability of EIA's information. In FY 2013, EIA will conduct the 2012 Commercial Buildings Energy Consumption Survey (CBECS) to provide for initial data release in 2014 (+$3.6); restore energy modeling and enhance international, short-term, end-use efficiency, and refinery analytic capabilities (+$2.2); modernize the systems and tools used to produce EIA's weekly petroleum and natural gas statistical reports, on which industry and market participants heavily rely (+$1.3); improve the analysis of energy market behavior, the interrelationship of energy and financial markets, and analysis of refined product markets (+$1.2); leverage technology to more efficiently manage data collection and processing across the agency (+$0.8); restore electricity trade data collection and add collection of monthly oil production data (+$0.7); and develop more integrated and interactive dissemination platforms (+$0.5).

Power Marketing Administrations

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Southeastern Power Administration					
Program Direction	7,638	8,428	8,732	304	+3.6%
Purchase Power and Wheeling (PPW)	85,264	114,870	103,170	-11,700	-10.2%
Southeastern Power Administration	92,902	123,298	111,902	-11,396	-9.2%
Alternative Financing (for PPW)/Offsetting Collections	-92,902	-123,298	-111,902	11,396	+9.2%
Subtotal, Southeastern Power Administration	***0***	***0***	***0***	***0***	***0***
Southwestern Power Administration					
Operation and Maintenance (O&M)	14,918	14,346	11,505	-2,841	-19.8%
Construction (CN)	6,386	10,772	7,931	-2,841	-26.4%
Purchase Power and Wheeling (PPW)	48,000	50,000	51,000	1,000	+2.0%
Program Direction	27,151	31,889	28,593	-3,296	-10.3%
Southwestern Power Administration	96,455	107,007	99,029	-7,978	-7.5%
Alternative Financing/Offsetting Collections	-83,405	-95,115	-87,137	7,978	+8.4%
Subtotal, Southwestern Power Administration	***13,050***	***11,892***	***11,892***	***0***	***0***
Western Area Power Administration					
Operation and Maintenance (O&M)	50,845	72,863	71,855	-1,008	-1.4%
Construction and Rehabilitation (C&R)	109,887	110,449	83,475	-26,974	-24.4%
Purchase Power and Wheeling (PPW)	543,622	471,535	422,225	-49,310	-10.5%
Program Direction	192,205	205,247	204,227	-1,020	-0.5%
Utah Mitigation and Conservation fund	7,569	3,375	3,375	0	0
Western Area Power Administration	904,128	863,469	785,157	-78,312	-9.1%
Alternative Financing/Offsetting Collections	-795,122	-767,501	-689,027	78,474	+10.2%
Subtotal, Western Area Power Administration	***109,006***	***95,968***	***96,130***	***162***	***+0.2%***
Falcon and Amistad Operations and Maintenance Fund					
Subtotal, Falcon and Amistad	***220***	***220***	***220***	***0***	***0***
Colorado River Basin Power Marketing Fund					
Subtotal, Colorado River Basin	***-23,000***	***-23,000***	***-23,000***	***0***	***0***
Total, Power Marketing Administrations	**99,276**	**85,080**	**85,242**	**+162**	**+0.2%**

PROGRAM DESCRIPTION

The four **Power Marketing Administrations** (PMAs) sell electricity primarily generated by federally owned hydropower projects. Hydroelectric power contributes to the reduction of greenhouse gas emissions and fossil fuel usage. The PMAs contribute to the reliability of the nation's electricity supply and electrical 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 of Reclamation and the Army Corps of Engineers in the Federal Columbia River Power System. The capital portion of the budget is funded mostly through borrowing from the U.S. Treasury at market rates for similar projects and with some non-federal financing.

PROGRAM HIGHLIGHTS

The President's FY 2013 budget continues the use of receipts to offset the annual expenses of Western, Southwestern and Southeastern to allow for better operations and maintenance planning and execution, leading to a more reliable power system. 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 FY 2013, both Western and Bonneville will continue the development and construction of major transmission projects in their service territories with the borrowing authority they were provided under the Recovery Act. Many of these projects are designed specifically to facilitate the delivery of renewable energy resources to market.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Southeastern Power Administration (FY 2012 $0.0; FY 2013 $0.0) ..... -$0.0

Program Direction (FY 2012 $8.4; FY 2013 $8.7) ..... +$0.3
The changes reflect the FY 2013 salaries and benefits as well as mission related travel and other operating expenses. The increase also supports improvements in communication infrastructure and IT security assessment and program expansion in energy efficiency and renewable energy promotion.

Purchase Power and Wheeling (FY 2012 $114.9; FY 2013 $103.2) ..... -$11.7
(FY 2012 alternative financing $14.7; use of receipts $100.2; FY 2013 alternative financing $15.5; use of receipts $87.7). The majority of the FY 2013 request changes results from decreased pumping energy costs to support the Richard B. Russell and Carters projects. This funding level will allow Southeastern to purchase and deliver energy to meet its limited peaking power contractual obligations. Federal power receipts as well as alternative financing methods will be used to fully offset the costs of system operations.

Alternative Financing (FY 2012 -$14.7; FY 2013 -$15.5) ..... -$0.8

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 2012 -$108.6; FY 2013 -$96.4) ..... +$12.2
The FY 2013 budget includes the use of Southeastern's receipts to offset appropriations for annual expenses in the Program Direction (-$8.7) activity. Southeastern will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-$87.7), which enables Southeastern to meet its annual operation and maintenance requirements and purchase power and wheeling needs.

Southwestern Power Administration (FY 2012 $11.9; FY 2013 $11.9) $0.0

Operations and Maintenance (FY 2012 $14.3; FY 2013 $11.5) ..... -$2.8
(FY 2012 alternative financing $2.2; offsetting collections $7.4; FY 2013 alternative financing $1.8, offsetting collections $5.5) The major decrease in funding reflects not procuring an auto-transformer in FY 2013.

Program Direction (FY 2012 $31.9; FY 2013 $28.6) ..... -$3.3
(FY 2012 alternative financing $4.7, offsetting collections $25.7; FY 2013 alternative financing $0, offsetting collections $26.8) The decrease reflects the planned completion of the Financial Management System upgrade.

Purchase Power and Wheeling (FY 2012 $50.0; FY 2013 $51.0) ..... +$1.0
(FY 2012 alternative financing $10.0, offsetting collection $40.0; FY 2013 alternative financing $10.0, offsetting collections $41.0) 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 2012 $10.8; FY 2013 $7.9) ..... -$2.9
(FY 2012 alternative financing $5.1; FY 2013 alternative financing $2.0) The decrease in funding reflects a reduction in the number of tower and radio replacements.

Alternative Financing (FY 2012 -$22.0; FY 2013 -$13.8) ..... +$8.2
FY 2013 alternative financing will be used to offset Operations and Maintenance (-$1.8), Construction (-$2.0) and Purchase Power and Wheeling (-$10.0). The amounts identified will allow Southwestern to continue to meet its annual operation and maintenance requirements.

Offsetting Collections (FY 2012 -$73.1; FY 2013 -$73.3)..... -$0.2
Includes the use of Southwestern's receipts to offset appropriations for FY 2012 annual expenses in the Operations and Maintenance (-$5.5) and Program Direction (-$26.8) activities. Southwestern will continue to use receipts to fund a portion of Purchase Power and Wheeling program expenses (-$41.0), which enable Southwestern to meet its annual hydroelectric contractual obligations.

Western Area Power Administration (FY 2012 $96.0; FY 2013 $96.1) .....+$0.1
FY 2013 Construction, Rehabilitation, Operation, and Maintenance program level is $785.2 compared to $863.5 in FY 2012 and will be funded by $96.1 in budget authority, $438.7 in offsetting collections, $5.1 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 $245.3 of alternative financing.

Construction and Rehabilitation (FY 2012 $110.4; FY 2013 $83.5) ..... -$26.9
(FY 2012 alternative financing $93.3, appropriation $17.1; FY 2013 alternative financing $62.4, appropriation $21.1) Provides for transmission line and substation rehabilitation to address Western's aging transmission

system infrastructure and reliability concerns. Western will seek greater alternative financing with customers to fund the majority of the FY 2013 capital requirements without appropriations.

Operation and Maintenance (FY 2012 $72.9; FY 2013 $71.9) ..... -$1.0
(FY 2012 alternative financing $4.6, offsetting collections $33.3, offsetting collections from CRDF $1.0, appropriations $33.9; FY 2013 alternative financing $0, offsetting collections $36.1, offsetting collections from CRDF $1.1, appropriations $34.7) The decrease in regular Operation and Maintenance activities is attributed to a slight decrease in planned purchases for non-capitalized equipment for planned maintenance activities. The decrease in Replacements and Additions is primarily attributable to a decrease in capitalized moveable equipment purchases.

Purchase Power and Wheeling (FY 2012 $471.5; FY 2013 $422.2) ..... -$49.3
(FY 2012 alternative financing $165.0; use of receipts $306.5; FY 2013 alternative financing $179.4; use of receipts $242.9) FY 2013 decrease in purchase power and wheeling reflects a reduction in the amount of power purchased as a result of improving hydro conditions in the Pick-Sloan Missouri River Basin.

Utah Reclamation Mitigation & Conservation (FY 2012 $3.4; FY 2013 $3.4) ..... +$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. Of note, Fiscal Year 2013 is the final year of Western's contribution to this fund, as legislated in Title II, Sec 214 of Public Law 108-137.

Program Direction (FY 2012 $205.2; FY 2013 $204.2) ..... -$1.0
(FY 2012 alternative financing $3.3, offsetting collections $156.6, offsetting collections from CRDF $3.8, appropriations $41.6; FY 2013 alternative financing $3.5, offsetting collections $159.7, offsetting collections from CRDF $4.0, appropriations $37.0) The decrease in Program Direction is attributed to decreases in employee travel and a decrease to support services, to include work scope in economic and environmental analysis. These decreases are offset by smaller increases to salary and benefits in support of Western's increased FTE request levels, and a slight increase to architectural and engineering services that support Western's capital mission needs.

Offsetting Collections (FY 2012 -$501.3; FY 2013 -$443.7) ..... +$57.6
In FY 2013, Western will use receipts (-$195.8) to offset appropriations for annual expenses in the Operation and Maintenance and Program Direction activities, will use receipts to fund a portion of Purchase Power and Wheeling program expenses (-$242.9) and will use CRDF receipts (-$5.1) to support Boulder Canyon Project activities.

Alternative Financing (FY 2012 -$266.2; FY 2013 -$245.3) ..... +$20.9
Alternative financing methods, including cash advances from customers, will be used to offset Program Direction (-$3.5); Construction (-$62.4); and Purchase Power and Wheeling (-$179.4) appropriation requirements.

Bonneville Power Administration (self financed through revenues)

Budget Obligations (FY 2012 $4,316; FY 2013 $4,473) ..... +$157.0
No direct annual appropriations are received from Congress. In FY 2013, total requirements of all Bonneville programs include estimated budget obligations of $4.473 billion. This amount includes operating expenses of $2.946 billion, capital investments of $1.246 billion, and $101 million in projects funded in advance; with $179 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. The increase is primarily attributable to increases in the Capital program for Power Services and Transmission Services.

Power Services-Capital (FY 2012 $381.8; FY 2013 $411.7) ..... +$29.9
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. Increases are required to maintain a minimum level of generation each year.

Transmission Services-Capital (FY 2012 $594.8; FY 2013 $782.2) ..... +$187.4
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 2013 primarily reflects increases in Main Grid and Upgrades & Additions.

Departmental Administration

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Office of the Secretary	5,383	5,030	4,986	-44	-0.9%
Chief Information Officer	92,953	85,928	90,575	+4,647	+5.4%
Chief Financial Officer	57,598	53,204	51,043	-2,161	-4.1%
Management	68,673	62,693	53,257	-9,436	-15.1%
Chief Human Capital Officer	25,308	23,089	23,286	+197	+0.9%
Congressional & Intergovernmental Affairs	4,430	4,690	4,076	-614	-13.1%
Indian Energy Policy and Programs	1,477	2,000	2,506	+506	+25.3%
Public Affairs	4,131	3,801	3,310	-491	-12.9%
General Counsel	32,014	33,053	33,256	+203	+0.6%
Policy and International Affairs	27,770	26,961	27,281	+320	+1.2%
Economic Impact and Diversity	6,282	7,473	7,506	+33	+0.4%
Other Defense Related Activities					
Funding from Other Defense Activities	-106,001	-118,836	-118,836	0	0
Subtotal, Administrative Operations	***220,018***	***189,086***	***182,246***	***-6,840***	***-3.6%***
Cost of Work for Others	30,516	48,537	48,537	0	0
Miscellaneous Revenues	-119,501	-111,623	-108,188	+3,435	+3.1%
Subtotal, Cost of Work/Revenue	***-88,985***	***-63,086***	***-59,651***	***+3,435***	***+5.4%***
Adjustments	-82,139	0	0	N/A	N/A
Total, Departmental Administration	**48,894**	**126,000**	**122,595**	**-3,405**	**-2.7%**

PROGRAM DESCRIPTION

The **Departmental Administration (DA)** appropriation funds 11 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, Indian energy policy, 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. The Department has established 52 Measures of Performance to assure Management and Operational effectiveness and efficiencies in safe and secure mission execution. Collectively these are cross cutting and complex business elements that support the business operations and allow internal and external senior leaders to drive improvements in decision making, operations, authorities, communication, and ensure costs are aligned with strategic outputs.

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. In FY 2013, DOE is working to achieve economies of scale and fund critical Departmental requirements through an enhanced Working Capital Fund

(WCF). The WCF budget increase of $85 million covers shared, enterprise activities including enhanced cyber security architecture, employee health and testing services, and consolidated training and recruitment initiatives.

PROJECTED CUSTOMER COSTS FY 2013
Comparison of Annual Estimates by Business Line

	FY2011 Estimate	FY2012 Estimate	FY2013 Estimate
Supplies	3,274	3,662	3,752
Mail and Transportation Services	3,547	4,413	4,563
Photocopying	2,682	3,367	3,483
Printing and Graphics	2,344	4,227	4,408
Building Occupancy	92,601	97,147	99,642
Telecommunications	18,163	20,530	29,866
CyberOne	0	0	40,000
Procurement Management	11,203	12,418	17,366
Corporate Training Services	387	2,103	3,231
Health Services	0	0	1,700
Project Management Career Development Program	1,396	1,450	1,622
iManage	17,424	22,034	27,543
Financial Reporting Control Assessment	986	4,060	3,016
Financial Statement Audits	12,002	12,108	11,729
Overseas Representation	0	0	15,095
Interagency Transfers	0	0	6,000
Total, Working Capital Fund	**166,009**	**187,519**	**273,017**

PROGRAM HIGHLIGHTS

The FY 2013 request provides $5.0 million for 32 full time equivalent employees (FTEs) within the Office of the Secretary. This request also provides $117.6 million for salaries and benefits, travel, contractual services, and program support expenses for 1,093 FTEs for the other organizations within the DA account.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Office of the Secretary (FY 2012 $5.0; FY 2013 $5.0) ..... -$0.04
Decrease in Salaries and Benefits for 32 FTEs (-$0.04).

Chief Financial Officer (FY 2012 $53.2; FY 2013 $51.0) .....-$2.2
The FY 2013 funding supports 235 full time equivalent employees (FTEs) and associated costs. The $.539M decrease in salaries and benefits is due CF's cost efficiency efforts which included program office consolidation, workforce restructuring, and succession planning. The $1.374M reduction in Other Related Expenses reflects a planned reduction in iManage developmental activities. The $.248M decrease in support services reflects the discontinuation of an interagency agreement.

Chief Information Officer (FY 2012 $85.9; FY 2013 $90.6) .....+$4.6
The FY 2013 request for the OCIO is $90.6; this is an increase from the FY2012 enacted appropriation. The OCIO continues to support the Secretary of Energy and other senior Departmental and Government officials to ensure that information technology related to the Department's $2 Billion IT portfolio is acquired and managed in an effective and efficient manner that complies with statutory direction and Administration policy. This ongoing support is accomplished through three program activities: Corporate IT Program Support (FY 2012 $27.4; FY 2013 $20.8; Difference; -$6.6) Cyber Security (FY 2012 $21.9; FY 2013 $33.6;

Difference; +$11.6),and Corporate Management (FY 2012 $36.6;FY 2013 $36.2; Difference; -$0.4). The increase in Cybersecurity funding will provide for enhanced, advanced cybersecurity capabilities to expand inter and intra agency coordination and resiliency.

Economic Impact and Diversity FY 2012 $7.5; FY 2013 $7.5) ..... +$0.03
This funding level supports salaries, benefits and associated costs for 35 FTE (+$0.7) to reflect standing up the Office of the Ombudsman, offset by decreases in the programmatic outreach efforts (-$0.4) number of technical assistance workshops for minority educational institutions (-$0.4). In addition, there were decreases to business and community development (-$0.3).

General Counsel (FY 2012 $33.1; FY 2013 $33.3) .....+$0.2
This funding level reflects increases in Westlaw and Nexis subscriptions (+$0.3), as well as Working Capital Fund (+$1.1) costs. These increases are largely offset by personnel efficiencies and the reduction of 18 FTEs (-$1.1), as well as reductions in support service contracts.

Human Capital Management (FY2012 $23.1; FY 2013 $23.3) .....+$0.2
This funding level supports salaries and benefits for 138 FTEs. In addition to salaries and benefits, funding is also provided for workers' compensation payments on behalf of all employees funded through the Departmental Administration (DA) appropriation. Changes reflect a reduction of -28 FTEs from the current FY 2012 projected usage of 166 to FY 2013 level of 138.

Office of Management (FY 2012 $62.7; FY 2013 $53.3) ..... -$9.4
Decrease of salaries benefits for 259 FTEs, functional transfer of responsibility of STRIPES/Privacy functions to the CIO, and a reduction in other related expenses.

Office of Policy and International Affairs (FY 2012 $27.0; FY 2013 $27.3) ..... +$0.3
The FY 2013 request for PI is $27.3; this is an increase from the FY2012 enacted appropriation. PI serves as the primary advisor to the Secretary on domestic and international energy, climate, and technology policy. This on-going support is accomplished through four program activities: Program Direction (FY 2012 $20.5; FY 2013 $20.8; Difference; +$0.3) Policy Analysis and Systems Studies (FY 2012 $0.44; FY 2013 $0.4; Difference;-$0.04), Environmental Energy Policy Analysis (FY 2012 $0.52; FY 2013 $0.5; Difference; -$0.02), and Climate Change Technology Program (FY 2012 $5,5; FY 2013 $5,6; Difference; +$0.1). Program Direction increased funding will be applied to Working Capital Fund costs. Climate Change Technology Program increased funding will be applied to the evaluation of new energy and climate policies, regulatory mechanisms, and programs to accelerate deployment of clean energy technologies.

Office of Public Affairs (FY 2012 $3.8; FY 2013 $3.3) .....-$0.5
This funding level supports salaries and benefits for 24 FTEs. The funding decrease is due to reduction in contractor support services (-$0.5) for development of an integrated DOE website resulting in millions of dollars in savings for the Department.

Congressional and Intergovernmental Affairs (FY 2012 $4.7; FY 2013 $4.1) .....-$0.6
Supports salaries & benefits for a total of 27 FTES in FY 2013 (-$0.7), as well as office operation expenses needed to define, articulate and advance DOE's position on pending legislation and implement national policy priorities with the Administration, OMB, Congress, and congressional staff, as well as state, local and tribal governments.

Office of Indian Energy Policy and Programs (FY 2012 $2.0; FY 2013 $2.5) .....+$0.5
The FY 2013 funding supports 5 FTEs and associated costs, and maintains initiatives developed in 2011 and implemented in 2012. The increase in support costs (+$0.5) reflects continuation of initiatives and strategic increases in support for energy development and generation efforts.

Cost of Work for Others (FY 2012 $48.5; FY 2013 $48.5) $0
No change. Provides funding to the DOE's multi-purpose field offices and national laboratories to finance the cost of products and services requested by non-DOE users.

Miscellaneous Revenues (FY 2012 -$111.6; FY 2013 -$108.2) ..... -$3.4

The estimated revenues collected from other federal agencies as well as non-federal entities for Reimbursable activity conducted by the Department in accordance with full-cost recovery policy is decreasing from FY 2012 to FY 2013.

Defense Related Administrative Support (FY 2012 -$118.8; FY 2013 -$118.8) $0
No change. Funding reflects the proportional contribution from the Other Defense Activities appropriation for Departmental Administration (DA) costs.

Inspector General

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Office of Inspector General	42,764	42,000	43,468	+1,468	+3.5%
Total, Office Of The Inspector General	**42,764**	**42,000**	**43,468**	**+1,468**	**+3.5%**

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. The OIG continues to provide oversight activities of the Recovery Act funds, which will continue over a number of years in the future though funding expires on September 30, 2012 for obligation.

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 the Department's efforts to track and improve performance, per the Government Performance and Results Modernization Act of 2010. In addition, the IG conducts reviews of the most significant management challenges facing the Department. The total FY 2013 request for the Office of Inspector General is $43.5 million, which is a $1.5 million increase over the FY 2012 enacted appropriation of $42 million.

PROGRAM HIGHLIGHTS

The FY 2013 request supports statutory requirements including work associated with the Federal Information Systems Management Act of 2002 to evaluate unclassified information systems and the Council of the Inspectors General on Integrity and Efficiency.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to 2013 Request ($ in millions)

Inspector General (FY 2012 $42; FY 2013 $43.5) ..... +$1.5
Reflects increased costs to support the Council of the Inspectors General on Integrity and Efficiency. The increase also supports the coordinated government-wide activities that identify and review areas of weakness and vulnerability in Federal programs and operations with respect to fraud, waste, and abuse and fund activities of the Federal Audit Clearinghouse.

Health, Safety and Security

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Health, Safety and Security	157,336	148,737	139,325	-9,412	-6.3%
Program Direction	105,897	102,000	106,175	+4,175	+4.1%
Adjustments	-739	0	0	N/A	N/A
Total, Health, Safety and security	**262,494**	**250,737**	**245,500**	**-5,237**	**-2.1%**

PROGRAM DESCRIPTION

The **Health, Safety and Security** program demonstrates the unwavering commitment of the U.S. Department of Energy to maintain a safe and secure work environment for all Federal and contractor employees; to ensure that its operations preserve the health, safety, and security of the surrounding communities; and protect the 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 2013** is **$245.5 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 the 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. 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 and other data that has the potential to damage the Nation's energy infrastructure. Support is also provided to review over 400 million pages of documents backlogged at the National Archives for potential release as required by Executive Order.

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. Program direction also provides independent oversight for security; cyber security; emergency management, nuclear safety, and environment, safety, and health; providing performance feedback to senior Departmental leadership, program and site offices, and site contractors; and review and resolution of Defense Nuclear Facilities Safety Board issues.

SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to 2013 Request ($ in millions)

The FY 2013 Health Safety and Security budget request is $245.5, a decrease of $5.24 or 2.1 percent compared to the FY 2012 appropriated funding level.

Health, Safety, and Security (FY 2012 $148.7; FY 2013 $139.3) ..... -$9.4
The FY 2013 request reflects a decreased reliance on contractor support for health, safety, environment, and security policy, assistance, and training activities via implementation of operational efficiencies and increased reliance on the Federal workforce; reduction of Headquarters security operations; deferment of security equipment maintenance and purchases; and elimination of some domestic health research activities in order to increase funding for nuclear safety and enforcement activities and provide for increased outreach and, former worker medical screenings. Decreased funding also reflects an expected decrease in the number of reinvestigations needed to provide/maintain access authorizations for DOE Headquarters and other U.S. Government personnel; decrease in requests for record searches associated with the employee compensation program; and Russian studies continued transition from data collection to report writing activities.

Program Direction (FY 2012 $102.0; FY 2013 $106.2) ..... +$4.2
Overall funding increase reflects additional resources for cyber security and nuclear safety independent oversight activities, working capital fund increases, and a slight increase for travel, offset by a reduction of 26 FTEs, elimination of contractor support for Headquarters security operations activities, and a decrease in information technology infrastructure costs.

Hearings and Appeals

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Office Of Hearings And Appeals	6,076	4,142	4,801	+659	+15.9%
Adjustments	-61	0	0	N/A	N/A
Total, Hearing and Appeals	**6,015**	**4,142**	**4,801**	**+659**	**+15.9%**

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 agency decisions on contractor employee whistleblower complaints, and requests for exception from DOE regulations and orders, such as exceptions from the appliance efficiency regulations. In late 2010, the alternative dispute resolution function was transferred from the Office of the General Counsel to OHA. The FY 2013 request for OHA is $4.8 million, the increase is attributable to that function transfer and related 4 FTEs.

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SIGNIFICANT FUNDING CHANGES – FY 2012 Enacted to FY 2013 Request ($ in millions)

Hearings and Appeals (FY 2012 $4.1; FY 2013 $4.8) ..... +$0.7
The FY 2013 request supports salaries and benefits and cost of living expenses for 24 FTEs.

Federal Energy Regulatory Commission

(discretionary dollars in thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012	
				$	%
Federal Energy Regulatory Commission	298,000	304,600	304,600	0	0
FERC Revenues	-298,000	-304,600	-304,600	0	0
Excess Fees and Recoveries, FERC Fees & Recoveries in Excess of Annual Appropriations	-36,461	-25,534	-25,823	-289	-1.1%
Total, Federal Energy Regulatory Commission	**-36,461**	**-25,534**	**-25,823**	**-289**	**-1.1%**

PROGRAM DESCRIPTION

The **Federal Energy Regulatory Commission (FERC or the Commission)** is an independent agency that regulates the transmission and wholesale sale of electricity in interstate commerce; 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 non-federal hydropower projects. The Commission protects the reliability of the Nation's bulk-power system and oversees environmental matters related to natural gas pipeline and non-federal hydro projects. The Commission enforces its regulatory requirements 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 seeks to ensure 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 pursuing 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. The Commission 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.

The Commission's infrastructure siting authority rests in licensing non-federal hydropower projects, certificating interstate natural gas pipelines and storage projects, authorizing liquefied natural gas (LNG) facilities and, in certain circumstances, permitting electric transmission lines. Post-authorization, the Commission relies heavily on physical inspections of hydropower and LNG facilities to ensure safety.

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 2012 Enacted to FY 2013 Request ($ in millions)

FERC (FY 2012 $304.6; FY 2013 $304.6) $0
The FY 2013 request funds an estimated 1,480 FTEs that will support FERC in its reliability and critical infrastructure protection standards development and compliance processes; infrastructure siting and inspection responsibilities; enforcement efforts; and policy reforms related to competitive energy markets and regulatory policies, including removal of barriers 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 2013.