

# Fiscal Year 2011 Summary of Performance and Financial Information



DOE/CF-0070



U.S. DEPARTMENT OF  
**ENERGY**

# Agency Reporting

The Reports Consolidation Act of 2000 authorizes federal agencies, with concurrence from the Office of Management and Budget, to consolidate various reports in order to provide performance, financial, and related information in a more meaningful and useful format. The Department of Energy (DOE) has chosen an alternative to the consolidated Performance and Accountability Report for fiscal year 2011, instead producing the three reports below. These reports are located on the following website:

[www.energy.gov/about-us/budget-performance.htm](http://www.energy.gov/about-us/budget-performance.htm)

## Agency Financial Report (AFR)



Organized by the following three major sections:

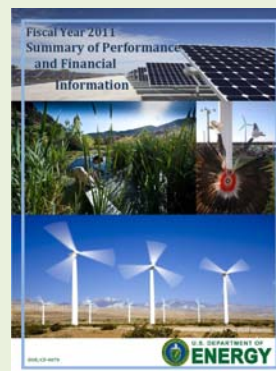
- **Management's Discussion and Analysis** – provides information on DOE's history, mission, organization, strategic goals, analysis of financial statements, systems, controls and legal compliance, and management priorities.
- **Financial Results** – provides a message from the Chief Financial Officer, consolidated and combined financial statements, and the auditors' report.
- **Other Accompanying Information** – provides the Inspector General's statement of management challenges, improper payments information, and other statutory reporting.

## Annual Performance Report (APR)



Contains detailed annual performance results and documentation for program goals that align with the congressional budget request

## Summary of Performance and Financial Information



Contains highlights from the APR and AFR

# Table of Contents

Message from the Secretary .....	1
DOE at a Glance .....	2
DOE History .....	3
Agency Organizational Structure .....	4
Major Laboratories and Field Facilities .....	5
Financial Resources .....	6
Human Capital Resources .....	7
Financial Management Report Card .....	7
Strategic Plan and Program Performance .....	8
Priority Goals.....	16
Analysis of Financial Statements.....	17
Management Challenges .....	23



**James Forrestal Building – U.S. Department of Energy headquarters in Washington, DC**

## Message from the Secretary



I am pleased to present the U.S. Department of Energy's (DOE) *Fiscal Year 2011 Summary of Performance and Financial Information*. This report provides key financial and performance information that demonstrates our accountability to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. This report presents highlights from two more detailed reports, DOE's *Fiscal Year 2011 Agency Financial Report* and *Fiscal Year 2011 Annual Performance Report*. These reports are available at [Energy.gov](http://Energy.gov).

The Department of Energy has made remarkable progress during these economically challenging times by laying the foundation for a new clean energy future, advancing groundbreaking science, and reducing the nuclear dangers facing our citizens. In the process, we have begun to change the way the Department does business so we accomplish our work more efficiently and more effectively. The Department of Energy Strategic Plan, released in May 2011, reflects this new focus through four strategic goal areas: ***transform our energy systems*** through catalyzing the timely, material, and efficient transformation of the nation's energy system and securing U.S. leadership in clean energy technologies; ***promote the science and engineering enterprise*** by maintaining a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity, with clear leadership in strategic areas; ***secure our nation*** by enhancing nuclear security through defense, nonproliferation, and environmental efforts; and achieve ***management and operational excellence*** by establishing an operational and adaptable framework that combines the best wisdom of all Department stakeholders to maximize mission success.

The investments DOE has made have laid the foundation for a new clean energy economy – creating jobs, reducing our dependence on foreign energy sources, and saving money for American families and businesses. Investments in advanced vehicle manufacturing, renewable energy generation, the weatherization of low-income homes, smart meter deployment, and carbon capture and sequestration have benefited communities across the country, at the same time that they have increased the nation's economic competitiveness.

The Department continues to expand the frontiers of science to spur innovation and position the United States to lead in the global clean energy economy. The Advanced Research Projects Agency-Energy has established itself as a ground-breaking research agency to support potentially transformative research. DOE has also launched three Energy Innovation Hubs and dozens of Energy Frontier Research Centers to accelerate cutting-edge research and development. From a car battery with a 500-mile range to producing gasoline from sunlight, we have unleashed bold new research efforts that – if successful – could fundamentally change the way we use and produce energy.

The Department of Energy has strengthened nuclear safety and security at home and abroad, cleaning up nuclear sites in the United States and securing vulnerable nuclear material around the world. The Department also played a central role in the historic Nuclear Security Summit, which brought together 47 world leaders to agree on effective national and international measures to secure nuclear material. DOE contributed to making the world a safer place by helping negotiate the New START Treaty – the most significant arms control agreement in nearly two decades.

As we continue our work, the Department will rely on the creativity, talent, and dedication of its employees and of the Department's contractor work force to discover and deliver solutions to our national challenges. Together, we can position the United States to win the global clean energy technology race – creating new jobs and industries and a stronger economic future.

The independent public accounting firm KPMG LLP conducted an audit of the Department's fiscal year 2011 financial statements contained in DOE's *Fiscal Year 2011 Agency Financial Report*. Based on the results of that audit, the Department received an unqualified audit opinion. Based on our internal evaluations, I can provide reasonable assurance that the financial and performance information contained in this report is complete and reliable and accurately describes the results achieved by the Department.

As Secretary, I assure you that Department of Energy employees take their work seriously, and I commend them for their contributions.

Steven Chu  
February 2012



# DOE at a Glance

## Mission

To ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions

## Strategic Goals

- 1: *Transform Our Energy Systems* – Catalyze the timely, material, and efficient transformation of the nation's energy system and secure U.S. leadership in clean energy technologies
- 2: *The Science and Engineering Enterprise* – Maintain a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity, with clear leadership in strategic areas
- 3: *Secure Our Nation* – Enhance nuclear security through defense, nonproliferation, and environmental efforts
- 4: *Management and Operational Excellence* – Establish an operational and adaptable framework that combines the best wisdom of all Department stakeholders to maximize mission success

## Organization

The Department of Energy (DOE) is comprised of three Offices of Under Secretaries (Nuclear Security, Energy, and Science), the Energy Information Administration, the Advanced Research Projects Agency-Energy, the Loans Program Office, 4 Power Marketing Administrations, 13 staff and support offices, 22 operations and area offices, and 24 research laboratories and facilities.

## Personnel

The fiscal year 2011 workforce was comprised of 16,036 on-board federal employees and 100,072 contractor employees. The large number of contractors is attributable to the highly specialized scientific and technical skill mixes required to manage and operate DOE's 17 national laboratories.

## Performance

	FY 2011	FY 2010	FY 2009	FY 2008	FY 2007
Targets Met	165	273	285	203	189
Targets Not Met	25	65	62	15	14
Results Unknown	1	6	3	2	0
<i>Total Number of Measures</i>	<i>191</i>	<i>344</i>	<i>350</i>	<i>220</i>	<i>203</i>
<i>Share Met</i>	<i>86%</i>	<i>79%</i>	<i>81%</i>	<i>92%</i>	<i>93%</i>

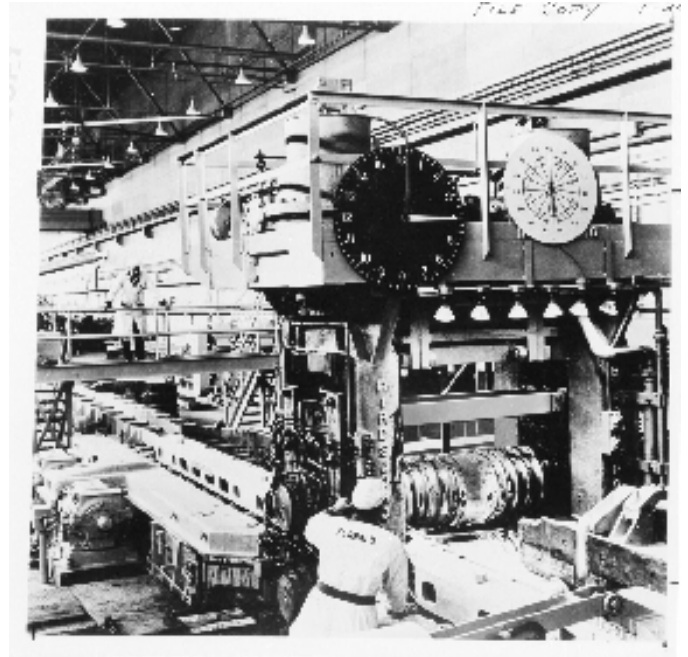
## Financials

(dollars in billions)	FY 2011	FY 2010	FY 2009	FY 2008	FY 2007
Total Assets	\$ 182.0	\$ 181.7	\$ 182.0	\$ 133.8	\$ 130.7
Total Liabilities	\$ 371.4	\$ 355.6	\$ 361.5	\$ 344.0	\$ 337.8
Net Cost of Operations	\$ 44.0	\$ 23.8	\$ 40.1	\$ 29.4	\$ 61.5
Total Budgetary Resources	\$ 63.0	\$ 66.7	\$ 95.6	\$ 36.8	\$ 36.1
Net Outlays	\$ 34.7	\$ 32.0	\$ 24.1	\$ 21.3	\$ 20.1
<i>Audit Opinion</i>	<i>unqualified</i>	<i>unqualified</i>	<i>unqualified</i>	<i>unqualified</i>	<i>unqualified</i>

## DOE History

The Department has one of the richest and most diverse histories in the federal government, with its lineage tracing back to the Manhattan Project and the race to develop the atomic bomb during World War II. Following that war, Congress created the Atomic Energy Commission in 1946 to oversee the sprawling nuclear scientific and industrial complex supporting the Manhattan Project and to maintain civilian government control over atomic research and development. During the early Cold War years, the Commission focused on designing and producing nuclear weapons and developing nuclear reactors for naval propulsion. The creation of the Atomic Energy Commission ended the exclusive government use of the atom and began the growth of the commercial nuclear power industry, with the Commission having authority to regulate the new industry.

In response to changing needs and an extended energy crisis, the Congress passed the Department of Energy Organization Act in 1977, creating the Department of Energy. That legislation brought together for the first time, not only most of the government's energy programs, but also science and technology programs and defense responsibilities that included the design, construction and testing of nuclear weapons. The Department provided the framework for a comprehensive and balanced national energy plan by coordinating and administering the energy functions of the federal government. The Department undertook responsibility for long-term, high-risk research and development of energy technology, federal power marketing, some energy conservation activities, the nuclear weapons programs, some energy regulatory programs and a central energy data collection and analysis program.



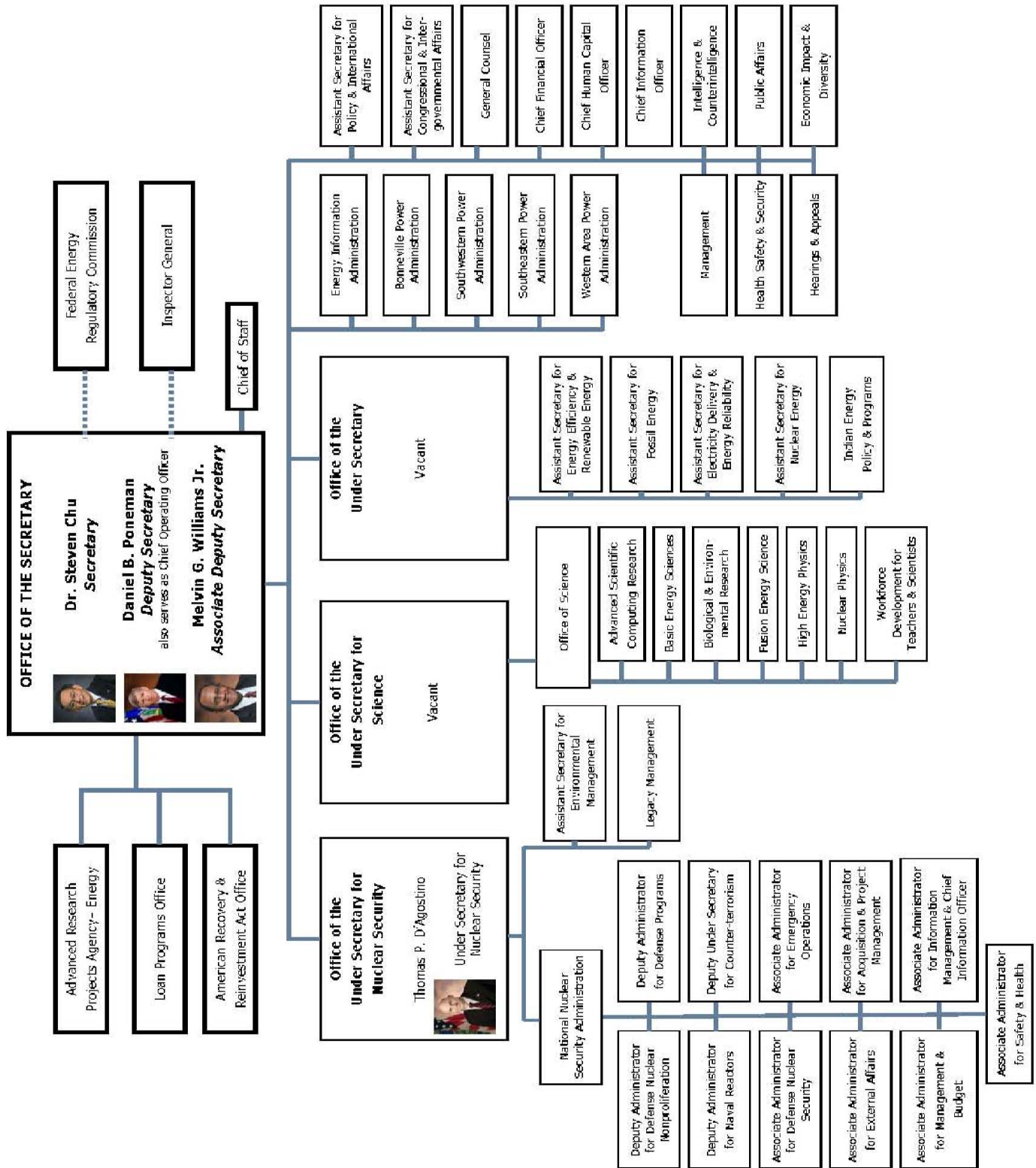
Mill used to roll uranium into rods for subsequent fabrication into fuel elements in Fernald's Plant 6 [photo taken in 1956]

Over its history, the Department has shifted its emphasis and focus as the energy and security needs of the nation have changed. On February 17, 2009, the Department was significantly impacted by President Obama signing into law the American Recovery and Reinvestment Act of 2009. The Recovery Act more than doubled the Department's budget by providing an additional \$35.2 billion of funding for the acceleration of a number of critical commitments in the Department's mission and activities.

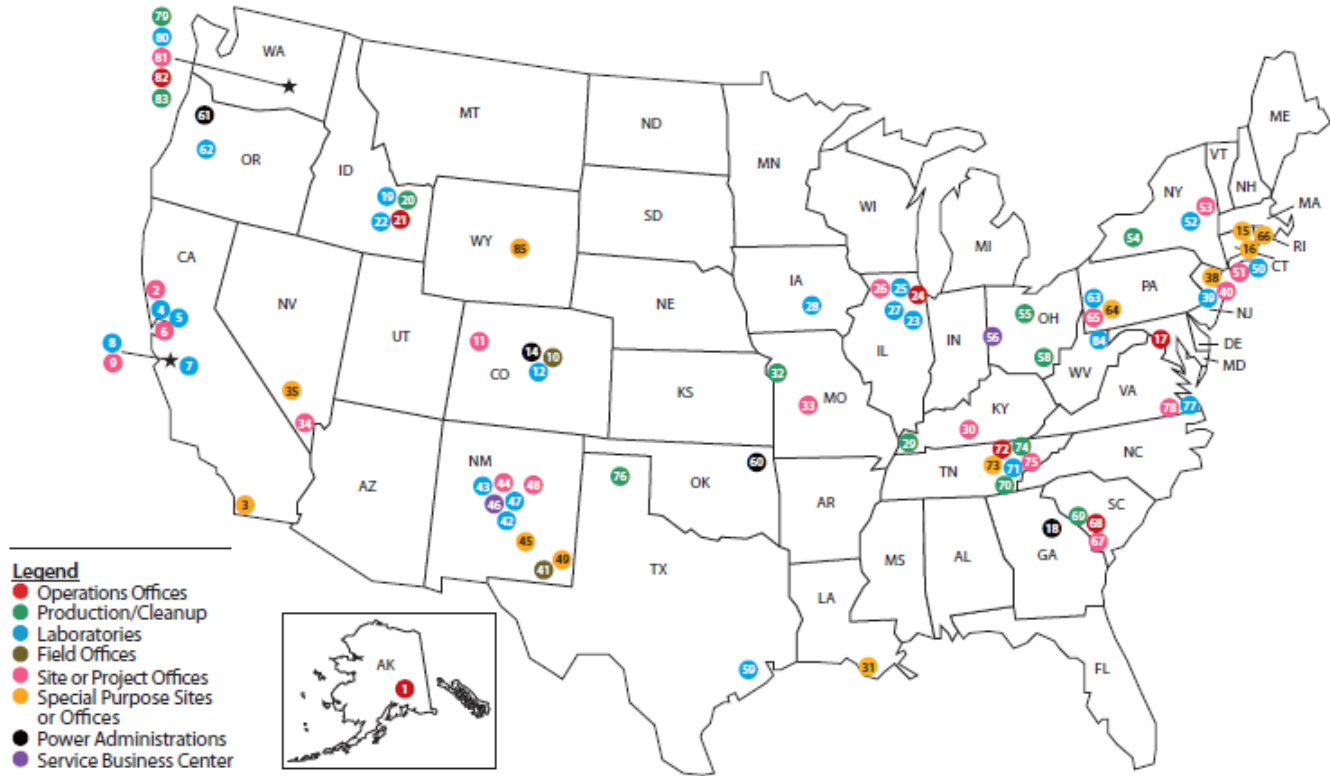


Transformers manufactured by Waukesha Electric Systems will help to modernize the electrical grid for the 21st century

# Agency Organizational Structure



# Major Laboratories and Field Facilities



## Alaska

- 1 Artic Energy Office

## California

- 2 Berkeley Site Office
- 3 Energy Technology Engineering Center
- 4 Lawrence Berkeley National Laboratory
- 5 Lawrence Livermore National Laboratory
- 6 Livermore Site Office
- 7 Sandia National Laboratories
- 8 SLAC National Accelerator Laboratory
- 9 SLAC Site Office

## Colorado

- 10 Golden Field Office
- 11 Grand Junction Office
- 12 National Renewable Energy Laboratory
- 14 Western Area Power Administration

## Connecticut

- 15 16 Northeast Home Heating Oil Reserves

## District of Columbia

- 17 Washington D.C. Headquarters

## Georgia

- 18 Southeastern Power Administration

## Idaho

- 19 20 Idaho National Laboratory
- 21 Idaho Operations Office
- 22 Radiological Environmental Sciences Laboratory

## Illinois

- 23 Argonne National Laboratory
- 24 Chicago Office
- 25 Fermi National Accelerator Laboratory
- 26 Fermi Site Office
- 27 New Brunswick Laboratory

## Iowa

- 28 Ames Laboratory

## Kentucky

- 29 Paducah Gaseous Diffusion Plant
- 30 Portsmouth/Paducah Project Office

## Louisiana

- 31 Strategic Petroleum Reserve

## Missouri

- 32 Kansas City Plant
- 33 Kansas City Site Office

## Nevada

- 34 Nevada Site Office
- 35 Nevada National Security Site

## New Jersey

- 38 Northeast Home Heating Oil Reserve
- 39 Princeton Plasma Physics Laboratory
- 40 Princeton Site Office

## New Mexico

- 41 Carlsbad Field Office
- 42 Inhalation Toxicology Research Institute
- 43 Los Alamos National Laboratory
- 44 Los Alamos Site Office
- 45 National Training Center

## New York

- 46 NNSA Service Center
- 47 Sandia National Laboratories
- 48 Sandia Site Office
- 49 Waste Isolation Pilot Plant
- 50 Brookhaven National Laboratory
- 51 Brookhaven Site Office
- 52 Knolls Atomic Power Laboratory
- 53 Schenectady Naval Reactors Office
- 54 West Valley Demonstration Project

## Ohio

- 55 Columbus Environmental Management Project
- 56 EM Consolidated Business Center
- 59 Portsmouth Gaseous Diffusion Plant

## Oklahoma

- 60 Southwestern Power Administration

## Oregon

- 61 Bonneville Power Administration
- 62 National Energy Technology Laboratory – Albany

## Pennsylvania

- 63 Bettis Atomic Power Laboratory
- 64 National Energy Technology Laboratory – Pittsburgh
- 65 Naval Reactors Laboratory Field Office

## Rhode Island

- 66 Northeast Home Heating Oil Reserve

## South Carolina

- 67 Savannah River National Laboratory
- 68 Savannah River Operations Office
- 69 Savannah River Site Office

## Tennessee

- 70 East Tennessee Technology Park
- 71 Oak Ridge National Laboratory
- 72 Oak Ridge Site Office
- 73 Office of Scientific and Technical Information
- 74 Y-12 Plant
- 75 Y-12 Site Office

## Texas

- 76 Pantex Plant and Site Office
- 50 National Energy Technology Lab – Sugar Land

## Virginia

- 77 Thomas Jefferson National Accelerator Facility
- 78 Thomas Jefferson Site Office

## Washington

- 79 Hanford
- 80 Pacific Northwest National Laboratory
- 81 Pacific Northwest Site Office
- 82 Richland Operations Office
- 83 Office of River Protection

## West Virginia

- 64 National Energy Technology Laboratory – Morgantown

## Wyoming

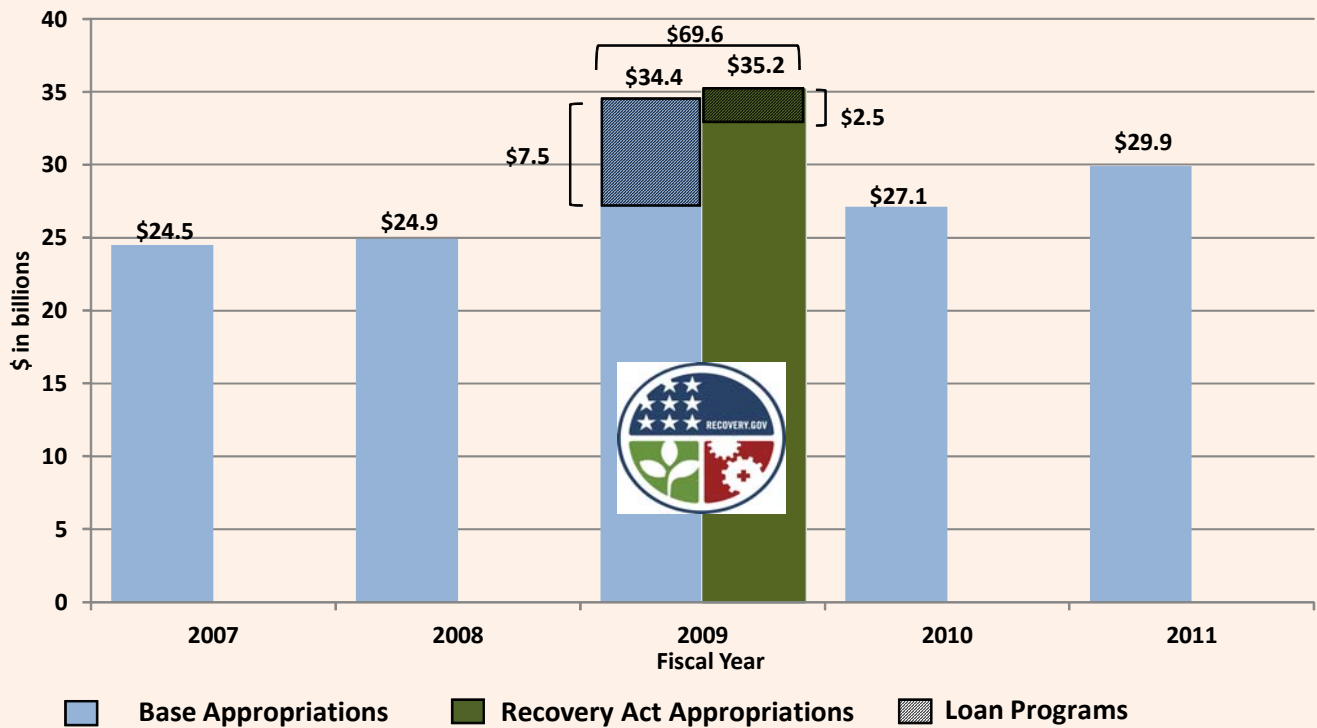
- 85 Naval Petroleum Reserve No. 3 – Casper



# Financial Resources

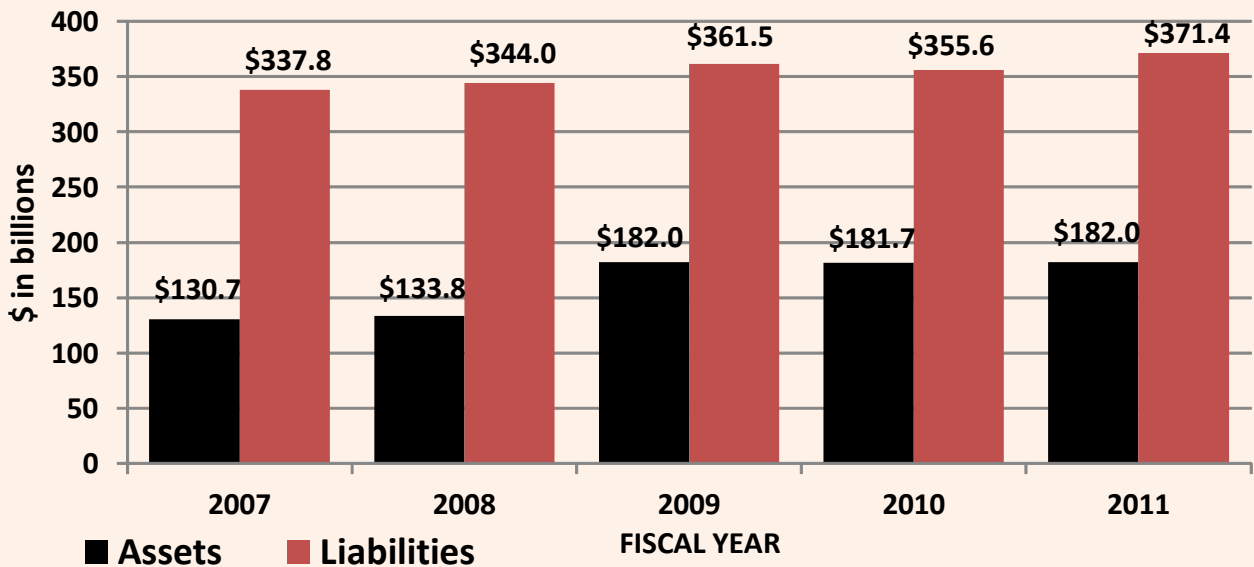
## Adjusted Appropriated Amounts

(Adjustments include appropriation transfers, reductions, and appropriations temporarily not available.)



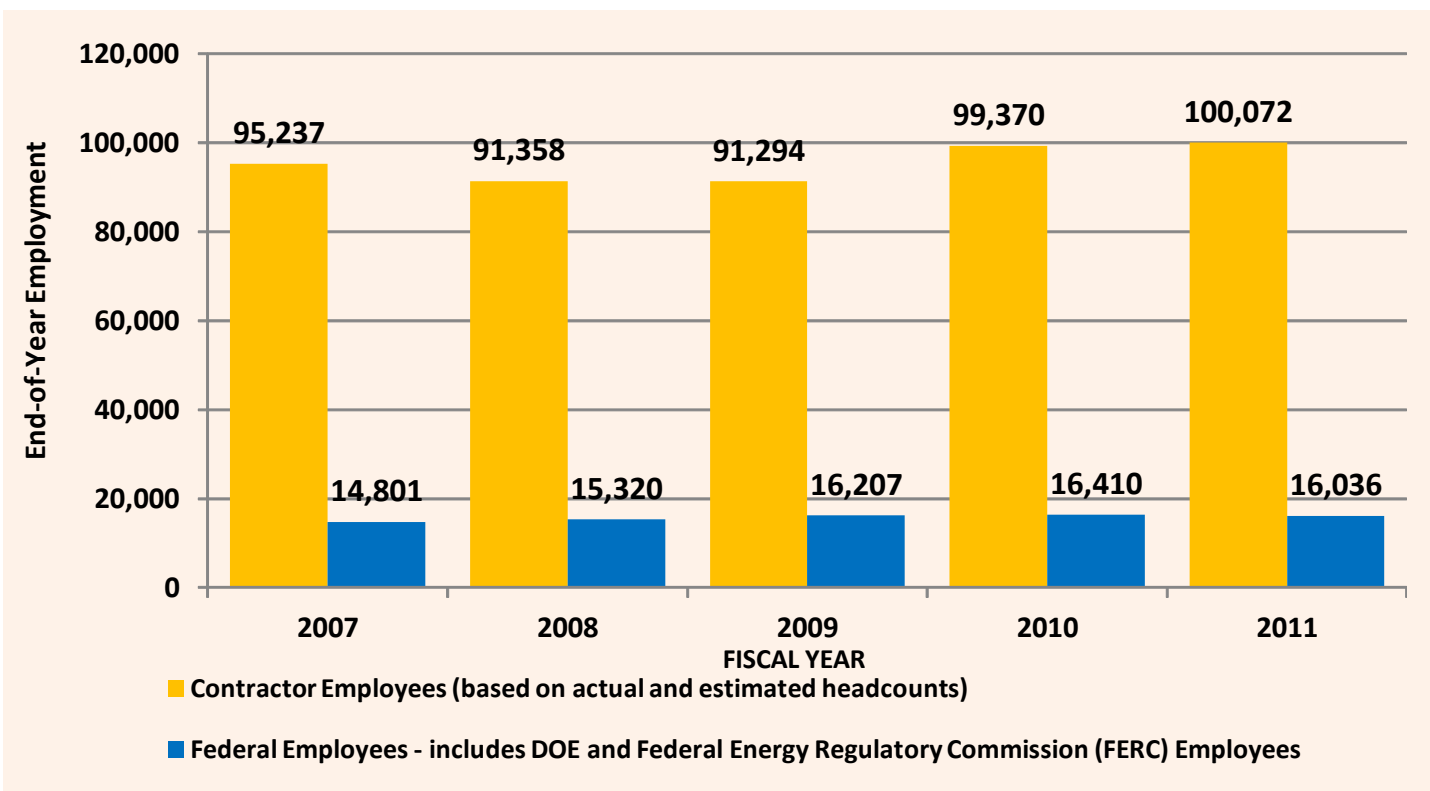
(Original \$38.7 billion of Recovery Act appropriations was later reduced by \$3.5 billion in transfers and rescissions. Amounts do not include the Western Area and Bonneville Power Administrations' borrowing authority and credit reform financing accounts.)

## Assets and Liabilities



# Human Capital Resources

## Federal and Contractor Employees



## Financial Management Report Card

	REQUIREMENT OR INITIATIVE	SUPPORTING INDICATORS
<input checked="" type="checkbox"/>	Government Management Reform Act – Financial Statement Audit	Unqualified Audit Opinion
<input checked="" type="checkbox"/>	Federal Managers’ Financial Integrity Act – Internal Controls (Section II) Financial Systems (Section IV)	No Material Weaknesses (Section II) Financial Systems generally conform to (Section IV) requirements and no FISMA significant deficiencies identified
<input checked="" type="checkbox"/>	OMB Circular A-123, Appendix A	No Material Weaknesses
<input checked="" type="checkbox"/>	Federal Financial Management Improvement Act	Substantially comply with federal financial management system requirements
<input checked="" type="checkbox"/>	Federal Information Security Management Act (FISMA)	Substantially comply with FISMA requirements as evidenced by annual FISMA reporting data
<input checked="" type="checkbox"/>	Improper Payments Information Act, as amended by the Improper Payments Elimination & Recovery Act	<1% overall Erroneous Payment Rate and not susceptible to significant improper payments

# Strategic Plan and Program Performance

The narrative below discusses recent results and outcomes for Department of Energy (DOE) programs as aligned with the strategic goals presented in the *DOE Strategic Plan* that was released in May 2011 and updated in February 2012. A detailed discussion of results and documentation for each of the agency's fiscal year 2011 performance goals is presented in DOE's *Fiscal Year 2011 Annual Performance Report*. This report was released with the agency's *Fiscal Year 2013 Congressional Budget Request* in February 2012.

## Goal 1 Transform Our Energy Systems

*Catalyze the timely, material, and efficient transformation of the nation's energy system and secure U.S. leadership in clean energy technologies*

### Objectives:

- Deploy the technologies we have
- Discover the new solutions we need
- Lead the national conversation on energy

### Supporting Offices:

[Advanced Research Projects Agency-Energy](#)  
[Electricity Delivery and Energy Reliability](#)  
[Energy Efficiency and Renewable Energy](#)  
[Energy Information Administration](#)  
[Fossil Energy](#)  
[Indian Energy Policy and Programs](#)  
[Loan Programs](#)      [Nuclear Energy](#)  
[Power Marketing Administrations](#)

Currently, more than 80% of total U.S. primary energy and more than 95% of U.S. transportation fuel comes from fossil resources; these percentages are expected to change little over the next 25 years under a business-as-usual scenario. While U.S. energy consumption and carbon-dioxide emissions are also expected to increase significantly in this scenario, global energy consumption will rise more than twice as quickly due to growing population and increasing development in non-Organisation for Economic Co-operation and Development (OECD) countries. Likewise, water is integral to many energy technologies, and related water demands could be amplified in the future if climate change alters regional water cycles. Our energy technology research and development activities should be cognizant of this interdependence. This context frames the challenge before us: to achieve our long-term energy and environmental goals, we must change our current energy paradigm through concerted effort across public and private sectors.

The following are examples of recent outcomes and benefits to U.S. citizens from DOE investments in energy transformation and clean energy.

**Solar Breakthroughs:** Alta Devices single-junction thin-film Gallium Arsenide (GaAs) photovoltaic technology recently achieved a National Renewable Energy Laboratory (NREL)-confirmed world record 28.2% conversion efficiency. The company utilizes an epitaxial lift-off technique pioneered by University of California Berkeley's Eli Yablonovitch that allows Alta to produce flexible layers of GaAs with a thickness of only one micron. Eventually, Alta thinks that it will be able to build its modules at a cost of around \$0.50 per watt. President and

CEO Chris Norris recently credited the SunShot Initiative's aggressive cost targets with helping spur the spirit of innovation at his own company: "The goal of achieving the \$1 per installed watt target, set by the Department of Energy, has energized our entire company." Concentrated photovoltaic manufacturer Solar Junction's multi-junction solar cell recently achieved an NREL-confirmed world record 43.5% conversion efficiency, easily surpassing the previous record of 42.3%. Solar Junction's multi-junction cells employ multiple semiconductor layers in order to absorb more wavelengths of sunlight, allowing for increased efficiency.

**Plants as Fuels:** A team of researchers at the BioEnergy Science Center pinpointed the exact, single gene that controls ethanol production capacity in a microorganism found in many types of biomass crops. This discovery could be the missing link in developing biomass crops that produce higher concentrations of ethanol. Scientists at Brookhaven National Laboratory have developed a computational model for analyzing the metabolic processes in rapeseed plants – particularly those related to the production of oils in their seeds. This model will help to optimize the production of plant oils that have widespread potential as renewable resources for fuel and industrial chemicals.

**Airborne Wind Technology:** The hope of harnessing high altitude wind power has been alive for years, but initial deployments have yet to succeed due to strict Federal Aviation Authority safety regulations that apply to anything flying above 2,000 feet. Furthermore, the historical lack of support from government agencies suggests a high level of risk for potential investors. The

Advanced Research Project Agency – Energy (ARPA-E) helped high-altitude hopefuls gain ground last year by awarding California-based Makani Power \$3 million to advance its airborne wind technology. Makani’s Airborne Wind Turbine aims to capture wind power at altitudes below 2,000 feet where Federal Aviation Administration safety regulations are milder, but at heights high enough to extract energy from more powerful, consistent winds.

**Clean Energy Projects:** DOE fills an important gap providing debt financing for innovative clean energy projects helping to bridge the “valley-of-death” in the clean energy technology development cycle, between the pilot-facility stage and commercial maturity, where companies find it difficult to obtain the financing needed to deploy their technologies at commercial scale. DOE finalized a number of transformative projects in FY 2011. These include POET’s Project Liberty, one of the nation’s first cellulosic ethanol power plants located in Iowa. The partial loan guarantee to Project Amp will support the distributed generation of an estimated 733 megawatts of electricity using photovoltaic solar (PV) panels installed on approximately 750 commercial roof tops in 28 states. When completed, the Aqua Caliente Project in Arizona will be the largest PV generation facility in the world. DOE has also supported several of the world’s largest concentrating solar power facilities that will triple the nation’s currently-installed concentrated solar photovoltaic capacity.

**Advanced Battery Factory:** Johnson Controls in Holland, Michigan – a once shuttered factory – is helping speed up the advanced battery industry in the United States. This long dormant plant was revived by a \$300 million grant through DOE which allowed Johnson Controls to secure the private investments it needed to select the Holland facility over several overseas locations. Similar DOE investments have helped position the United States to lead the charge in advanced battery production, practically building the industry from the ground up in less than two years.

**Smart Grid Deployment:** CenterPoint Energy is one of the nation’s leaders in smart grid technologies. With the help of \$200 million from DOE, the company is building a smarter, more reliable, electrical system for Houston’s residents. The project is deploying a total of 2.2 million smart meters, more than 500 grid monitoring sensors, automation at 30 different substations, and a range of energy use tools to help families save money on their energy bills every month.

**New Research Center Established:** The Energy Innovation Hub for Nuclear Energy, administered by the Consortium for Advanced Simulation of Light Water Reactors (CASL), is expected to help accelerate the advancement of nuclear reactor technology. CASL researchers are using supercomputers to study the performance of light water reactors and to develop highly sophisticated modeling that will help accelerate upgrades at existing U.S. nuclear plants. This work will enable better

understanding of reactor performance so that designers and operators can achieve maximum efficiency while providing continued improvements in reliability and safety. The facility, headquartered at DOE’s Oak Ridge National Laboratory, brings together four national labs, three industry partners and three universities in a highly collaborative effort to develop tools that will advance new generations of nuclear reactors and safely extend the life and reliability of existing plants.

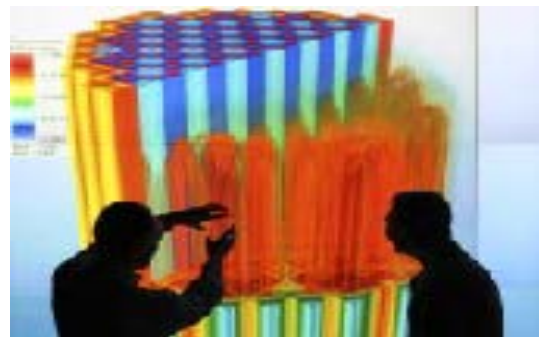
**National Carbon Capture Center Launches Post-Combustion Test Center:** The recent successful commissioning of an Alabama-based test facility is another step forward in research that will speed deployment of innovative post-combustion carbon dioxide capture technologies for coal-based power plants. Technologies tested at the Post-Combustion Carbon Capture Center are an important component of carbon capture and storage, whose commercial deployment is considered by many experts as essential for helping to reduce human-generated carbon dioxide emissions that contribute to potential climate change.

## Challenges

**Improving Electricity Delivery:** Reliable, efficient, affordable, and secure delivery of electric power requires innovative solutions, including large grid-scale energy storage and grid integration of electric vehicles and intermittent power sources such as wind and solar.

**Increasing Clean Transportation:** Enabling widespread utilization of hybrid vehicles requires advanced batteries with substantially higher energy and power densities, lower costs, and faster recharge times.

**Extracting Natural Gas Cleanly and Safely:** Natural gas will continue to play an important role in the nation’s energy portfolio, helping create jobs, stimulate the economy, and provide an alternative to imported oil. However, this is built on the ability to work with industry to improve the environmental performance of the processes. What can be done now to increase safe and responsible production of natural gas is directly connected to the long-term ability to develop this fuel source.



CASL modeling and simulation capabilities for predicting simulation of light water reactors

## Goal 2 The Science and Engineering Enterprise

*Maintain a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity, with clear leadership in strategic areas*

### Objectives:

- Extend our knowledge of the natural world
- Deliver new technologies to advance our mission
- Sustain a world-leading technical workforce

### Supporting Offices:

Science

The Department of Energy supports basic research into the smallest constituents of matter; the most fleeting subatomic, atomic, and chemical transitions; and the structure and properties of materials and biological systems. We are the largest federal funder of physical sciences. Our research extends our understanding of nature; enables new technologies that support the Department's energy, environment, and security missions; and improves the quality of life of all Americans. Scientific discovery feeds technology development; and, conversely, technology advances enable scientists to pursue an ever more challenging set of questions. The Department strives to maintain leadership in fields where this feedback is particularly strong, including materials science research, bio-energy research, and high-performance computing.

The following are examples of recent outcomes and benefits to U.S. citizens from DOE investments in science and engineering.

**Trapping the Light Fantastic:** A new solar cell design uses advanced optics and nanotechnology to maximize performance and minimize cost. One of the more promising new applications of nano-optics to solar energy is the work of Harry Atwater and his team at the California Institute of Technology. Starting with a focus on harvesting and trapping light, Atwater's group has developed an entirely new design for a thin-film silicon solar cell, which promises to achieve efficiencies rivaling today's top-of-the-line commercial silicon cells, at potentially a fraction of the cost. If successful, the technology could help take us a step closer to "grid parity," the long-sought-after point at which solar photovoltaics become inexpensive enough to be genuinely cost-competitive with fossil fuel-generated electricity. In the space of a year, Atwater's unusually promising design has gone from the lab bench to the early stages of commercialization, aided by a \$1 million incubator grant from DOE and a newly raised round of venture capital.

**General Electric Co. Uses DOE Advanced Light Sources to Develop Revolutionary Battery Technology:** The company is constructing a new battery factory in upstate New York that is expected to create over 300 jobs. The new batteries, based on sodium metal halide technology, boast three times the energy density and charging power of the lead-acid batteries they are designed to replace. GE engineers also say the batteries have long cycle life, withstanding

thousands upon thousands of charge and discharge cycles, for expected lifetimes of up to 20 years, and can operate in a wide range of temperature environments. To help achieve these breakthroughs, GE researchers relied on two of the nation's most advanced and sophisticated scientific user facilities, the National Synchrotron Light Source at DOE's Brookhaven National Laboratory on Long Island and the Advanced Photon Source at DOE's Argonne National Laboratory outside Chicago.

### Superfast Search Engine Speeds Past the Competition:

Computer scientists at the DOE's Lawrence Berkeley National Laboratory developed a new approach to searching massive databases. Embodied in open-source software called FastBit, the new method can search massive databases 10 to 100 times faster than large commercial database software, depending on the specific application. Originally developed to sort through the massive data produced by nuclear physics experiments, the software has found important commercial uses. A German-based pharmaceutical firm has used the software to accelerate drug discovery. Still other companies have used it to analyze computer network performance or rapidly comb through masses of financial data.

### Fundamental Studies in Catalysis Enable Use of "Lean-Burn" Engines for Vehicles:

In recent years, DOE research has focused on solving the vexing issues that have been preventing the fuel efficient lean-burn engine from becoming a commercial reality for today's vehicles. Lean-burn engines operate at very high air-to-fuel ratios and, in this way, can improve fuel efficiency by more than 25% over standard gasoline engines. Unfortunately, these higher ratios mean that emission control devices developed for standard gasoline engines are not effective for removing nitrogen oxides. Pacific Northwest National Laboratory's catalysis research program, sponsored by DOE's Office of Science, performed research that led to a better understanding of how the catalyst functions and enabled improvements in catalytic converter performance.

**R&D 100 Awards:** DOE researchers have won 36 of the 100 awards given out for 2011 by R&D Magazine for the most outstanding technology developments with promising commercial potential. The coveted awards are presented annually in recognition of exceptional new products, processes, materials or software developed throughout the world and introduced into the market the previous year.

## Challenges

**Global Competitiveness:** America today faces not only fierce international economic competition, but competition across a wide spectrum of activities, including growing competition in science and in scientific facilities. Meeting the challenge may require new technologies for producing, storing, and using energy with performance levels far

beyond what is now possible. Such technologies spring from scientific breakthroughs.

**Developing a Technical Workforce:** There is a growing need in the private and public sectors, for scientists and engineers, including researchers. Providing technical and scientific training is vital to ensure that America remains competitive and prosperous.

## Goal 3 Secure Our Nation

*Enhance nuclear security through defense, nonproliferation, and environmental efforts*

### Objectives:

- Support the U.S. nuclear stockpile and future military needs
- Reduce global nuclear dangers
- Apply our capabilities for other critical national security missions
- Support responsible civilian nuclear power development and fuel cycle management
- Complete environmental remediation of our legacy and active sites

### Supporting Offices:

[Environmental Management](#)  
[Intelligence and Counterintelligence](#)  
[Legacy Management](#)  
[National Nuclear Security Administration](#)

The Department of Energy—primarily through the National Nuclear Security Administration—is central to preventing proliferation and nuclear terrorism and sustaining a safe, secure, and effective nuclear arsenal. We have added responsibility for cleaning up the environmental legacy of the Cold War’s nuclear weapons complex. Through engagement with the International Atomic Energy Agency and directly with other international and interagency partners, the Department has a leading role in nonproliferation and cooperative threat-reduction programs. This expertise positions the Department ideally to help shape policy surrounding future deployment of nuclear power globally. Just as the Department is the trusted authority on the safety, security, and effectiveness of the U.S. nuclear weapons stockpile, it can apply science, technology, and engineering to ensure future nuclear power systems can be deployed safely and securely with appropriate mitigation of risks from terrorism and proliferation.

The Department has the monumental task of cleaning up the environmental legacy from five decades of nuclear weapons development and government-sponsored nuclear energy research. We have been successfully mitigating the technically challenging risks and have made substantial progress in nearly every area of nuclear waste cleanup, including stabilizing and consolidating special nuclear material and safely storing tons of used nuclear fuel. We have continued to build momentum in disposing of solid radioactive wastes, remediating contaminated soil and water, and deactivating and decommissioning radioactively contaminated facilities, with each succeeding year building on the last.

Our Intelligence and Counterintelligence program provides the Secretary, his staff, and other policymakers within the Department timely, technical intelligence analyses on all aspects of foreign nuclear weapons, nuclear materials, and energy issues worldwide.

The following are examples of recent outcomes and benefits to U.S. citizens from DOE investments in securing our nation.

**Ratification and Implementation of New START:** The DOE/National Nuclear Security Administration (NNSA) played an essential role in enabling U.S. Senate consideration of the New Strategic Arms Reduction Treaty (START), which President Obama submitted to the Senate for its advice and consent on May 13, 2010. This included testimony in support of the Treaty by Secretary Chu and NNSA Administrator D’Agostino, responses to numerous questions for the record associated with DOE/NNSA future plans to maintain the nation’s nuclear weapons stockpile, and the development of material to further enable long-term planning and support for the stockpile stewardship program and required infrastructure. The Senate provided its advice and consent on December 22, 2010, and New START entered into force on February 5, 2011. DOE/NNSA continues to play an important role in Treaty implementation, including in the Treaty’s Bilateral Consultative Commission, and utilizes expertise across the Nuclear Security Enterprise for work such as assessing Russian radiation detection equipment for use during inspections in the United States.

### **United States-Russia Peaceful Nuclear Cooperation**

**Agreement:** In January 2011, the United States and Russia brought into force a peaceful nuclear cooperation agreement (Section 123 Agreement) that establishes the legal basis for U.S. and Russian industry to engage in significant nuclear commerce. The agreement establishes a solid foundation for long-term civil nuclear cooperation, provides commercial opportunities for U.S. industry, and enhances U.S.-Russian cooperation on important nuclear nonproliferation goals. Pursuant to its statutory authority, DOE provided technical support in the negotiation of the agreement and will have the lead role in its implementation.

**Rules on Sensitive Exports Strengthened:** DOE recently helped secure international agreement on a landmark change to the nuclear supply regime. After seven years of negotiations, the 46-member Nuclear Suppliers Group (NSG) agreed to new guidelines that impose specific criteria for access to the most sensitive and dangerous elements of the nuclear fuel cycle, enrichment and reprocessing (ENR). For over 30 years, the NSG—the world’s most important nuclear trade rule-making body—has urged holders of sensitive nuclear technology to “exercise restraint” in decisions about exports, but until now, has imposed few specific conditions on this trade. In 2003, however, it was confirmed that A.Q. Khan’s international smuggling ring had proliferated uranium enrichment technology to Iran, Libya, North Korea, and perhaps elsewhere; and the NSG initiated an effort to strengthen its ENR guidelines.

**Global Threat Reduction Initiative (GTRI):** In support of President Obama’s goal to secure all vulnerable material in 4 years, 3,125 kilograms (including shipments from Poland, Belarus, Serbia, Ukraine, Canada, Italy, and Belgium) were removed in FY 2011. In addition, GTRI has shut down or verified as shutdown 76 reactors, supported the shipment to the United States of the first low enriched uranium-based Mo-99 produced in South Africa accelerated four U.S. domestic projects to produce the medical isotope Mo-99 without the use of highly enriched uranium, and secured a total of 1,081 buildings with high-activity radiological materials.

**Zheleznogorsk Plutonium Production Elimination Project:** In July 2011, this project fulfilled its commitments under the 2003 Plutonium Production Reactors Agreement by providing assistance to supply heat to the city, after the shutdown of the last plutonium production reactor. In August 2011, the U.S. government met its commitment to provide capability for replacement heat and electricity to the city of Zheleznogorsk with the completion of a new heating plant. Six donor countries provided financial assistance. Capability for replacement heat and electricity was required because of the April 2010 shutdown of the last Russian weapons-grade plutonium production reactor.

**Radiation Detection Systems:** The Second Line of Defense (SLD) program achieved a major milestone by completing deployments of radiation detection systems at all 380

Federal Customs Service of Russia crossing points (airports, seaports, and land crossings). This achievement was completed as a cost-shared cooperative effort with Russian partners and will help prevent, detect and interdict the illicit movement of nuclear or radioactive material. Each side contributed resources to approximately half the Customs sites. All sites in the North West Customs Directorate (approximately 60 crossings) were integrated electronically to local, regional and Moscow-based oversight and technical support organizations. The SLD program also completed work in the Republic of Georgia. Approximately 17 ports, airports, and border crossings were equipped with radiation detection systems and have been networked to provide oversight and technical support. In addition, mobile detection systems have been provided to Border Police and other organizations.

**Weapons Dismantled:** The Weapons Dismantlement and Disposition program successfully executed the actions to completely dismantle the B53 ahead of the current schedule. The B53 is a 1960’s era weapon weighing in at approximately 10,000 pounds, making it the largest and heaviest weapon in the stockpile. The B53 Dismantlement Team’s commitment, strategic focus, and ability to accelerate the salvage of national asset parts proved beneficial to non-proliferation and counter-terrorism efforts.

**First Integrated Ignition Experiments:** The National Ignition Facility (NIF) recently completed its first integrated ignition experiment – using a 192-beam laser system to fire one megajoule of laser energy into its first cryogenically layered capsule – raising the drive energy by a factor of 30 over previously conducted experiments. The successful completion of the test means NIF, the world’s largest and highest-energy laser system, will move forward with the next phase of its campaign to culminate in fusion ignition tests. Built as a part of the NNSA program to ensure the safety, security and effectiveness of the nuclear weapons stockpile without underground testing, NIF’s laser system is expected to be the first to demonstrate reliable fusion ignition – the same force that powers the sun and the stars – in a laboratory environment.

**Uranium Disposition:** NNSA achieved the goal of eliminating a cumulative 137.1 metric tons of U.S. surplus highly enriched uranium (enough for more than 2,600 nuclear weapons) by downblending it to low enriched uranium for peaceful use as fuel in power and research reactors.

**Plutonium Disposition:** The Mixed Oxide Fuel Fabrication Facility enabled the United States to meet its commitments in the 2000 Plutonium Management and Disposition Agreement (PMDA), the 2010 Protocol that amended the PMDA, and the 2006 Liability Protocol, which all entered into force on July 13, 2011, by exchanging diplomatic notes between the United States and Russia. Construction of the fuel fabrication facility is approximately 62% complete

with more than 95,000 cubic yards of reinforced concrete and more than 16,000 tons of rebar installed, as well as 11 of 16 auxiliary buildings complete.

**Environmental Cleanup Milestones:** By the end of September 2011, the DOE Environmental Management program completed the majority of projects in its \$6 billion environmental cleanup portfolio under the Recovery Act. A few examples follow:

*Final Hanford Offsite Waste Shipment Leaves Idaho Treatment Facility* - The Advanced Mixed Waste Treatment Project recently completed the last of 25 shipments of waste bound for permanent disposal in New Mexico and Nevada, six months ahead of a regulatory deadline. It took 77 shipments to bring the 923 85-gallon drums of waste from the Hanford Site in Washington to the treatment facility. After characterization and compaction operations, the waste left the treatment facility in 25 shipments to permanent disposal locations. The transuranic waste was shipped to the Waste Isolation Pilot Plant in New Mexico, and two, 100-gallon drums of mixed low-level waste were shipped to the Nevada National Security Site.

*Paducah, Kentucky* - Crews for DOE cleanup contractor finished work in the C-340 Metals Plant at the Paducah Site in early August of this year. The two-year cleanup project means another inactive Cold War complex is ready for demolition.

*Richland, Washington* - Workers have reduced the Hanford Site by approximately 50% or 290 square miles; cleared away dozens of facilities and waste sites; removed legacy waste and fuels from onsite inventory and underground storage; prepared complex facilities for demolition ahead of schedule; and constructed a network of wells, pipelines and treatment systems to expand and enhance groundwater treatment capabilities by millions of gallons per day.

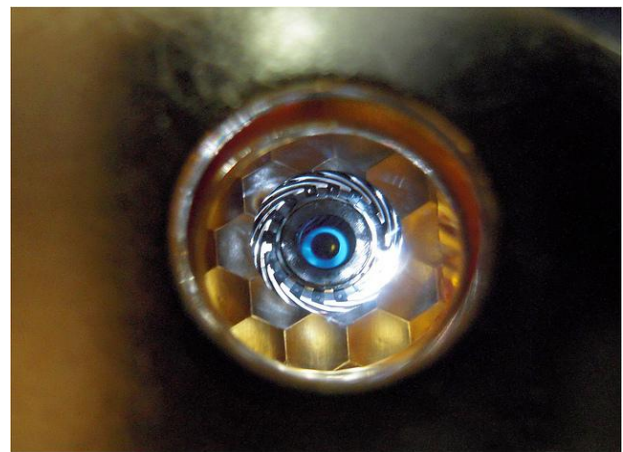
## Challenges

**Nuclear Deterrence:** The challenge is to build on the national consensus demonstrated with the bipartisan ratification of the New START and carry the momentum forward by continuing investments in key nuclear security

capabilities. This will enable the nation to resolve current technical challenges and give this and future administrations the confidence needed to further reduce our number of nuclear weapons, while providing the flexibility to respond appropriately in an unpredictable global environment.

**Russian Program:** The primary challenge now that the PMDA has entered into force is to conclude the implementing arrangements and milestone plan for the allocation of the \$400 million pledge in U.S. assistance. The balance of the approximately \$2.5 billion cost will be provided by the Russian Federation.

**Nuclear Material Storage:** The administration continues to believe that nuclear energy has an important role to play as America moves to a clean energy future. As part of the commitment to restarting the American nuclear industry and creating thousands of new jobs and export opportunities in the process, the government is committed to finding a sustainable approach to assuring safe, secure long-term disposal of used nuclear fuel and nuclear waste. The Blue Ribbon Commission on America's Nuclear Future was formed by the Secretary of Energy at the request of the President to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommend a new plan. In July 2011, the Commission issued a draft of its recommendations.



A view of a cryogenically cooled NIF target as "seen" by the laser through the hohlraum's laser entrance hole [photo courtesy of LLNL]



## Goal 4 Management and Operational Excellence

*Establish an operational and adaptable framework that combines the best wisdom of all Department stakeholders to maximize mission success*

### Objectives:

- Achieve operational and technical excellence
- Implement a performance-based culture

### Supporting Offices:

Chief Financial Officer  
Chief Human Capital Officer  
Chief Information Officer

Congressional and Intergovernmental Affairs

Economic Impact and Diversity

General Counsel

Health, Safety, and Security

Hearings and Appeals

Inspector General

Management

Policy and International Affairs

Public Affairs

The Secretary has challenged all who serve within the Department of Energy to achieve and sustain a commitment to Management and Operational Excellence in support of the mission – from headquarters, to every site office and service center, and every laboratory and production facility.

The following are other examples of management initiatives and the progress made during fiscal year 2011:

**Horizontal Integration:** To help realize this goal, Secretary Chu established the Associate Deputy Secretary position in February 2011. In support of the Secretary and Deputy Secretary, the Associate Deputy Secretary drives improvements in mission execution and assures that they are efficiently and effectively implemented throughout the Department. A key focus in fiscal year 2011 was to improve horizontal integration across the Department. To that end, we now have six key decision-making bodies that are meeting routinely, discussing issues, and making decisions from an enterprise-wide perspective.

**Project and Contract Management:** We are measurably starting to improve our performance in project and contract management. The Office of Science, for example, exceeded the target for completing more than 90% of capital asset projects at the original scope and within 110% of the cost baseline. In fiscal year 2011, they achieved a 100% success rate – a Department first.

**Employee Hiring Time:** Efforts have been underway to reduce average time-to-hire for General Schedule and equivalent positions (from initiation date to entry on duty date) from a 174 to 80-day average while continuing to attract quality hires, and to ensure the right skill sets are onboard. DOE's time-to-hire was ranked number two, most improved agency, by the Federal Times (August 2, 2011). In fiscal year 2011, the average was reduced to 100 days. In addition, recent progress has been made to develop a tracking and reporting system to provide more meaningful data for hiring managers.

**Streamlined Requirements:** While ensuring continued safe and secure mission performance, the Department's Office of Health, Safety and Security reviewed its complete set of requirements and reduced those that were duplicative or conflicting, placed authorities at the appropriate level, invoked external standards where possible, and streamlined process requirements and decision-making.

**Continual Learning Program:** In fiscal year 2011, we initiated enhancements to our Continual Learning Program to ensure that we develop the most highly-qualified, capable, and flexible federal workforce, moving us towards a more performance-based culture. Key among them was implementation of a "managers training managers" professional development training module which is clearly communicating performance expectations among our managers. This training employs a case study approach, is interactive, and will be provided to our senior leaders throughout fiscal year 2012. Other enhancements are being rolled out in the coming year.

**Diversity and Inclusion:** In July 2011, we concluded a comprehensive review of DOE's workforce diversity and inclusion policies and programs. The findings from this analysis, which have been shared with DOE senior management, indicate that we can do more to create a culture that values diversity, which in turn will make the Department an employer of choice and enhance our mission effectiveness. The Secretary has asked each DOE senior leader, manager, and employee to join him in taking immediate and sustained action to better promote our Department as a positive model of equal opportunity, diversity, and inclusion.

**Website Reform:** In fiscal year 2011, DOE reduced, consolidated, and moved websites to the Energy.gov platform to achieve cost savings. A new web platform was launched that includes 16 consolidated sites in an open source content management system and cloud hosting environment.

**Fleet Reduction:** This past year, we successfully reduced the headquarters fleet by 35% and replaced more than 750 vehicles DOE-wide with hybrid vehicles.

**Strategic Sourcing:** By expanding the use of bulk purchasing and other methods, significant costs were saved or avoided this past year within the program offices. These initiatives will continue in fiscal year 2012.

**Disposition of Excess Real Property:** A cumulative 4.6 million gross square feet of excess real property was eliminated in fiscal year 2011, lowering the Department's overall stewardship costs.

**Support Service Contracts:** DOE is aiming to reduce reliance on support service contracts while also ensuring that our federal workforce retains core competencies, talent, and marketability. In fiscal year 2011, we achieved a 27% reduction, with further work planned in fiscal year 2012.

**Financial Transparency:** A quarterly reporting capability was developed for timely and reliable functional institutional cost information from our national laboratories to improve transparency, trust, and effectiveness towards mission performance. A dashboard prototype is in the development stages.



DOE and the city of Washington, D.C., joined together to install the first public electric vehicle charging station in the U Street neighborhood

## Priority Goals

The Department of Energy established seven priority goals in FY 2010 which are intended to focus senior leadership's attention on top administration and departmental priorities and promote better coordination across agencies on key performance priorities. These goals are measurable commitments to specific results the federal government will deliver for the American people.

Goal	Fiscal Year 2011-12 Progress
<p><b>Retrofits</b> – DOE and HUD will work together to enable the cost-effective energy retrofits of a total of 1.1 million housing units by the end of FY 2013 (of this number, DOE programs will contribute to retrofits of an estimated 1 million housing units)</p>	<p><b>On track</b> – DOE completed energy efficiency retrofits on 769,420 homes, resulting in an estimated annual energy savings of \$437 per home retrofitted.</p>
<p><b>Legacy Waste</b> – Reduce the Department's Cold War legacy environmental footprint by 40% by 2011</p>	<p><b>Met</b> – Completed goal of 40% footprint reduction 5 months early and under budget. By end of FY 2011, reduced approximately 900 square mile legacy footprint to 318 square miles, or approximately 66% of the total footprint.</p>
<p><b>Renewable Capacity</b> – Double renewable energy generation (excluding conventional hydropower and biopower) by 2012</p>	<p><b>On track</b> – U.S. renewable energy generation is expected to double, from 71 terawatt-hours of generation from solar, wind, and geothermal in 2008 to 145 terawatt-hours of generation by 2012. Section 1705 Loan Guarantee Program came to a close on Sept. 30, 2011, after the successful deployment of over \$16 billion to 28 transactions.</p>
<p><b>Advanced Battery Manufacturing</b> – Assist in the development and deployment of advanced battery manufacturing capacity to support 500,000 plug-in hybrid electric vehicles per year by 2015</p>	<p><b>On track</b> – DOE has verified initial battery production at A123Systems (Livonia, MI), Johnson Controls (Holland, MI), EnerDel (Indianapolis, IN), and Saft Industrial Battery Group (Jacksonville, FL). Each of these companies is on track to meet its respective production capacity target.</p>
<p><b>Nuclear Loans</b> – Commit (conditionally) to loan guarantees for two nuclear power facilities to add new low-carbon emission capacity of at least 3,800 megawatts during 2010</p>	<p><b>Not met</b> – Some elements of loan guarantees remain outside of DOE's control, including market forces, quality of applications, and rate at which applicants proceed with their required activities.</p>
<p><b>Secure Nuclear Materials</b> – Make significant progress toward securing the most vulnerable nuclear materials worldwide within 4 years</p>	<p><b>On track</b> – DOE/NNSA has made significant progress by removing a cumulative total of 3,125 kilograms of nuclear materials from at least two dozen countries – enough highly enriched uranium to make more than 120 nuclear weapons. A total of 272 kilograms of nuclear material was removed during FY 2011 – enough for more than 10 nuclear weapons.</p>
<p><b>Nuclear Weapons</b> – Maintain the U.S. nuclear weapons stockpile and dismantle excess nuclear weapons to meet national nuclear security requirements as assigned by the President through the Nuclear Posture Review</p>	<p><b>On track</b> – Secretaries of Energy and Defense completed joint "Annual Weapon Stockpile Assessment" for the President; assuring that 100% of warheads in the stockpile are safe, secure, reliable, and available for deployment. DOE/NNSA has delivered sufficient life extended W76 warheads to meet the Navy's deployment schedule in FY 2010 and FY 2011 and remains on track to meet future deliveries.</p>

# Analysis of Financial Statements

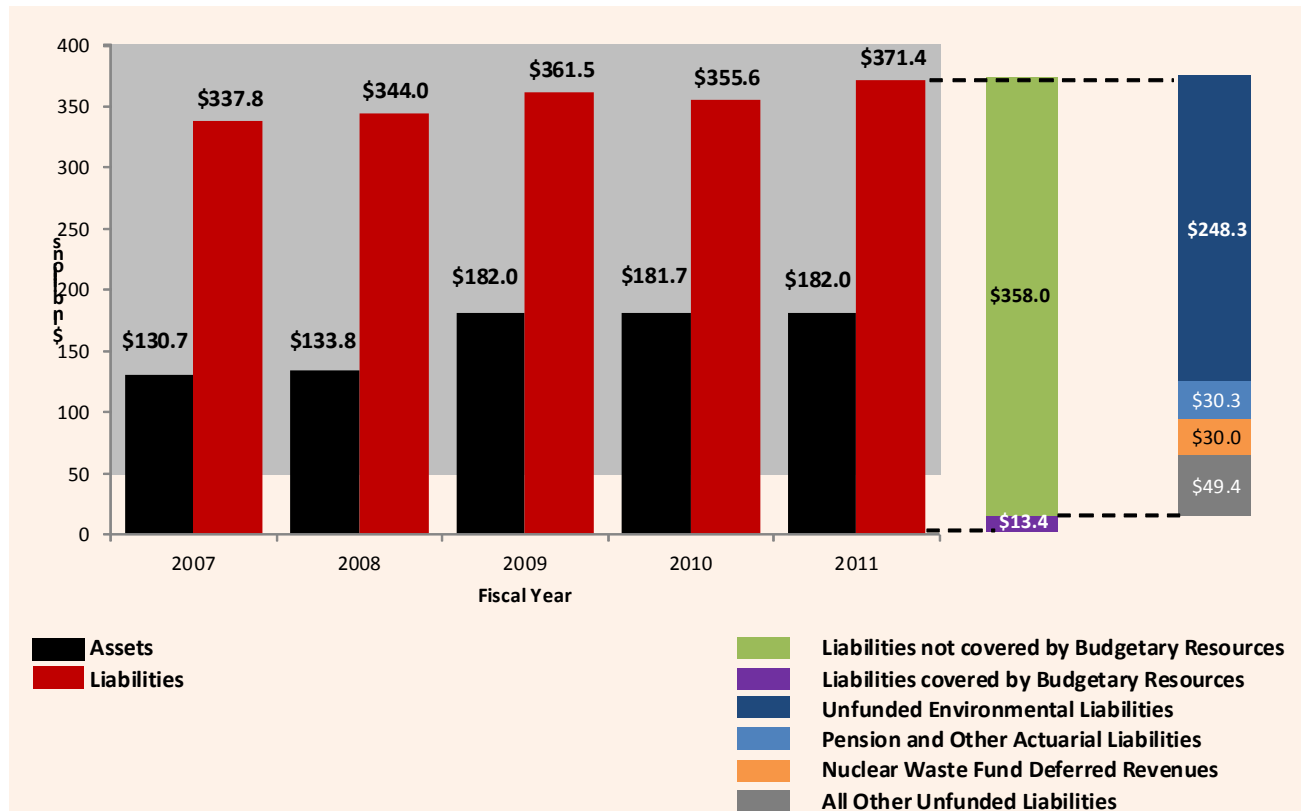
The Department's financial statements are included in the Financial Results section of DOE's *Fiscal Year 2011 Agency Financial Report*. Preparing these statements is part of the Department's goal to improve financial management and provide accurate and reliable information that is useful for assessing performance and allocating resources. The Department's management is responsible for the integrity and objectivity of the financial information presented in these financial statements.

The financial statements have been prepared to report the financial position and results of operations of the entity, pursuant to the requirements of 31 United States Code 3515(b). The statements have been prepared from the Department's books and records in accordance with generally accepted accounting principles prescribed by the Federal Accounting Standards Advisory Board and the formats prescribed by the Office of Management and Budget. The financial statements are prepared in addition to the financial reports used to monitor and control budgetary resources which are prepared from the same books and records. The statements should be read with the realization that they are for a component of the U.S. Government, a sovereign entity.

## Balance Sheet

As shown in Chart 1, the Department's total liabilities exceed assets. Significant balance changes are detailed in Charts 2 and 3. Chart 4 provides a detailed trend analysis of the changes in the Department's environmental liability balances over the past 5 years. The largest component of the Department's environmental liability is managed by the Environmental Management program which addresses the legacy of contamination from the nuclear weapons complex and includes managing thousands of contaminated facilities formerly used in the nuclear weapons program, overseeing the safe management of large quantities of radioactive waste and nuclear materials, and cleanup of large volumes of contaminated soil and water. The active facilities liability includes anticipated remediation costs for active and surplus facilities managed by the Department's ongoing program operations and which will ultimately require stabilization, deactivation, and decommissioning. Other legacy liabilities are divided between the Environmental Management program for active sites (including estimated cleanup) and the Office of Legacy Management for post-closure responsibilities (including surveillance and monitoring activities; soil

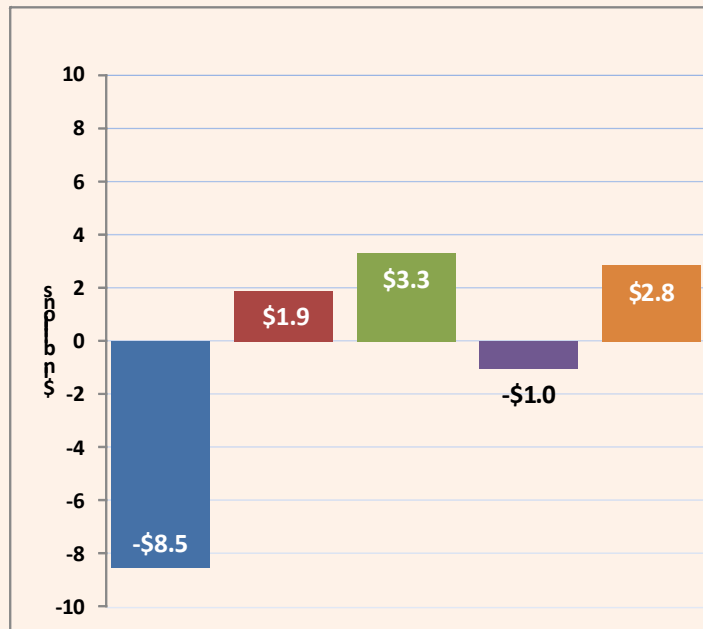
**Chart 1: Total Assets and Liabilities with Breakdown of FY 2011 Liabilities**



and groundwater remediation; and disposition of excess material for sites after the Environmental Management program activities have been completed). The other legacy

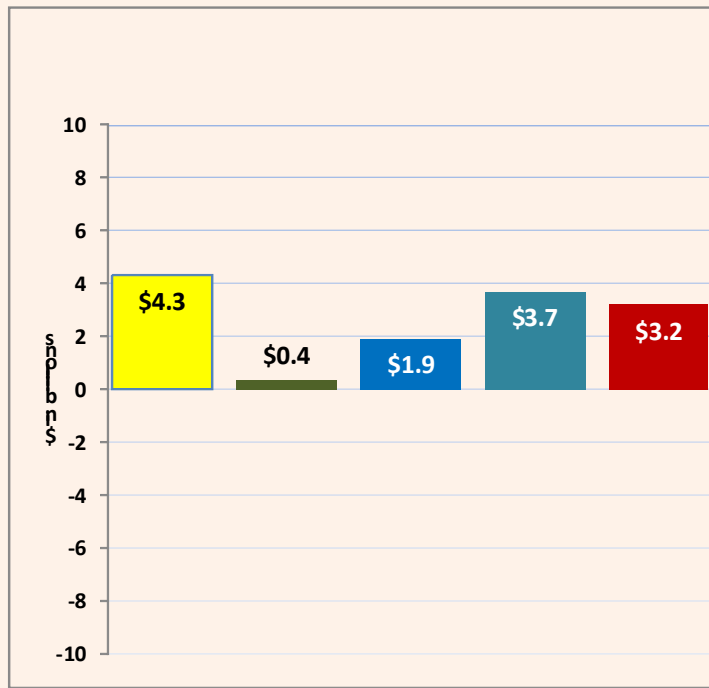
liabilities also includes the Department's share of the estimated future costs of dispositioning its inventory of high-level waste and spent nuclear fuel.

**Chart 2: FY 2011 Significant Changes in Assets**



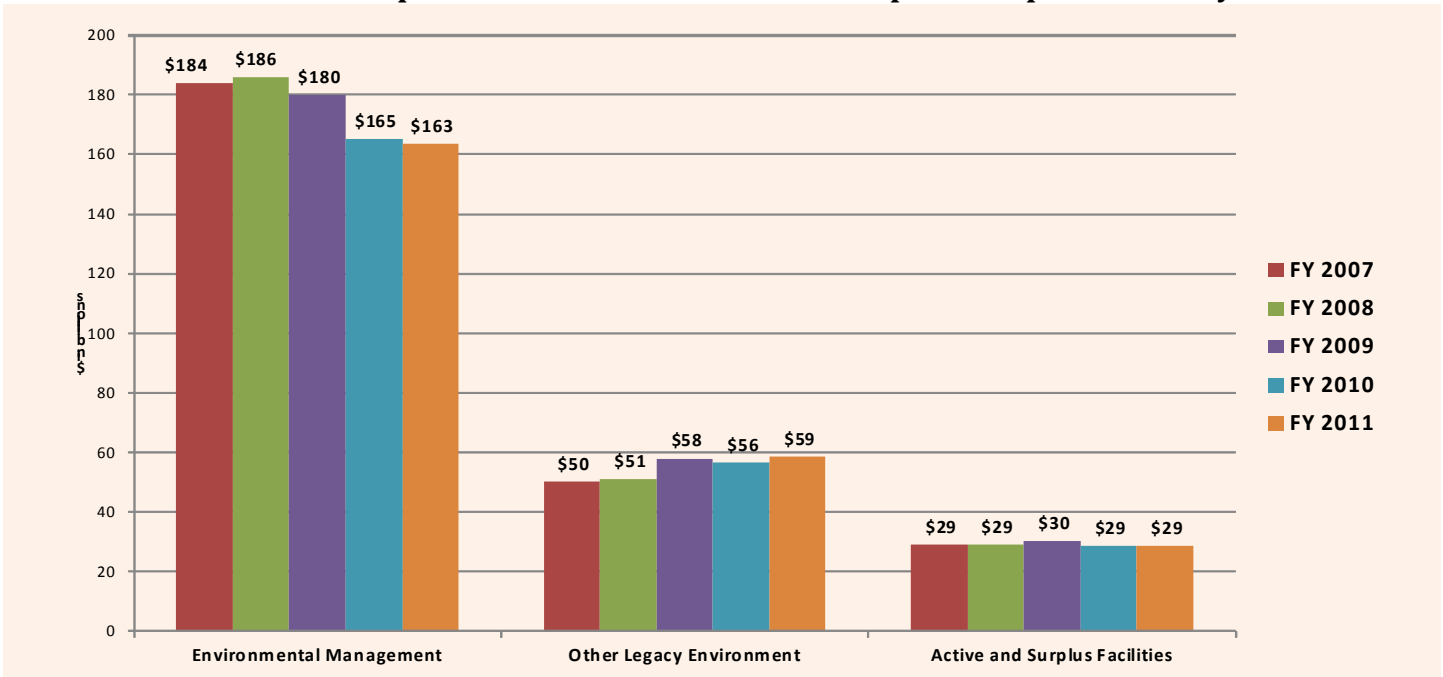
- Fund Balance with Treasury**  
Net decrease primarily resulted from expenditure of ARRA funds (\$10.6 billion) partially offset by \$3.2 billion increase in funds retained from sale of oil stockpile reserves.
- Investments**  
Increase due primarily from additional Nuclear Waste Fund receipts from fees collected from owners and generators of spent nuclear fuel and high-level wastes in excess of amounts needed to pay current program costs.
- Loans and Loan Guarantees**  
Increase primarily due to \$4 billion of disbursements on 17 loans partially offset by (\$.7) billion decrease in present value of loans.
- Strategic Petroleum and Home Heating Oil Reserve**  
Net decrease due to sale of 32 million barrels of stockpile reserves.
- Regulatory Assets**  
Increase resulted primarily from BPA's residential exchange benefits agreement (see offsetting increase in other liabilities).

**Chart 3: FY 2011 Significant Changes in Liabilities**



- Debt**  
Increase resulted primarily from borrowing from the Federal Financing Bank to fund disbursements to loan recipients.
- Environmental Cleanup**  
Net increase resulted from unfunded liability estimate increase (see chart 7) offset by FY 2011 cleanup expenditures of \$9.8 billion.
- Pension and Other Actuarial Liabilities**  
Contractor pension plan liabilities increased by \$2.7 billion and other contractor post-retirement benefit plan liabilities decreased by \$0.8 billion. The most significant component of the pension plan increase resulted from a decrease in the rates used to discount the liabilities to present value (See chart 8).
- Contingencies and Commitments**  
Increase is attributable to changes in spent-nuclear fuel litigation liability estimates (see Chart 7) offset by \$.8 billion of payments related to settlements and final judgments.
- Other Liabilities**  
Increase resulted primarily from BPA's residential exchange benefits agreement (see offsetting increase in regulatory assets).

**Chart 4: Composition of Environmental Cleanup and Disposal Liability**



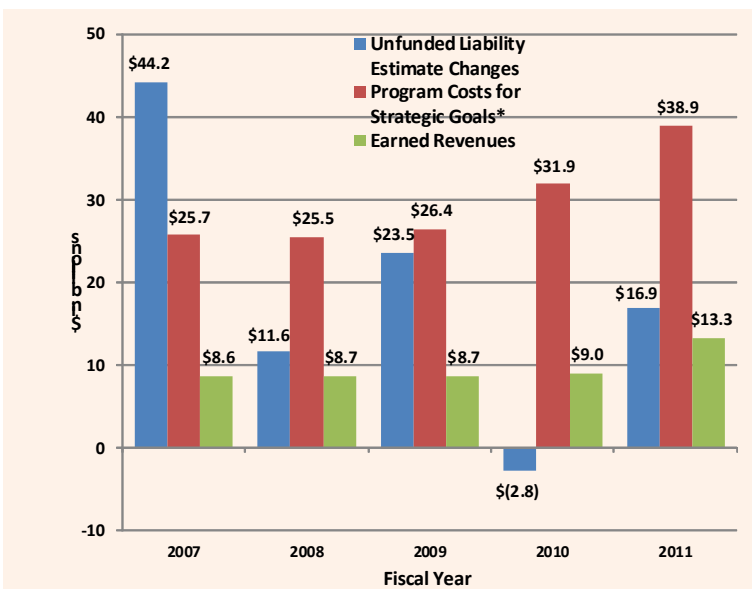
**Net Cost of Operations**

The major elements of net cost (see Chart 5) include program costs, unfunded liability estimate changes and earned revenues. The Statement of Net Cost also provides program cost information along the Department’s three Programmatic Strategic Goals (see Chart 6).

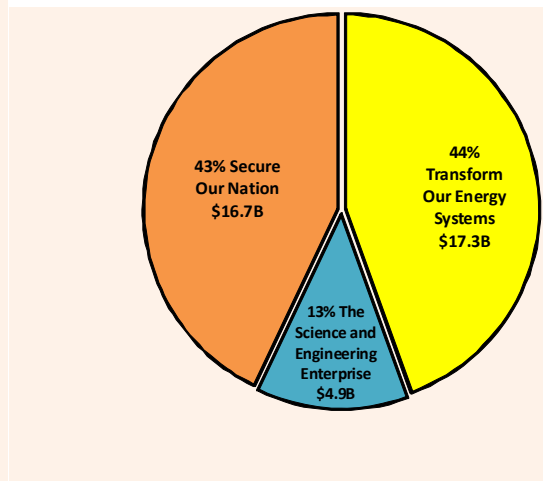
The Department’s overall net costs are dramatically impacted by changes in environmental and other

unfunded liability estimates. Since these estimates primarily relate to past years of operations, they are not included as current year program costs, but rather reported as “Costs Not Assigned” on the Consolidated Statements of Net Cost. Components of the FY 2011 unfunded liability estimate changes are shown in Chart 7.

**Chart 5: Major Elements of Net Cost**



**Chart 6: FY 2011 Program Costs (Gross) Breakdown by Programmatic Strategic Goal\***

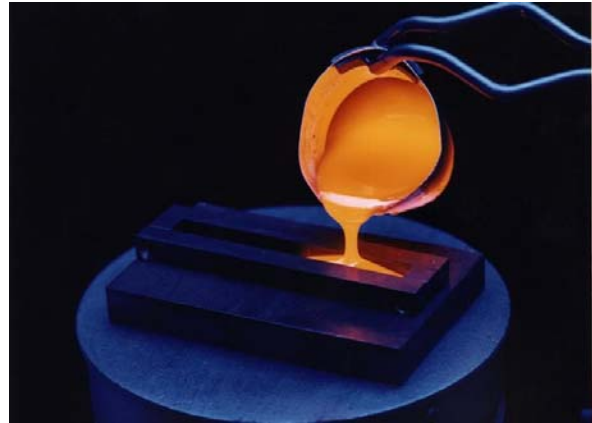


\* Program Costs for strategic goals exclude certain costs not directly attributable to the strategic goals, such as the cost of reimbursable and other miscellaneous programs, costs applied to the reduction of legacy environmental liabilities and imputed costs for the occupational illness program. These excluded costs are more fully described in Notes 22-24 of the financial statements.

A net increase to the Department's environmental liability estimates during FY 2011 resulted from inflation adjustments to reflect constant dollars for the current year; improved and updated estimates for the same scope of work, including changes resulting from deferral or acceleration of work; revisions in technical approach or scope; and regulatory changes (see Chart 4).

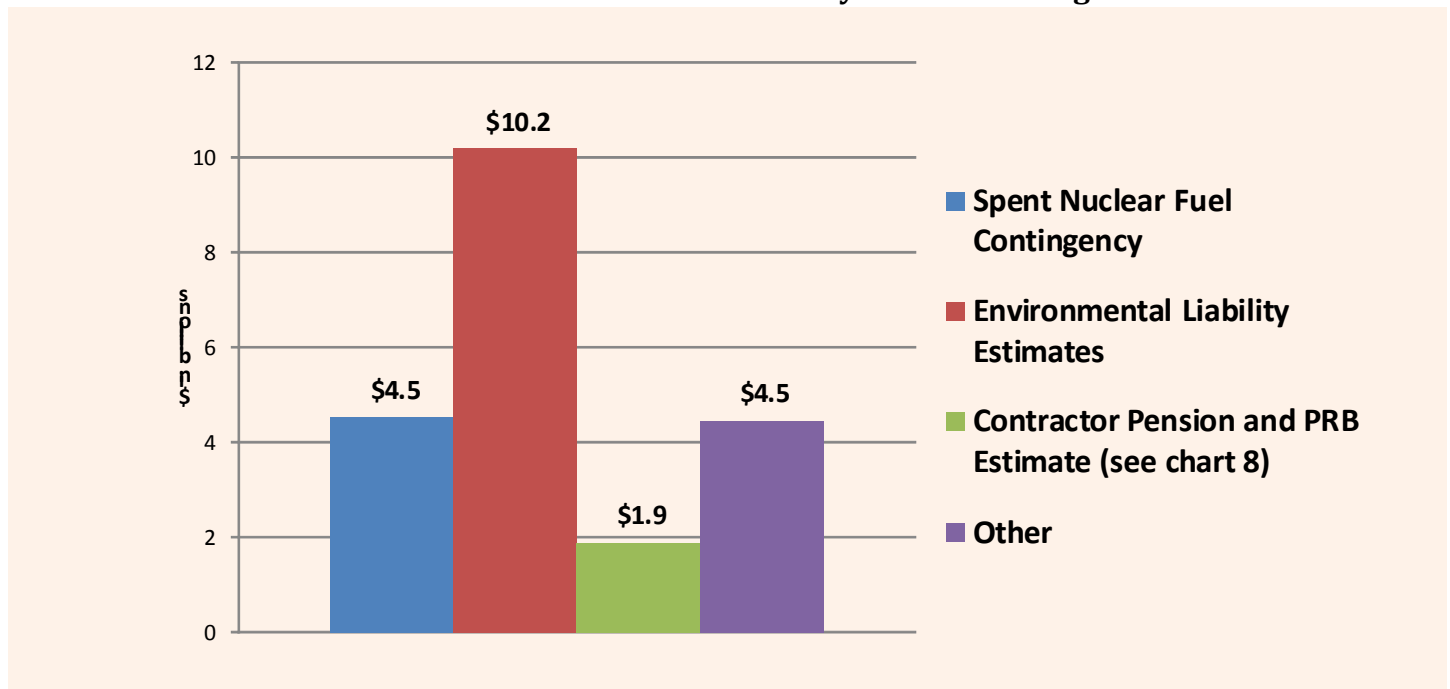
The Department's FY 2011 unfunded liability estimates increased by \$2.7 billion for contractor pension plans and decreased by \$0.8 billion for contractor postretirement benefits other than pensions (PRB) plans. The major components of these estimate changes are shown in Chart 8. The most significant component of the change resulted from a decrease in the rates used to discount the liabilities to present value. These discount rates are based on the yields of high-quality fixed income securities as of September 30, 2011 and 2010. Plan liabilities also changed due to differences in actual plan experience for the year compared to the actuarial assumptions for rates of retirement, termination of employment, compensation increases, health care inflation, and other demographic factors, including changes made to those assumptions to

better reflect anticipated future experience. The unfunded pension liability was further increased by less than expected investment return on pension assets for the year.

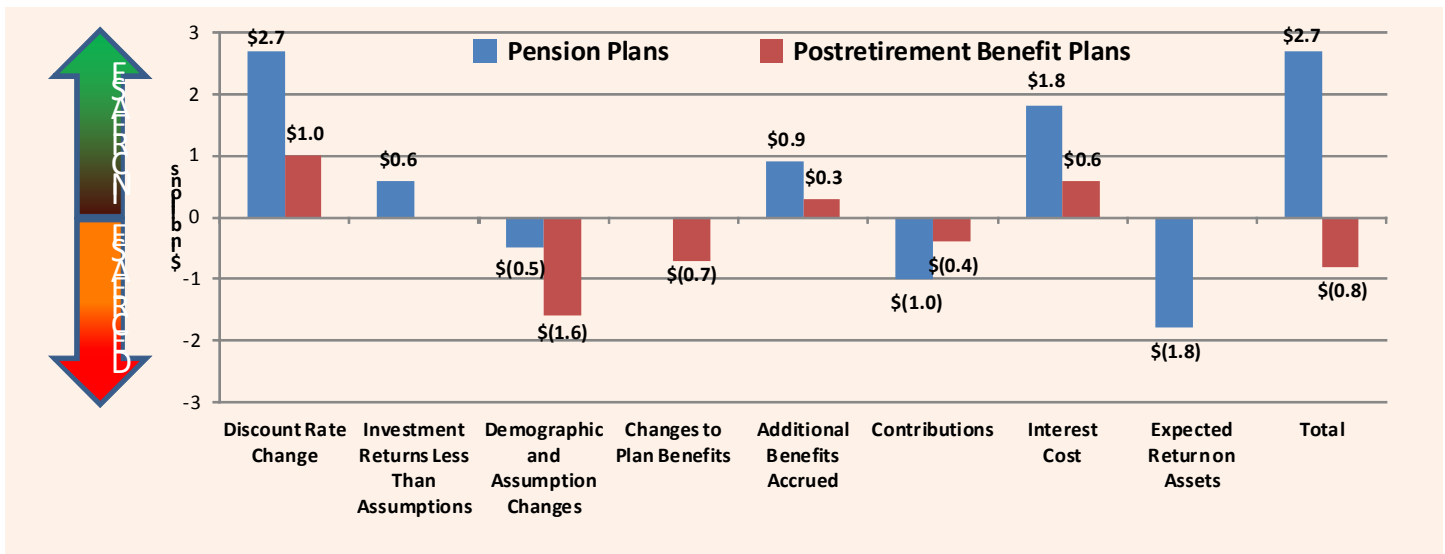


Researchers at PNNL are using the ancient glass from a Roman merchant ship that sank in the Adriatic Sea, roughly 1,800 years ago, to study how to safely store radioactive waste for millennia into the future through vitrification technology.

**Chart 7: FY 2011 Unfunded Liability Estimate Changes**



**Chart 8: Contractor Employee Pension and PRB Liability Estimate Changes**



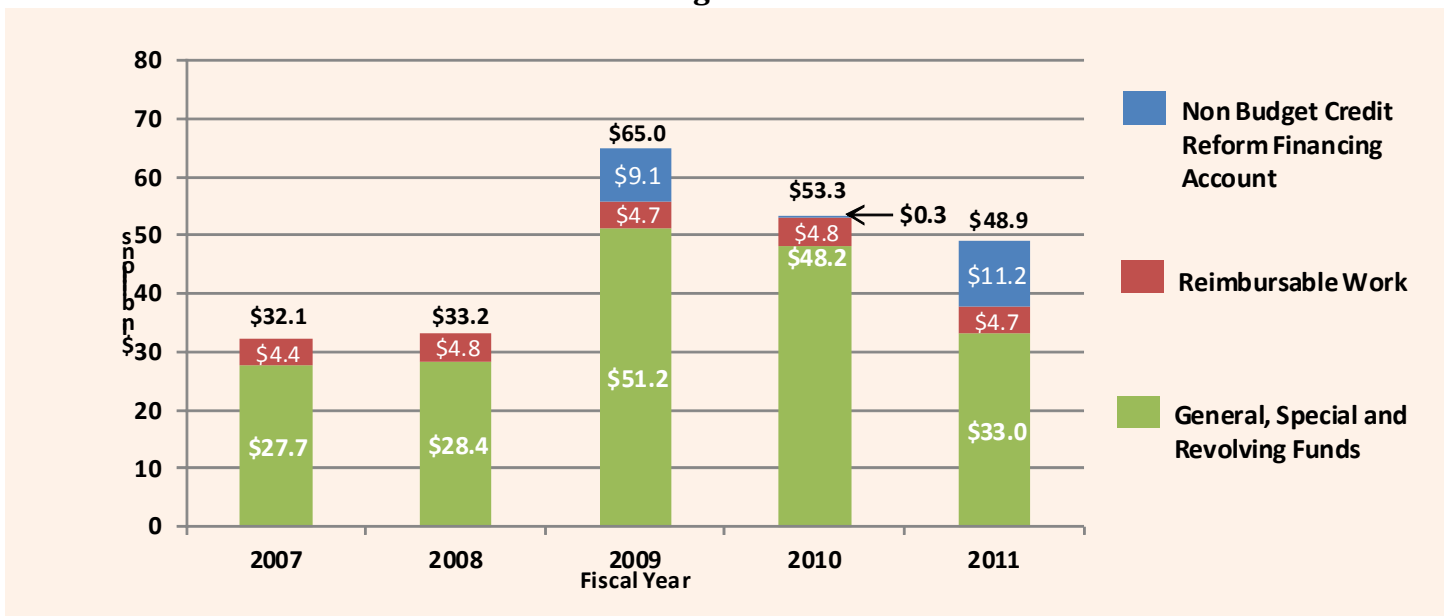
**Budgetary Resources**

The Combined Statements of Budgetary Resources provide information on the budgetary resources available to the Department for the year and the status of those resources at the end of the fiscal year. The Department receives most of its funding from general government funds administered by the Department of the Treasury and appropriated for DOE's use by Congress. Since budgetary accounting rules and financial accounting rules recognize certain transactions at different points in time, Appropriations Used on the Consolidated Statements of

Changes in Net Position will not match costs for that period. The primary difference results from recognition of costs related to changes in unfunded liability estimates. Budget authority from appropriations has increased by \$2.9 billion from FY 2010.

As shown in Chart 9 for FY 2011, the Department's Obligations Incurred decreased by \$4.4 billion from FY 2010. This was primarily due to there being no new Recovery Act funding in FY 2011, resulting in a decrease of \$14.7 billion offset by a \$10.9 billion increase in the Non Budget Credit Reform Financing Account.

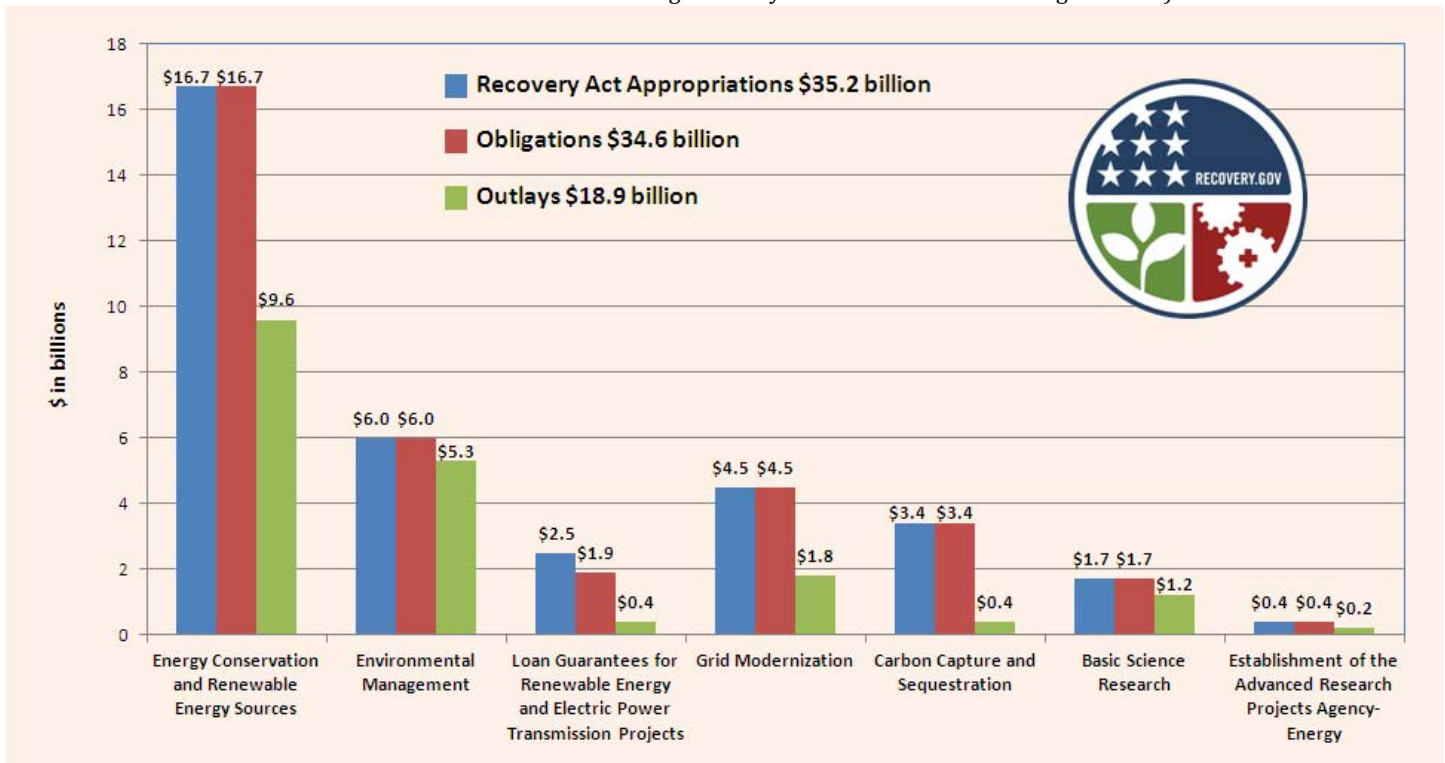
**Chart 9: Obligations Incurred**





## Chart 10: Recovery Act Appropriations, Obligations and Outlays

(cumulative amounts through FY 2011 below exclude the Western Area and Bonneville Power Administrations' borrowing authority and credit reform financing accounts)



## Chart 11: Linking Priorities, Budget and Cost

STRATEGIC GOALS	STRATEGIC OBJECTIVE	BUDGETARY EXPENDITURES INCURRED <sup>a</sup> (\$ IN BILLIONS)	PROGRAM COST <sup>b</sup> (GROSS IN BILLIONS)	
			FY 2011	FY 2010
Transform Our Energy Systems	Deploy the technologies we have	\$ 18.1	\$ 13.1	\$ 8.7
	Discover the new solutions we need	4.0	4.0	3.0
	Lead the National conversation on energy	0.2	0.2	0.2
The Science and Engineering Enterprise	Extend our knowledge of the natural world	3.6	3.5	3.1
	Deliver new technologies to advance our mission	1.8	1.4	1.2
	Sustain a world-leading technical workforce	-	-	-
Secure Our Nation	Support the U.S. nuclear stockpile and future military needs	7.0	6.2	5.1
	Reduce global nuclear dangers	2.4	1.8	1.7
	Apply our capabilities for other critical national security missions	1.2	1.2	1.2
	Support responsible civilian nuclear power development and fuel cycle management	0.2	0.2	0.3
	Complete environmental remediation of our legacy and active sites	8.6	7.3	7.4

*a Budgetary Expenditures Incurred is synonymous with delivered orders – amounts accrued or paid for services performed, for goods and tangible property received, or for programs for which no current service is required such as loans. Budgetary Expenditures are obtained from the Budgetary Standard General Ledger and are reported/recorded based on budgetary accounting rules. Includes capital expenditures but excludes such items as depreciation, changes in unfunded liability estimates, and certain other non-fund costs and allocations of Department Administration activities.*

*b Program Costs (Gross) are taken from the Department's Consolidated Statements of Net Cost.*

# Management Challenges

DOE MANAGEMENT PRIORITIES	IG CHALLENGE AREAS FY 2011	GAO CHALLENGE AREAS
Contract and Project Administration <b>S</b> Acquisition Process Management <b>S</b>	Contract and Financial Assistance Award Management <b>S</b>	Resolve contract administration and project management problems for large and complex projects <b>S</b>
Security <b>D</b>		
Environmental Cleanup <b>D</b> Nuclear Waste Disposal <b>D</b>	Environmental Cleanup <b>D</b> Nuclear Waste Disposal <b>D</b>	
	Stockpile Stewardship <b>D</b>	Improve the safety, reliability and physical and information security for the Nation's nuclear weapons stockpile <b>D</b>
Cyber Security <b>S</b>	Cyber Security <b>S</b>	
	Energy Supply <b>D</b>	Enhance the development, management and protection of assets vital to the nation's energy and national security <b>D</b>
Human Capital Management <b>S</b>	Human Capital Management <b>S</b>	Address the human capital challenge of developing and retaining a skilled workforce capable of overseeing complex projects <b>S</b>
Safety & Health <b>S</b>		
		Sustain the relevance and effectiveness of nonproliferation efforts <b>D</b>
Recovery Act <b>D and S</b>		
	Operational Efficiency and Cost Savings <b>D and S</b>	

**D** = mission direct

**S** = mission support