Fiscal Year 2016

Agency Financial Report

DOE/CF-0128

U.S. DEPARTMENT OF ENERGY

Foreword

The Reports Consolidation Act of 2000 authorizes Federal agencies, with the Office of Management and Budget's (OMB) concurrence, to consolidate various reports to provide performance, financial and related information in a more meaningful and useful format. For Fiscal Year (FY) 2016, the Department of Energy (Department or DOE), has produced an *Agency Financial Report* and will provide an *Annual Performance Report,* pursuant to OMB Circular No. A-136. They will be available at the website below, as each report is completed. This reporting approach simplifies and streamlines the performance presentations.

Agency Financial Report (AFR) - The AFR is organized by three major sections.

- **Management's Discussion and Analysis** provides executive-level information on the Department's history, mission, organization, Secretarial priorities, analysis of financial statements, systems, controls and legal compliance and other management priorities facing the Department.
- **Financial Results** provides a Message from the Chief Financial Officer, the Department's consolidated and combined financial statements and the Auditors' Report.
- **Other Information** provides the Inspector General's Statement of Management Challenges and other statutory reporting.

Annual Performance Report (APR) - [will be available spring 2017] The APR will provide the detailed performance information and descriptions of results by each performance measure.

These reports meet the following reporting requirements:

- Digital Accountability and Transparency Act (DATA Act) of 2013 requires the transformation of United States (U.S.) federal spending from disconnected documents into open, standardized data, and to publish that data online.
- Federal Financial Management Improvement Act (FFMIA) of 1996 requires an assessment of the agency's financial systems for adherence to Government-wide requirements.
- Government Management Reform Act (GMRA) of 1994 requires an agency to have audited financial statements.
- Federal Managers' Financial Integrity Act (FMFIA) of 1982 requires a report on the status of internal controls and the agency's most serious problems.
- Inspector General (IG) Act of 1978 (Amended) requires information on management actions in response to IG audits.
- Department of Energy Organization Act of 1977 requires an annual report on agency activities.

The above reports will be available at www.energy.gov/about-us/budget-performance

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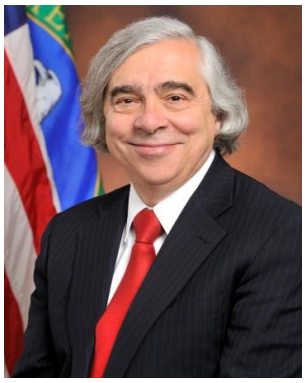
Message from the Secretary



I am pleased to present the United States Department of Energy's (DOE or Department) Fiscal Year (FY) 2016 Agency Financial Report. The report provides key financial and performance information that demonstrates our commitment to enhance America's security and economic growth through transformative science, technology innovation, and market solutions. Our FY 2016 Annual Performance Report will be released as a complement to this report in spring 2017.

Our Strategic Plan provides a roadmap for our work through three broad strategic goals in Science and Energy, Nuclear Security, and Management and Performance. We have made progress in achieving each of these goals in FY 2016 through continued investments in scientific research, technology innovation, nuclear security, and environmental cleanup. The Department is a key component of the U.S. Mission Innovation commitment to seek to double the level of Government investment in clean energy research and development over five years. Accelerating the pace of innovation will create additional clean energy choices for consumers and new opportunities for U.S. businesses in the rapidly expanding global energy marketplace. DOE hosted 23 governments and the European Union for the 7th Clean Energy Ministerial and the inaugural Mission Innovation Ministerial.

In FY 2016, DOE issued 12 new energy efficiency standards, including new standards for commercial air conditioners and furnaces, which will save more energy than any other standard issued by the Department to date. Over the lifetime of the products, businesses are estimated to save $167 billion on their utility bills, and carbon pollution is estimated to be reduced by 885 million metric tons. DOE led the interagency task force developing the second installment of the Administration's Quadrennial Energy Review, which will provide a comprehensive review of the Nation's electricity system, from generation to end use. DOE investments have led to advances across the energy sector. For example, support from the DOE SunShot Initiative has led to the development, by industry, of the first supercritical carbon dioxide solar receiver designed for commercial use. This technology will significantly decrease capital costs for constructing a concentrating solar power plant, making the technology more attractive to investors. In addition, DOE has invested in advanced vehicle technologies, leading to the development, by industry, of concept tires that can improve fuel efficiency by 5.5 percent. The Department established the Gateway for Accelerated Innovation in Nuclear (GAIN) to provide the nuclear community with access to the technical, regulatory, and financial support necessary to move innovative nuclear energy technologies toward commercialization. DOE completed a Long-Term Strategic Review of the Strategic Petroleum Reserve (SPR) to help inform

decisions and address key challenges that will impact the SPR's ability to carry out its energy security mission.

The Department has critical national nuclear security responsibilities, including annual certification of the nuclear weapons stockpile without a return to underground testing and successful implementation of the Department's strategy for life extending our nuclear weapons and modernizing the supporting infrastructure. DOE has also implemented global nonproliferation initiatives which have cumulatively disposed of over 6,000 kilograms of weapons-usable nuclear material. DOE provided technical support for implementation of the Joint Comprehensive Plan of Action to assure that Iran does not obtain a nuclear weapon and that its nuclear program is exclusively peaceful. Significant environmental cleanup achievements include the completion of construction of the Salt Waste Processing Facility at Savannah River, successful testing of the Engineered Container Retrieval and Testing System in preparation for removal of highly radioactive sludge from the 100-K West Basin at Hanford, and completion of decontamination, decommissioning, and demolition of uranium gaseous diffusion enrichment process buildings at Oak Ridge.

The Department also has made substantial progress in strengthening its partnership with its 17 National Laboratories. In February 2016, DOE issued a response to the Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories identifying actions it has taken to reset its relationship with the laboratories, including assuring that DOE oversight is strategically mission-driven rather than overly transactional. In FY 2016, DOE improved operational effectiveness through the implementation of two Shared Service Centers which provide a hybrid human service delivery model that centralizes accountability for the HR Line of Business while consolidating operations. In FY 2016, DOE strengthened its cybersecurity posture through implementation of multifactor authentication (MFA) and initiated a Cyber Strategy including establishment of the integrated Joint Cybersecurity Coordination Center (iJC3). DOE also is developing an enterprise cyber and information resources management workforce strategy to attract, develop, and retain a highly skilled cybersecurity workforce.

The independent public accounting firm KPMG LLP conducted an audit of the FY 2016 DOE financial statements contained in this report and issued an unmodified audit opinion for the 10th consecutive year. Based on internal evaluations, I can provide reasonable assurance that the financial and performance information contained in this report is complete and reliable and accurately describes FY 2016 DOE results.

Ernest J. Moniz
November 15, 2016

Solar energy continues to boom in the United States this year, reaching more than 29 gigawatts of total installed capacity- enough to power 5.7 million American homes.

Management's Discussion and Analysis

The Soboba Band of Luiseño Indians' 1-megawatt solar photovoltaic system, which was co-funded by a DOE grant, will help power the tribal administrative building, preschool, Tribal Hall, and other key community facilities, meeting 80% of those buildings' yearly energy needs and saving the Tribe an estimated $6.4 million in electricity costs over the next 20 years. Photo by the Soboba Band of Luiseño Indians.

Agency Highlights
(Unaudited)

MISSION

To enhance United States (U.S.) security and economic growth through transformative science, technology innovation, and market solutions to meet our energy, nuclear security, and environmental challenges.

STRATEGIC PLAN 2014-2018

The Department of Energy (Department or DOE) is subject to the Government Performance and Results Act (GPRA) of 1993 and the GPRA Modernization Act of 2010. In April 2014, DOE issued its 2014-2018 new Strategic Plan. The plan defined the following strategic goals.

Goal 1: Science and Energy

- Advance the goals and objectives in the President's Climate Action Plan by supporting prudent development, deployment, and efficient use of energy resources that also create new jobs and industries
- Support a more economically competitive, environmentally responsible, secure and resilient U.S. energy infrastructure
- Deliver the scientific discoveries and major scientific tools that transform our understanding of nature and strengthen the connection between advances in fundamental science and technology innovation

Goal 2: Nuclear Security

- Maintain the safety, security and effectiveness of the nation's nuclear deterrent without nuclear testing
- Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure
- Reduce global nuclear security threats
- Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy

Goal 3: Management and Performance

- Continue cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities
- Manage assets in a sustainable manner that supports the DOE mission
- Effectively manage projects, financial assistance agreements, contracts, and contractor performance
- Operate the DOE enterprise safely, securely, and efficiently
- Attract, manage, train, and retain the best federal workforce to meet future mission needs

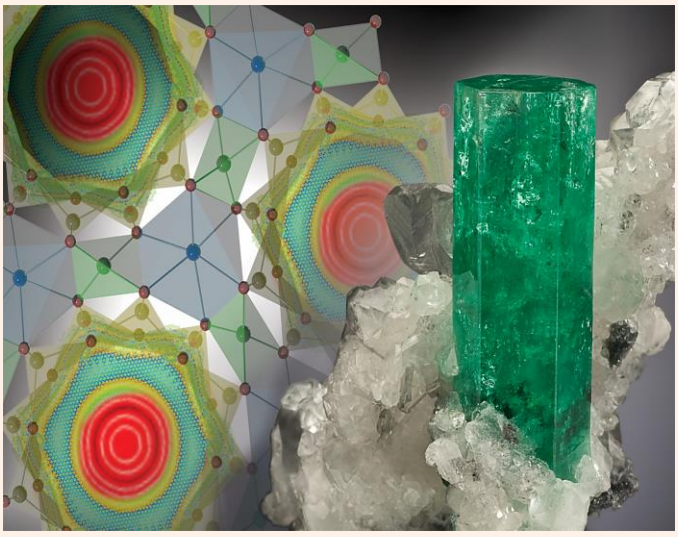
History

The Department of Energy's lineage can be traced 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 (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 (R&D). 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 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 one of the most diverse agencies in the federal Government. 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 R&D 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.

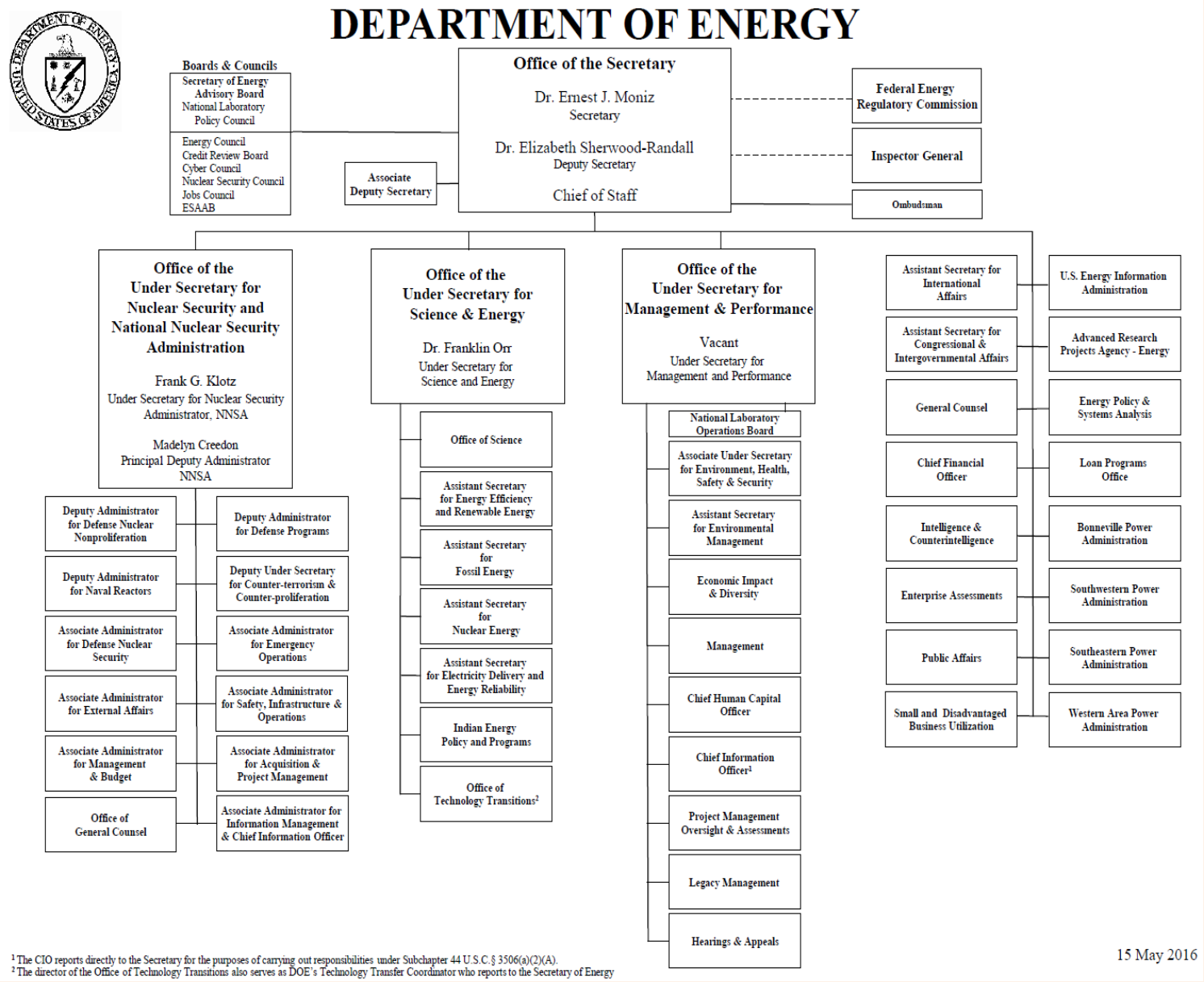
Over its history, the Department has shifted its emphasis and focus as the energy and security needs of the Nation have changed. During the late 1970s, the Department emphasized energy development and regulation but shifted to nuclear weapons research, development and production during the 1980s. With the end of the Cold War, DOE focused on environmental cleanup of the nuclear weapons complex, as well as non-proliferation and stewardship of the nuclear stockpile. Today, the Department is committed to meeting America's energy, nuclear security and environmental challenges through science and technology innovation.

A wind turbine generator being field tested on Culebra Island, Puerto Rico for the Department of Energy and NASA. Photo circa 1978.



A team of researchers at Oak Ridge National Lab discover a new state of water molecule using neutron scattering and computational modeling. Photo by Jeff Scovil.

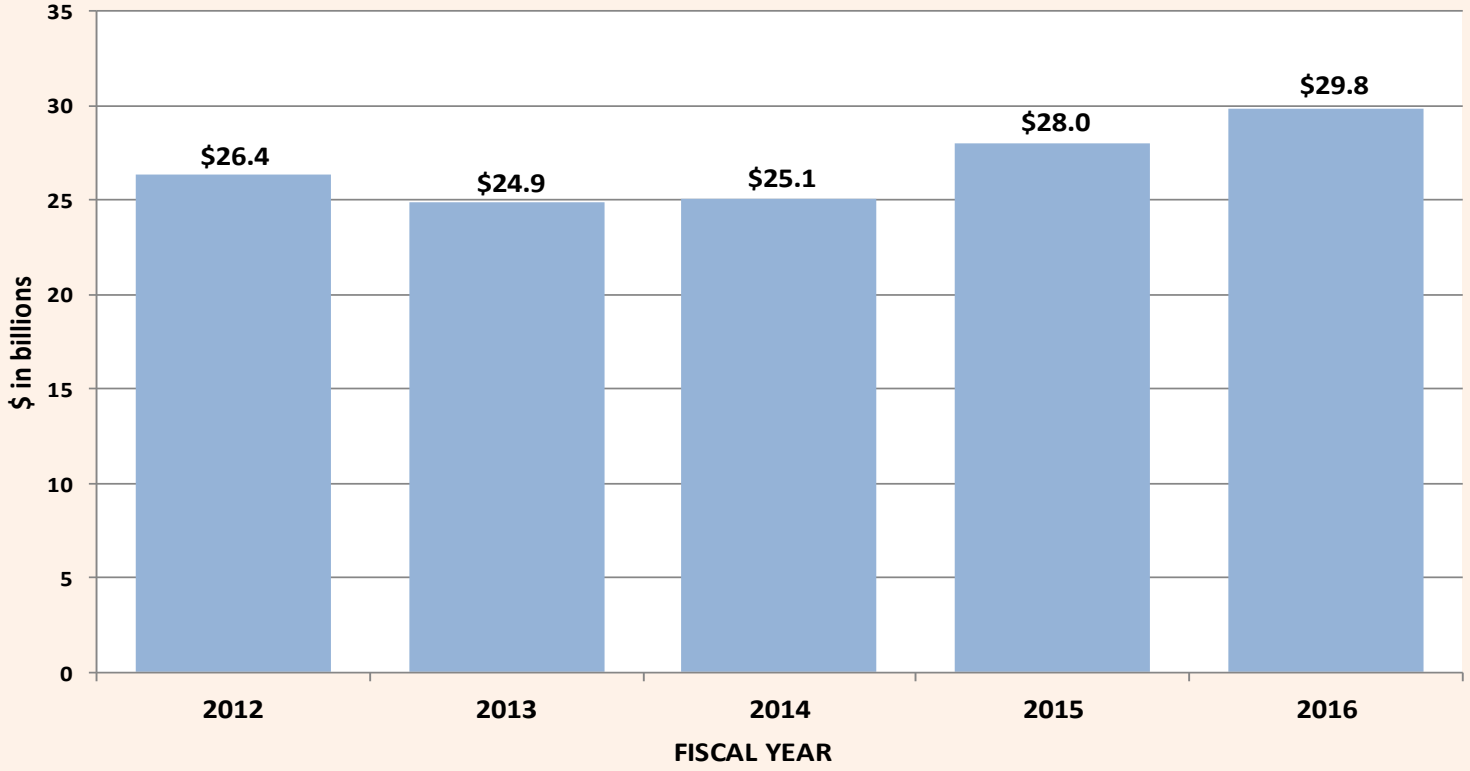
Organizational Structure



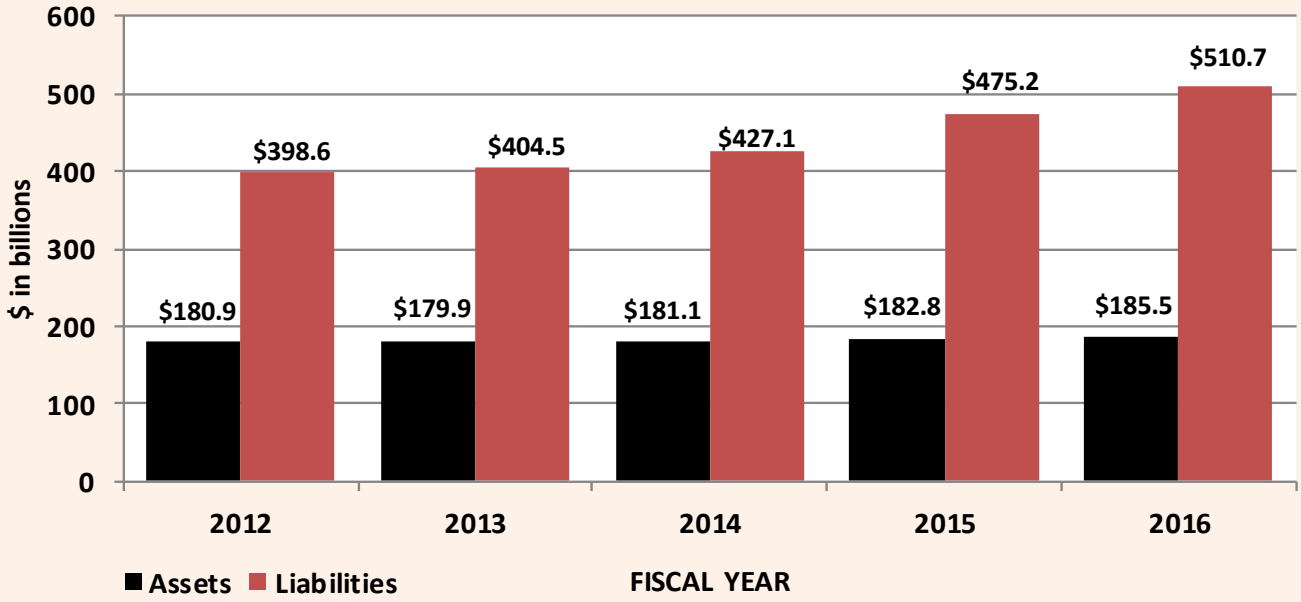
Financial Resources

Appropriations

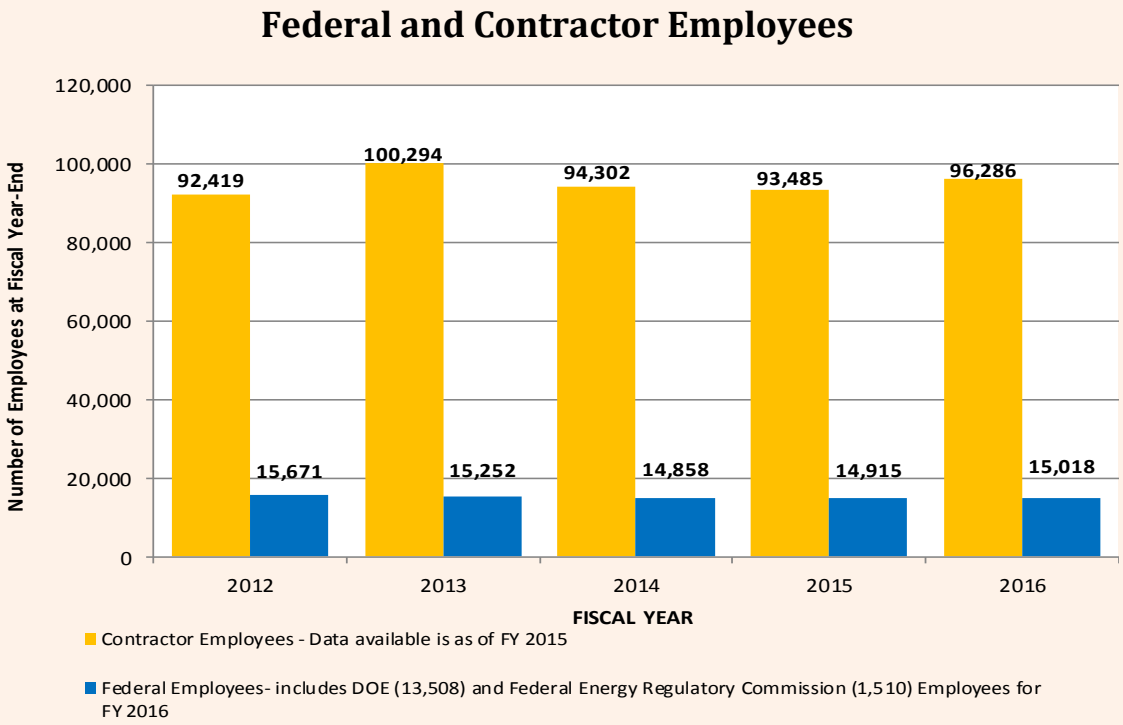
(Appropriations are defined per the FY 2016 *Combined Statements of Budgetary Resources*)



Assets and Liabilities



Human Capital Resources



Financial Management Report Card

COMPLIANCE YES	COMPLIANCE NO	REQUIREMENT OR INITIATIVE	SUPPORTING INDICATORS (see page references for more detail)
☑		Government Management Reform Act –Financial Statement Audit	Unmodified Audit Opinion (see pages 115-126)
☑		Federal Managers' Financial Integrity Act – Internal Controls (Section II) Financial Systems (Section IV)	No Material Weaknesses (Section II) (see pages 32-33 and 133) Financial Systems generally conform to (Section IV) requirements and no FISMA significant deficiencies identified (see pages 32-33 and 133)
☑		OMB Circular A-123, Appendix A	No Material Weaknesses (see pages 32-33 and 133)
☑		Federal Financial Management Improvement Act	Substantially comply with federal financial management system requirements (see pages 32-33 and 133)
☑		Federal Information Security Management Act (FISMA)	Substantially comply with FISMA requirements as evidenced by annual FISMA reporting data (see pages 32-33 and 133)
☑		Improper Payments Information Act, as amended by the Improper Payments Elimination & Recovery Act and the Improper Payments Elimination and Recovery Improvement Act	<1% overall Erroneous Payment Rate and not susceptible to significant improper payments (see pages 135-136)

Performance Summary

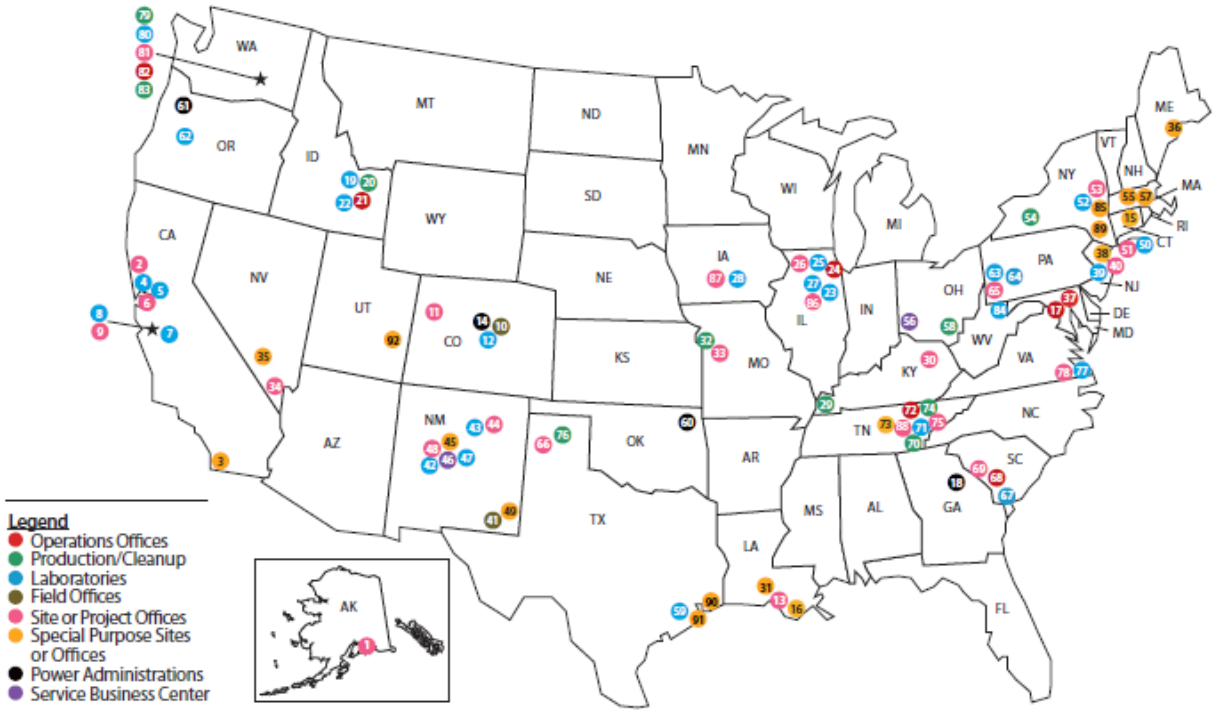
The tables in this section will be updated with FY 2016 data in the Department's *FY 2016 Annual Performance Report* available in 2017. Additional performance results can be obtained at http://www.performance.gov.

STRATEGIC GOAL	ACTIVITY	Fiscal Year 2014 Performance			Fiscal Year 2015 Performance		
		Targets Met	Targets Not Met	Results Unknown	Targets Met	Targets Not Met	Results Unknown
Strategic Goal 1: Science and Energy							
	Electricity Delivery & Energy Reliability	7			7		
	Western Area Power Administration	3			2		
	Bonneville Power Administration	3			3		
	Southeastern Power Administration	2			2		
	Southwestern Power Administration	4			4		
	Solar Energy	3			3		
	Wind Energy	3			1	1	
	Geothermal Technologies	1			1		
	Water Power	1	1		2		
	Biorefinery Technologies	3	1		4	1	
	Hydrogen & Fuel Cell Technologies	2			2		
	Vehicle Technologies	6			5		
	Advanced Manufacturing	4	1		2		
	Building Technologies	7			2		
	Federal Energy Management		1			1	
	Weatherization & Intergovernmental	2			2		
	Fossil Energy R&D	3			2	1	
	Petroleum Reserves	3			3		
	New Nuclear Generation Technologies	3	2		5		
	Nuclear Infrastructure		2		1	1	
	Energy Information Administration	2			2		
	Loan Guarantees	3	1		4		
	Advanced Research Projects Agency-Energy	2			2		
	Advanced Scientific Computing Research	2			2		
	Basic Energy Sciences	3			3		
	Biological & Environmental Research	2			2		
	Fusion Energy Sciences	4			3	1	
	High Energy Physics	3			2	1	
	Nuclear Physics	3			3		
	Total Goal 1	**84**	**9**	**0**	**76**	**7**	**0**
Strategic Goal 2: Nuclear Security							
	NNSA Federal Salaries & Expenses	1			1		
	Directed Stockpile Work	4			2	2	
	Science Campaign	1			1		
	Engineering Campaign	1			1		
	Inertial Confinement Fusion Ignition & High Yield Campaign	1	2		2		
	Advanced Simulation & Computing Campaign	1			1		
	Advanced Manufacturing Development (previously Readiness Campaign)	1			1		
	Infrastructure and Operations (previously Readiness in Technical Base & Facilities)	2			2		
	Secure Transportation Asset	1			1		
	Nuclear Counterterrorism Incident Response	1			1		
	Site Stewardship	1			1		
	Defense Nuclear Security	3			3		
	NNSA CIO Activities	1			1		
	Counterterrorism & Counterproliferation	1	1		1		
	Defense Nuclear Nonproliferation R&D (previously Nonproliferation & Verification R&D)	5			5		
	Nonproliferation & International Security	4			3		
	International Material Protection & Cooperation	3	2		3	2	
	Fissile Materials Disposition	2	3		2	2	1
	Global Threat Reduction Initiative	3			3		
	Naval Reactors	2			2		
	Total Goal 2	**39**	**8**	**0**	**37**	**6**	**1**

AGENCY HIGHLIGHTS (Unaudited)

STRATEGIC GOAL	ACTIVITY	Fiscal Year 2014 Performance			Fiscal Year 2015 Performance		
		Targets Met	Targets Not Met	Results Unknown	Targets Met	Targets Not Met	Results Unknown
Strategic Goal 3: Management and Performance							
	Environmental Management	9	5		3	7	
	Legacy Management	2			2		
	Information Management (CIO)	1	4		1	4	
	Departmental Management	4	1		3	2	
	Human Capital	1	1		1	1	
	Hearings and Appeals	1			1		
	Environment, Health, Safety and Security	1			1		
	Total Goal 3	**19**	**11**	**0**	**12**	**14**	**0**
	DOE Total	**142**	**28**	**0**	**125**	**27**	**1**
	Share of Targets Met	**84%**			**82%**		

Major Laboratories and Field Facilities



Legend
- Operations Offices
- Production/Cleanup
- Laboratories
- Field Offices
- Site or Project Offices
- Special Purpose Sites or Offices
- Power Administrations
- Service Business Center

Alaska
1 Arctic 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 Northeast Home Heating Oil Reserve

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

Iowa
28 Ames Laboratory
87 Ames Site Office

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

Louisiana
13 Strategic Petroleum Reserve (SPR) Project Management Office
16 SPR - West Hackberry Site
31 SPR - Bayou Choctaw Site

Maine
36 Northeast Gasoline Supply Reserve

Maryland
37 DOE Headquarters - Germantown Campus

Massachusetts
55 Northeast Gasoline Supply Reserve
57 Northeast Home Heating Oil Reserve

Missouri
32 Kansas City National Security Campus
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
46 NNSA Albuquerque Complex
47 Sandia National Laboratories
48 Sandia Site Office
49 Waste Isolation Pilot Plant

New York
50 Brookhaven National Laboratory
51 Brookhaven Site Office
52 Knolls Atomic Power Laboratory
53 Naval Reactors Laboratory Field Office - Schenectady
54 West Valley Demonstration Project
85 Separations Process Research Unit
89 Northeast Gasoline Supply Reserve

Ohio
65 EM Consolidated Business Center
58 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 - Pittsburgh

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
OL Oak Ridge National Laboratory Site Office
72 Oak Ridge Office
73 Office of Scientific and Technical Information
74 Y-12 National Security Complex NNSA
75 Production Office - Oak Ridge

Texas
76 Pantex Plant
66 NNSA Production Office - Amarillo
97 National Energy Technology Lab – Sugar Land
98 Strategic Petroleum Reserve - Big Hill Site
91 Strategic Petroleum Reserve - Bryan Mound Site

Utah
92 Moab UMTRA Project

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

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

West Virginia
84 National Energy Technology Laboratory – Morgantown

Strategic Plan and Program Performance

(Unaudited)

The narrative below discusses FY 2016 results and outcomes for DOE programs as aligned with the strategic goals presented in the 2014-18 DOE Strategic Plan. A detailed discussion of results for the Department's FY 2016 performance goals, assessment methodologies, metrics, external reviews, and documentation of performance data will be presented in the *FY 2016 DOE Annual Performance Report* to be released in Spring 2017. Additional performance information is available at http://energy.gov/about-us/budget-performance.

Goal 1: Science and Energy

Advance foundational science, innovate energy technologies, and inform data driven policies that enhance U.S. economic growth and job creation, energy security, and environmental quality, with emphasis on implementation of the President's Climate Action Plan to mitigate the risks of and enhance resilience against climate change

Objective 1
Advance the goals and objectives in the President's Climate Action Plan by supporting prudent development, deployment, and efficient use of "all of the above" energy resources that also create new jobs and industries

Objective 2
Support a more economically competitive, environmentally responsible, secure and resilient U.S. energy infrastructure

Objective 3
Deliver the scientific discoveries and major scientific tools that transform our understanding of nature and strengthen the connection between advances in fundamental science and technology innovation

Contributing Programs
Advanced Research Projects Agency-Energy, Electricity Delivery and Energy Reliability, Energy Efficiency and Renewable Energy, Energy Information Administration, Energy Policy and Systems Analysis, Fossil Energy, Indian Energy Policy and Programs, International Affairs, Loan Programs, Nuclear Energy, Power Marketing Administrations, Science, Strategic Petroleum Reserve, Office of Technology Transitions

DOE invests in all stages of innovation across a diverse portfolio of clean energy technologies to enhance economic competitiveness in a low-carbon world and secure America's long-term energy security. The DOE identifies and promotes advances in fundamental and applied sciences; translates cutting-edge inventions into technological innovations; and accelerates transformational technological advances in energy areas that industry by itself is not likely to undertake because of technical or financial risk. The DOE also leads national efforts to develop technologies to modernize the electricity grid, enhance the security and resilience of energy infrastructure, and expedite recovery from energy supply disruptions. In FY 2015 DOE established crosscutting initiatives to enhance enterprise-wide planning and improve collaboration across organization boundaries for key science and technology areas with impact across DOE's missions. Each crosscutting initiative reflects a comprehensive and integrated work plan to optimize programmatic objectives and efficiently allocate resources. The crosscutting initiatives help bolster DOE's efforts to institutionalize enhanced program management and coordination across program offices, while accelerating progress on key national priorities. The DOE conducts robust, integrated policy analysis and regional engagement to support the nation's energy agenda. The DOE is the largest federal sponsor of basic research in the physical sciences. Below are examples of FY 2016 program accomplishments in these areas.

Transportation: Between 2012 and 2016, the Department's Office of Energy Efficiency and Renewable Energy (EERE) has funded R&D initiatives that have lowered the cost of lithium ion batteries for electric vehicles by 50%, putting us on track to meeting the Electric Vehicle (EV) Everywhere goal of making plug-in electric vehicles as affordable and convenient for the American family as gasoline powered vehicles by 2022. DOE is working with industry, academia, and its national laboratories toward achieving an even more aggressive goal of $125/kWh modeled production costs by 2022. The cost and performance of batteries are a key factor in continuing to lower the up-front cost of purchasing EVs. Lowering the cost and improving the performance of batteries plug-in electric vehicles (PEVs) is key to improving vehicles' economic, social, and environmental sustainability. PEVs can potentially reduce per vehicle greenhouse gas emissions by over 80% when paired with low carbon sources of electricity.

Renewable Energy: EERE's SunShot initiative helped reduce the cost of solar energy by more than 65% between 2011 and 2016, placing us on target to reach the world-changing goal of $1 per watt. Such a

decrease can enable the country to get 27% of its electricity from solar by 2050. As solar has become more affordable, the industry has grown by an astonishing 26-fold since the beginning of the Obama Administration. The Administration's continued efforts through the SunShot Initiative will help to further reduce costs to make solar energy more accessible and affordable for American families and businesses.

Energy Efficiency: EERE finalized 12 efficiency rules that were issued by DOE in FY 2016. DOE is on track to complete the Climate Action Plan goal of reducing cumulative carbon pollution by 3 billion metric tons by 2030 through standards set since 2009 and promulgating new standards for consumer products and industrial equipment by the end of calendar year 2016. Final rules are published in the Federal Register.

Residential and commercial buildings consume approximately 40 percent of the primary energy consumed in the United States. This amounts to over 39 quads of primary energy used by the buildings sector per year, an amount that is greater than the yearly energy consumption of either the industrial or the transportation sectors. By developing minimum energy efficiency standards, the Equipment Standards and Analysis program helps reduce energy costs for consumers and businesses, as well as reduce associated energy use and emissions.

Improving Energy Efficiency in Windows: Advanced Research Projects Agency-Energy (ARPA-E) announced $31 million in funding for 14 projects as part of ARPA-E's Single-Pane Highly Insulating Efficient Lucid Design (SHIELD) program. SHIELD project teams are developing innovative window coatings and windowpanes that could significantly improve the energy efficiency of existing single-pane windows in commercial and residential buildings.

Decreasing Vehicle Energy Consumption: ARPA-E announced up to $30 million in funding for a program that aims to solve some of the Nation's most pressing energy challenges by accelerating the development of novel energy technologies. NEXT-Generation Energy Technologies for Connected and Automated on-Road vehicles (NEXTCAR) seeks to develop new technologies that decrease energy consumption of future vehicles through the use of connectivity and automation.

Leveraging DOE Investments: Cumulatively, 45 ARPA-E projects secured more than $1.25 billion in private sector follow-on funding.

In addition, since ARPA-E's inception 36 ARPA-E projects have formed new companies, 60 projects partnered with other government agencies for further development and an increasing number of technologies were incorporated into products that are being sold in the market. These projects demonstrate ARPA-E's crucial role in supporting high-potential, high-impact technologies to the point where additional investment can be leveraged for continued development and deployment in the marketplace. The full list of ARPA-E projects is available at: http://go.usa.gov/cvUQz.

The Department announced nearly $16.1 million in funding through the Technology Commercialization Fund (TCF), overseen by the Office of Technology Transitions, for maturation of promising energy technologies developed at the national laboratories. These funds were matched by contributions of $17.1 million from private sources. This first round of TCF supports 54 projects at 12 national labs with 58 individual private partners, ranging from large multi-national firms to regional companies. The TCF is a cross-cutting initiative supporting a wide range of technologies with breadth of applications including advanced manufacturing, vehicle technologies, renewables, energy storage and production. The full list of projects is available at: http://energy.gov/technologytransitions/articles/doe-announces-16-million-54-projects-help-commercialize-promising

Catalyzing Private Sector Investment: The primary mission of the Clean Energy Investment Center (CEIC) is to catalyze expanded private-sector investment in climate change solutions, including innovative energy technologies with breakthrough potential to address the significant gap in U.S. clean energy technology investment and reduce carbon pollution. Since its inception as part of the Clean Energy Investment Initiative, the CEIC engaged with and brought together scientists and researchers at DOE National Laboratories as well as investors (philanthropic and family foundations; venture capital firms; strategic corporations; incubators and accelerators; and university endowments) to identify opportunities to catalyze mission-oriented private investments in clean energy technologies.

Gateway for Accelerated Innovation in Nuclear (GAIN) Initiative: DOE initiated GAIN to provide the nuclear community with access to the technical, regulatory, and financial support necessary to move innovative nuclear energy technologies toward commercialization. A small and agile GAIN organization was established and 1) facilitated multiple small business voucher awards totaling $2 million to provide businesses access to unique national laboratory capabilities; 2) initiated an industry-led, laboratory-supported expert group for advanced reactor licensing framework development; and 3) conducted technology-centric workshops to identify research and capability gaps that the GAIN initiative might be able to help address. Initial workshop feedback was immediately incorporated into several proposed research areas identified in the Department's Consolidated Innovative Nuclear Research solicitation issued on August 10, 2016.

Small Modular Reactors: In May 2016, Tennessee Valley Authority (TVA) submitted an Early Site Permit

Application (ESPA) to the Nuclear Regulatory Commission (NRC) for siting a small modular reactor (SMR) at its Clinch River, Tennessee site adjacent to the Oak Ridge National Laboratory. The ESPA references a generic SMR and uses bounding parameters from all the U.S.-based SMR vendors in its analyses. When granted, the early site permit will certify the site is suitable to construct and operate an SMR within acceptable safety and environmental parameters. The submission of the application will be followed by TVA selecting an SMR technology and commencing Combined Operating License Application development. In February 2016, Utah Associated Municipal Power Systems (UAMPS) and the Department signed a Site Use Permit that outlined the terms and conditions for siting a NuScale SMR on Idaho National Laboratory property, with UAMPS identifying a preferred site in August 2016. These accomplishments are key steps toward accelerating the domestic deployment of SMR technology.

Modeling and Simulation Hub: The Office of Nuclear Energy Modeling and Simulation Energy Innovation Hub that is operated by the Consortium for the Advanced Simulation of Light-water-reactors (CASL) is providing coupled, higher-fidelity, usable modeling and simulation capabilities needed to address light water reactor operational and safety performance-defining phenomena. The capabilities of the Hub are being extended to support other light water reactor designs including Boiling Water Reactors (BWRs) and SMRs. In FY 2016, CASL conducted cost-shared deployment tests that installed virtual reactor tools on industry computers. Information obtained from these tests will provide an improved understanding of industry-defined issues that currently limit the energy output of their reactors.

Consent-Based Siting Initiative: As called for in the Administration's 2013 "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," DOE initiated a consent-based approach to siting nuclear waste management facilities as part of an integrated waste management system. The approach develops a bottom-up approach to siting one or more pilot interim storage facilities, larger interim storage facilities, repositories for commercial spent nuclear fuel, and repositories for defense waste materials. If successful, the United States would establish the interim storage and ultimate disposal sites for spent nuclear fuel and defense waste materials created over the last 60 years in production of electricity and for defense activities. In addition to work relating to the Administration's Strategy, DOE is also pursuing a planned deep borehole field test to advance the science and engineering knowledge and determine the feasibility of using the deep borehole approach for the possible disposal of smaller, DOE managed-waste as an alternative to mined geologic repositories.

Loan Programs Office (LPO) Portfolio Continues CO_2 Emissions Avoidance: As of April 2016, LPO's portfolio of projects avoided 30 million metric tons of carbon dioxide emissions.

LPO Helps Develop a New Market: LPO issued loan guarantees to the first 5 solar photovoltaic (PV) projects larger than 100 megawatts (MW) in the United States. As of February 2016, there are 28 privately financed utility scale solar PV projects.

LPO Driving Economic Growth: LPO committed more than $8 billion in loans to projects that supported the production of more than 4 million fuel-efficient cars and more than 35,000 direct jobs across eight states. The loans helped to build new manufacturing facilities, and retool and modernize aging plants across the country.

Development of a Corrosion Sensor: The Office of Fossil Energy (FE) supported development of a self-powered, wireless, in-situ corrosion sensor that can be mounted on components of boilers used for power generation to transmit signals indicating the degree of corrosion for that component. An initial prototype of the sensor demonstrated the capability of the wireless communication system to acquire electrochemical potential and current signals during the progressive corrosion process. The electrochemical potential produced across boiler components provides the source of self-powering for the sensor. This avoids the need for an external power source and also avoids the wire breakage and maintenance typically associated with conventional, wired sensors. This technology minimizes physical inspection risks encountered by entering a boiler during a maintenance outage.

Improving Syngas Production: FE researchers discovered a new class of oxygen carrier materials that have a unique capability to react directly with coal to produce synthesis gas without unfavorably reacting with syngas product. The discovery led to a patent application and gained industry interest in licensing the technology for chemical looping gasification to produce syngas. The technology can potentially reduce the cost and complexity associated with syngas production from coal used for many industrial processes.

Tribal Energy: As part of the Obama Administration's commitment to partner with Tribal Nations, 16 facility- and community-scale energy projects in 24 American Indian and Alaska Native communities were awarded over $9 million to deploy clean energy and energy efficiency. These projects provide Indian Tribes and Alaska Native villages with clean energy solutions that will save communities money and reduce carbon pollution. DOE funding is expected to be matched by nearly $16 million in cost sharing.

Eight inter-tribal organizations and Alaska Regional Corporations were awarded $7 million to develop and build their capacity to provide regional technical assistance to meet the needs of their member Indian

tribes, including Alaska Native villages. The funding will expand the DOE technical assistance network and is expected to be matched by nearly $1.2 million in tribal cost share.

The Menominee Tribal Enterprises (MTE) opened its biomass combined heat and power (CHP) district energy plant, which generates steam and electricity using renewable biomass fuel to power the Tribe's sawmill and lumber drying operation. DOE co-funded the $2.065 million MTE project (matching MTE's $1.03 million investment) to install the new CHP system.

On July 25, 2016 the Soboba Band of Luiseño Indians (Tribe) finished installation of a 1 MW solar PV system on its approximately 7,000-acre Reservation. The Tribe invested more than $1 million in the $2.1 million solar PV project, co-funded by a $1 million DOE competitive grant.

As part of President Obama's commitment to fight climate change and assist remote Alaskan Communities, the Remote Alaskan Communities Energy Efficiency Competition is a $4 million joint effort between the offices of Indian Energy (IE) and EERE to significantly accelerate efforts by remote Alaskan communities to adopt sustainable energy strategies. The competition will empower remote Alaskan communities to develop and implement solutions that effectively advance the use of reliable, affordable, clean-energy and energy-efficient solutions that are applicable throughout rural Alaska and potentially in other Arctic regions. These activities build on the $50 million in DOE funding invested in nearly 200 tribal energy projects between 2002 and 2015. During that same period, tribes contributed a total of $45 million in cost sharing to advance their energy projects.

Bonneville Power Administration (BPA): The Federal Columbia River Power System (FCRPS) is one of the nation's largest nearly carbon-free energy sources. Preserving and enhancing the future value of the FCRPS continues to be a major BPA focus. BPA's ongoing prioritization and execution of capital investment in transmission and FCRPS generation assets is the foundation for delivering clean, low-cost power to the communities and economies of the region. Major accomplishments include completion of $498 million in modernization upgrades to the Celilo Converter Station at the northern end of the 846-mile Pacific Direct Current Intertie and completion of overhaul work on the 805 MW unit at the Third Power Plant as the first of six major, multi-year mechanical overhauls at Grand Coulee Dam. In addition, BPA supports environmentally responsible energy and funds one of the largest fish and wildlife programs in the nation. The BPA Fish and Wildlife Program addresses basin-wide impacts of federal hydro projects, including fish passage, habitat, and hatchery actions for salmon, steelhead, bull trout, lamprey, sturgeon, and other wildlife. Salmon passage at Columbia River dams is among the best in the nation, with juvenile fish dam passage survival performance standards of 93 to 96 percent. Since 2007, BPA opened access to more than 3,300 miles of fish habitat and protected or restored over 7,760 acres of estuary floodplain.

Modernizing Hydroelectric Facilities: Southeastern Power Administration (Southeastern) signed memorandums of agreement with its preference customers to fund maintenance, rehabilitations, and modernization of US Army Corps of Engineers' hydroelectric facilities in Southeastern's operating area. In June 2016, Tennessee Valley Authority and Tennessee Valley Public Power Association (TVPPA), on behalf of 154 regional municipals and cooperatives, signed documents funding nearly $35 million annually of hydropower infrastructure improvements over 20 years, which represents the TVPPA members' share of the improvements.

First Federal agency to become a full member of a regional transmission organization (RTO): Western Area Power Administration's (WAPA) Pick Sloan-Missouri Basin Eastern Division project entered into agreements with the Southwest Power Pool, becoming the first Federal agency to become a full member of a regional transmission organization.

Plains & Eastern Clean Line Project: Secretary Moniz announced DOE will participate in the development of the Plains & Eastern Clean Line Project, a clean energy infrastructure project in Southwestern Power Administration's marketing area. The project includes an overhead +/-600 kV high voltage direct current electric transmission line and associated facilities with the capacity to deliver approximately 4,000 MW, primarily from renewable energy generation facilities in the Oklahoma Panhandle region to load-serving entities in the Mid-South and Southeast via proposed interconnections in Arkansas and Tennessee.

Quadrennial Energy Review (QER): DOE supported the interagency task force that began development of the second installment of the Administration's QER (QER 1.2), a key milestone in implementation of the President's Climate Action Plan. QER 1.2 examines the electricity system from generation to end use and will provide a policy roadmap for meeting key energy objectives related to the electricity system of the 21st Century: enabling a clean electricity future; ensuring security, system resilience, and reliability; and increasing consumer value and equity. DOE conducted extensive analysis, worked with interagency partners and key stakeholders to verify information, and began to develop policy recommendations. QER 1.2 is scheduled to be published by January 2017.

DOE also undertook efforts to implement policy recommendations from the April 2015 first QER

installment that addressed energy transmission, storage, and distribution infrastructure.

Supporting International Cooperation: DOE works through the Energy and Climate Partnership of the Americas (ECPA) and bilaterally in the region to promote cooperation focusing on grid integration and emergency preparedness among the Americas, including North American cooperation in the QER 1.2. DOE also signed an agreement between the United States and Israel concerning energy cooperation that includes additional areas of potential cooperation, such as energy and water infrastructure and biomass-to-liquid fuels technologies and encourages collaboration on joint projects between government research institutes, such as DOE National Laboratories and the Israeli national research center.

European Energy Security: In coordination with the State Department and U.S. Agency for International Development, DOE leads efforts in partnership with the European Union and the G-7 to build energy resiliency and strategic planning capacity in the face of Russian pressure. Through a series of workshops, trainings, and technical assistance programs, DOE supported efforts in the Ukraine and Baltic states in cyber security, emergency planning, critical grid infrastructure, and resiliency planning.

Clean Energy Ministerial (CEM7): Secretary Moniz hosted 23 governments and the European Union for the seventh CEM7 and the inaugural Mission Innovation Ministerial. At CEM7 three new global campaigns were launched: the Advanced Cooling Challenge, the Energy Management Campaign, and the Corporate Sourcing of Renewables Campaign. The countries also agreed to launch a new phase of collaboration - "CEM 2.0."

Mission Innovation (MI): President Obama and other world leaders came together in Paris to launch MI, a landmark commitment to dramatically accelerate public and private global clean energy innovation. Member countries are seeking to double public clean energy research and development over five years. The FY 2017 budget request takes the first step in the government-wide doubling path. MI will include strengthening existing innovation platforms that have shown success including ARPA-E, Energy Frontier Research Centers, Innovation Hubs, Manufacturing Innovation Institutes, and core applied energy technology programs, creating new mechanisms such as regional innovation centers, and expanding international collaboration.

Creating a Virtual Energy Storage System: ARPA-E announced $33 million in funding for 12 innovative projects as part of ARPA-E's Network Optimized Distributed Energy Systems (NODES) program. NODES project teams will develop technologies that coordinate load and generation on the grid to create a virtual energy storage system. The teams will develop innovative hardware and software solutions to integrate and coordinate generation, transmission, and end-use energy systems at various points on the electric grid. These control systems will enable real-time coordination between distributed generation, such as rooftop and community solar assets and bulk power generation, while proactively shaping electric load. This will alleviate periods of costly peak demand, reduce wasted energy, and increase renewables penetration on the grid.

Hourly Electricity Data: The Energy Information Administration (EIA) released a public beta version of near real-time hourly electricity data that will support analysis of intra-day and seasonal patterns of demand, technology investment decisions, and situational awareness of load and system balancing issues when there are power outages.

Distributed Solar Generation: EIA initiated monthly state-level estimates of small-scale distributed solar photovoltaic (PV) generation to enable tracking of where and by how much distributed PV, including rooftop generation, contributes to the nation's electricity supply.

North American Cooperation on Energy Information: EIA was instrumental in a new collaboration with its Canadian and Mexican counterparts to reconcile and harmonize energy statistics, maps, and analyses to help policy makers and industry make more informed decisions and undertake broader initiatives on energy cooperation.

Energy Policy Analysis and Modeling: EIA provided an independent, impartial policy analysis of the Clean Power Plan proposal that addresses impacts on the generation mix, electricity prices, domestic production of coal and other fuels, and energy efficiency.

Grid Modernization: As part of the Administration's commitment to improving the resiliency, reliability, and security of the nation's electricity delivery system, DOE announced an award of up to $220 million over three years, subject to congressional appropriations, to DOE's National Labs and partners to support critical research and development in advanced storage systems, clean energy integration, standards and test procedures, and a number of other key grid modernization areas. The award supports the Grid Modernization Initiative, a comprehensive effort to help shape the future of our nation's grid and solve the challenges of integrating conventional and renewable sources with energy storage and smart buildings, while ensuring that the grid is resilient and secure to withstand growing cyber security and climate challenges. The up to $220 million research and development funding from the Office of Electricity Delivery and Energy Reliability and the Office of Energy Efficiency and Renewable Energy falls under the Grid Modernization Laboratory Consortium. The consortium involves 14 DOE National Laboratories and dozens of industry, academia, and state and local

government agency partners across the country. These funds are being awarded in response to a challenge to the National Laboratories to establish a comprehensive grid-related research and development effort to address a range of emerging challenges and opportunities in the nation's power grid.

DOE funded technologies are helping to protect the nation's energy infrastructure from cyber attacks: The nation's energy infrastructure systems that deliver electric power, oil, and natural gas are tightly monitored and controlled using energy control systems to ensure the reliable and continuous availability of electricity and fuels to support nearly every aspect of American commerce and industry. With DOE funding and partnerships with industry and national laboratories, advanced operational networking technologies have been developed using software-defined networking (SDN) principles that provide enhanced cybersecurity protections as well as reduced operational maintenance costs. The SDN project developed a Flow Controller that monitors, configures, and maintains more secure and reliable operational network data communications flows. To sustain critical functions during a cyber intrusion, control system operators now have the ability to deny-by-default any unexpected cyber activity, and quickly identify and isolate the affected operational network areas and re-route critical flows.

Visualizing Energy Infrastructure Exposure to Storm Surge and Sea Level Rise: DOE released an innovative, interactive visualization tool to highlight the findings from previous work on the effect of sea level rise and storm surge on energy infrastructure. The tool enhances communication of the results and allows users to better understand the context of the potential exposure and explore spatial data used to create the maps. The original work, released in FY 2014, examined the effect of sea level rise on energy infrastructure, and focused on four major metropolitan statistical areas (MSAs): New York City, Houston, Miami, and Los Angeles. Since then, Boston, Philadelphia, and Norfolk have also been analyzed, and all seven MSAs have been assessed to examine the effects of storm surge. The study, which is a good first-order approach and screening tool, can help communities understand and prepare for the effects of sea level rise on their energy assets. DOE will continue working with federal, state, and local partners to share and understand the value of the findings of the study and identify opportunities for future improvement and collaboration.

Strategic Petroleum Reserve (SPR) Long-Term Strategic Review: The Office of Petroleum Reserves completed the Long-Term Strategic Review report that provides an overview of the SPR and addresses key challenges that will impact the SPR's energy security mission. Major topics in the report include the state of SPR surface and subsurface infrastructure, bottlenecks in the North American midstream infrastructure that impact the SPR's ability to move oil to the market, costs and benefits of SPR options, SPR modernization requirements for infrastructure life extension and the addition of dedicated marine terminals, and issues with the SPR's authorizing legislation, the Energy Policy and Conservation Act (EPCA). These areas were evaluated with consideration given to the Bipartisan Budget Act of 2015 and the Fixing America's Surface Transportation (FAST) Act, which mandate the sale of an estimated 124 million barrels of the SPR's crude oil inventory and authorize the funding of an SPR modernization program through the sale of up to an additional $2 billion worth of oil.

Theoretical modeling of energy loss in solar cells performed at the DOE Lawrence Berkeley National Laboratory may lead to materials that are more efficient at converting sunlight to electricity: When sunlight is absorbed in a solar cell, some of the energy that could be used is lost as heat. Because this complex loss process occurs in a fraction of a second, characterizing it has long been a challenge. For the first time, accurate first-principles theoretical calculations of the energy lost to heat in silicon, the primary component of solar cells, have been performed. This understanding should allow development of devices with significantly improved solar energy conversion efficiency. Understanding how energy losses occur in materials as sunlight is converted to electricity, referred to as electron dynamics, is central to improving solar energy conversion technologies. The challenges presented by the sub-picosecond time scales and complex physics were overcome in this fundamental theoretical research, opening new avenues to guide the development of more efficient energy conversion materials.

DOE supported researchers led by Michigan Technological University discovered a novel semiconducting device: Computers and electronics rely on heterojunctions, which are the interfaces between two different materials with different electronic properties, typically two semiconducting materials. In this research, scientists achieved seamless heterojunctions of graphene-boron nitride nanotubes without using conventional semiconductors. Further, they found the junctions behaved as electronic switches. The on/off "switching ratio" was as high as 100,000, which is several orders of magnitude higher than current graphene switches. The high on/off switching ratio of these tiny heterojunctions could lead to high-speed electronic switches that overcome conventional material constraints and lead to faster electronics and computers.

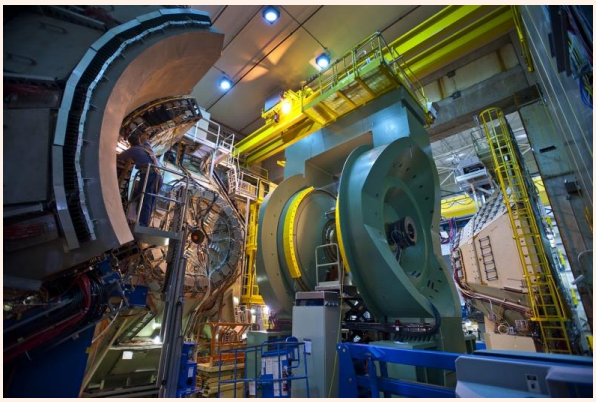
DOE Joint BioEnergy Institute research into recycling waste from biofuel production could lower cost for future biorefineries: Ionic liquids (ILs) are an excellent pretreatment solvent for biomass; the ILs prepare the plant matter to be broken down into its component sugars, which can be used in creating biofuels. However, the

availability and high cost of petroleum-derived ILs pose challenges. Synthesizing new ILs directly from biomass "wastes" – the lignin monomers and hemicellulose – is being studied as a new approach. When the renewable biomass-derived ILs were used to prepare switchgrass biomass, high yields of sugar were generated, comparable with results obtained using conventional ILs. Cost projections of renewable ILs are $4/kg, much lower than the current top-performing ILs, improving the economic viability of biofuels. Thus, deriving ILs from lignocellulosic biomass shows significant potential for creating a "closed-loop" process for future bio-refineries and has far-reaching economic impacts for other IL-based conversion technologies currently using ILs synthesized from petroleum sources.

Work performed as a collaboration between the Princeton Plasma Physics Lab (PPPL) and the Oak Ridge National Laboratory, with participation by the University of Washington Plasma Science and Innovation Center, and the University of California, Los Angeles opened up access to new regimes for the fusion reactor: Lithium is a light, silvery metal used in rechargeable batteries. However, it may also prove to be a vital part of fusion reactors, which harness the same reaction that fuels our sun. Fusion reactors require walls that do not sputter out metals or overly cool the plasma at the heart of the reaction. Researchers have demonstrated that lithium-coated walls can handle temperatures exceeding 200 eV. The influx of lithium to the reactor's core is expected to decrease as the plasma edges heat up to fusion-relevant temperatures. In addition, because lithium is the lightest of all solid metals, if modest amounts of lithium are sputtered, it does not affect performance. Cooling the edge plasma in a donut-shaped fusion reactor called a tokamak to low temperatures cools the core as well, and the reactor's performance is reduced. If a hot plasma edge can be tolerated by the wall, fusion performance will increase. Very flat temperature profiles with a hot plasma edge have now been achieved in the PPPL Lithium Tokamak Experiment by adding a lithium wall. Such uniformity in the radial temperature profile may also significantly reduce the means by which plasma instabilities are driven, and hence decrease energy and particle losses.

Scientists from the DOE-supported Sloan Digital Sky Survey III made the largest-ever, three-dimensional map of distant galaxies: A team of hundreds of physicists and astronomers have constructed the largest-ever, three-dimensional map of the distant galaxies to make one of the most precise measurements yet of the dark energy currently driving the accelerated expansion of the Universe. These new measurements were carried out by the Baryon Oscillation Spectroscopic Survey (BOSS) program of the Sloan Digital Sky Survey-III. BOSS measures the expansion rate of the Universe by determining the size of the baryonic acoustic oscillations (BAO) in the three-dimensional distribution of galaxies. The original BAO size is determined by pressure waves that travelled through the young Universe up to when it was only 400,000 years old (the Universe is 13.8 billion years old), at which point they became frozen in the matter distribution of the Universe. The result is that galaxies have a slight preference to be separated by a characteristic distance that astronomers call the acoustic scale. The size of the acoustic scale at 13.7996 billion years ago has been exquisitely determined from observations of the cosmic microwave background from the light emitted when the pressure waves became frozen. Measuring the distribution of galaxies since that time allows astronomers to measure how dark matter and dark energy have competed to govern the rate of expansion of the Universe. Additionally, researchers can now measure how much the galaxies and stars cluster together as a function of time to such an accuracy we can test General Relativity at cosmological scales.

New data from collisions of protons at the DOE Relativistic Heavy Ion Collider (RHIC) indicate that "gluons," glue-like particles that bind the inner building blocks of each proton, play a substantial role in determining the proton's "spin," or intrinsic angular momentum: RHIC is the only machine in the world that can collide "polarized" protons—protons with their spins aligned in a particular direction—to help unravel the mystery of how the proton's building blocks, quarks and gluons, contribute to spin, a property that is put to use every day in MRI scans. Exploring the sources of proton spin is helping to resolve the long-standing proton spin "mystery." The mystery originated when experiments in the 1980s revealed that a proton's spin—a property that influences these particles' optical, electrical, and magnetic characteristics—does not come solely from its quarks. The new results analyzed by RHIC's PHENIX collaboration indicate that the gluons' contribution is substantial, and might be even greater than the contribution from quarks.



The PHENIX detector at Brookhaven National Lab's Relativistic Heavy Ion Collider (RHIC), a type of particle accelerator, records many different particles emerging from RHIC collisions, including photons, electrons, muons, and quark-containing particles called hadrons. The detector is shown here in a disassembled condition during maintenance. | Photo courtesy of Brookhaven National Laboratory.

Goal 2: Nuclear Security

Strengthen national security by maintaining and modernizing the nuclear stockpile and nuclear security infrastructure, reducing global nuclear threats, providing for nuclear propulsion, improving physical and cybersecurity, and strengthening key science, technology, and engineering capabilities

Objective 4
Maintain the safety, security, and effectiveness of the nation's nuclear deterrent without nuclear testing

Objective 5
Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure

Objective 6
Reduce global nuclear security threats

Objective 7
Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy

Contributing Programs
National Nuclear Security Administration, Intelligence and Counterintelligence, International Affairs

The DOE national security mission supports nuclear security, intelligence and counterintelligence operations, and related national security needs. The National Nuclear Security Administration's (NNSA) nuclear security mission implements four major endeavors consistent with DOE's Strategic Plan: (1) use science to maintain a safe, secure, and effective nuclear weapons stockpile that deters any adversary and protects our allies; (2) reduce the threat posed by nuclear proliferation and terrorism, including unsecured or excess nuclear and radiological materials both domestically and internationally; (3) prepare to respond to, and mitigate, nuclear and radiological incidents worldwide; and (4) support safe and effective integrated nuclear propulsion for the U.S. Navy. NNSA also supports national security priorities articulated in the 2015 National Security Strategy, 2010 Nuclear Posture Review (NPR), the NNSA Enterprise Strategic Vision, the Stockpile Stewardship and Management Plan (SSMP), and Prevent, Counter, and Respond – Strategic Plan to Reduce Global Nuclear Threats (NPCR). The President's 2015 National Security Strategy, 2010 NPR, and ratification of the New Strategic Arms Reduction Treaty underscored the importance of the DOE nuclear mission, and renewed the mandate for DOE to maintain a safe, secure, and reliable stockpile for as long as nuclear weapons exist. The NPR presented a path to reduce global nuclear security threats while permitting access to peaceful nuclear power for Nations that respect the international nonproliferation regime. DOE advances the President's vision to move toward a world free of nuclear weapons by both dismantling retired weapons and improving global stability through increased transparency and confidence building measures.

Through the NNSA nuclear security enterprise, DOE plays a central role in sustaining a safe, secure, and effective nuclear deterrent and combating proliferation and nuclear terrorism. The science, technology, engineering and manufacturing capabilities resident in the nuclear security enterprise underpin our ability to conduct stockpile stewardship and solve the technical challenges of verifying treaty compliance, combating nuclear terrorism and proliferation, and guarding against the threat posed by nuclear technological surprise. For example, the unique knowledge gained in nuclear weapons design developed to support the U.S. stockpile plays a critical role in the ability to understand strategic threats worldwide. DOE provides the design, development, and operational support to provide militarily effective naval nuclear propulsion plants and ensure their safe, reliable, and long-lived operations.

By providing a modernized, responsive infrastructure, DOE prepares the nation for a range of potential future nuclear deterrence challenges. With its extensive science and technology capabilities and nuclear expertise, DOE provides support to defense, homeland security, and intelligence missions, primarily through national laboratories and sites. DOE also provides expert knowledge and operational capabilities for physical security, classification, emergency preparedness and response, nuclear forensics and cybersecurity. Below are examples of FY 2016 program accomplishments.

W76-1 Life Extension Program (LEP): The W76-1 LEP improves the Navy submarine launched ballistic missile. NNSA started producing the W76-1 in 2008 and, by the end of this year, NNSA will have completed more than 70 percent of the total number of W76-1 warheads to be provided to the Navy. NNSA expects to complete production of the W76-1 on schedule in 2019. The Navy will then have a life-extended warhead for its ballistic missile submarine fleet that will last for at least another 30 years, and will enable an almost 50 percent reduction of the total number of W-76 warheads currently in the inventory.

Sandia National Laboratories researcher studies how radiation affects electronics within a W76-1 warhead. | Photo courtesy of Sandia National Laboratories.

B61-12 Life Extension Program (LEP): Working with the United States Air Force (USAF), NNSA successfully completed environmental flight tests on the F-15, F-16, and B-2 aircraft on or ahead of schedule. These tests ensured the B61-12 is compatible with analog aircraft such as F-16s and digital aircraft such as F-15s and F-35s, as well as the B-2 bomber. In January, the B61-12 LEP completed its System Baseline Design Review which allows NNSA to produce the next round of development hardware, and to continue engineering and testing activities. In May, the Preliminary Design Review and Acceptance Group (PDRAAG), which includes representatives from the USAF, U.S. Navy, and U.S. Army, determined that the baseline design of the B61-12 meets Department of Defense (DoD) Military Characteristics and Stockpile-to-Target Sequence requirements. When the LEP is finished, it will add at least 20 years to the life of the system and consolidate four variants of the B61 into a single variant, and facilitate the retirement of the B83-1. These actions will result in a 50 percent reduction in the number of nuclear gravity bombs in the stockpile and an 80 percent reduction in the amount of nuclear material used in air delivered gravity weapons.

Uranium Processing Facility: NNSA is committed to ending enriched uranium (EU) program operations in most of Building 9212 and delivering the Uranium Processing Facility (UPF), both located at the Y-12 National Security Complex, by 2025 for no more than $6.5 billion. Once delivered, UPF will provide new floor space for select building 9212 capabilities which cannot be relocated and segregate EU operations by security and hazard requirements.

Stockpile Stewardship: The science-based Stockpile Stewardship Program has allowed the Secretaries of Energy and Defense to certify to the President for the twentieth time that the U.S. nuclear weapons stockpile remains safe, secure, and effective without the need for underground explosive nuclear testing.

Prevent Illicit Trafficking: In March 2016, U.S. Secretary of Energy and China Minister of the General Administration of Customs signed the Statement of Intent (SOI) between DOE and the General Administration of China Customs for Cooperation in the Field of Commodity Identification Training for Nonproliferation Export Control. The SOI facilitates continued cooperation to develop a Chinese national course for Commodity Identification Training aimed at combating illicit trafficking of weapons of mass destruction related materials, equipment, and technology through nuclear and dual-use commodity familiarization and identification. The SOI also creates a new Working Group to coordinate joint export control efforts.

Global maritime supply chain security: In November 2015, NNSA and the U.K. Department of Energy and Climate Change co-hosted a workshop on enhancing the security of the global maritime supply chain at Wilton Park, United Kingdom. Fifty-five participants from 15 countries and 9 international organizations participated in the workshop that fulfilled a commitment made by 13 countries at the 2014 Nuclear Security Summit, a U.S.-led effort to focus international attention on securing nuclear material worldwide. The workshop participants developed recommendations and best practices for deterring, detecting, and responding to trafficking of nuclear and radiological material that terrorists could acquire through the maritime shipping system. NNSA presented these recommendations and a best practices guide at the 2016 Nuclear Security Summit.

Enhancing global nuclear detection architecture in Belarus: In 2016, NNSA initiated provision of radiation detection systems, and associated training, to the Government of Belarus. NNSA provided radiation detection systems for five priority border crossings and four mobile detection vans, enhancing the global nuclear detection architecture in a key partner.

Enhancing Radiological Security in the United States and Abroad: Consistent with commitments related to radiological security made at the 2014 Nuclear Security Summit, NNSA partnered with hospitals, universities, and industry to provide voluntary security enhancements for Category 1 radioactive sources in the United States. Category 1 sources are considered to be the most 'dangerous' because they can pose a very high risk to human health if not managed safely and securely. Currently, 82 percent of Category 1 buildings in the United States have volunteered to institute additional best practices beyond the recommendations in the International Atomic Energy Agency (IAEA) Code of Conduct on the Safety and Security of Radioactive Sources. NNSA also provided technical and financial assistance to Armenia, Czech Republic, Georgia, Hungary, Kazakhstan, Lithuania, and Morocco to support their 2014 Nuclear Security Summit commitments.

China Center of Excellence: NNSA and its Chinese counterparts launched China's Nuclear Security Center of Excellence (COE) on March 18, 2016 with the commissioning ceremony to open the center. The COE will address China's domestic nuclear security training requirements, provide a forum for bilateral and regional best practice exchanges, and serve as a venue for demonstrating advanced technologies related to nuclear security.

The President's Strategy to Address Potential Proliferation Risks Associated with the use of Additive Manufacturing: In 2016, NNSA led the interagency effort to develop a U.S. Government strategy to address the potential proliferation risks associated with the use of Additive Manufacturing (AM) and the potential impact on U.S. nuclear nonproliferation goals and policy. AM is an emerging and rapidly developing manufacturing technique that has the potential to impact many industries. Development and diffusion of AM technologies also may pose new proliferation challenges and risks.

Joint Comprehensive Plan of Action Implementation: In 2016, NNSA continued to provide technical support to ensure successful implementation of the Joint Comprehensive Plan of Action (JCPOA) by drawing upon the vast scientific and technical expertise of DOE and its national laboratories. DOE continues to play a key role providing technical support to the Joint Commission's Procurement Working Group (PWG) and the International Atomic Energy Agency's (IAEA) monitoring and verification activities. In particular, NNSA is playing a role in the internal U.S. review process for proposed transfers of nuclear-related items to Iran under the PWG. NNSA will continue to review and make technical recommendations of the proposed transfers to the interagency Iran Sub-Group. Also, DOE technical expertise and training supports the IAEA monitoring and verification regime. DOE provides assistance to the IAEA Department of Safeguards by supporting specialized training as well as technology and concept development. DOE, through the national laboratories, is also a major contributor to the IAEA Network of Analytical Laboratories, which participates in high precision of analysis of nuclear material and environmental samples.

Nonproliferation and Arms Control Verification: In 2016, NNSA completed three major efforts aimed at improving the U.S. nonproliferation and arms control verification capabilities. NNSA executed the fifth experimental underground conventional explosion of the Source Physics Experiment at the Nevada National Security Site. The terabytes of experimental validation data generated and the associated theoretical and modeling work improve our understanding of the prompt (e.g. seismic, infrasound) signatures indicative of an underground nuclear test. The Underground Nuclear Event Signatures Experiment successfully completed a noble gas migration study in which tracer gases were injected in the cavity of a previous underground nuclear test. Measurement of the effluents combined with gas transport and geologic models greatly improve our understanding of the long-time scale signatures of nuclear testing. NNSA also conducted the End-to-End Demonstration of new warhead monitoring technologies. These developmental technologies provide new approaches and options in support of future arms control treaty negotiations, including vulnerability analyses and trade-offs between intrusiveness and confidence.

Nuclear Detonation Detection: In 2016, NNSA collaborated with the USAF to launch two 300-pound Global Burst Detector (GBD) sensor suites on Global Positioning System (GPS) IIF navigation satellites, and to deliver to the USAF two more GBD sensor suites for future GPS satellite launches. The GBD sensor suite detects, identifies, and precisely locates nuclear explosions. These are the latest space-based sensor additions to the U.S. Nuclear Detonation Detection System, which monitors compliance with the international Limited Test Ban Treaty. The treaty, signed by 108 countries, prohibits nuclear testing in the atmosphere, outer space, and underwater. The launches are milestones in the successful 53-year partnership between the USAF, NNSA, and the national laboratories.

Material Management and Minimization (M3): In 2016, NNSA continued to minimize, and where possible, eliminate nuclear materials in three key areas.

NNSA's Convert program cooperated with Kazakhstan and China to deliver on Nuclear Security Summit pledges to convert research reactors in both countries from highly enriched uranium (HEU) to low enriched uranium (LEU) fuel. In March 2016, NNSA completed the conversion of China's Miniature Neutron Source Reactor (MNSR) at the China Institute of Atomic Energy, and Kazakhstan's VVR-K Reactor at the Institute of Nuclear Physics. In September 2016, NNSA completed the conversion of an additional MNSR in Ghana.

NNSA's Remove program cooperated with several countries to deliver on key pledges made at the Nuclear Security Summits in 2010, 2012, and 2014. These included removal of HEU and separated plutonium from Switzerland and Germany (March 2016) and the Fast Critical Assembly in Japan (June 2016); and the down-blending of all remaining HEU in Argentina (March 2016). With the down-blending of Argentina's HEU, Argentina and the rest of South America are now considered HEU-free (defined as less than 1 kilogram per country). In addition to efforts directly tied to the Summit process, NNSA completed removal of all HEU from Georgia (December 2015) and Poland (September 2016) and down-blending of all HEU in Indonesia (September 2016). In total, NNSA removed or confirmed disposition of over 6,000 kilograms

of weapons-usable nuclear material and has eliminated all HEU from 31 countries and Taiwan.

NNSA's Dispose program completed the disposition of a cumulative total of 154 metric tons (MT) of surplus weapon-grade uranium and is on track to complete the disposition of 159 MT by the end of FY 2018.

Enhancing Nuclear Security Policy: NNSA designed, developed, and directed the Secretary's Ministerial-level *Apex Gold* Scenario-Based Policy Discussion exercise as part of the 2016 Nuclear Security Summit, to focus on national decisions and international coordination that policymakers would need to address in a nuclear terrorism event, and examining the role of technical detection, forensics, and emergency response capabilities in such decision-making. NNSA restarted execution of experimental efforts to build predictive Render Safe capabilities and execute a full range of standoff disablement experiments and modeling activities to advise U.S. policy makers through scientific and technical insights on a range of contingency options**.** Provided more than 30 analyses of unknown nuclear materials in support of DoD, Federal Bureau of Investigation, and Department of State and local organizations.

S1B Reactor Plant Design: NNSA continued development on the S1B reactor plant, submitted the final reactor core structural design basis and delivered prototype control drive mechanisms for laboratory testing. The reactor design is for a life-of-ship core that supports over 40 years of operation, allowing fulfillment of the strategic deterrence mission with two fewer submarines than the *Ohio-class* at a savings of $40 billion. These efforts support FY 2019 advance procurement of long lead reactor plant equipment to support FY 2021 lead ship construction start.

Goal 3: Management and Performance

Position the Department of Energy to meet the challenges of the 21st century and the nation's Manhattan Project and Cold War legacy responsibilities by employing effective management and refining operational and support capabilities to pursue departmental missions

Objective 8
Continue cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities

Objective 9
Manage assets in a sustainable manner that supports the DOE mission

Objective 10
Effectively manage projects, financial assistance agreements, contracts, and contractor performance

Objective 11
Operate the DOE enterprise safely, securely, and efficiently

Objective 12
Attract, manage, train, and retain the best federal workforce to meet future mission needs

Contributing Programs
Environmental Management, Legacy Management, Chief Financial Officer, Chief Human Capital Officer, Chief Information Officer, Congressional and Intergovernmental Affairs, Economic Impact and Diversity, Enterprise Assessments, General Counsel, Environment, Health, Safety and Security, Hearings and Appeals, Inspector General, Management, Public Affairs

Mission success requires sustained commitment to performance-based management and expectations of excellence from DOE headquarters to every site office, service center, laboratory, and production facility. At the center of this goal is a highly qualified, capable, and flexible federal workforce that can execute the mission in a safe, secure, efficient, and sustainable manner. DOE cultivates a performance-based system that links work to meeting agency and Administration goals and achieves results. Management of research and development involves prioritization of those activities with the greatest potential and likelihood for impact. Research decisions are informed by rigorous peer reviews at the portfolio level and solicitation levels. A top priority has been to improve contract and project management across the DOE enterprise, along with vigilant protection of DOE cyber networks. Below are examples of FY 2016 program accomplishments in these areas.

Demolishing Uranium Enrichment Process Buildings at the Oak Ridge East Tennessee Technology Park (ETTP): The Office of Environmental Management (EM) has made significant progress to clean up radioactive and chemical contamination left by six decades of weapons production and energy research during the Manhattan Project and the Cold War. This can be seen in the EM decontamination and decommissioning of nuclear, radioactive and industrial facilities. As an example, the EM Program is on track to complete the demolition of three former gaseous diffusion uranium enrichment process buildings at Oak Ridge—Building K-27 completing demolition of the last of the five former uranium enrichment process buildings at the ETTP.

Testing of Radioactive Sludge System Proves Successful: EM's Richland Operations Office (RL) is in the final phases of preparing to remove highly radioactive sludge from the 100-K West Basin on the Hanford Site. Sludge is a silt-like substance made of tiny fuel corrosion particles and other metal fragments created through plutonium production; stored a few hundred yards from the Columbia River. Workers at the Maintenance and Storage Facility tested the sludge removal equipment and determined the equipment and hardware are capable of completing the sludge removal project. The system is known as the Engineered Container Retrieval & Transfer System (ECRTS). These tests led to operation of the system moving a sludge simulant from a replica container through a system and into the sludge transport and storage container. This successful evolution provides significant confidence that ECRTS is close to being ready to remove sludge from the basin.

Savannah River Site Cuts Ribbon for New Salt Waste Processing Facility: EM celebrated a milestone in the cleanup of radioactive liquid waste stored at the Savannah River Site (SRS) with a ribbon-cutting ceremony for the Salt Waste Processing Facility (SWPF). The event marked the completion of construction of SWPF, a key component of the SRS liquid waste program. SWPF will process the majority of the site's salt waste inventory by treating highly radioactive salt solutions stored in underground tanks at SRS. Removing salt waste, which fills over 90 percent of tank space in the SRS tank farms, is a major step toward emptying and closing the site's remaining 43 high-level waste tanks. The project is in the testing and commissioning phase. Components and systems will be rigorously tested to ensure they meet DOE's strict safety and design requirements for waste processing.

LM Completes 2016 Monitoring at Amchitka Island, Alaska: The Office of Legacy Management (LM) completed its long-term monitoring of Amchitka Island, Alaska on May 22, 2016. Amchitka Island is in the far western end of the Aleutian Islands, approximately 1,340 miles west-southwest of Anchorage. It was the site of three underground nuclear tests from 1965 to 1971. The sampling event takes place every five years and this year's focus was to collect water and biota tissue data to determine if test cavity leaks could be detected, specifically focusing on seawater from the Long Shot potential leakage area. LM worked closely with University of Alaska scientists to develop a sampling strategy known as "hot spot" sampling to develop an offshore grid from the Long Shot detonation, because that is where past modeling predictions showed that test-related radionuclides were most likely to first appear. Lawrence Livermore National Laboratory is conducting analyses and results from the sampling will be available in 2017.

An LM scientist points to star reindeer lichen on Adak Island, Alaska.

Annual Assessment Shows Mound, Ohio, Site Institutional Controls Are Protective: LM completed its 2016 annual assessment on the effectiveness of institutional controls (ICs) at the Mound, Ohio, Site in Miamisburg. Mound site ICs are part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedies for the site. They are administrative and legal controls that help minimize the potential for human exposure to contamination and protect the integrity of the site remedy. ICs are required because some land-use restrictions apply. DOE remediated the property to U.S. Environmental Protection Agency (EPA) risk-based standards for industrial/commercial use only. The site has since transitioned to a business park and is owned/leased by the Mound Development Corporation. The 2016 assessment confirmed that Mound site ICs continue to function as designed, adequate oversight mechanisms are in place to identify possible violations of ICs, and resources are available to correct or mitigate any problems if violations occur.

Improving DOE Asset Management: DOE has taken several steps to enhance DOE asset management, including 1) initiation of a pilot program to prepare a comprehensive rewrite of the Real Property Asset Management Order. The Order establishes a data driven, risk informed, performance based approach to the lifecycle management of real property; 2) increasing program awareness, application, and usage of the Department's Condition Assessment Information System by improving and refreshing the user capabilities and interface, and providing assist visits and training; 3) publishing the Department's first Real Property Efficiency Plan outlining current and future planned actions in meeting the Office of Management and Budget's (OMB) Reduce the Footprint and Freeze the Footprint goal; 4) completing Vehicle Allocation Methodology (VAM), as required by E.O. 13693, Planning for Federal Sustainability in the Next Decade. The VAM provided utilization data and justification for every vehicle in the DOE fleet, determined the optimal fleet inventory, and provided a roadmap to attain the optimal fleet; 5) reducing fleet-wide CO_2 emissions by at least 4,100 metrics tons from an FY 2014 baseline; 6) publishing the Fleet Management Handbook as a DOE Technical Standard; and 7) completing the draft update to 41 CFR 109, Department of Energy Property Management Regulation.

Strategic Sourcing Savings: Overall strategic sourcing efforts through the third quarter indicate DOE exceeded the annual savings goal by 37% or about $95M. DOE saved (cost avoided) $364.4 million in FY 2016. As part of the strategic sourcing savings, DOE continues to expand use of the Federal Strategic Sourcing Initiative (FSSI) and surpassed FY 2015 FSSI savings by 20%.

Enhancing the DOE Acquisition Workforce: DOE continues to improve its acquisition workforce by increasing use of the Federal Acquisition Institute Training Acquisition System, participating on federal-wide acquisition boards, creating an acquisition intern program called the Acquisition Fellows Program, and by developing courses to teach DOE-specific contracting requirements. The two-year acquisition intern program is designed to address the needs of new professionals as they pursue their Federal Acquisition in Contracting (FAC-C) level 1 and level 2 certifications.

Decreased Time to Decision in Personnel Security Cases: The Office of Hearings and Appeals (OHA) provides adjudication of security clearance cases that determine the eligibility of DOE federal and contractor employees to have access to classified information or special nuclear material. In FY 2016, OHA reduced the time to issue a decision in personnel security cases, after receipt of the hearing transcript, from 17.73 days to 16.26 days, a reduction of 8.3 percent from FY 2015.

DOE Collects Civil Penalties for Failure to Certify Commercial Refrigeration Equipment: The General Counsel's enforcement office recently resolved enforcement actions against two companies that failed to submit required reports to certify that their commercial refrigeration equipment complies with federal energy conservation standards. DOE assessed civil penalties of $8,000 from both Atosa Catering Equipment, Inc. and RPI

Industries, Inc. As part of each settlement, each manufacturer must submit the required certification reports, which include a certification that the equipment has been tested in accordance with the DOE test procedure and that the equipment meets the applicable standard.

Assessing Critical DOE Functions: The Office of Enterprise Assessments (EA) conducted independent oversight assessments of DOE operations to determine compliance with DOE requirements and the effectiveness of those requirements in protecting national assets, workers, and the public. In FY 2016, EA conducted 1) safeguards and security assessments, including force-on-force and limited-notice testing, at NNSA sites with national security assets; 2) cybersecurity assessments, including unannounced testing, of classified and unclassified systems; 3) physical and cyber security assessments of sensitive information systems and facilities, and; and 4) nuclear safety, worker safety, and emergency management assessments at sites with nuclear construction/design projects, large quantities of hazardous materials, and performance issues.

Enforcement and Training: EA implemented DOE nuclear safety, worker safety and health, and security enforcement programs to hold contractors accountable and promote improved performance. EA's National Training Center continued to incorporate lessons learned from assessments and enforcement actions into existing curricula and expanded DOE's reciprocity program - eliminating redundant training for thousands of employees.

Managing DOE Engagement: The Office of Congressional & Intergovernmental Affairs (CI) manages and oversees engagement activities with Departmental stakeholders such as Congress, State, local, and Tribal governments, and other federal agencies and others to effectively position the Department in achieving the FY 2016 goals. During FY 2016, CI staffed approximately 400 briefings and 30 hearings, assuring that the Secretary's, Department's, and Administration's policies, legislative initiatives and budget requests were communicated effectively to decision-makers and stakeholders.

Power SURGE (Security Upgrades for Reliable Grid Enhancements): In response to priority requests from the Western Area Power Marketing Administration, the Office of Environment, Health, Safety and Security (EHSS) developed an initiative under the Power SURGE project having the potential to improve the reliability of the grid and safety of electrical utility employees. The Power SURGE asset protection matrix risk analysis methodology and physical security upgrades analysis tool has received widespread support from the WAPA and other stakeholders, primarily because it provides a defensible and scalable basis for security investments commensurate with criticality of components and credible threats mitigating the potential for millions of dollars in expenditures for unproven and ineffective security technologies.

Chronic Beryllium Disease Prevention Program: DOE met to receive public comments to be accepted regarding the Notice of Proposed Rule Making for 10 CFR 850, Chronic Beryllium Disease Prevention Program. Four site visits were conducted to obtain a firsthand knowledge of how the Proposed Rule would affect activities at these sites. The information obtained from the public meetings and site visits will be used to develop a final Rule.

Integrated Joint Cybersecurity Coordination Center (iJC3): In 2016, the Department initiated the iJC3. The iJC3 approach utilizes the breadth and depth of technical expertise across the Enterprise through strategic partnerships. The iJC3 initiative is addressing the current enterprise Security Operation Center (SOC) capabilities, providing recommendations for improvements, and initiating projects based on those recommendations. The intent is to improve the Department's cybersecurity posture, reduce risk, and make the Department more efficient.

Ensuring Cybersecurity: DOE supported the implementation of multifactor authentication (MFA) through the establishment of an MFA Working Group, an OCIO Personal Identity Verification Interoperability (PIV-I) Implementation Plan, a risk-based exceptions process, and a MFA-specific reporting structure. As of September 30, 2016, program offices are reporting 82% of privileged users at Level of Assurance (LoA) 4 MFA and 52% of standard users at LoA 4 MFA. DOE participates in the pilot, led by the Department of Homeland Security (DHS), to test DOE-identified high value assets (HVA), assessing and updating the HVA inventory and coordinating MFA implementation schedules with HVA cybersecurity enhancements. The Department leverages EINSTEIN 3 Accelerated (E3A), an intrusion prevention service DHS offers to federal agencies that helps protect agencies from advanced persistent threats, to improve its ability to defend against cyber threats. In response to the OMB Memorandum M-14-03, Enhancing the Security of Federal Information and Information Systems, the Department continues to collaborate with the DHS Continuous Diagnostics and Mitigation (CDM) program to deploy Phase 1 Endpoint Integrity tools into DOE's information technology environment and on Phase 2 CDM tool and service deployment.

Cyber Workforce: DOE recognizes the importance of attracting, developing, and retaining a highly skilled cybersecurity workforce. As such, the Department is developing the Enterprise Cyber and Information Resources Management Workforce Strategy and Implementation Plan, which will define and prioritize strategies; conduct workforce analyses; establish Cyber and Information Resources Management Working Groups; implement workforce plans; and, monitor, evaluate, and revise workforce strategies and plans. Additionally, the Department is leveraging existing tools such as the DHS' Cybersecurity Workforce Toolkit and the National

Initiative for Cybersecurity Education (NICE) Capability Maturity Model.

Communicating DOE work to the public: DOE's Office of Public Affairs (PA) translated for the media and the public the extensive technical and scientific underpinnings of the Joint Comprehensive Plan of Action as it reached the implementation stage. Following the important work done at the Paris climate negotiations, including the launch of Mission Innovation, PA helped to garner media attention to the seventh Clean Energy Ministerial and inaugural Mission Innovation Ministerial, both held in San Francisco, highlighting it as the first major meeting of climate and clean energy action following Paris. PA also provided new regional media platforms and tools in support of DOE continued engagements with universities, private companies, and others in the push for regional clean energy innovation. These efforts included an increased focus on regional TV, including a successful Earth Day regional media tour, and targeted stories about regional partnerships between DOE's National Labs and their partners. PA launched Direct Current, DOE first podcast, to incredible reviews. The inaugural episode reached number one in all of government on iTunes, and has grabbed the attention of media, other federal agencies, and most importantly, listeners. DOE Twitter accounts remained some of the most followed in all of government, with continued growth across the suite of accounts.

Financial Management: The Office of the Chief Financial Officer (CFO) delivers improved financial management and promotes communication, collaboration, and teamwork with the program offices, OMB, Congress and other external stakeholders. In FY 2016, DOE received an unmodified audit opinion on the DOE financial statements for the tenth consecutive year. The unmodified opinion demonstrates DOE commitment to sound financial management. CFO implemented a new Funds Distribution System which automated and streamlined DOE funds distribution and execution with stronger internal controls. CFO led the effort to prepare for implementation of the Digital Accountability and Transparency Act, which mandates government-wide standards for federal spending data. CFO submitted the FY 2017 DOE Budget Request to Congress and led the accompanying rollout activities. CFO produced the FY 2015 Annual Performance Report that provided DOE performance results.

Advanced Computer Simulation Tools for Seismic Analysis: The Lawrence Berkeley National Laboratory is teaming with the University of California, Davis and the University of Nevada, Reno in a major project to develop advanced computer simulation tools for the seismic analysis of coupled soil-structure systems. This effort is focused on the development of a modern, nonlinear computational framework that will enable enhanced understanding of the expected levels of damage, and margins against failure, for critical facilities subjected to earthquake ground motions. This effort will integrate advanced simulations together with unique experimental data to develop enhanced understanding of earthquake response phenomena and provide a modern computational tool for performing risk-informed, performance-based design of critical facilities. Ultimately, this effort will develop a more accurate understanding of the earthquake response of soil-structure systems, and provide for better quantification of the safety margins against earthquake-induced failure of critical facilities. This project will advance the state-of-art in non-linear seismic analysis for application to the design, construction, and operation of DOE nuclear facilities.

Supporting and Building the DOE Workforce: DOE established a separate Office of Equal Employment Opportunity, which advises the Secretary of Energy and ensures DOE compliance with equal employment opportunity laws, regulations, and related directives and Executive Orders that prohibit workplace discrimination and discrimination in programs receiving federal financial assistance from DOE, ensuring integration of EEO into DOE policies and decisions. DOE convened the second annual Advancing Research and Technology in the Sciences Forum and expanded the focus to include other federal agencies and DOE national laboratories to explore opportunities for minority serving institution faculty and students to engage in collaborative research at the laboratories.

Established Two HR Shared Service Centers: Since FY 2013, the Office of the Chief Human Capital Officer (HC) has been implementing a hybrid service delivery model that centralizes accountability for the HR Line of Business (HRLOB) while consolidating operations through the creation of shared service centers (SSC) that are supported by a decentralized approach to customer service and a corporate approach to human capital management programs and strategic support. In FY 2016, HC stood up two of five planned SSCs to provide HR services to DOE's Under Secretarial Portfolio's with the remaining three SSCs/Portfolio's scheduled for stand-up in FY 2017.

Management's Analysis, Assurances and Priorities

Analysis of Financial Statements

The Department's financial statements report the financial position and results of operations of the entity, pursuant to the requirements of 31 U.S.C. 3515(b) (United States Code). The Department's management is responsible for the integrity and objectivity of the financial information presented in these financial statements.

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 OMB. 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 total 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 liabilities balances over the past five years. The largest component of the Department's environmental liabilities is managed by the Environmental Management (EM) 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 environmental liabilities for active sites, including estimated cleanup; and the Office of Legacy Management (LM) for post-closure responsibilities, including surveillance and monitoring activities; soil and groundwater remediation; and disposition of excess material from sites after the EM program activities have been completed. The other legacy liabilities also include the Department's share of the estimated future costs of dispositioning its inventory of high-level waste and spent nuclear fuel (SNF).

Chart 1: Total Assets and Liabilities with Breakdown of FY 2016 Liabilities

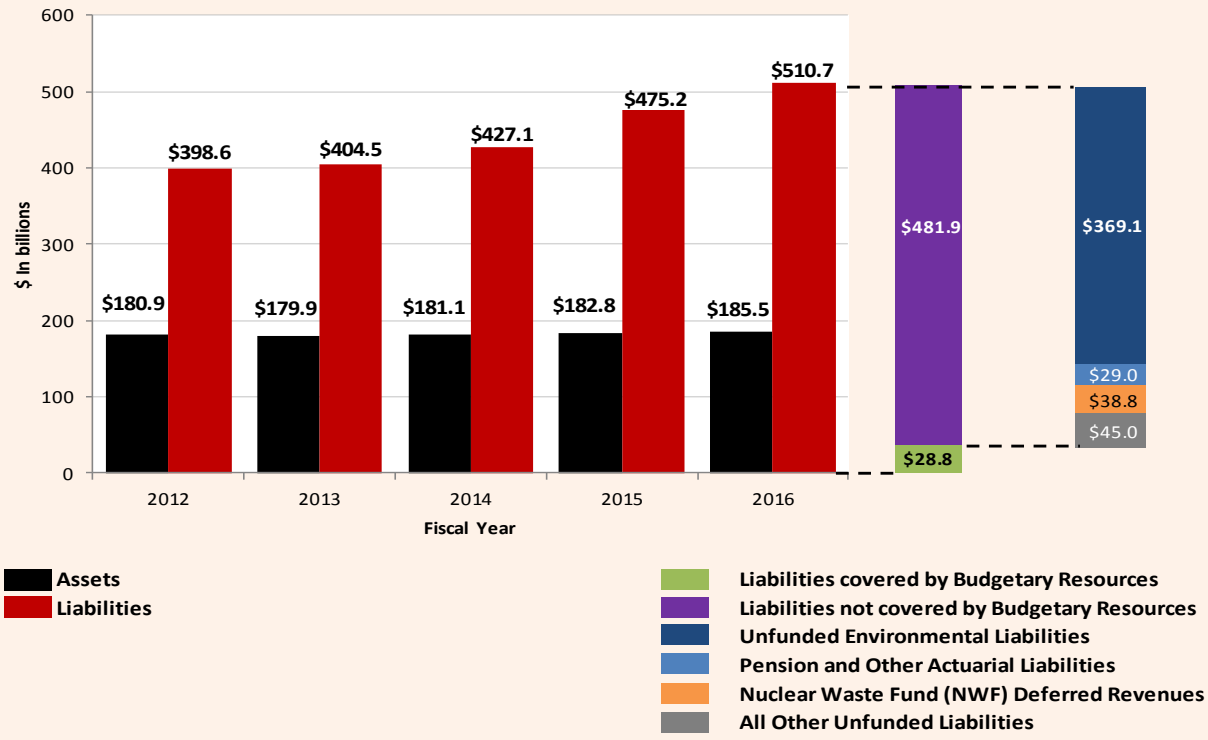
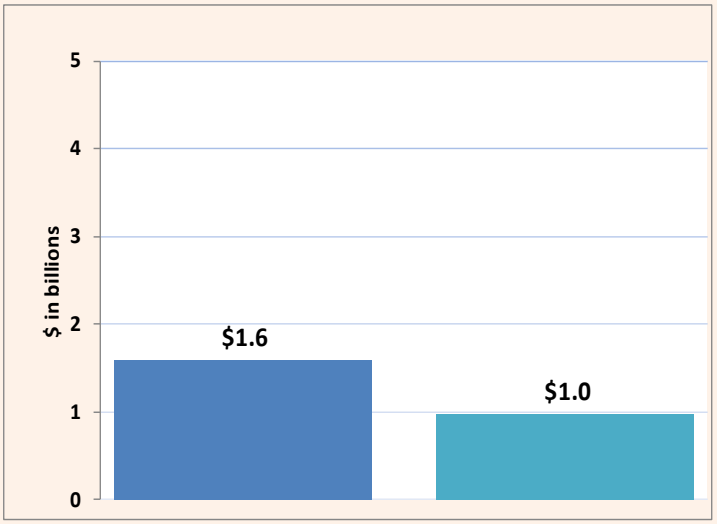


Chart 2: FY 2016 Significant Changes in Assets



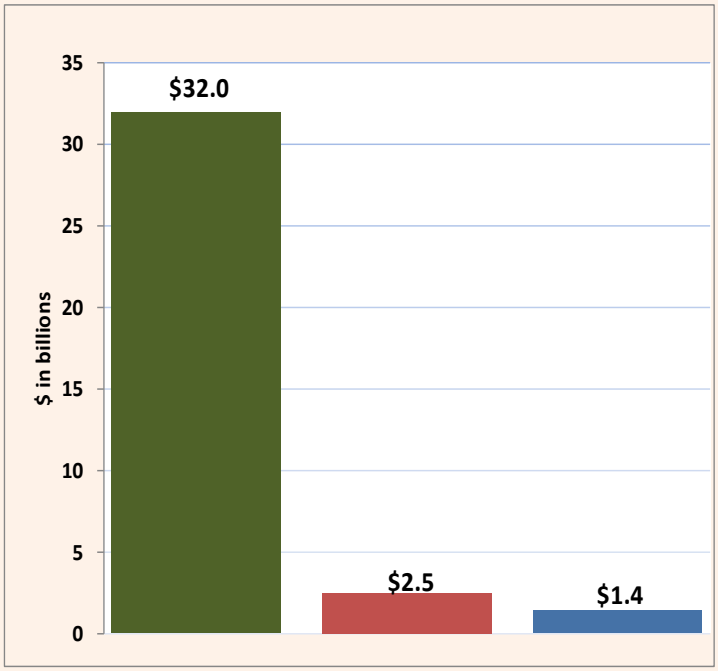
Fund Balance with Treasury

The increase is primarily due to increased net appropriations received in several accounts.

Property, Plant & Equipment

The increase is primarily due to an increase in CWIP and Assets under Capital Lease

Chart 3: FY 2016 Significant Changes in Liabilities



Environmental Cleanup

The increase is primarily due to modifications of liability estimates driven by changes in technical approach, scope of activities, regulatory and legal changes, and inflation adjustments.

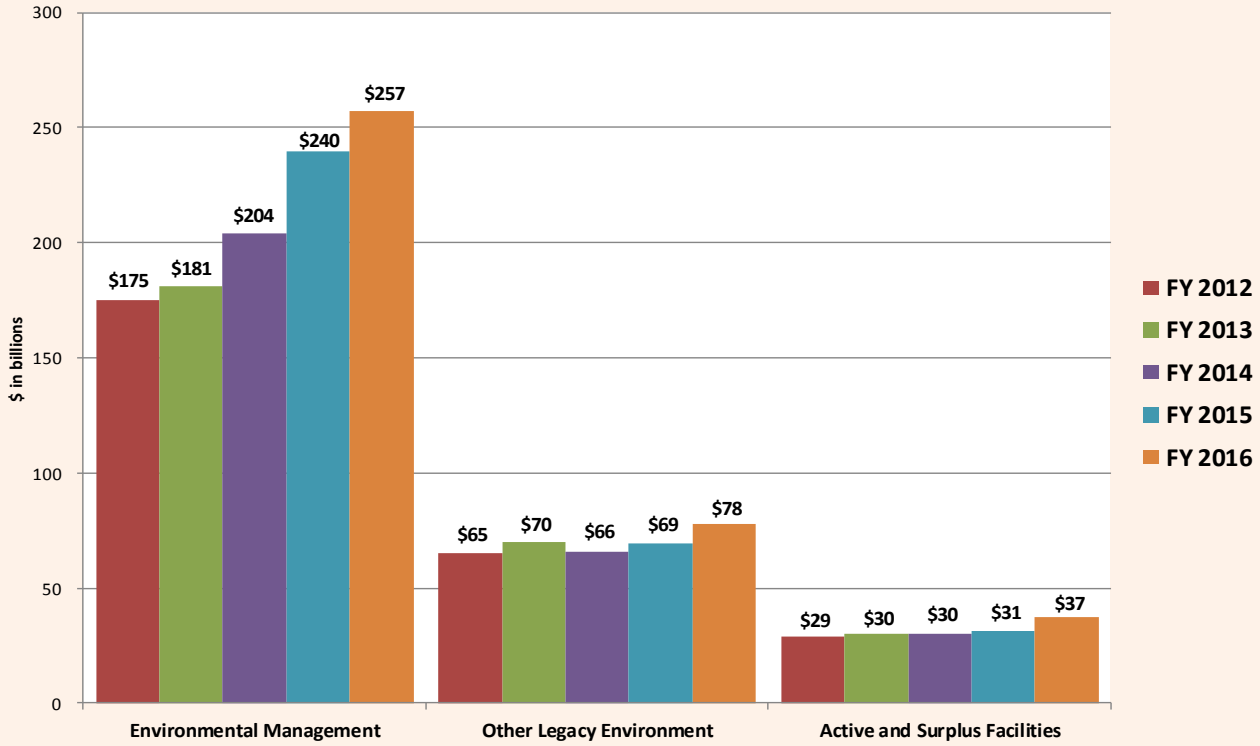
Pension and Other Actuarial Liabilities

Contractor pension plan liabilities increased by $2.5 billion while other postretirement benefits plan liabilities remained approximately the same. The most significant component of the pension plan and other postretirement benefit liabilities' increase resulted from a decrease in the rate used to discount the liabilities to present value (See Chart 8).

Deferred Revenues and Other Credits

The increase is primarily from investment income in the NWF in excess of current expenses, which is recorded as an increase to deferred revenue.

Chart 4: Composition of Environmental Cleanup and Disposal Liability



Net Cost of Operations

The major elements of net cost are shown in Chart 5. A breakdown of program costs (gross) by the Department's three programmatic goals, reimbursable work and other programs is provided in Chart 6.

The Department's overall net costs are primarily affected by changes in environmental and other unfunded liability estimates. Since these estimates mostly 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 2016 unfunded liability estimate changes are shown in Chart 7.

A net increase to the Department's environmental liabilities estimate during FY 2016 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 and legal changes (see Chart 4).

The Department's FY 2016 unfunded liability estimates increased by $2.5 billion for contractor pension plans and there was a relatively small change for the 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 in the contractor pension plan liabilities resulted from a decrease in the rate used to discount the liabilities to present value. The discount rate is based on the yields of high-quality fixed income securities as of September 30, 2016 and September 30, 2015. Similarly, the most significant component of the change in contractor PRB liabilities resulted from a decrease in the rate used to discount the liabilities to present value. The increase in liabilities due to the decrease in discount rate was offset for both pension and PRB by favorable demographic assumptions and census experience; both pension and PRB liabilities decreased because of differences in observed 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. Pension liability increases were also partially offset by better than expected investment returns.

The Department's Research & Development (R&D) expenses are shown in Chart 9. These R&D expenses facilitate the creation, advancement, and deployment of new technologies and support the Department's mission to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. Overall, Research & Development expenses increased by $0.7 billion in FY 2016, primarily due to additional spending on Stockpile Systems R&D and Advanced Simulation and Computing.

Chart 5: Elements of Net Cost

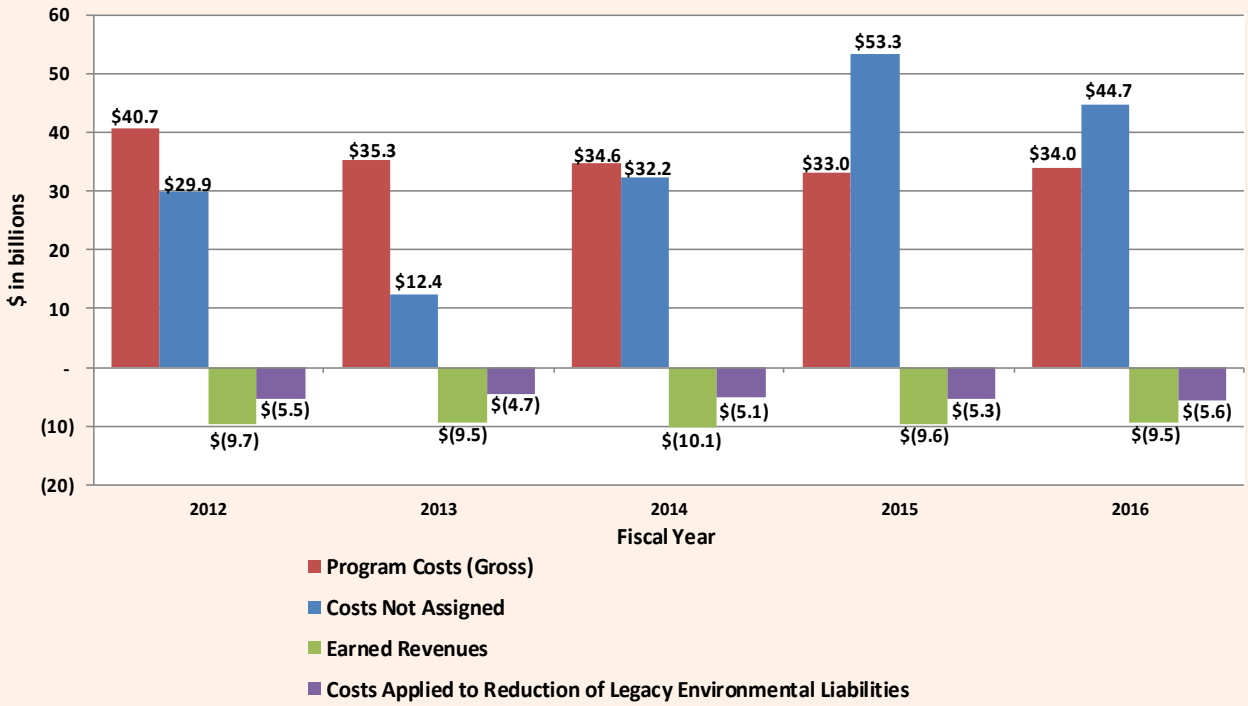


Chart 6: FY 2016 Program Costs (Gross)

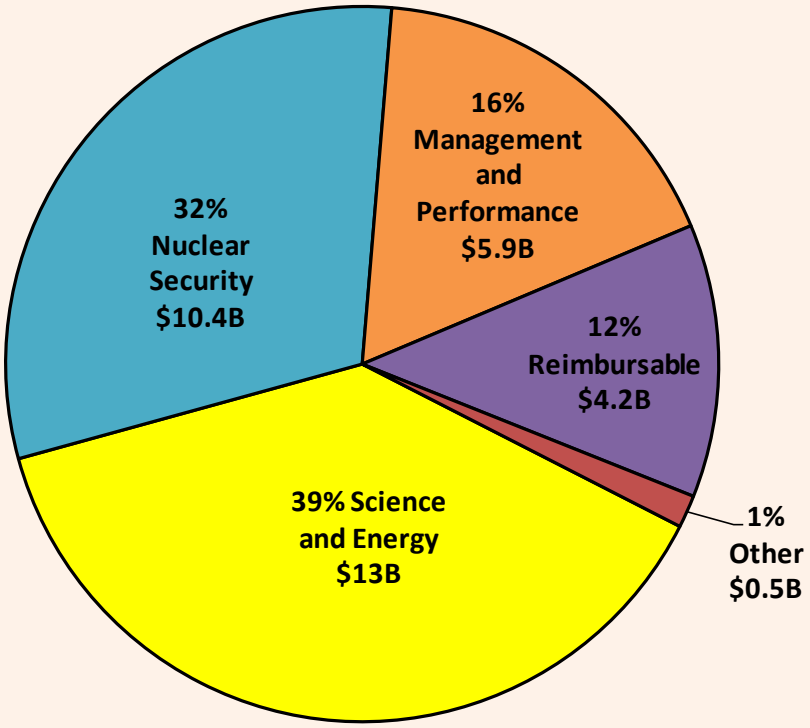


Chart 7: Major Elements of Costs Not Assigned

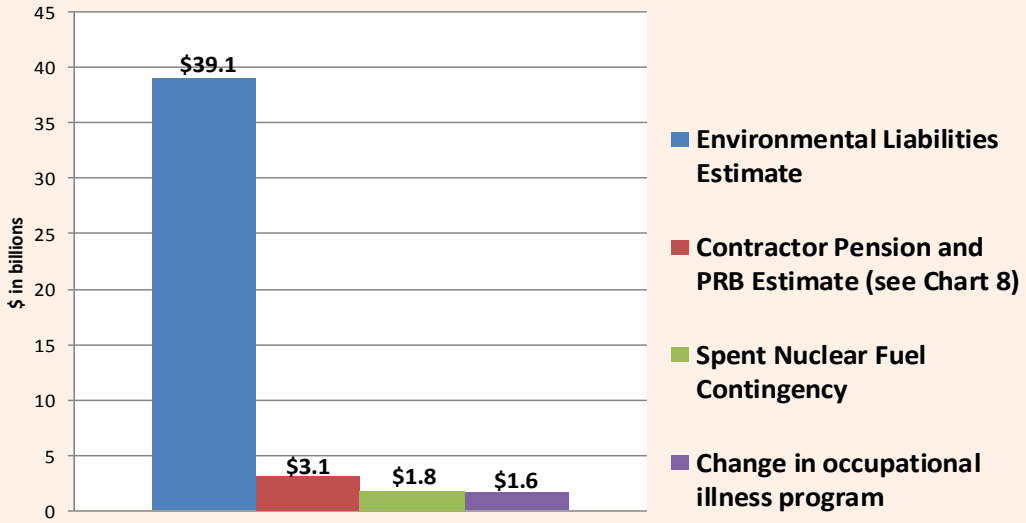


Chart 8: FY 2016 Contractor Employee Pension and Other Postretirement Benefit Plans Liability Estimate Changes

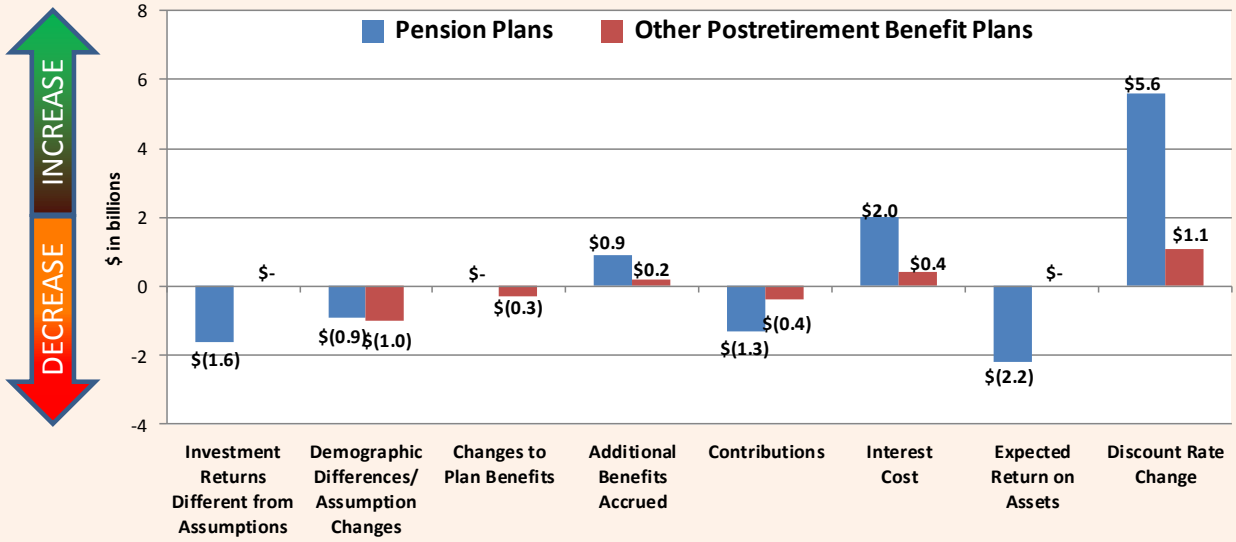
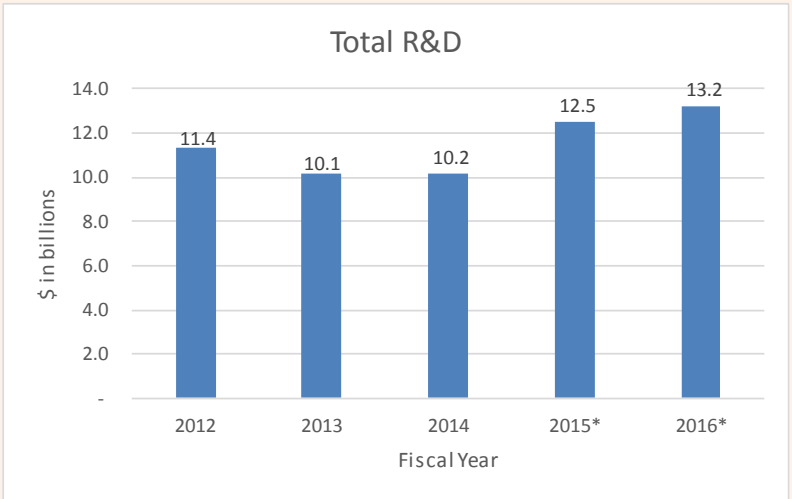


Chart 9: Research & Development



** - FY 2015 and FY 2016 includes Program Direction, Safeguards & Security, and Infrastructure costs that support R&D activities.*

Budgetary Resources

The *Combined Statements of Budgetary Resources* provides information on the budgetary resources available to the Department for the year and the status of those resources at the end of the FY. The Department receives most of its funding from general Government funds administered by the Department of the Treasury (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 on the *Combined Statements of Budgetary Resources* increased in FY 2016 by $1.8 billion from FY 2015.

As shown in Chart 10, the Department's Obligations Incurred increased by $0.2 billion from FY 2015.

Chart 10: Obligations Incurred

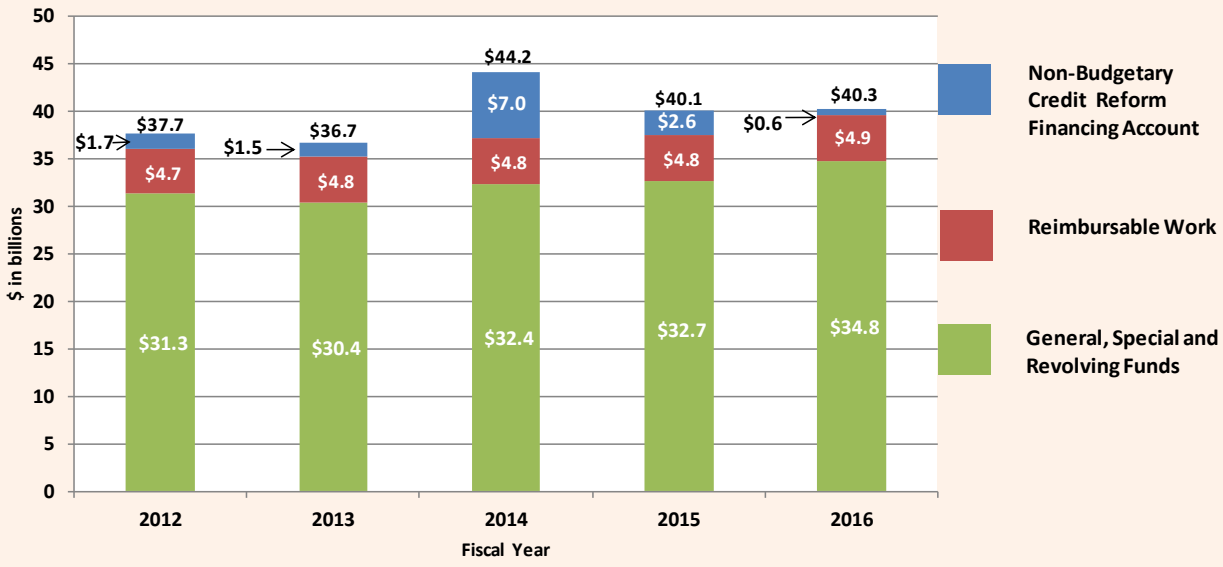


Chart 11: Linking Strategic Goals, Objectives, Budget and Cost

STRATEGIC GOALS	STRATEGIC OBJECTIVE	BUDGETARY EXPENDITURES INCURRED[a c] ($ IN BILLIONS)		PROGRAM COST[b c] (GROSS IN BILLIONS)	
		FY 2016	FY 2015	FY 2016	FY 2015
Goal 1: Science and Energy	Advance the goals and objectives in the President's Climate Action Plan by supporting prudent development, deployment, and efficient use of "all of the above" energy resources that also create new jobs and industries	$ 10.4	$ 11.6	$ 7.7	$ 7.8
	Support a more economically competitive, environmentally responsible,secure and resilient U.S. energy infrastructure	0.5	0.9	0.5	0.6
	Deliver the scientific discoveries and major scientific tools that transform our understanding of nature and strengthen the connection between advances in fundamental science and technology innovation	4.9	4.8	4.8	4.8
	Subtotal Goal 1: Science and Energy	**15.8**	**17.3**	**13.0**	**13.2**
Goal 2: Nuclear Security	Maintain the safety, security and effectiveness of the nation's nuclear deterrent without nuclear testing	5.2	4.4	4.8	3.6
	Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure	3.4	3.4	2.7	2.8
	Reduce global nuclear security threats	2.1	2.1	1.7	1.7
	Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy	1.2	1.1	1.2	1.2
	Subtotal Goal 2: Nuclear Security	**11.9**	**11.0**	**10.4**	**9.3**
Goal 3: Management and Performance	Continue cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities	6.2	6.4	5.0	4.9
	Manage assets in a sustainable manner that supports the DOE mission	0.1	0.2	0.1	0.1
	Effectively manage projects, financial assistance agreements, contracts, and contractor performance	0.2	0.2	0.2	0.2
	Operate the DOE enterprise safely, securely, and efficiently	0.6	0.6	0.6	0.6
	Attract, manage, train, and retain the best federal workforce to meet future mission needs	-	-	-	-
	Subtotal Goal 3: Management and Performance	**7.1**	**7.4**	**5.9**	**5.8**
	Total for Strategic Goals	**34.8**	**35.7**	**29.3**	**28.3**

a. Budgetary Expenditures Incurred are amounts accrued or paid for services performed, goods and tangible property received. 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 activities.

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

c. Budgetary Expenditures and Program Cost include Recovery Act amounts.

Analysis of Systems, Controls, and Legal Compliance

(Unaudited)

Management Assurances

The Department of Energy (Department) management is responsible for establishing and maintaining an effective system of internal controls to meet the objectives of the Federal Managers' Financial Integrity Act (FMFIA). To support management's responsibilities, the Department is required to perform an evaluation of management and financial system internal controls as required by Sections II and IV, respectively, of FMFIA, OMB Circular No. A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control*, and internal controls over financial reporting as required by Appendix A of the Circular. The following assurances are made based on the results of these evaluations, which are reflected in reports and representations completed by senior accountable managers within the Department.

The Department has completed its evaluation of management and financial system internal controls. Based on that assessment, as of September 30, 2016, the Department provides reasonable assurance that management internal controls over the effectiveness and efficiency of operations, reliability of reporting for internal and external use, and compliance with applicable laws and regulations were operating effectively in their design or operation. Evaluation results also indicated that the Department's financial systems generally conform to governmental financial system requirements and substantially comply with requirements of the Federal Financial Management Improvement Act (FFMIA).

In addition, the Department is providing reasonable assurance that internal controls over financial reporting as of June 30, 2016, were working effectively and no material weaknesses were identified in the design or operation of the specific controls over financial reporting. This assessment and evaluation of internal controls over financial reporting includes safeguarding assets and compliance with applicable laws and regulations, as required by Appendix A of OMB Circular No. A-123 and Departmental requirements. The evaluation required an assessment of both entity and process controls.

While the Department has no material weaknesses to report as a result of the above internal control evaluations, the Department continues its work to address Management Priorities. These Management Priorities represent the most important strategic management issues facing the Department in accomplishing its mission now and in the coming years.

Ernest J. Moniz
November 15, 2016

Federal Managers' Financial Integrity Act

The Federal Managers' Financial Integrity Act (FMFIA) of 1982 requires that agencies establish internal controls and financial systems to provide reasonable assurance that the integrity of federal programs and operations is protected. Furthermore, it requires that the head of the agency provide an annual assurance statement on whether the agency has met this requirement and whether any material weaknesses exist.

In response to the FMFIA, the Department developed an internal control program which holds managers accountable for the performance, productivity, operations and integrity of their programs through the use of internal controls. Senior managers at the Department each year evaluate the adequacy of the internal controls surrounding their activities and determine whether the controls conform to the principles and standards established by the OMB and the Government Accountability Office (GAO). The results of these evaluations and other senior management information are used to determine whether there are any internal control matters to be reported as material weaknesses. The Departmental Internal Control and Audit Review Council provides oversight of the internal control program and advises the Secretary on the Statement of Assurance.

OMB Circular No. A-123, Appendix A

Appendix A of OMB Circular No. A-123 provides requirements to agencies for conducting management assessment of internal control over financial reporting. The Department's evaluation for FY 2016 did not identify any material weaknesses in financial controls as of, or subsequent to, June 30, 2016.

Federal Financial Management Improvement Act

The Federal Financial Management Improvement Act of 1996 was designed to improve federal financial management and reporting by requiring that financial management systems comply substantially with three requirements: (1) federal financial management system requirements; (2) applicable federal accounting standards; and (3) the United States Government Standard General Ledger at the transaction level. Furthermore, the Act requires independent auditors to report on agency compliance with the three stated requirements as part of financial statement audit reports.

The Department has evaluated its financial management systems and has determined that they substantially comply with federal financial management systems requirements, applicable federal accounting standards and the United States Government Standard General Ledger at the transaction level.

Management Priorities

(Unaudited)

The Department carries out multiple complex and highly diverse missions. Although the Department is continually striving to improve the efficiency and effectiveness of its programs and operations, there are some specific areas that merit a higher level of focus and attention. These areas often require long-term strategies for ensuring stable operations and represent the most daunting management priorities the Department faces in accomplishing its mission.

The Reports Consolidation Act of 2000 requires the Inspector General (IG) to prepare an annual statement summarizing what they consider to be the most serious management and performance challenges facing the Department. These challenges are included in the Other Information section of this report. Similarly, in FY 2015 the GAO issued its biennial "High Risk Series" update which included one DOE-specific, high-risk issue.

The Department, after considering all critical activities within the agency and those areas identified by the IG and GAO, has identified eight management priorities that represent the most important strategic management issues facing the Department now and in the coming years. The IG-identified challenges, GAO-identified high-risk issue, and DOE management priorities are presented in the table at the end of this section.

CONTRACT AND PROJECT MANAGEMENT

Key Challenges: The Department is the largest civilian contracting agency in the federal Government and spends approximately 90% of its annual budget on contracts to operate its scientific laboratories, engineering and production facilities, and environmental restoration sites and to acquire capital assets. The Department has been challenged, both externally and internally, to improve the efficiency and effectiveness of its contract management processes.

Since 1990, the Department has been on the GAO High-Risk List for inadequate contract and project oversight and management. In its February 2013 High-Risk List update, GAO acknowledged the Department's progress in contract and project management by narrowing the focus of DOE's high-risk designation to major contracts and projects executed by NNSA and Environmental Management (EM) with values of $750 million or greater. This focus continued in GAO's update provided in February 2015.

The Department's project management success metric is to deliver projects to completion at the original scope with no greater than a 10% cost increase. During the most recent reporting period covering FYs 2014 through 2016, 83% of DOE's projects were completed successfully.

DOE continues to explore strategies for improving project management performance.

Departmental Initiatives: In FY 2016, the Department continued to make significant progress in addressing this management priority.

The Energy Systems Acquisition Advisory Board (ESAAB) met regularly to discuss and review project management and project execution across the Department. The ESAAB not only engaged when a major capital asset project (total project cost of $750 million or greater) reached a critical decision milestone, but also convened on a quarterly basis to review all capital asset projects with a total project cost (TPC) of $100 million or greater, focusing on those projects at risk of not meeting their performance baselines. The ESAAB met 15 times in FY 2016 addressing topics such as approving mission needs, establishing performance baselines, and reaffirming selected alternatives for DOE's largest projects.

The Project Management Risk Committee (PMRC), which consists of the Department's top project management experts, continued its effort to improve project management. The PMRC leverages existing capabilities to provide enterprise-wide project management risk assessment and expert advice to the Secretary, the Deputy Secretary as the Chief Executive for Project Management, other Departmental Project Management Executives and the ESAAB on cost, schedule and technical issues and associated risks regarding capital asset projects with a TPC of $100 million or greater. The PMRC met nearly 40 times in FY 2016 handling the following activities: (1) advising project management executives on the risks associated with DOE's projects and emerging project management trends; (2) championing improved project management policies; (3) reviewing project peer review charge memorandums and committee rosters; (4) receiving outbriefs from peer reviews; and (5) preparing project owners for the ESAAB.

To improve lines of responsibility, an owner has been designated for each project who has budgetary and programmatic responsibility with a clear line of responsibility that extends from the Under Secretary to the project owner to the Federal Project Director.

In addition, to further strengthen the independence of the project peer review process, each Under Secretary has established a project assessment office. As a result, on July 12, 2015, the Under Secretary for Management and Performance established the Office of Project Management Oversight and Assessments (PM-1) as a direct report. The Project Assessments Office in PM conducts assessments of the EM portfolio of projects and completed its first peer review in July 2016 at the

Portsmouth Onsite Waste Disposal Facility and has accomplished two other such reviews for EM.

In May 2016, the Deputy Secretary signed the update to DOE Order 413.3B, which institutionalized recent Secretarial policies to strengthen the ESAAB; establish the PMRC; improve upfront planning such as design maturity and technology readiness; prepare cost estimates and conduct analysis of alternatives using industry best practices; enhance project management controls using best practices equivalent to those implemented in DoD; and improve project peer review processes. The changes were either noted as areas for improvement by the GAO in recent reports; identified by DOE project management experts; or were recommended in the Improving Project Management Report. In addition to the update to DOE Order 413.3B, the Deputy Secretary signed a memorandum in August 2016 on the incorporation of an Operational Release milestone into project planning to provide additional oversight. This effort will mitigate the risks to DOE's complex nuclear, chemical processing, and one-of-a-kind scientific facilities after projects achieve Critical Decision-4, but before they reach their full operational production.

SECURITY

Key Challenges: Ensure the security of national assets entrusted to DOE and classified information related to nuclear weapons while striving to enhance the Department's productivity to achieve mission objectives.

Departmental Initiatives: In FY 2016, Departmental elements continued to increase worker and stakeholder engagement, and used operational experiences to establish and strengthen lines of communications, seek feedback, and resolve areas of concern. DOE program and staff offices continue to validate the technical basis and soundness of their safeguards and security programs. Where applicable, revisions were and continue to be incorporated into organizational safeguards and security procedures and site contracts. The Department continued modifying site and laboratory security operational footprints to meet the Design Basis Threat (formerly Graded Security Protection (GSP)) Policy and other security policies by consolidating and improving SNM storage facilities; eliminating or releasing for general use facilities that previously required safeguarding; and restructuring security management systems. Lessons learned and findings from the assessments, inspections, and reviews are being used to implement security reforms and corrective actions to address program weaknesses.

The results of an independent business process analysis of the Department's personnel security program, completed in FY 2016, revealed a number of opportunities for improvement which, if not appropriately addressed, could impede efficiency and effectiveness in this critical domain.

The Department will continue to pursue safeguards and security modifications through the following initiatives:

- Continue maximizing the use of national and international consensus standards where applicable and ensure DOE requirements are based on credible threats, and are meaningful, clear, and concise;
- Continue improving the effectiveness and efficiency of the Department's personnel security program, to include examining all potential organizational alternatives in an effort to streamline the access authorization process and support the Department's Insider Threat Program. Continue to provide oversight and guidance for the issuance of credentials that support both physical and logical access under the DOE Identity Credentialing and Access Management program (ICAM). (The DOE ICAM program effort maps to the federal ICAM initiative, and implements Homeland Security Presidential Directive-12, DOE policy and supports other information technology-based initiatives);
- Update and implement personnel security policies in an effort to ensure the program is positioned to successfully meet the challenges presented by internal and external mandates;
- Updating risk acceptance and vulnerability assessment processes, deploying cost-effective security measures, and consolidating and improving nuclear material storage facilities;
- Continue the physical security collaboration efforts between the Department of Energy and the Department of Defense. The goal of the collaboration effort is the development of a common basis for protection of nuclear weapons and special nuclear material at the national level, and allow better communication and transparency with key decision makers in Congress and the Executive Branch;
- Expand on the DOE/DoD collaboration effort to include the Nuclear Regulatory Commission and the North American Electric Reliability Corporation for the protection of like assets;
- Foster collaborative enterprise-wide security solutions, identify corporate security strategies and guide security policy development through the Security Committee;
- Foster a collaborative approach to electrical grid resiliency and security through partnerships with the Power Marketing Administrations, the North American Electric Reliability Corporation, and the DoD's Counter-terrorism Technology Support Office to identify, test and implement cost-efficient and performance-effective security technologies and programs;
- Coordinate the scope of Office of Intelligence and Counterintelligence-executed targeted intelligence assessments to support analysis of

and modifications to the Department's Design Basis Threat order (formerly GSP) to provide a sound foundation for protection strategy development and implementation, addressing credible and emerging threats to personnel, assets, facilities and missions;
- Continue to review and update security policy to better establish clear lines of responsibility and accountability for the implementation of security within line management; and provide expertise, guidance and security support services across the Department;
- Continue to review and update information classification policy and guidance to stay abreast of emerging programs, technologies and threats in order to protect national security interests;
- Continue to support the National Declassification Center to ensure legacy government documents are released to the public to promote open government and do not impact national security interests;
- Continue conducting security surveys and self-assessments and implementing independent security performance oversight and enforcement programs to maintain stakeholder and public confidence; and
- Implement an insider threat program to detect, deter, and mitigate insider threat actions by federal and contractor employees in accordance with the requirements of Executive Order 13587; *Structural Reforms to Improve the Security of Classified Networks and the Responsible Sharing and Safeguarding of Classified Information*, dated October 7, 2011; and the *National Insider Threat Policy and Minimum Standards for Executive Branch Insider Threat Programs*, dated November 21, 2012.

ENVIRONMENTAL CLEANUP

Key Challenges: EM's mission is to clean up the environmental legacy of nuclear weapons production and nuclear energy research. Fifty years of conducting these activities produced unique, technically complex problems.

Technical and programmatic risks and associated uncertainties are an inherent part of complex cleanup projects. Characterization of legacy waste sites is performed in conjunction with planning and executing cleanup activities, such as deactivating and decommissioning facilities, removing hazardous materials, stabilizing waste streams to prevent additional environmental damage, and restoring the sites to conditions required by legal agreements. Cleanup activities can last for decades and often require first-of-a-kind solutions. As EM's program progresses, waste sites may be re-characterized.

EM's cleanup work at most sites is governed by one or more regulatory agreements or court orders that establish the scope of work to be performed at a given site and the dates by which specific cleanup milestones must be accomplished. Compliance with these agreements and orders are the major cost driver for the EM program.

The legacy of the Manhattan Project, Cold War, and other nuclear fuels programs includes thousands of remaining excess contaminated facilities currently within the EM Program, and many more facilities identified in other DOE programs. There are also thousands of tons of excess nuclear materials and wastes requiring cleanup and disposition. The Department is currently re-evaluating the magnitude, nature and distribution, condition/risk and financial liability associated with its excess facilities. In regard to removal of excess facilities, the Secretary directed the establishment of an Excess Contaminated Facilities Working Group, led by the Laboratory Operations Board. The working group developed and executed an enterprise-wide data collection effort to obtain updated cost and risk assessments to deactivate, decontaminate, decommission, and demolish excess facilities. The updated data from the working group was used to define the scope of the challenge and to identify options for how DOE may better prioritize excess facilities. The group is developing policies to institutionalize a corporate approach, and updating and validating data gathered by the working group's efforts. The group also will be finalizing a report on its work. This report will be issued in 2016, also in response to a requirement of the 2016 National Defense Authorization Act.

As a result of the duration and diversity of past research development, testing, and production, legacy conditions encompass a level of uncertainty regarding the amount and composition of waste and the nature and extent of environmental contamination. Initial regulatory milestones were developed based on the best available information about a site's condition, with the understanding that further characterization would be needed. When a site is re-characterized, the scope of the potential cleanup work is better defined. EM shares characterization data to negotiate or revise milestones and remedy decisions with the U.S. Environmental Protection Agency and state regulators, with stakeholder involvement.

The Waste Isolation Pilot Plant (WIPP) continues to recover from two unrelated events (underground vehicle fire and underground radiological release) in February 2014. As a result of these events, the Waste Isolation Pilot Plant repository is not accepting transuranic waste shipments.

The Carlsbad Field Office and the WIPP management and operations contractor are working collaboratively with the New Mexico Environment Department on regulatory permit approvals needed for safe resumption of waste emplacement operations. The WIPP Documented Safety Analysis was completed in April 2016, and remaining activities are proceeding to reopen WIPP. The Department is committed to resuming operations at WIPP as soon as it is safe to do so.

Departmental Initiatives: The GAO February 2015 High-Risk Series Update report to Congress identified several areas that DOE must address to improve contract and project management:

- Sustain the leadership commitment to address its contract and project management challenges;
- Commit sufficient people and resources to resolve its contract and project management problems;
- Ensure its corrective action plan and the initiatives needed to address underlying causes of contract and project management problems are up to date and address root causes;
- Demonstrate progress in implementing corrective measures, especially measures intended to improve the performance of major projects; and
- Monitor and independently validate the effectiveness and sustainability of its corrective measures, particularly for major projects.

EM is pursuing numerous initiatives to improve its performance:

- In accordance with applicable statutes and implementing regulations, evaluate federal facility agreement cleanup milestones, permits, and decisions with regulators to ensure they protect human health and the environment while appropriately balancing cost;
- Continue to develop and deploy new and innovative technologies, approaches and modeling capabilities resulting in significant improvements in safety, and cost and schedule savings;
- Use project peer reviews and continue independent contract reviews and independent project reviews, construction project reviews, and external independent reviews to keep contracts and projects aligned and on track;
- Ensure at least 90% of contracting series workforce and Federal Project Directors (FPDs) for each capital project have appropriate certification;
- Continue to partner with national laboratories, industry, academia, and the U. S. Army Corps of Engineers (USACE) to ensure the best scientific and engineering resources are integrated into decision-making. As a result, the selected technologies, design, and construction approaches are expected to help reduce risk, and accelerate project completion for new projects;
- Acquisition teams consider the use of a firm fixed-price contract when appropriate to shift risk and responsibility to the contractor which provides strong incentives for contractors to control costs and perform efficiently;
- In instances where a firm fixed-price contract may not be the best contracting vehicle, acquisition teams investigate the possibility of conducting additional planning and risk reduction that would make a fixed-price or hybrid approach feasible before resorting to a cost-reimbursement contract;
- Improving its acquisition planning practices by focusing on achieving early consensus among key stakeholders about the acquisition strategy. Under the Procurement Strategy Panel process, an internal EM process to identify issues and risks associated with its major acquisitions early in the acquisition planning process, stakeholder, both internal and external to EM, agreement on the acquisition approach is reached earlier in the planning stage of the procurement;
- Strengthening the integration of acquisition, budget and project management processes so that contract statements of work and deliverables are based on clear project requirements and robust front-end planning and risk analysis. EM is also ensuring nuclear safety requirements are addressed early and modifications to the contract and project baseline are managed through strict change-control processes;
- To strengthen the Department's contract and project oversight capacity, EM was authorized to hire 96 additional full-time equivalents, 27 of which are specifically designated for contract specialists and 19 for cost estimators;
- EM sites at Richland, Office of River Protection, Savannah River, Portsmouth, Paducah, Oak Ridge, West Valley, Carlsbad, Idaho, and Moab have signed partnering agreements with their major contractors. Partnering agreements create win-win scenarios where both the federal staff and contractor staff understand and respect the rules of engagement and build better business relationships. EM is working to build stronger relationships with oversight organizations to improve communications and demonstrate transparency and accountability in EM's contract and project management;
- DOE has developed a planning process that evaluates different cleanup and completion scenarios based on the changing external environment. The goal is to facilitate early planning and therefore maximize return on investment; and
- Supporting the Department's goal to identify the mission and core capability associated with real property assets, all sites including the Savannah River National Lab are participating in the effort being led by the Laboratory Operating Board to address issues associated with the Department's infrastructure.

SPENT NUCLEAR FUEL AND HIGH-LEVEL WASTE DISPOSAL

Key Challenges: DOE is directed by the amended Nuclear Waste Policy Act of 1982 (NWPA) to manage and dispose of high-level waste and spent nuclear fuel in a manner that protects public health, safety, and the environment.

The NWPA authorizes the Secretary to enter into contracts with commercial nuclear utilities and commercial research reactor operators that own and generate SNF. In return for the payment by utilities of fees established by the NWPA

into the Nuclear Waste Fund, the Government was to begin disposing of their SNF starting in 1998. Lawsuits have been filed by utilities to recover damages resulting from the delay. The Department of Justice has entered into settlements. To date, approximately $6.1 billion has been paid out of the Judgment Fund for settlements and judgments to contract holders. Contract holders will continue to submit annual claims for additional costs under the settlement agreements. Additional annual payments will be made pursuant to those agreements until the Government has fulfilled its spent fuel acceptance obligations. DOE reviews the claims and provides recommendations for approval to the Department of Justice. DOE staff continue to be lead Government witnesses for the remaining unsettled cases being tried and continue to manage the Nuclear Waste Fund with a balance of approximately $36.0 billion.

Departmental Initiatives: The Department released its *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste* in January 2013. The President selected this Strategy as the preferred approach for disposing of spent fuel and high-level nuclear waste in the U.S. In 2016, the Department launched a consent-based siting effort to site future nuclear waste management facilities. The Department continues with research and development, analytical, and planning activities that lay the groundwork for implementing the Strategy.

Change in the Ongoing Fee Paid Into the Nuclear Waste Fund: In *NARUC v. DOE*, the U.S. Court of Appeals for the D.C. Circuit ruled that the Department's 2010 fee adequacy determination was legally inadequate and ordered the Department to issue a new fee adequacy evaluation in compliance with the court's opinion by January 18, 2013. The Department issued a new fee adequacy report by that date and submitted it to the Court. NARUC and NEI immediately moved to reopen the appeal to challenge that report. On November 19, 2013, the court issued a decision finding that the Department's 2013 fee adequacy report was "arbitrary and capricious" and ordered the Secretary "to submit to Congress a proposal to change the fee to zero until such time as either the Secretary chooses to comply with the [Nuclear Waste Policy Act] as it is currently written, or until Congress enacts an alternative waste management plan." On December 20, 2013, the court issued a mandate directing the Department to comply with the court's decision to reduce the fee to zero. Accordingly, on January 3, 2014, the Department submitted the court-mandated proposal to Congress to adjust the 1 mill per kilowatt-hour fee to zero.

CYBERSECURITY

Key Challenges: Today's rapidly evolving cyber landscape presents unprecedented opportunities and challenges. Achieving a safe, secure, and resilient cyber environment demands that we adopt innovative approaches and a full range of best practices. Cyber is an enterprise-wide responsibility that demands an expanded view—beyond traditional cybersecurity—to encompass the broad scope of information sharing and information safeguarding.

The information technology governance structure for DOE is the Cyber Council, which is the principal forum for collaboration and coordination of cyber activities and for consideration of cyber-related issues requiring decision by the Deputy Secretary who serves as the Council Chair.

In November 2015, the Office of Management and Budget (OMB), in conjunction with the Department of Homeland Security (DHS) and the National Security Council (NSC), conducted DOE's FY 2016 CyberStat Review Session—an evidence-based meeting to ensure cybersecurity posture accountability. OMB identified nine cybersecurity initiatives in response to the CyberStat Review to accelerate improvements in the Department's cybersecurity posture.

In March 2016, the Committee on National Security Systems (CNSS) appointed DOE's Chief Information Officer (CIO) as co-chair. CNSS carries out the work of protecting the National Security Systems by developing operating policies, procedures, guidelines, directives, instructions, and standards as necessary to implement National Security Directive (NSD) 42. The Department participates on two CNSS panels and 14 Working Groups.

The Department is actively involved with implementing the Administration's Cybersecurity National Action Plan (CNAP) and M-16-04 Cyber Strategy and Implementation Plan by supporting initiatives such as High Value Assets (HVA), Continuous Diagnostics and Mitigation (CDM), Einstein 3 Accelerated (E3A), and the Cyber Workforce Strategy.

Departmental Initiatives: The Department recognizes the importance of attracting, developing, and retaining a highly skilled cybersecurity workforce. As such, the Department is developing the Enterprise Cyber and Information Resources Management Workforce Strategy and Implementation Plan, which will define and prioritize strategies; conduct workforce analyses; establish Cyber and Information Resources Management Working Groups; implement workforce plans; and, monitor evaluate, and revise workforce strategies and plans. Additionally, the Department is leveraging existing tools such as the DHS' Cybersecurity Workforce Toolkit and the National Initiative for Cybersecurity Education (NICE) Capability Maturity Model. The Department also continues to offer a range of ongoing workforce initiatives designed to appeal to and keep cyber talent. To advance cybersecurity training and education internally, the Department hosted a Cyber Conference in September 2016. The conference theme was "DOE Cyber, an Enterprise Approach: Excellence through Innovation and Integration." The conference provided an in-person forum for training. The conference brought the DOE Enterprise together with interagency partners and the private sector to create a

collaborative environment to advance information sharing and information safeguarding.

In 2016, the Department initiated the Integrated Joint Cybersecurity Coordination Center (iJC3). The iJC3 approach utilizes the breadth and depth of technical expertise across the Enterprise through strategic partnerships. The iJC3 initiative is addressing the current enterprise Security Operation Center (SOC) capabilities, providing recommendations for improvements, and initiating projects based on those recommendations. The intent is to improve the Department's cybersecurity posture, reduce risk, and make the Department more efficient. The first five iJC3 implementation plans lay out the approach to reach Initial Operating Capability (IOC) for the Enterprise Cyber Capabilities (ECC) for Cyber Intelligence, Unclassified Situational Awareness, Classified Situational Awareness, Coordinated Cyber Response, and Data Fusion. The ECC leads, partners, and collaborators are developing implementation plans for the remaining ECCs and to achieve IOC.

In June 2015, the United States Chief Information Officer launched a 30-day Cybersecurity Sprint that directed agencies to dramatically accelerate implementation of multi-factor authentication (MFA). The MFA implementation goal is 100% for privileged users and 85% for standard users. Over the last 18 months, DOE has proactively and deliberatively improved the use of MFA.

The Department now has full accounting of privileged and standard accounts. The Department is also monitoring the reported progress and completion dates of local MFA implementation and deployment. As of October 2016, the Department achieved multifactor authentication LOA4 for 77% privileged user accounts and 48% for standard user accounts. The Department's plan is to complete the Cybersecurity Sprint goals by December 31, 2016 (Q1 FY 2017). Sites that do not make the end of year goal are required to present a detailed remediation plan with POAMs for additional management and tracking at the Departmental level.

The Department participates in the DHS-led HVA Pilot for testing DOE-identified HVAs. The Department continues to assess and update its HVA inventory. DOE is also coordinating MFA implementation schedules along with HVA cybersecurity enhancements to ensure the Department is prioritizing cybersecurity implementation in areas of high risk and value.

The Department leverages E3A to improve its ability to defend against cyber threats. E3A is an intrusion prevention service DHS offers to federal agencies that helps protect agencies from advanced persistent threats (APT) by providing two intrusion prevention services – Domain Name System Sinkholing and Malicious Email Filtering.

In response to the OMB Memorandum M-14-03, Enhancing the Security of Federal Information and Information Systems, the Department continues to collaborate with the DHS CDM Program to deploy Phase 1 Endpoint Integrity tools into DOE Energy Information Technology Services (EITS) and Office of Science (HQ) environments. The DOE is coordinating with DHS on Phase 2 CDM tool and service deployment. Phase 2 addresses Least Privilege and Infrastructure Integrity. The DOE CDM Program continues to host meetings with Program Offices, National Laboratories, Plants, and Sites to increase participation in CDM Phase 2.

The Enterprise Supply Chain Risk Management (eSCRM) Program, created in response to increasing risk from the globalization of the information communication technology (ICT) sector, provides a robust toolset of defense-in-breadth and defense-in-depth SCRM capabilities that support Departmental stakeholders. The program met the requirements from the CNSSD 505, Supply Chain Risk Management. These requirements included following agency-specific SCRM policies and procedures and creating a centralized SCRM focal point that provides supply chain subject matter expertise, training, outreach, and awareness, supply chain risk assessments, incident management support, and metrics.

HUMAN CAPITAL MANAGEMENT

Key Challenges: The Department requires a fully engaged and high-performing federal workforce to achieve the strategic goals and objectives of the 2014-2018 DOE Strategic Plan. Key challenges to DOE's federal workforce in the current human capital environment include:

- Addressing the recent steady decreases in the size of the workforce while the gap between the workforce size and FTE allocation has increased;
- Mitigating the risk to mission from employee attrition, as a result of the increased number of resignations from federal service, while the risk of losses from increased retirement eligibility continues to increase;
- Mitigating succession risks, as evidenced by the growing underrepresentation of new generations in the workforce while overall succession readiness remains unclear;
- Strengthening employee engagement, as indicated by measures of employee engagement and employee perceptions of agency leadership; and
- Implementing a new human resources (HR) Service Delivery model to reduce costs and increase efficiency of HR services compared to Government benchmarks.

Departmental Initiatives: In the 2014-2018 DOE Strategic Plan, the Department's goal for "Management and Performance" contains the following strategic objective: "Attract, manage, train, and retain the best federal workforce to meet future mission needs." This objective includes five agency performance goals, which are summarized as:

- Reduce the per employee cost of providing human resource services;
- Improve the speed, quality, and diversity of hiring and on-boarding;
- Improve the effectiveness of workforce development to support corporate succession planning;
- Implement a corporate leadership development strategy; and
- Ensure accountability for improving employee perceptions, engagement, and performance.

The Office of the Chief Human Capital Officer (OCHCO), working with DOE Program Offices, published a 2016-2020 Strategic Human Capital Plan that aligns with the 2014-2018 DOE Strategic Plan, as well as the management pillars and cross-agency priority goals of the President's Second-Term Management Agenda. The plan identifies three strategic human capital goals relating to leadership, people, and HR:

- Grow Our Leaders;
- Strengthen Our Workforce; and
- Improve Our HR Service Delivery

The goals include strategies to guide each year's priority initiatives for human capital as the Department works to support a fully engaged and high-performing federal workforce. The following is a discussion of each of the priorities and the results that OCHCO achieved in FY 2016 in support of the three strategic human capital goals and 2016 priorities:

Grow Our Leaders:

- The Improve Corporate Leadership Development priority is intended to address the employee engagement challenge and to support leadership development as a departmental goal in accordance with the Executive Order for Strengthening the Senior Executive Service.

The following activities were implemented to Improve Corporate Leadership Development:

  - Launched the Leadership Development Rotation Program;
  - Completed the DOE Talent Management Study and issued the final report;
  - Provided training sessions to executives on how to meet the performance requirements established in SES performance plans for FY 2016 that includes an agency specific measurable component within the Leading People critical element related to action planning and/or results to improve employee engagement based on employee feedback; and
  - Stood up the Human Capital Executive Advisory Committee to resolve identified issues and recommendations from the Talent Management Study.

Strengthen Our Workforce:

- The Strengthen Employee Engagement and Organizational Performance priority is intended to address the employee engagement challenge and the departmental goal to improve employee perceptions, engagement, and performance in accordance with the White House Memorandum on Strengthening Employee Engagement and Organizational Performance.

The following activities were implemented to Strengthen Employee Engagement and Organizational Performance:

  - Implemented the approved recommendations of the Deputy Secretary's pilot Headquarters Workplace Improvement Forum (WIF). Implementation included the deployment of filtered water stations, energy saving appliances, establishment of employee lounge areas in Forrestal and Germantown, and health and wellness signage around the headquarters complex;
  - Launched the Corporate Workplace Improvement Network (WIN) to expand the practice of employee-led workplace improvement beyond Headquarters to support sites throughout the Department; and
  - Stood up the Workplace Improvement Network Steering Committee for launch of the regional (local) Workplace Improvement Networks on July 26, 2016.
- The Improve Corporate Workforce and Succession Planning priority is intended to address the succession risk challenge and the departmental goal to support corporate succession planning through workforce planning and development.

The following activity was implemented to Improve Corporate Workforce and Succession Planning:

  - Developed a scalable Departmental Workforce Planning Model and standardized workforce profile queries to support analysis and planning.
- The Strengthen Corporate Recruitment priority is intended to address the risks from employee attrition and succession challenges and to support the departmental goal to increase the speed, quality, and diversity of hiring.

The following activities were implemented to Strengthen Corporate Recruitment:

  - Identified candidate institutions and organizations for the establishment of high impact recruitment partnerships; and
  - Established the FY 2016 Veterans and Disability Hiring Goals for Preference Veterans at 27% (13% for Veterans with disabilities), and Disability at 10% (2% Individuals with Targeted Disabilities).
- The Develop Human Capital Talent priority is intended to implement an employee development program that

assesses the competencies and develops the talent in the HR community across DOE.

The following activities were implemented to Develop Human Capital Talent:

- Completed the HR Shared Service Center (SSC) and Advisory Office competency assessment that will serve as the basis for individual and organizational development for the Management and Performance (M&P) SSC and the Science and Energy (S&E) SSC; and
- Developed and implemented an executive coaching program and executive essentials training, while developing an executive rotational program.

Improve Our HR Service Delivery:

The purposes of the six priorities under the goal to improve HR service delivery include:

- The purpose of the Implement New HR Line of Business (HR LOB) priority is to continue to make improvements to the Department's HR costs, efficiency, and service quality. OCHCO will finalize the implementation of the new HR line of business structure, people, process, and technology improvements;
- The purpose of the Improve Hiring Efficiency and Effectiveness priority is to analyze our current recruitment processes and maximize our use of hiring flexibilities to develop innovative solutions to hire talent into DOE quickly. Standardizing hiring data management across DOE will increase the integrity of data and reporting time to hire metrics;
- The purpose of the Improve HR Information Technology (HRIT) Tools and Systems priority is to identify a standard method for reporting and housing information which should increase the integrity of information being shared. This will position OCHCO to access and provide status reports of all ongoing HR activities to internal and external customers;
- The purpose of the Strengthen Internal and External Communications priority is to establish a communications platform that frames all HC communications activities into clear, consistent messages that are delivered to our internal and external customers in "one clear voice";
- The purpose of the Create One HC Community priority is to create a sense of one community across HR workforce through practice, talk, and procedures regardless of DOE element/program assigned to support; and
- The purpose of the Improve HC Customer Service priority is to establish a Customer Satisfaction Team to ensure that the customer's voice is heard and that the OCHCO fulfills service commitments.

Collectively, the six priorities for HR service delivery are intended to support a new HR service delivery model that will improve the Department's performance in HR costs, efficiency, and service quality.

The following activities were implemented to Improve HR Service Delivery:

- Stood up two Shared Service Centers (SSC) including the Management and Performance (M&P) SSC in Cincinnati, Ohio and the Science and Energy (S&E) SSC in Oak Ridge, Tennessee;
- Developed improved time-to-hire (T2H) reporting tools and provided training to M&P and S&E SSC personnel to improve data integrity on T2H reporting metrics;
- Piloted a Position Classification (PC) module in the Hiring Management information system to improve efficiency and effectiveness of position classification;
- Implemented a Customer Relationship Module (CRM) in the Corporate HR Information System (CHRIS) to track and quantify service delivery work;
- Launched HCNet to serve as a key communications channel for the DOE Human Capital Community; and
- Initiated a comprehensive HC policy review to ensure all policies are in accordance with the United States Code, Code of Federal Regulations, and OPM regulations while providing maximum flexibility to managers and customers.

SAFETY CULTURE

Key Challenges: Maintain the safety and health of the Department's current workforce and ensure the safety of the general public from departmental operations while striving to enhance the Department's productivity to achieve mission objectives.

Departmental Initiatives: In FY 2016, Departmental elements continued to implement Integrated Safety Management (ISM) and to work to strengthen safety culture through senior leadership engagement by increasing worker and stakeholder engagement, and through the use of operational experience. Operating Experience was analyzed and resulted in the publication of six operating experience reports addressing the areas of: hazardous electrical energy, nitrate waste, ladder safety, recent trends in musculoskeletal disorders, and ergonomically correct equipment. Additionally, this past year over 30 safety and health notifications have been distributed electronically by the Office of Environment, Health, Safety and Security to the larger safety and health community through the ORISE list serve.

A review of the ISM, federal oversight and contractor assurance directives was undertaken to ensure the institutionalization of a strong safety culture across the department. The Department and Energy Facility Contractors Group looked at eight sites, with diverse and complex missions, to benchmark their contractor assurance systems including areas such as issues management and the continuous improvement in all areas of safety culture.

The Safety Culture Improvement Panel (SCIP) chartered by the Deputy Secretary in May 2015, continues to provide leadership to support continuous improvement in meeting the Department's safety culture objectives across the complex and to ensure consistent leadership and focus on

all aspects of DOE's safety culture initiatives. The SCIP supported development/conduct of the following training courses: *Safety Culture for DOE and DOE Contractor Senior Leaders*; *Safety Culture for Front Line Leaders*; and *Safety Culture Fundamentals*.

Additionally, the SCIP issued two reports:

- *Safety Culture and Contract Language* establishes a consistent set of safety culture elements for incorporation into DOE contracts and for assessing the effectiveness of current contractor performance measures in enhancing the safety culture environment; and
- *Safety Culture and Monitoring Means* (SCIP-16-002) recommends that DOE sites and organizations establish site-specific monitoring metrics and protocols to conduct periodic worker surveys. It also recommends senior leadership review and discuss these periodically.

The need for a strong safety culture is institutionalized in the Department of Energy Acquisition Regulations clauses and the ISM Policy, Order, and Guide. Additionally, the Office of Environment, Health, Safety and Security meets regularly with managers in Headquarters and with managers and workers at all levels at field sites to obtain feedback on the strengths and weaknesses of both the regulation and field implementation of worker safety and health programs.

DOE-wide outreach was conducted through worker safety and health policy implementation conference calls, site assistance visits for the Department Voluntary Protection Program, on-site training to increase awareness of worker safety requirements, worker safety and health program awareness visits, and visits to Y-12, Pantex, and LANL to discuss implications of the amendment to 10 CFR 850 (Beryllium Rule notice of proposed rulemaking). Outreach to other stakeholders included meetings with various advisory boards and advocacy groups such as the Advisory Board on Radiation and Worker Health; the Advisory Board on Toxic Substances and Worker Health; and with advocacy groups using various formats and approaches.

The Department will continue to institutionalize lessons-learned and best practices of safety culture under the ISM framework and safety culture through the following initiatives:

- Continue to share lessons-learned on implementation of work planning and control;
- Through ISM and the SCIP support activities that strengthen the implementation of safety culture and safety conscious work environment throughout DOE;
- Develop updated guidance for the conduct of safety culture self-assessments at DOE sites;
- Considering the hazards associated with the work, continue maximizing the use of national and international consensus standards where applicable, and ensure DOE requirements are risk-informed and performance-based and are meaningful, clear, and concise;
- Continue strengthening the implementation of safety and health-related programs; e.g., ISM, 10 C.F.R 835, 10 C.F.R 850, 10 C.F.R. 851, and DOE Voluntary Protection Program, through corporate assistance and awareness activities that are focused on effective implementation of DOE requirements and the strengthening of safety culture;
- Identify and support additional nuclear safety research projects through the Nuclear Safety Research and Development program;
- Maintain effective levels of safety and health expertise throughout the Department by providing relevant training and professional development programs through the National Training Center and fostering the expansion of the reciprocity program, whereby accredited safety training programs are recognized by other DOE contractors and sites;
- Continue conducting safety and health self-assessments and implementing the independent oversight and worker safety and nuclear safety enforcement programs to maintain stakeholder and public confidence;
- Continue conducting independent oversight of nuclear facility projects to ensure compliance with 10 C.F.R. 830, Nuclear Safety Management, requirements; and
- Complete the actions committed to in the Department's Implementation Plan for DNFSB Recommendation 2011-1.

INFRASTRUCTURE

Key Challenges: DOE is responsible for a vast portfolio of world-leading scientific and production assets as well as the general purpose infrastructure that enables the Department to operate and use those assets. While the Department has made significant investments in its world class mission facilities, much of the supporting infrastructure including office space, general laboratory spaces, maintenance shops, and utilities, that enables the mission and forms the backbone of the laboratory and production plant sites is beyond its design life and is in need of greater attention. Based on Department-wide facility assessments and data analyses, the Department is facing a systemic challenge of degrading infrastructure and levels of deferred maintenance that have been increasing.

In addition to a degrading infrastructure, excess contaminated facilities can pose a risk to safety, security, and programmatic objectives. The Department faces a significant challenge with the number of excess facilities throughout the complex and the need to deactivate, decontaminate, decommission, and demolish those facilities in the near term. As various DOE Program Secretarial Offices (PSOs) identify excess facilities they no longer need, they typically transfer stewardship of any contaminated facilities and properties to the DOE Office of

Environmental Management (EM). The EM office is then responsible for performing all necessary decontamination as well as final decommissioning and demolition (D&D). However, EM is currently facing significant challenges associated with an increasing workload. As a result, EM is unable to D&D all of the excess facilities already transferred from other PSOs in a timely manner or to take in additional excess contaminated facilities from other PSOs in the foreseeable future. Until EM accepts an excess contaminated facility into its portfolio, the PSO is responsible for maintaining the excess facility in a safe condition. In 2015, reports from the DOE Inspector General (IG) and the Government Accountability Office (GAO) both raised concerns with DOE's management of high-risk excess facilities, particularly those awaiting transfer to EM. These reports described increasing levels of risk due to delays in the cleanup and disposition of contaminated excess facilities.

Departmental Initiatives: The Secretary of Energy formed the National Laboratory Operations Board (LOB) in 2013 to provide an enterprise-wide forum for engaging the DOE Laboratories and PSO's in a joint effort to identify opportunities to improve effectiveness and efficiency. The LOB addresses all aspects of laboratory operations and includes a chartered subgroup focused strictly on laboratory infrastructure. In 2014, the LOB assessed the degree to which the Department's infrastructure is meeting the mission related needs of the laboratory complex across the DOE, including the National Nuclear Security Administration (NNSA). The assessments provided new insights into the condition of DOE's infrastructure and formed the basis for developing a plan to ensure effective stewardship for the future. This, in turn, led to additional general purpose infrastructure funding levels requested and appropriated for FY 2016. The DOE FY 2017 budget submission requests additional funding to address infrastructure challenges and proposes investments to decrease deferred maintenance across the complex.

To build on the success of that effort, the LOB also established an Infrastructure Executive Committee (IEC) comprised of senior line managers and facilities experts from across the DOE complex. The IEC is charged with developing an annual update on the state of general purpose infrastructure to the Department's leadership. This will help inform investment priorities as well as the effectiveness and efficiency of DOE real property management.

Within individual program offices, infrastructure efforts are now an integral part of the laboratory planning and evaluation processes. Plans will include reduction of deferred maintenance, removal of excess facilities, and proposals for potential construction of new facilities. Evaluation of laboratory performance related to infrastructure stewardship will be included in laboratory performance plans. In addition, NNSA has expanded its Asset Management Program which uses supply chain management economies-of-scale to provide a more centralized and efficient procurement approach to replacing mission-critical aging infrastructure systems that are common throughout the enterprise.

Another FY 2016 initiative to address and improve the DOE infrastructure is the Department's update of its policy order regarding Real Property Asset Management (Order 430.1C). This order, last updated in 2003, establishes a corporate, holistic, and performance-based approach to real property life-cycle asset management that links real property asset planning, programming, budgeting, and evaluation to program mission projections and performance outcomes. The August 2016 updated order refreshed DOE's policies on planning, budgeting, acquiring, sustaining, and disposing of real property as well as monitoring performance in these areas. The updated order also institutionalizes the recommendations of the LOB infrastructure working groups and addresses government-wide real property policies, goals, and requirements mandated since the last update.

In regard to the challenge posed by excess contaminated facilities, in early 2015 the Secretary directed the establishment of an Excess Contaminated Facilities Working Group. The working group developed and executed an enterprise-wide data collection effort to obtain updated cost and risk assessments to deactivate, decontaminate, decommission, and demolish excess facilities. The updated data from the working group was used to define the scope of the challenge and to identify options for how DOE may better prioritize excess facilities.

The group is developing policies to institutionalize a corporate approach, and updating and validating data gathered by the working group's efforts. The group also is finalizing a report on its work, to include a discussion of actions that DOE has taken or is planning to take to demolish specific facilities and to mitigate risks at existing contaminated facilities awaiting disposal.

DOE MANAGEMENT PRIORITIES	IG CHALLENGE AREAS FY 2017	GAO HIGH RISK LIST - GAO-15-290 (As of February 2015, updated every two years.)
Contract and Project Management	Financial Assistance and Contract Management	Contract Management for the NNSA and EM Management of major ($750M+) projects and programs
Security	Safeguards and Security	
Environmental Cleanup	Environmental Cleanup	
Spent Nuclear Fuel and High- Level Waste Disposal	Nuclear Waste Disposal	
Cybersecurity	Cybersecurity	
Infrastructure	Infrastructure Modernization	
Human Capital Management		
Safety Culture		
	Stockpile Stewardship	

Financial Results

With help from the Advanced Technology Vehicles Manufacturing Loan Program, Ford's Kansas City Assembly Plant in Claycomo, Missouri has increased production of the F-150 light duty truck, created jobs and attracted suppliers to the area.

Message from the Chief Financial Officer

For fiscal year (FY) 2016, the Department of Energy (DOE or Department) received an unmodified audit opinion on its financial statements from the independent public accounting firm of KPMG LLP for the tenth consecutive year. The audit identified no material weaknesses and found the DOE financial management systems to be in general compliance with governmental financial system requirements and found no instances of nonconformance. This achievement is an important measure of the integrity of our financial management and the strength of our internal controls.

The Office of the Chief Financial Officer (CFO) accomplished the following in FY 2016:

- Implemented DOE enterprise budget execution application, Funds Distribution System 2.0, which standardizes and integrates DOE budget execution and reduces cybersecurity risk with retirement of three custom legacy systems, legacy FDS, BEARS, and FCDS.
- Eliminated the information technology significant deficiency in November 2015 that existed each year since FY 2000.
- Updated the cost models in the Active Facilities Data Collection System that calculate the environmental liability associated with each DOE active facility.
- Automated and streamlined multiple accounting processes to improve accuracy and further automate financial statement production reducing time spent on reporting by 15%.
- Strengthened cybersecurity for CFO applications through deployment of advanced monitoring of activities in mission critical databases and web applications.
- Carried out OMB and Treasury DATA Act requirements in preparation for posting spending records on USASpending.gov beginning in May 2017.
- Conducted 92 financial management webinars for 2,919 attendees, a 54% increase over the total trained in FY 2015.

CFO continues to monitor and evaluate the Department's performance in meeting the goals and objectives in the 2014-2018 Strategic Plan. The Department will continue to make financial management improvements in FY 2017 to meet DOE strategic goals and to respond to external requirements resulting in increased accountability to our stakeholders and the public.

Joseph S. Hezir
Chief Financial Officer
November 15, 2016

Consolidated and Combined Financial Statements

Introduction to Principal Statements

The Department's financial statements have been prepared to report the financial position and results of operations of the Department of Energy (the Department or DOE), pursuant to the requirements of the Chief Financial Officers Act of 1990, the Government Management Reform Act of 1994, and the OMB Circular (No.) A-136, "*Financial Reporting Requirements*."

The responsibility for the integrity of the financial information included in these statements rests with the management of the Department. The audit of the Department's principal financial statements was performed by an independent certified public accounting firm selected by the Department's Inspector General. The auditors' report issued by the independent certified public accounting firm is included in this report.

The following provides a brief description of the nature of each required financial statement.

Consolidated Balance Sheets

The *Consolidated Balance Sheets* describe the assets, liabilities and net position components of the Department.

Consolidated Statements of Net Cost

The *Consolidated Statements of Net Cost* summarize the Department's operating costs by the strategic goals and objectives identified in the Department's 2014 - 2018 Strategic Plan. All operating costs reported reflect full costs, except for indirect costs, which are reported on the Management and Performance line of the statements. The costs for each line are reduced by earned revenues to arrive at net costs.

Consolidated Statements of Changes in Net Position

The *Consolidated Statements of Changes in Net Position* identify appropriated funds used as a financing source for goods, services or capital acquisitions. These statements present the accounting events that caused changes in the net position section of the Consolidated Balance Sheets from the beginning to the end of the reporting periods.

Combined Statements of Budgetary Resources

The *Combined Statements of Budgetary Resources* identify the Department's budgetary authority. Federal law gives budgetary authority to agencies to incur financial obligations that will eventually result in outlays or expenditures. Budgetary authority that the Department receives includes appropriations, borrowing authority, contract authority and spending authority from offsetting collections. The *Combined Statements of Budgetary Resources* provide information on budgetary resources available to the Department during the year and the status of those resources at the end of the year. Detail on the amounts shown in the *Combined Statements of Budgetary Resources* is included in the Required Supplementary Information section on the schedule of Budgetary Resources by Major Account.

Consolidated Statements of Custodial Activities

The *Consolidated Statements of Custodial Activities* identify revenues collected by the Department on behalf of others. These revenues primarily result from Power Marketing Administrations that sell power generated by hydroelectric facilities owned by Department of Defense (DoD), U.S. Army Corps of Engineers (USACE), Department of the Interior (DOI), and Bureau of Reclamation (BOR).

Principal Statements

U.S. Department of Energy Consolidated Balance Sheets

As of September 30, 2016 and 2015

($ IN MILLIONS)	FY 2016	FY 2015
ASSETS: (Note 2)		
Intragovernmental Assets:		
Fund Balance with Treasury (Note 3)	$ 31,808	$ 30,224
Investments and Related Interest, Net (Note 4)	40,846	40,051
Accounts Receivable, Net (Note 5)	577	537
Other Assets	58	29
Total Intragovernmental Assets	**$ 73,289**	**$ 70,841**
Investments and Related Interest, Net (Note 4)	102	111
Accounts Receivable, Net (Note 5)	3,380	3,696
Direct Loans and Loan Guarantees, Net (Note 7)	14,646	14,514
Inventory, Net (Note 8)	44,068	43,887
General Property, Plant, and Equipment, Net (Note 9)	34,505	33,541
Regulatory Assets (Note 6)	10,983	11,466
Other Non-Intragovernmental Assets (Note 10)	4,548	4,720
Total Assets	**$ 185,521**	**$ 182,776**
LIABILITIES: (Note 11)		
Intragovernmental Liabilities:		
Accounts Payable	$ 86	$ 143
Debt (Note 12)	25,185	25,807
Deferred Revenues and Other Credits (Note 13)	92	82
Other Liabilities (Note 14)	562	603
Total Intragovernmental Liabilities	**$ 25,925**	**$ 26,635**
Accounts Payable	3,600	3,703
Loan Guarantee Liability (Note 7)	139	154
Debt Held by the Public (Notes 11 and 12)	6,019	5,955
Deferred Revenues and Other Credits (Note 13)	40,667	39,294
Environmental Cleanup and Disposal Liabilities (Note 15)	371,786	339,819
Pension and Other Actuarial Liabilities (Note 16)	28,950	26,392
Obligations Under Capital Leases (Note 17)	2,163	1,682
Other Non-Intragovernmental Liabilities (Note 14)	6,338	6,480
Contingencies and Commitments (Note 18)	25,134	25,091
Total Liabilities	**$ 510,721**	**$ 475,205**
NET POSITION:		
Unexpended Appropriations		
Unexpended Appropriations - Funds from Dedicated Collections (Note 19)	$ 14	$ 15
Unexpended Appropriations - Other Funds	21,364	19,912
Cumulative Results of Operations		
Cumulative Results of Operations - Funds from Dedicated Collections (Note 19)	(7,780)	(10,410)
Cumulative Results of Operations - Other Funds	(338,798)	(301,946)
Total Net Position	**$ (325,200)**	**$ (292,429)**
Total Liabilities and Net Position	**$ 185,521**	**$ 182,776**

The accompanying notes are an integral part of these statements.

U.S. Department of Energy Consolidated Statements of Net Cost

For the Years Ended September 30, 2016 and 2015

($ IN MILLIONS)	FY 2016	FY 2015
STRATEGIC GOALS:		
Science and Energy		
Program Costs (Note 21)	$ 12,974	$ 13,221
Less: Earned Revenues (Note 22)	(4,956)	(4,962)
Net Cost of Science and Energy	**8,018**	**8,259**
Nuclear Security		
Program Costs (Note 21)	10,415	9,267
Less: Earned Revenues (Note 22)	(32)	(24)
Net Cost of Nuclear Security	**10,383**	**9,243**
Management and Performance		
Program Costs (Note 21)	5,895	5,790
Less: Earned Revenues (Note 22)	(153)	(233)
Net Cost of Management and Performance	**5,742**	**5,557**
Net Cost of Strategic Goals	**24,143**	**23,059**
OTHER PROGRAMS:		
Reimbursable Programs		
Program Costs	4,213	4,251
Less: Earned Revenues (Note 22)	(4,013)	(4,078)
Net Cost of Reimbursable Programs	**200**	**173**
Other Programs (Note 23)		
Program Costs	510	456
Less: Earned Revenues (Note 22)	(341)	(323)
Net Cost of Other Programs	**169**	**133**
Costs Applied to Reduction of Legacy Environmental Liabilities (Notes 15 and 24)	(5,564)	(5,308)
Costs Not Assigned (Note 25)	44,735	53,328
Net Cost of Operations (Note 26)	**$ 63,683**	**$ 71,385**

The accompanying notes are an integral part of these statements.

U.S. Department of Energy Consolidated Statements of Changes in Net Position

For the Years Ended September 30, 2016 and 2015

($ IN MILLIONS)	FUNDS FROM DEDICATED COLLECTIONS (Note 19)	ALL OTHER FUNDS	ELIMINATIONS	CONSOLIDATED
	FY 2016			
CUMULATIVE RESULTS OF OPERATIONS:				
Beginning Balances	$ (10,410)	$ (301,946)	$ -	$ (312,356)
Budgetary Financing Sources:				
Appropriations Used	$ 13	$ 27,582	$ -	$ 27,595
Non-Exchange Revenue	7	2	-	9
Donations and Forfeitures of Cash	-	8	-	8
Transfers - In/(Out) Without Reimbursement	(385)	-	-	(385)
Other Budgetary Financing Sources	61	-	-	61
Other Financing Sources (Non-Exchange):				
Donations and Forfeitures of Cash	38		-	38
Transfers - In/(Out) Without Reimbursement (Note 26)	(98)	(46)	-	(144)
Imputed Financing from Costs Absorbed by Others (Note 26)	8	2,532	-	2,540
Other	(30)	(231)	-	(261)
Total Financing Sources	**$ (386)**	**$ 29,847**	**$ -**	**$ 29,461**
Net Cost of Operations	3,016	(66,699)	-	(63,683)
Net Change	**$ 2,630**	**$ (36,852)**	**$ -**	**$ (34,222)**
Total Cumulative Results of Operations	**$ (7,780)**	**$ (338,798)**	**$ -**	**$ (346,578)**
UNEXPENDED APPROPRIATIONS:				
Beginning Balances	$ 15	$ 19,912	$ -	$ 19,927
Budgetary Financing Sources:				
Appropriations Received (Note 27)	$ 10	$ 29,050	$ -	$ 29,060
Appropriations Transferred - In/(Out)	-	14	-	14
Other Adjustments	-	(28)	-	(28)
Appropriations Used	(11)	(27,584)	-	(27,595)
Total Budgetary Financing Sources	**$ (1)**	**$ 1,452**	**$ -**	**$ 1,451**
Total Unexpended Appropriations	**$ 14**	**$ 21,364**	**$ -**	**$ 21,378**
Net Position	**$ (7,766)**	**$ (317,434)**	**$ -**	**$ (325,200)**
	FY 2015			
CUMULATIVE RESULTS OF OPERATIONS:				
Beginning Balances	$ (7,961)	$ (260,619)	$ -	$ (268,580)
Budgetary Financing Sources:				
Appropriations Used	$ 15	$ 27,427	$ -	$ 27,442
Non-Exchange Revenue	2	1	-	3
Donations and Forfeitures of Cash	-	5	-	5
Transfers - In/(Out) Without Reimbursement	(397)	1	-	(396)
Other Budgetary Financing Sources	35	-	-	35
Other Financing Sources (Non-Exchange):				
Donations and Forfeitures of Cash	15	4	-	19
Transfers - In/(Out) Without Reimbursement (Note 26)	(67)	(53)	-	(120)
Imputed Financing from Costs Absorbed by Others (Note 26)	8	858	-	866
Other	13	(258)	-	(245)
Total Financing Sources	**$ (376)**	**$ 27,985**	**$ -**	**$ 27,609**
Net Cost of Operations	(2,073)	(69,312)	-	(71,385)
Net Change	**$ (2,449)**	**$ (41,327)**	**$ -**	**$ (43,776)**
Total Cumulative Results of Operations	**$ (10,410)**	**$ (301,946)**	**$ -**	**$ (312,356)**
UNEXPENDED APPROPRIATIONS:				
Beginning Balances	$ 21	$ 22,564	$ -	$ 22,585
Budgetary Financing Sources:				
Appropriations Received (Note 27)	$ 14	$ 27,513	$ -	$ 27,527
Appropriations Transferred - In/(Out)	-	(31)	-	(31)
Other Adjustments	(6)	(2,706)	-	(2,712)
Appropriations Used	(14)	(27,428)	-	(27,442)
Total Budgetary Financing Sources	**$ (6)**	**$ (2,652)**	**$ -**	**$ (2,658)**
Total Unexpended Appropriations	**$ 15**	**$ 19,912**	**$ -**	**$ 19,927**
Net Position	**$ (10,395)**	**$ (282,034)**	**$ -**	**$ (292,429)**

The accompanying notes are an integral part of these statements.

U.S. Department of Energy Combined Statements of Budgetary Resources

For the Years Ended September 30, 2016 and 2015

($ IN MILLIONS)	BUDGETARY	NON-BUDGETARY CREDIT REFORM FINANCING ACCOUNTS	BUDGETARY	NON-BUDGETARY CREDIT REFORM FINANCING ACCOUNTS
	FY 2016		FY 2015	
BUDGETARY RESOURCES:				
Unobligated Balance Brought Forward, Oct 1	$ 7,615	$ 1,522	$ 7,979	$ 1,685
Recoveries of Prior Year Unpaid Obligations	769	-	2,348	156
Other Changes in Unobligated Balance (+ or -)	12	(476)	(2,460)	(779)
Unobligated Balance from Prior Year Budget Authority, Net	**$ 8,396**	**$ 1,046**	**$ 7,867**	**$ 1,062**
Appropriations (Note 27)	29,815	-	28,003	-
Borrowing Authority	429	100	620	2,018
Contract Authority	2,650	-	1,946	-
Spending Authority from Offsetting Collections	6,476	840	6,736	1,023
Total Budgetary Resources (Note 27)	**$ 47,766**	**$ 1,986**	**$ 45,172**	**$ 4,103**
STATUS OF BUDGETARY RESOURCES:				
New Obligations and Upward Adjustments (Total) (Notes 26 & 27)	$ 39,767	$ 569	$ 37,557	$ 2,581
Unobligated Balance, End of Year:				
Apportioned, Unexpired Accounts	$ 7,595	$ 12	$ 7,414	$ 13
Exempt from Apportionment, Unexpired Accounts	26	-	27	-
Unapportioned, Unexpired Accounts (Note 27)	303	1,405	129	1,509
Unexpired, Unobligated Balance, End of Year	**$ 7,924**	**$ 1,417**	**$ 7,570**	**$ 1,522**
Expired, Unobligated Balance, End of Year	75	-	45	-
Unobligated Balance, End of Year (Total)	**$ 7,999**	**$ 1,417**	**$ 7,615**	**$ 1,522**
Total Budgetary Resources (Note 27)	**$ 47,766**	**$ 1,986**	**$ 45,172**	**$ 4,103**
CHANGE IN OBLIGATED BALANCE:				
Unpaid Obligations:				
Unpaid Obligations, Brought Forward, Oct 1	$ 25,680	$ 5,289	$ 27,805	$ 5,908
New Obligations and Upward Adjustments (Total) (Notes 26 & 27)	39,767	569	37,557	2,581
Outlays (Gross) (-)	(37,835)	(1,743)	(37,334)	(3,044)
Recoveries of Prior Year Unpaid Obligations (-)	(769)	-	(2,348)	(156)
Unpaid Obligations, End of Year (Note 27)	**$ 26,843**	**$ 4,115**	**$ 25,680**	**$ 5,289**
Uncollected Payments:				
Uncollected Pymts, Fed Sources, Brought Forward, Oct 1 (-)	$ (4,154)	$ (99)	$ (4,143)	$ (142)
Change in Uncollected Pymts, Fed Sources (+ or -)	(68)	-	(11)	43
Uncollected Pymts, Fed Sources, End of Year (-)	**$ (4,222)**	**$ (99)**	**$ (4,154)**	**$ (99)**
Memorandum (non-add) Entries:				
Obligated Balance, Start of Year (+ or -)	**$ 21,526**	**$ 5,190**	**$ 23,662**	**$ 5,766**
Obligated Balance, End of Year (+ or -)	**$ 22,621**	**$ 4,016**	**$ 21,526**	**$ 5,190**
BUDGET AUTHORITY AND OUTLAYS, NET:				
Budget Authority, Gross	$ 39,370	$ 940	$ 37,305	$ 3,041
Actual Offsetting Collections (-)	(8,796)	(1,630)	(8,886)	(1,828)
Change in Uncollected Pymts, Fed Sources (+ or -)	(68)	-	(11)	43
Recoveries of Prior Year Paid Obligations	3	-	10	-
Budget Authority, Net (Total)	**$ 30,509**	**$ (690)**	**$ 28,418**	**$ 1,256**
Outlays, Gross	$ 37,835	$ 1,743	$ 37,334	$ 3,044
Actual Offsetting Collections (-)	(8,796)	(1,630)	(8,886)	(1,828)
Outlays, Net (Total)	**$ 29,039**	**$ 113**	**$ 28,448**	**$ 1,216**
Distributed Offsetting Receipts (-) (Notes 26 & 27)	(3,192)	-	(3,026)	-
Agency Outlays, Net (Note 27)	**$ 25,847**	**$ 113**	**$ 25,422**	**$ 1,216**

The accompanying notes are an integral part of these statements.

U.S. Department of Energy Consolidated Statements of Custodial Activities

For the Years Ended September 30, 2016 and 2015

($ IN MILLIONS)	FY 2016	FY 2015
SOURCES OF COLLECTIONS:		
Cash Collections: (Note 28)		
Power Marketing Administrations	$ 774	$ 725
Federal Energy Regulatory Commission	25	36
Total Cash Collections	**$ 799**	**$ 761**
Accrual Adjustment	5	(2)
Total Custodial Revenue	**$ 804**	**$ 759**
DISPOSITION OF REVENUE:		
Transferred to Others:		
Bureau of Reclamation	$ (295)	$ (284)
Department of the Treasury	(250)	(234)
Army Corps of Engineers	(251)	(238)
Others	(4)	(5)
Decrease/(Increase) in Amounts to be Transferred	(4)	2
Net Custodial Activity	**$ -**	**$ -**

The accompanying notes are an integral part of these statements.

Notes to the Consolidated and Combined Financial Statements

1. Summary of Significant Accounting Policies

A. BASIS OF PRESENTATION

These consolidated and combined financial statements have been prepared to report the financial position and results of operations of the United States (U.S.) Department of Energy (the Department or DOE). The statements were prepared from the books and records of the Department in accordance with generally accepted accounting principles applicable to federal entities.

B. DESCRIPTION OF REPORTING ENTITY

The Department is a cabinet-level agency of the Executive Branch of the U.S. Government. The Department is not subject to federal, state, or local income taxes. The Department's Headquarters organizations are located in Washington, D. C. and Germantown, Maryland, and consist of an executive management structure that includes the Secretary; the Deputy Secretary; the Under Secretary for Science and Energy; the Under Secretary for Nuclear Security/Administrator for the National Nuclear Security Administration; the Under Secretary for Management and Performance; Secretarial staff organizations; and program organizations that provide technical direction and support for the Department's principal programmatic missions; and the PMAs (Bonneville Power Administration, Southeastern Power Administration, Southwestern Power Administration, and Western Area Power Administration) whose primary offices are located in the region served by each PMA. The Department also includes the Federal Energy Regulatory Commission (FERC), which is an independent organization responsible for regulating the transmission and sale of natural gas for resale in interstate commerce, for regulating the transmission and wholesale of electricity in interstate commerce, and the licensing of hydroelectric power projects.

The Department has a complex field structure comprised of operational offices, field offices, primary offices and operations of the PMAs, laboratories, and other facilities. The majority of the Department's environmental cleanup, energy research and development, and testing and production activities are carried out by major contractors. The contractors operate, maintain, or support the Department's Government-owned facilities. The Department indemnifies these contractors against financial responsibility from nuclear accidents under the provisions of the Price-Anderson Act.

These contractors have unique contractual relationships with the Department. In most cases, their charts of accounts and accounting systems are integrated with the Department's accounting system through a home office-branch office type of arrangement. Additionally, the Department is responsible for reimbursing the allowable costs of contractor contributions to certain defined benefit pension plans, as well as postretirement benefits such as medical care and life insurance, for the employees of these contractors. As a result, the Department's financial statements reflect not only the costs incurred by these contractors, but also include certain contractor assets (e.g., employee advances and prepaid pension costs) and liabilities (e.g., accounts payable, accrued expenses including payroll and benefits, and pension and other actuarial liabilities) that would not be reflected in the financial statements of other federal agencies that do not have these unique contractual relationships.

C. BASIS OF ACCOUNTING

Transactions are recorded on an accrual accounting basis and budgetary basis. Under the accrual accounting basis, revenues are recognized when earned and expenses are recognized when liabilities are incurred, without regard to receipt or payment of cash. Budgetary accounting facilitates compliance with legal constraints and controls over the use of federal funds. All material intradepartmental balances and transactions have been eliminated in the *Consolidated Balance Sheets, Consolidated Statements of Net Cost, Consolidated Statements of Changes in Net Position, and Consolidated Statements of Custodial Activities*. The *Combined Statements of Budgetary Resources* are prepared on a combined basis and do not include intradepartmental eliminations.

Throughout these financial statements, assets, liabilities, earned revenue, and costs have been classified according to the type of entity with which the transactions were made. Intragovernmental assets and liabilities are those from or to other federal entities. Intragovernmental earned revenue represents collections or accruals of revenue from other federal entities. Intragovernmental costs are payments or accruals for goods and services provided by other federal entities, and costs incurred by other federal entities as a result of the Department's programs (see Note 20).

D. FUND BALANCE WITH TREASURY

Funds with the U.S. Department of the Treasury (Treasury) primarily represent appropriated and revolving funds that are available to pay current liabilities and finance authorized purchases. Disbursements and receipts are processed by Treasury, and the Department's records are reconciled with those of Treasury (see Note 3).

E. INVESTMENTS AND RELATED INTEREST, NET

All investments are reported at cost net of amortized premiums and discounts as it is the Department's intent to hold the investments to maturity. Premiums and discounts are amortized using the effective interest yield method (see Note 4).

F. ACCOUNTS RECEIVABLE, NET

Intragovernmental accounts receivable represent amounts due from other federal agencies and are considered to be fully collectible. The amounts due for non-intragovernmental (non-federal) receivables are stated net of an allowance for uncollectible accounts. The estimate of the allowance is based on past experience in the collection of receivables and an analysis of the outstanding balances (see Note 5).

G. DIRECT LOANS AND LOAN GUARANTEES, NET

The Department has two loans that were obligated and disbursed prior to FY 1992, and are presented net of an allowance for loss. All loans obligated after FY 1992 are presented on a present value basis in compliance with the Federal Credit Reform Act of 1990. The present value of the loans is revalued on an annual basis (see Note 7).

Interest expense on the Bureau of the Fiscal Service (BFS) and Federal Financing Bank (FFB) debt is calculated in accordance with the OMB Circular (No.) A-11, Sections 185.32 and 185.34 using the Credit Subsidy Calculator 2. Capitalized interest receivables on loans with FFB are reclassified to principal outstanding on the capitalization date.

H. INVENTORY, NET

Stockpile materials are recorded at historical cost in accordance with Statement of Federal Financial Accounting Standards (SFFAS) No. 3, *Accounting for Inventory and Related Property,* except for certain nuclear materials identified as surplus or excess to the Department's needs. These nuclear materials are recorded at their net realizable value (see Note 8).

I. GENERAL PROPERTY, PLANT, AND EQUIPMENT, NET

Property, plant, and equipment that are purchased, constructed, or fabricated in-house, including major modifications or improvements, are capitalized at cost. The Department's property, plant, and equipment capitalization threshold, except as noted below, is $500,000. The capitalization threshold for Nuclear Waste Fund (NWF) is $50,000. The capitalization threshold for the PMAs and FERC range from $5,000 to $50,000 or may depend on whether particular equipment is considered a major unit of property, which is capitalized upon purchase, or a minor unit, which is generally expensed. The capitalization threshold for internal use software is $750,000, except for the PMAs and FERC, which use thresholds ranging from $5,000 to $150,000 (see Note 9).

Costs of construction are capitalized as construction work in process. Upon completion or beneficial occupancy or use, the cost is transferred to the appropriate property account. Property, plant, and equipment related to environmental management facilities storing and processing the Department's environmental legacy wastes are not capitalized.

Depreciation expense is generally computed using the straight-line method. The units of production method is used only in special cases where applicable, such as depreciating automotive equipment on a mileage basis and construction equipment on an hourly use basis. The ranges of service lives are generally as follows:

- Structures and Facilities: 25 – 50 years
- Automated Data Processing Software: 3 – 7 years
- Equipment: 5 – 40 years
- Land rights for a specified period or 50 years, whichever is less

J. LIABILITIES

Liabilities represent amounts of monies or other resources likely to be paid by the Department as a result of a transaction or event that has already occurred. However, no liability can be paid by the Department absent an authorized appropriation. Liabilities for which an appropriation has not been enacted are, therefore, classified as not covered by budgetary resources (see Note 11), and there is no certainty that the appropriations will be enacted. Also, liabilities of the Department that are not contract based can be abrogated by the Government acting in its sovereign capacity.

K. DEDICATED COLLECTIONS

Dedicated collections are financed by specifically identified revenues, often supplemented by other financing sources, which remain available over time. These specifically identified revenues and other financing sources are required by statute to be used for designated activities, benefits or purposes, and must be accounted for separately from the Government's general revenues (see Note 19).

L. ACCRUED ANNUAL, SICK, AND OTHER LEAVE

Federal Employees: Federal employees' annual leave is accrued as it is earned, and the accrual is reduced annually for actual leave taken. Each year, the accrued annual leave balance is adjusted to reflect the latest pay rates. To the extent that current or prior-year appropriations are not available to fund annual leave earned but not taken, funding will be obtained from future financing sources. Sick leave and other types of non-vested leave are expensed as taken.

Contractor Employees: The Department accrues annual leave for contractor employees. Unlike leave for federal employees, this is a funded liability rather than an unfunded liability.

M. RETIREMENT PLANS

Federal Employees: There are two primary retirement systems for federal employees. Employees hired prior to January 1, 1984, may participate in the Civil Service Retirement System (CSRS). On January 1, 1984, the Federal Employees Retirement System (FERS) went into effect pursuant to Public Law 99-335. Most employees hired after December 31, 1983, are automatically covered by FERS and Social Security. Employees hired prior to

January 1, 1984, elected to either join FERS and Social Security or remain in CSRS. A primary feature of FERS is that it offers a savings plan to which the Department automatically contributes one percent of pay and matches any employee contribution up to an additional four percent of pay. For most employees hired since December 31, 1983, the Department also contributes the employer's matching share for Social Security (see Note 20). The Department does not report CSRS or FERS assets, accumulated plan benefits, or unfunded liabilities, if any, applicable to its employees. Reporting such amounts is the responsibility of the Office of Personnel Management (OPM). The Department does report, as an imputed financing source (see Note 26) and a program expense (see Note 20), the difference between its contributions to federal employee pension and other retirement benefits and the estimated actuarial costs as computed by OPM. The PMAs make additional annual contributions to Treasury to ensure that all postretirement benefit programs provided to their employees are fully funded and such costs are both recovered through rates and properly expensed.

Contractor Employees: The Department is contractually responsible for reimbursing its major contractors who sponsor employee defined benefit pension plans for the costs of contractor employee retiree benefits because these are allowable costs under their contracts. Most of these contractors sponsor defined benefit pension plans under which these plans promise to pay employees specified benefits, such as a percentage of the final average pay for each year of service. The Department does not sponsor and is not the fiduciary of contractor employee defined benefit plans. Contractors are required to make contributions to their plans as required by the Internal Revenue Code and the Employee Retirement Income Security Act (ERISA), as amended. For qualified defined benefit pension plans, the Department's current funding policy is to reimburse contractors for the minimum required contributions made, absent the Department's agreement to reimburse at a different level. For nonqualified plans, the funding policy is pay-as-you-go. Employer contributions are calculated to ensure that plan assets are sufficient to provide for accrued benefits of contractor employees. The level of contributions is dependent on plan provisions and actuarial assumptions about the future, such as interest rates, employee turnover and mortality, age of retirement, and compensation increases. The Department's major contractors also sponsor postretirement benefits other than pensions (PRB) consisting of predominantly postretirement health care benefits which are generally funded on a pay-as-you-go basis. Since the Department is responsible for the allowable costs of funding these contractor pension and PRB plans, it reports assets and liabilities for these plans (see Note 16).

N. NET COST OF OPERATIONS

Program costs are summarized in the *Consolidated Statements of Net Cost* by the strategic goals and objectives identified in the Department's 2014-2018 Strategic Plan. Program costs reflect full costs including all direct and indirect costs consumed by these strategic goals and objectives. Administrative costs are reported in the Management and Performance line of the Statements of Net Costs. Costs included in this line support the activities reported in all of the Department's goals. Full costs are reduced by exchange (earned) revenues to arrive at net operating cost (see Notes 21 and 22).

O. REVENUES AND OTHER FINANCING SOURCES

The Department receives the majority of the funding needed to perform its mission through Congressional appropriations. These appropriations may be used, within statutory limits, for operating and capital expenditures. In addition to appropriations, other financing sources include exchange and non-exchange revenues and imputed financing sources. The Department also collects custodial revenues on behalf of others.

Exchange and Non-Exchange Revenues*:* In accordance with Federal Government accounting standards, the Department classifies revenues as either exchange (earned) or non-exchange. Exchange revenues are those that derive from transactions in which the Government provides value to the public or another Government entity at a price (see Note 22). Non-exchange revenues derive from the Government's sovereign right to demand payment, including fines and penalties. Non-exchange revenues also include interest earned on investments funded from amounts remaining from the privatization of the U.S. Enrichment Corporation Fund (see Note 4). These revenues are not considered to reduce the cost of the Department's operations and are reported on the *Consolidated Statements of Changes in Net Position.*

Imputed Financing Sources: In certain instances, program costs of the Department are paid out of the funds appropriated to other federal agencies. For example, certain costs of retirement programs are paid by OPM, and certain legal judgments against the Department are paid from the Judgment Fund maintained by Treasury. When costs are incurred by other federal entities as a result of the Department's programs, the Department recognizes these amounts on the *Consolidated Statements of Net Cost.* In addition, these amounts are recognized as imputed financing sources on the *Consolidated Statements of Changes in Net Position* (see Notes 20 and 26).

Custodial Revenues: The Department collects certain revenues on behalf of others, which are designated as custodial revenues. The Department incurs virtually no costs to generate these revenues, nor can it use these revenues to finance its operations. The revenues are returned to Treasury and others and are reported on the *Consolidated Statements of Custodial Activities* (see Note 28).

P. USE OF ESTIMATES

The preparation of financial statements requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Significant items subject to such estimates and assumptions include present value of loan receivables, estimated lives of general property, plant and equipment, environmental cleanup and disposal liabilities, pension and other actuarial liabilities, contingencies and commitments, cost accruals, estimated accrued unbilled revenues for PMAs, and managerial cost allocations. Actual results could differ from these estimates.

Q. COMPARATIVE DATA

Certain FY 2015 amounts have been reclassified to conform to the FY 2016 presentation.

R. ALLOCATION TRANSFERS WITH OTHER FEDERAL AGENCIES

The Department is a party to an allocation transfer with another federal agency as a transferring (parent) entity. Allocation transfers are legal delegations by one department of its authority to obligate budget authority and outlay funds to another department. A separate fund account (allocation account) is created in the Treasury as a subset of the parent fund account for tracking and reporting purposes. All allocation transfers of balances are credited to this account, and subsequent obligations and outlays incurred by the child entity are charged to this allocation account as it executes the delegated activity on behalf of the parent entity. Generally, all financial activity related to these allocation transfers (e.g., budget authority, obligations, outlays) is reported in the financial statements of the parent entity, from which the underlying legislative authority, appropriations and budget apportionments are derived. The Department allocates funds, as the parent, to the USACE.

2. Non-Entity Assets

($ IN MILLIONS)	FY 2016	FY 2015
Intragovernmental		
Investments - Petroleum Pricing Violation Escrow Fund (Notes 4 and 14)	$ 149	$ 143
Other	7	5
Subtotal	**$ 156**	**$ 148**
Investments - Petroleum Pricing Violation Escrow Fund (Notes 4 and 14)	102	111
Inventories - Department of Defense stockpile oil (Notes 8 and 14)	123	123
Other	-	1
Total non-entity assets	**$ 381**	**$ 383**
Total entity assets	185,140	182,393
Total assets	**$ 185,521**	**$ 182,776**

Assets in the possession of the Department that are not available for its use are considered non-entity assets.

PETROLEUM PRICING VIOLATION ESCROW FUND

The Petroleum Pricing Violation Escrow Fund represents receipts collected as a result of agreements or court orders with individuals or firms that violated petroleum pricing and allocation regulations during the 1970s and 1980s. The investments are liquidated, as needed, to make payments to claimants from this Fund.

The U.S. Department of Energy announced the completion of the crude oil overcharge refund program. Since the program's inception in 1986, the Energy Department has collected over $4 billion and disbursed it to the states and federal government. Refunds to states went toward their energy programs, passing along savings to the public. In addition, more than $700 million additional refunds have been disbursed to over 100,000 individual claimants, including farmers, hospitals, school districts, local governments, businesses, and utilities. With the completion of the oil overcharge refund program, the Energy Department is transferring over $250 million remaining in escrowed funds to the U.S. Treasury general fund, where the money will continue to be used as indirect restitution to the American public.

3. Fund Balance with Treasury

($ IN MILLIONS)	APPROPRIATED FUNDS	REVOLVING FUNDS	SPECIAL FUNDS	OTHER FUNDS	TOTAL
	FY 2016				
Unobligated budgetary resources					
Available	$ 6,785	$ 194	$ 654	$ -	$ 7,633
Unavailable (Note 27)	371	1,411	1	-	1,783
Obligated balance not yet disbursed					
Unpaid obligations (Note 27)	22,580	7,823	555	-	30,958
Uncollected pymts, Fed sources	(3,844)	(424)	(53)	-	(4,321)
Deposit funds, clearing accounts and unavailable general fund receipts	-	-	-	49	49
Other adjustments					
Contract authority	-	(2,650)	-	-	(2,650)
Appropriations, borrowing authority and spending authority from offsetting collections temporarily not available pursuant to public law	62	9	-	-	71
Invested balances - payable - to be transferred	-	46	-	-	46
Unavailable receipt accounts	-	-	3,078	-	3,078
Borrowing authority not yet converted to fund balance	-	(4,133)	-	-	(4,133)
Budgetary resources invested in Treasury securities:					
Nuclear Waste Fund	-	-	(16)	-	(16)
D&D Fund	-	-	(215)	-	(215)
Power Marketing Administrations	-	(475)	-	-	(475)
Total Fund Balance with Treasury	**$ 25,954**	**$ 1,801**	**$ 4,004**	**$ 49**	**$ 31,808**
	FY 2015				
Unobligated budgetary resources					
Available	$ 6,560	$ 220	$ 674	$ -	$ 7,454
Unavailable (Note 27)	174	1,508	1	-	1,683
Obligated balance not yet disbursed					
Unpaid obligations (Note 27)	21,456	8,782	731	-	30,969
Uncollected pymts, Fed sources	(3,779)	(428)	(46)	-	(4,253)
Deposit funds, clearing accounts and unavailable general fund receipts	-	-	-	48	48
Other adjustments					
Contract authority	-	(1,946)	-	-	(1,946)
Appropriations, borrowing authority and spending authority from offsetting collections temporarily not available pursuant to public law	62	9	-	-	71
Invested balances - payable - to be transferred	-	44	-	-	44
Unavailable receipt accounts	-	-	2,465	-	2,465
Borrowing authority not yet converted to fund balance	-	(5,308)	-	-	(5,308)
Budgetary resources invested in Treasury securities:					
Nuclear Waste Fund	-	-	(14)	-	(14)
D&D Fund	-	-	(299)	-	(299)
Power Marketing Administrations	-	(690)	-	-	(690)
Total Fund Balance with Treasury	**$ 24,473**	**$ 2,191**	**$ 3,512**	**$ 48**	**$ 30,224**

4. Investments and Related Interest, Net

($ IN MILLIONS)	FACE VALUE	UNAMORTIZED PREMIUM (DISCOUNT)	INTEREST RECEIVABLE	INVESTMENTS, NET	UNREALIZED MARKET GAINS (LOSSES)	MARKET VALUE
	FY 2016					
Intragovernmental Non-Marketable						
Nuclear Waste Fund	$ 52,424	$ (16,485)	$ 88	$ 36,027	$ 9,947	$ 45,974
D&D Fund	2,495	55	15	2,565	7	2,572
U.S. Enrichment Corporation Fund	1,622	-	4	1,626	-	1,626
Power Marketing Administrations	475	1	3	479	-	479
Petroleum Pricing Violation Escrow Fund (Notes 2 and 14)	149	-	-	149	-	149
Subtotal	**$ 57,165**	**$ (16,429)**	**$ 110**	**$ 40,846**	**$ 9,954**	**$ 50,800**
Petroleum Pricing Violation Escrow Fund (Notes 2 and 14)	102	-	-	102	-	102
Total investments and related interest, net	**$ 57,267**	**$ (16,429)**	**$ 110**	**$ 40,948**	**$ 9,954**	**$ 50,902**
	FY 2015					
Intragovernmental Non-Marketable						
Nuclear Waste Fund	$ 51,812	$ (17,596)	$ 79	$ 34,295	$ 8,109	$ 42,404
D&D Fund	3,181	97	20	3,298	13	3,311
U.S. Enrichment Corporation Fund	1,615	-	3	1,618	-	1,618
Power Marketing Administrations	690	4	3	697	-	697
Petroleum Pricing Violation Escrow Fund (Notes 2 and 14)	143	-	-	143	-	143
Subtotal	**$ 57,441**	**$ (17,495)**	**$ 105**	**$ 40,051**	**$ 8,122**	**$ 48,173**
Petroleum Pricing Violation Escrow Fund (Notes 2 and 14)	111	-	-	111	-	111
Total investments and related interest, net	**$ 57,552**	**$ (17,495)**	**$ 105**	**$ 40,162**	**$ 8,122**	**$ 48,284**

Pursuant to statutory authorizations, the Department invests monies in Treasury securities and commercial certificates of deposit that are secured by the Federal Deposit Insurance Corporation. The Department's investments primarily involve the NWF and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund. Fees collected from owners and generators of spent nuclear fuel (SNF) and high-level radioactive waste and fees collected from domestic utilities are deposited into the respective funds. Funds in excess of those needed to pay current program costs are invested in Treasury securities.

Upon privatization of the U.S. Enrichment Corporation Fund (USEC) on July 28, 1998, OMB and Treasury designated the Department as successor to USEC for purposes of disposition of balances remaining in the USEC Fund. These funds are invested in Treasury securities.

The Federal Government does not set aside assets to pay for expenditures associated with the funds for which the Department holds Treasury securities. These Treasury securities are an asset to the Department and a liability to Treasury. Because the Department and Treasury are both parts of the Federal Government, these assets and liabilities offset each other from the standpoint of the Federal Government as a whole. For this reason, they do not represent an asset or a liability in the U.S. Government-wide financial statements. Treasury securities provide the Department with ability to draw upon the Treasury to make expenditures, subject to available appropriations and OMB apportionments. When the Department requires redemption of these securities, the Federal Government finances those expenditures out of accumulated cash balances by raising taxes or other receipts, by borrowing from the public, repaying less debt, or by curtailing other expenditures. This is the same way the Federal Government finances all other expenditures.

5. Accounts Receivable, Net

($ IN MILLIONS)	FY 2016			FY 2015		
	RECEIVABLE	ALLOWANCE	NET	RECEIVABLE	ALLOWANCE	NET
Intragovernmental	$ 577	$ -	$ 577	$ 537	$ -	$ 537
Nuclear Waste Fund	$ 2,789	$ -	$ 2,789	$ 3,085	$ -	$ 3,085
Power Marketing Administrations	506	-	506	497	-	497
Other	691	(606)	85	665	(551)	114
Subtotal	**$ 3,986**	**$ (606)**	**$ 3,380**	**$ 4,247**	**$ (551)**	**$ 3,696**
Total accounts receivable, net	**$ 4,563**	**$ (606)**	**$ 3,957**	**$ 4,784**	**$ (551)**	**$ 4,233**

Intragovernmental accounts receivable primarily represent amounts due from other federal agencies for reimbursable work performed pursuant to the Economy Act, Atomic Energy Act, and other statutory authority.

Non-intragovernmental receivables primarily represent fees due from owners and generators of SNF and high-level radioactive waste (HLW) that contribute resources to the NWF. The NWF receivables are supported by contracts and are comprised of amounts due for two types of fees to be paid to the Department for disposal services: (a) a one-time charge for SNF or HLW existing prior to April 7, 1983; and (b) an ongoing per kWh fee on all net electricity generated and sold by civilian nuclear power reactors after April 7, 1983. On November 19, 2013, the U.S. Court of Appeals for the District of Columbia Circuit sustained a challenge to the Department's determination of the adequacy of the Nuclear Waste Fund fee, and directed the Department to transmit to Congress a proposal to reduce the fee to zero. The Department complied and, after a congressional review period, its proposal became effective May 16, 2014.

For power marketing administrations receivables due from the public primarily arise from the sale of power and transmission services. Other receivables due from the public include reimbursable work billings, trade receivables, and other miscellaneous receivables.

6. Regulatory Assets

($ IN MILLIONS)	FY 2016	FY 2015
Refinanced and additional appropriated capital	$ 5,408	$ 5,477
Residential exchange program scheduled and refund amounts	2,775	2,978
Non-operating facilities	1,893	2,046
Conservation and fish and wildlife measures	616	679
Other regulatory assets	291	286
Total regulatory assets	**$ 10,983**	**$ 11,466**

The Department's PMAs record certain amounts as assets in accordance with the Financial Accounting Standards Board's Accounting Standards Codification (FASB ASC) 980, *Regulated Operations*. The provisions of this standard require that regulated enterprises reflect rate actions of the regulator in their financial statements, when appropriate. These rate actions can provide reasonable assurance of the existence of an asset, reduce or eliminate the value of an asset, or impose a liability on a regulated enterprise. In order to defer incurred costs under this standard, a regulated entity must have the statutory authority to establish rates that recover all costs, and those rates must be charged to and collected from customers.

REFINANCED AND ADDITIONAL APPROPRIATED CAPITAL

BPA is responsible for repaying the Treasury for transmission and power generating assets that were funded by appropriations, including those of the USACE and Bureau of Reclamation (BOR). In accordance with accounting guidance for regulated operations, BPA records a regulatory asset based on this deferred cost that must be repaid to the Treasury for those assets owned by the USACE and BOR. This regulatory asset is amortized over a period of between 68 and 75 years on a straight-line method based on the estimated service lives of the assets. BPA's trial balance includes a regulatory asset and a corresponding intragovernmental debt for refinanced and additional appropriations owed to the Treasury. (Under the BPA Refinancing Section of the Omnibus Consolidated Rescissions and Appropriations Act of 1996 (Refinancing Act)), 16 U.S.C. 838(l), BPA refinanced its unpaid capital appropriations as of September 30, 1996, and is responsible for the repayment of additional appropriated capital investment after the Refinancing Act (see Note12).

RESIDENTIAL EXCHANGE PROGRAM SCHEDULED AND REFUND AMOUNTS

Under the provisions of the 2012 REP Settlement Agreement, BPA's IOU customers receive a fixed schedule of benefit payments (Scheduled Amounts) that will be recovered in rates through 2028. These amounts amortize to program costs. REP Refund Amounts reduce the IOU REP benefit payments through fiscal year 2019, are recoverable in future rates and are equal to the regulatory liability for REP Refund Amounts to COUs.

NON-OPERATING FACILITIES

BPA is responsible for repayment of debt for terminated Energy Northwest Nuclear Projects 1 and 3, as well as the Northern Wasco hydroelectric project for which BPA terminated its participation. These assets are amortized to program costs over the term of the related outstanding debt (See Note 12).

CONSERVATION AND FISH AND WILDLIFE MEASURES

Conservation measures consist of the costs of deferred energy conservation measures to be recovered in future rates and are amortized to program costs over periods from 12 or 20 years. BPA deferred certain costs of energy conservation measures through fiscal year 2015 and, beginning with fiscal year 2016 and the BP-16 rate period, began expensing such costs as incurred. Fish and wildlife measures consist of deferred fish and wildlife project expenses to be recovered in future rates and are amortized to program costs over a period established by BPA.

OTHER REGULATORY ASSETS

Other regulatory assets primarily include accrued liabilities related to outstanding legal claims and settlement agreements (recovered and amortized through future rates over a period as established by BPA); spacer damper replacement program costs to replace deteriorated spacer dampers (amortized over a period of 25 or 30 years); and decommissioning and site restoration costs that reflect amounts to be recovered in future rates for funding the asset retirement obligation liability related to the former Trojan nuclear facility.

7. Direct Loans and Loan Guarantees, Net

($ IN MILLIONS)	FY 2016	FY 2015
Pre-FCRA loans	$ 1	$ 1
FCRA Direct loans		
ATVM	3,792	4,413
Title XVII	10,853	10,100
Total direct loans and 100% guarantee loans, net	**$ 14,646**	**$ 14,514**
FCRA Guarantee loans (guaranteed value)		
Title XVII	2,343	2,469
Total direct loans and loan guarantees, net	**$ 16,989**	**$ 16,983**

PRE-FCRA LOANS

The Department has two loans outstanding that were issued prior to the Federal Credit Reform Act of 1990 (FCRA). These loans are presented net of an allowance for loss of $29 million as of September 30, 2016 and September 30, 2015.

FCRA DIRECT LOANS AND LOAN GUARANTEES

The Department's direct loans and loan guarantees made and issued, respectively, post-FY 1991, are subject to FCRA. These FCRA loans and loan guarantees are valued at the net present value of expected future cash flows, discounted at the interest rate of Treasury marketable securities. The net present value of the FCRA loans and loan guarantees are not necessarily representative of proceeds that might be expected if these loans were sold on the open market.

The subsidy costs for FCRA loans and loan guarantees, which include interest rate differentials, delinquencies, defaults fees and other cash flow items, are intended to estimate the long-term cost to the U.S. Government of such loans and loan guarantees. These costs are recognized in the year the loan or loan guarantee is disbursed. A subsidy re-estimate is performed annually as of September 30. The subsidy re-estimates take into account factors that may have affected the estimated cash flows. Any increase in the subsidy resulting from the re-estimate is recognized as a subsidy expense.

For direct loans, interest revenue is accrued on a monthly basis on the loan balance outstanding at the interest rate assigned to that loan at the time of disbursement, net of any interest on non-performing loans over 90 days.

The Department operates the following FCRA direct loan and loan guarantee programs:

- Advanced Technology Vehicles Manufacturing (ATVM) Loan Program
- Title XVII Loan Guarantee Program for Innovative Technologies (Title XVII)

ATVM

Section 136 of the Energy Independence and Security Act of 2007 established the ATVM Loan Program which authorizes direct loans to support the development of advanced technology vehicles and associated components in the U.S. The ATVM program provides loans to automobile and automobile part manufacturers for the cost of re-equipping, expanding, or establishing manufacturing facilities in the U.S. to produce advanced technology vehicles or qualified components, and for associated engineering integration costs. An automobile manufacturer applicant must demonstrate that the average adjusted fuel economy for its light duty fleet exceeds that of its entire fleet average for model year (MY) 2005, or if the applicant is a new automobile manufacturer, it must demonstrate that its ATVM vehicle meets or exceeds the industry adjusted average for MY 2005 for equivalent vehicles. All individual ATVM vehicles must be rated at or above 125% of the fuel economy standards for vehicles with substantially similar attributes for MY 2005. The FY 2009 Continuing Resolution (CR) enacted on September 30, 2008, appropriated $7.5 billion to support a maximum of $25.0 billion in loans under the ATVM.

The ATVM Program makes direct loans that are funded by the FFB with interest rates that are equal to the cost of funds to the Treasury for obligations of comparable maturity. The total subsidy cost for an ATVM direct loan is comprised of default subsidy, financing subsidy, and fees. The loan and subsidy are obligated at the time the conditional commitment is issued.

In determining the subsidy, the Department estimates a base borrower interest rate from the budget assumption yield curve used to discount cash flows that generates a zero financing subsidy when determining the final subsidy

cost at the point of obligation. This base interest rate is used for calculating the subsidy cost only. Actual interest rates that borrowers pay are not affected. During the interest rate re-estimate, the actual interest rates and the discount rates are updated and will true-up the difference in the Treasury interest rates assumed in the original subsidy cost, and the actual Treasury rates at the point of disbursement, when the borrower interest rates are set.

The Department received a contingent financial interest and warrants in connection with the sales of defaulted ATVM loans. The Department has determined that the contingent financial interest has no value until certain conditions occur. The warrants have been determined to have no value at this time.

As of September 30, 2016, approximately $8.3 billion in loans are obligated for six borrowers that have been approved, and total disbursements have amounted to $7.3 billion.

TITLE XVII

The Energy Policy Act of 2005 (EPAct05) authorizes the Department to issue loan guarantees to eligible projects that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases" and "employ new or significantly improved technologies as compared to technologies in service in the U.S. at the time the guarantee is issued." Title XVII of EPAct05 provides broad authority for the Department to guarantee loans satisfy the above criteria if "there is reasonable prospect of repayment of the principal and interest on the obligation by the borrower."

Under the Full-Year Continuing Appropriations Act of 2011, P.L. No. 112-10 (FY 2011 CR), Congress made available approximately $170 million in appropriated funds to pay the subsidy of loan guarantees for renewable energy or efficient end-use energy technologies. An additional $1.5 billion in loan guarantee authority, where the applicants are obligated to pay the subsidy for loan guarantees, is available under the FY 2011 CR and the Omnibus Appropriations Act, 2009, P.L. No. 111-8, as amended by Section 408 of the Supplemental Appropriations Act, 2009, P.L. No. 111-32. The Consolidated Appropriations Act, 2012, P.L. 112-74, amended Section 1702 of Title XVII to provide that the Department may combine an appropriation of Credit subsidy with a direct payment from the borrower to cover the total subsidy of a loan guarantee. For nuclear power, front-end nuclear and advanced fossil projects, Section 1703 continues to operate as a "self-pay" program whereby borrowers pay the calculated subsidy cost.

In addition to the original program (Section 1703), the ARRA established a new Section 1705 of Title XVII and in FY 2009, appropriated $6.0 billion to pay for the subsidy costs of loan guarantees for certain renewable energy systems, electric power transmission systems, and leading edge biofuel projects that commence construction no later than September 30, 2011. Public Law 111-47 required $2.0 billion of the subsidy funds to be transferred to the Department of Transportation to fund the "Cash for Clunkers" program. Public Law 111-226 required $1.5 billion of the subsidy funds to be rescinded. The loan guarantee and subsidy for both Sections 1703 and 1705 are obligated at the time the loan guarantee closes.

Both Section 1703 and 1705 programs are authorized to issue loan guarantees for up to 100 percent of a debt obligation, which must not exceed 80 percent of eligible project costs. In cases where the Department issues a 100% guarantee, the Final Rule requires that the FFB provide the funding. Guarantees by the Department of 100% of loans made by FFB constitute direct loans under FCRA. For the purpose of determining the subsidy, the Department models these loan guarantees as direct loans to reflect the economic reality to the Federal Government as a whole. Under Title XVII, the total subsidy cost for a direct loan is comprised of default subsidy and financing subsidy (as specified in the authorizing statute where fees offset administrative, not subsidy, costs).

In implementing the 1705 program, the Department also established the Financial Institution Partnership Program (FIPP) which supported loans for conventional renewable energy generation projects with commercial financing. Under FIPP, the Department provided a guarantee for up to 80% of a loan. The goal of FIPP was to leverage the human and financial capital of private sector financial institutions in accelerating the loan application process, while balancing risk between the Department and private sector partners participating in the program. The subsidy related to FIPP loans was obligated at the time the loans closed.

In determining the subsidy, the Department estimates a base borrower interest rate from the budget assumption yield curve used to discount cash flows that generate a zero financing subsidy when determining the final subsidy cost at the point of obligation. The Department then adds a spread to that interest rate estimate to reflect any spread that the FFB may charge based on the terms and conditions of the loan guarantee agreement. This base interest rate is used for calculating the subsidy cost only. Actual interest rates that borrowers pay are not affected. During the interest rate re-estimate, the actual interest rates and the discount rates are updated and will true-up the difference in the Treasury interest rates assumed in the original subsidy cost, and the actual Treasury rates at the point of disbursement, when the borrower interest rates are set.

As of September 30, 2016, conditional commitments to issue guarantees have been issued to two projects totaling $2.2 billion under the Section 1703 program. Approximately $7.9 billion are obligated to one project of which $5.1 billion has been disbursed. As of September 30, 2016, approximately $13.4 billion are obligated to 26 projects under the Section 1705 program. Twenty projects

with 100% guarantees of loans under the Section 1705 program, totaling approximately $9.2 billion are obligated, of which $9.1 billion has been disbursed. Six projects receiving partial guarantees of loans under the Section 1705 FIPP totaling approximately $4.2 billion are committed, of which $4.1 billion has been disbursed.

One bankruptcy case commenced in a previous FY of a borrower who received loans guaranteed under Section 1705 remains pending. The present value of the estimated recoveries on this loan is reflected in the balance sheet and tables in this footnote. The second bankruptcy case that was pending in FY 2015 has been completed.

Two 1705 loans were written off in FY 2016 in the amount of $74.5 million.

Direct Loans and 100% Loan Guarantees Obligated and Disbursed Post 1991

($ IN MILLIONS)	LOANS RECEIVABLE, GROSS	INTEREST RECEIVABLE	ALLOWANCE FOR SUBSIDY COST (PRESENT VALUE)	VALUE OF ASSETS RELATED TO LOANS, NET	DISBURSED IN FISCAL YEAR
	FY 2016				
ATVM	$ 3,860	$ 4	$ (72)	$ 3,792	$ -
Title XVII	12,231	68	(1,446)	10,853	1,125
Total loans	**$ 16,091**	**$ 72**	**$ (1,518)**	**$ 14,645**	**$ 1,125**
	FY 2015				
ATVM	$ 4,510	$ 4	$ (101)	$ 4,413	$ -
Title XVII	11,630	67	(1,597)	10,100	2,370
Total loans	**$ 16,140**	**$ 71**	**$ (1,698)**	**$ 14,513**	**$ 2,370**

Subsidy Expense for Direct Loans and 100% Loan Guarantees by Program and Component

($ IN MILLIONS)	INTEREST DIFFERENTIAL	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
	FY 2016				
Subsidy expense for new direct loans disbursed					
Title XVII	(68)	20	-	-	(48)
Total	**$ (68)**	**$ 20**	**$ -**	**$ -**	**$ (48)**
	INTEREST RE-ESTIMATES	**TECHNICAL RE-ESTIMATES**	**TOTAL RE-ESTIMATES**	**TOTAL MODIFICATIONS**	**TOTAL DIRECT LOAN SUBSIDY EXPENSE**
Re-estimates and Modifications					
ATVM	$ -	$ (15)	$ (15)	$ -	$ (15)
Title XVII	-	(83)	(83)	-	(131)
Total	**$ -**	**$ (98)**	**$ (98)**	**$ -**	**$ (146)**

($ IN MILLIONS)	INTEREST DIFFERENTIAL	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
	FY 2015				
Subsidy expense for new direct loans disbursed					
Title XVII	(141)	95	-	-	(46)
Total	**$ (141)**	**$ 95**	**$ -**	**$ -**	**$ (46)**
	INTEREST RE-ESTIMATES	**TECHNICAL RE-ESTIMATES**	**TOTAL RE-ESTIMATES**	**TOTAL MODIFICATIONS**	**TOTAL DIRECT LOAN SUBSIDY EXPENSE**
Re-estimates and Modifications					
ATVM	$ -	$ (12)	$ (12)	$ -	$ (12)
Title XVII	(231)	278	47	-	1
Total	**$ (231)**	**$ 266**	**$ 35**	**$ -**	**$ (11)**

Subsidy Rates for Direct Loans and 100% Loan Guarantees by Program and Component

	INTEREST DIFFERENTIAL	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
	FY 2016				
ATVM	0.00%	0.00%	0.00%	0.00%	0.00%
Title XVII	0.00%	0.0%	0.00%	0.00%	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%
	FY 2015				
ATVM	0.00%	7.38%	(0.10%)	0.00%	7.28%
Title XVII	(6.22%)	4.98%	0.00%	0.00%	(1.24%)
Total	(6.22%)	12.36%	(0.10%)	0.00%	(6.04%)

Rates are the weighted-average of the individual loan subsidy rates for that program. The subsidy rates disclosed pertain only to the current year's cohorts. These rates cannot be applied to the direct loans disbursed during the current reporting year to yield the subsidy expense. The subsidy expense for new loans reported in the current year could result from disbursements of loans from both current year cohorts and prior-year(s) cohorts. The subsidy expense reported in the current year also includes re-estimates.

Schedule for Reconciling Subsidy Cost Allowance Balances (Post-1991 Direct Loans and 100% Loan Guarantees)

($ IN MILLIONS)	FY 2016	FY 2015
Beginning balance of the subsidy cost allowance	$ 1,698	$ 1,683
Add: subsidy expense for direct loans disbursed during the reporting years by component		
Interest rate differential costs	(68)	(141)
Default costs (net of recoveries)	20	95
Total of the above subsidy components	$ (48)	$ (46)
Adjustments:		
(a) Subsidy allowance amortization	41	26
(b) Loans written off	(75)	-
Ending balance of subsidy cost allowance before re-estimates	$ 1,616	$ 1,663
Add or subtract subsidy re-estimates by component:		
Interest rate re-estimates	-	(231)
Technical/default re-estimates	(98)	266
Ending balance of subsidy cost allowance	**$ 1,518**	**$ 1,698**

Guaranteed Loans Outstanding

($ IN MILLIONS)	PRINCIPAL OF GUARANTEED LOANS FACE VALUE	AMOUNT OF OUTSTANDING PRINCIPAL GUARANTEED
	FY 2016	
Title XVII	$ 2,929	$ 2,343
	FY 2015	
Title XVII	$ 3,086	$ 2,469

New Guaranteed Loans Disbursed

($ IN MILLIONS)	PRINCIPAL OF GUARANTEED LOANS FACE VALUE	AMOUNT OF PRINCIPAL GUARANTEED
	FY 2016	
Title XVII	$ -	$ -
	FY 2015	
Title XVII	$ 266	$ 213

Liability for Loan Guarantees, Present Value Method

($ IN MILLIONS)	FY 2016	FY 2015
Title XVII	$ 139	$ 154

Subsidy Expense for New Loan Guarantees by Program and Component

($ IN MILLIONS)	INTEREST SUPPLEMENTS	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
	FY 2016				
Subsidy expense for new loan guarantees Title XVII	$ -	$ -	$ -	$ -	$ -
	INTEREST RE-ESTIMATES	TECHNICAL RE-ESTIMATES	TOTAL RE-ESTIMATES		TOTAL LOAN GUARANTEE SUBSIDY EXPENSE
Re-estimates Title XVII	$ -	$ (20)	$ (20)		$ (20)
($ IN MILLIONS)	INTEREST SUPPLEMENTS	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
	FY 2015				
Subsidy expense for new loan guarantees Title XVII	$ -	$ 13	$ -	$ -	$ 13
	INTEREST RE-ESTIMATES	TECHNICAL RE-ESTIMATES	TOTAL RE-ESTIMATES		TOTAL LOAN GUARANTEE SUBSIDY EXPENSE
Re-estimates Title XVII	$ 1	$ (75)	$ (74)		$ (61)

Schedule for Reconciling Loan Guarantee Liability Balances (Post-1991 Loan Guarantees)

($ IN MILLIONS)	FY 2016	FY 2015
Beginning balance of the loan guarantee liability	$ 154	$ 208
Add: subsidy expense for guaranteed loans disbursed during the reporting years by component		
Default costs (net of recoveries)	-	13
Total of the above subsidy components	$ -	$ 13
Adjustments:		
Interest Accumulation on the liability balance	5	7
Ending balance of loan guarantee liability before re-estimates	$ 159	$ 228
Add or subtract subsidy re-estimates by component		
Interest rate re-estimates	-	1
Technical/default re-estimates	(20)	(75)
Ending balance of loan guarantee liability	**$ 139**	**$ 154**

Administrative Expenses

($ IN MILLIONS)	FY 2016	FY 2015
Direct loan program - ATVM	$ 4	$ 5
Loan guarantee program - Title XVII	$ 37	$ 37

8. Inventory, Net

($ IN MILLIONS)	FY 2016	FY 2015
Strategic Petroleum, Northeast Home Heating Oil and Gasoline Supply Reserves	$ 21,043	$ 21,044
Nuclear Materials	22,363	22,207
Other Inventory	662	636
Total inventory, net	**$ 44,068**	**$ 43,887**

Inventory includes stockpile materials consisting of crude oil and gasoline held in the Strategic Petroleum Reserve (SPR) and ultra-low sulphur diesel held in the Northeast Home Heating Oil Reserve, nuclear materials, and other inventory consisting primarily of operating materials and supplies.

STRATEGIC PETROLEUM RESERVE

The SPR consists of crude oil stored in salt domes, terminals, and pipelines. As of September 30, 2016 and September 30, 2015, the SPR contained crude oil with a historical cost of $20.7 billion. The SPR provides a response mechanism should a severe oil disruption occur. Included in the SPR is six million barrels of crude oil held for future Department of Defense (DoD) use. The FY 1993 Defense Appropriations Act authorized the Department to acquire, transport, store, and prepare for ultimate drawdown of crude oil for DoD. The crude oil purchased with DoD funding is commingled with the Department's stock and is valued at its historical cost of $123 million at September 30, 2016 and September 30, 2015 (see Notes 2 and 14).

Beginning as soon as FY 2017 and ending in FY 2025, the Department will commence a series of oil sales authorized by the Bipartisan Budget Act of 2015 and the Fixing America's Surface Act of 2015. The Bipartisan Budget Act authorizes selling enough oil from FY 2017 to FY 2020 to raise $2 billion to modernize the SPR, subject to appropriation and to sell a total 58 million barrels of oil from FY 2018 to FY 2025 to raise revenue for the General Treasury. The second law authorizes the sale of an additional 66 million barrels of oil from FY 2023 to 2025 (or raising $5 billion, whichever comes first) to fund highway programs.

NORTHEAST HOME HEATING OIL RESERVE

The Northeast Home Heating Oil Reserve was established in FY 2000 pursuant to the Energy Policy and Conservation Act. The Reserve contains petroleum distillate in the New England geographical area. The historical cost of the reserve was $141 million as of September 30, 2016 and September 30, 2015.

NORTHEAST GASOLINE SUPPLY RESERVE

The Northeast Gasoline Supply Reserve was established in FY 2014 pursuant to the Energy Policy and Conservation Act. The Reserve contains refined petroleum product in the New York Harbor area and the Boston/Northern New England area. The historical cost of the product contained in the reserve was $122 million as of September 30, 2016 and September 30, 2015.

NUCLEAR MATERIALS

Nuclear materials include weapons materials and related components, including those in the custody of the DoD under Presidential Directive, and materials used for research and development purposes. Certain surplus plutonium carried at zero value (a provision for disposal is included in environmental liabilities) has significant arms control and nonproliferation value and is instrumental to the U.S. in ensuring that Russia continues toward the disposition of its weapons-grade plutonium.

As of September 30, 2016, the Department has natural uranium inventories of 5,735 metric tons (MTU) of uranium hexafluoride (UF6). This material can be divided into two stockpiles of material: U.S. origin (3,413 MTU of UF6) and Russian origin material (2,322 MTU of UF6). This includes the Reclassified US Origin (142.3 MTU) to Russian and Canadian.

The Department has transferred uranium in exchange for services under contracts at Portsmouth since 2009. Transfers to USEC from 2009 through 2011 totaled 1,473 MTU (UF6). Under the D&D contract awarded in the fall of 2010, an additional 1,250 MTU was bartered with Fluor, Babcock and Wilcox LLC through December 31, 2011.

Prior to any transfers and in accordance with Section 3112 of the USEC Privatization Act, the Secretary of Energy must determine that DOE's transfers of low enriched or natural uranium will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. In 2011, the Secretary determined that bartering up to 1,605 MTU natural uranium equivalent per year through calendar year (CY) 2013 would not have an adverse impact on the domestic uranium mining, conversion, or enrichment industry. In 2012, the Secretary determined that bartering up to 2,400 MTU natural uranium per year of UF6 to DOE EM contractors through CY 2021, with an additional 400 MTU natural uranium equivalent to NNSA contracts would not have an adverse impact on the domestic uranium mining, conversion, or enrichment industry. In May 2014, the Secretary determined that bartering up to 2,055 MTU per year of natural uranium equivalent to DOE EM contractors through 2021, with an additional 650 MTU of natural uranium equivalent transferred to NNSA contractors through 2022 would not have an adverse impact on the domestic uranium mining, conversion, or enrichment industry. The current Secretarial Determination [the May 2015 determination], for the Sale or Transfer of Uranium authorizes 2,100 MTU in CY 2015 and in CY 2016 and thereafter, up to 1,600 MTU per CY for the cleanup activities at Portsmouth, with an additional 500 MTU of natural uranium equivalent per calendar year transferred to NNSA contractors for down-blending highly enriched uranium to low enriched uranium.

The nuclear materials inventory includes numerous items for which future use and disposition decisions have not been made. Decisions will be made through analysis of the economic benefits and costs, and the environmental impacts of the various use and disposition alternatives. The carrying value of these items is not significant to the nuclear materials stockpile inventory balance. The Department will recognize disposition liabilities and record the material at net realizable value when disposal as waste is identified as the most likely alternative and

disposition costs can be reasonably estimated. Inventory values are reduced by costs associated with disposition, decay or damage.

The nuclear materials inventory also includes highly enriched uranium (HEU). Under a declaration by the Nuclear Weapons Council and an announcement by the President in 1995, 174.3 MTU of the Department's HEU was identified as excess to national security needs. Most of this S94 material (about 154 MTU) will be down-blended to low enriched uranium (LEU) and whatever amount is not used as barter for down-blending services will be held in inventory or used for research nuclear reactor fuel to recover its value. The remaining portion (about 20 MTU) of the material is already in the form of irradiated fuel or other waste forms and will be disposed of directly as waste. In October 2005, the Secretary of Energy declared that the NNSA would remove up to 200 MTU of HEU, in the coming decades, from further use as fissile material in nuclear weapons. Out of the 200 MTU, approximately 20 MTU will be down-blended to LEU for use in commercial or research reactors, 20 MTU will be used for research reactors and 160 MTU will be provided to Naval Reactors for programmatic use. Approximately 8 MTU of the Naval Reactors material has been rejected by Naval Reactors and re-designated for down-blending and sale as LEU fuel. Down-blending of this material will occur over the coming decades.

The Department released the Excess Uranium Inventory Management Plan on July 3, 2013 (2013 Plan). The 2013 Plan seeks to provide the public and interested stakeholders updated information on programs and foreseeable mission needs, including additions to and deletions from the inventory and changes to DOE's uranium management strategy since the issuance of a previous plan in 2008.

In October 2015, the Department sent to Congress the Tritium and Enriched Uranium Management Plan Through 2060. This report summarizes plans and options for managing tritium and enriched uranium resources to satisfy U.S. national security demand through 2060 and offers analyses of demand and supply scenarios, material use restrictions, production capabilities, and production technologies needed to meet future demand along with associated cost estimates.

9. General Property, Plant, and Equipment, Net

($ IN MILLIONS)	ACQUISITION COSTS	ACCUMULATED DEPRECIATION	NET BOOK VALUE	ACQUISITION COSTS	ACCUMULATED DEPRECIATION	NET BOOK VALUE
	FY 2016			FY 2015		
Land and land rights	$ 2,249	$ (1,021)	$ 1,228	$ 2,152	$ (1,004)	$ 1,148
Structures and facilities	48,927	(29,107)	19,820	48,430	(28,352)	20,078
Internal use software	1,057	(736)	321	1,013	(696)	317
Equipment	19,945	(12,494)	7,451	19,352	(12,506)	6,846
Natural resources	117	(18)	99	116	(17)	99
Construction work in process	5,586	-	5,586	5,053	-	5,053
Total general property, plant & equipment	**$ 77,881**	**$ (43,376)**	**$ 34,505**	**$ 76,116**	**$ (42,575)**	**$ 33,541**

10. Other Non-Intragovernmental Assets

($ IN MILLIONS)	FY 2016	FY 2015
Operating non-federal projects	$ 3,505	$ 3,534
Prepaid pension plan costs (Note 16)	101	94
Prepayments and advances	206	201
Non-federal nuclear decommissioning trusts	314	283
Lease-purchase trust funds	200	338
Other	222	270
Total other non-intragovernmental assets	**$ 4,548**	**$ 4,720**

OPERATING NON-FEDERAL PROJECTS

BPA is party to long-term contracts for BPA to acquire all of the generating capability of Energy Northwest's Columbia Generating Station (CGS) and Lewis County PUD's Cowlitz Falls Hydroelectric project. These contracts require that BPA meet all of the operating, maintenance and debt service costs for these projects. Under certain agreements, BPA also assumed financial responsibility for meeting all costs of Energy Northwest's Nuclear Projects 1 and 3, including debt service costs of bonds and other financial instruments issued for the projects, even though these projects were terminated. BPA is also required by a "Settlement and Termination Agreement" between BPA and Northern Wasco PUD to pay amounts equal to annual

debt service on the Northern Wasco Hydro Project for which BPA ceased its participation.

BPA recognizes program costs for these projects based upon total project cash funding requirements. These assets in BPA's trial balance are related to non-federal debt associated with the generation assets and are amortized over the term of the outstanding debt (see Note 12).

NON-FEDERAL NUCLEAR DECOMMISSIONING TRUSTS

BPA recognizes an asset that represents trust fund balances for decommissioning and site restoration costs. External trust funds for decommissioning and site restoration costs are funded monthly for CGS and are charged to program costs. The trust funds are expected to provide for decommissioning at the end of the project's safe storage period in accordance with Nuclear Regulatory Commission (NRC) requirements. The NRC requires that this period be no longer than 60 years from the time the plant ceases operations. Trust fund requirements for CGS are based on an NRC decommissioning cost estimate and the license termination date, which is in 2043. The CGS trusts are funded and managed by BPA in accordance with the NRC requirements and site certification agreements.

LEASE-PURCHASE TRUST FUNDS

Lease-purchase trust funds are amounts held in separate trust accounts outside the Bonneville Fund for the construction of leased transmission assets, the use of which BPA has received under lease-purchase agreements. The amounts held in trust are also used in part for debt service payments during the construction period and include an investment fund mainly for future principal and interest debt service payments.

OTHER

Derivative instruments represent unrealized gains from BPA's derivative portfolio, which includes physical power purchase and sale transactions and power exchange transactions.

Other non-intragovernmental assets primarily include settlements receivable and funding agreements for certain joint transmission projects.

11. Liabilities Not Covered By Budgetary Resources

($ IN MILLIONS)	FY 2016	FY 2015
Intragovernmental		
Debt (Note 12)	$ 9,432	$ 10,063
Other	15	15
Total intragovernmental	**$ 9,447**	**$ 10,078**
Debt held by the public (Note 12)	6,019	5,955
Nuclear Waste Fund deferred revenues (Note 13)	38,817	37,387
Environmental liabilities (Note 15)	369,067	338,439
Pension and other actuarial liabilities (Note 16)	28,950	26,392
Capital leases (Note 17)	72	32
Other liabilities		
Residential exchange - scheduled amounts (Note 14)	2,552	2,684
Environment, safety, and health compliance activities (Notes 14, 25 and 26)	1,115	1,107
Energy savings performance contracts and similar unfunded contracts (Note 14)	574	533
Accrued annual leave for federal employees	149	143
Other	53	53
Contingencies and commitments (Note 18)	25,127	25,090
Total liabilities not covered by budgetary resources	**$ 481,942**	**$ 447,893**
Total liabilities covered by budgetary resources	28,779	27,312
Total liabilities	**$ 510,721**	**$ 475,205**

12. Debt

($ IN MILLIONS)	BEGINNING BALANCE	NET BORROWINGS	ENDING BALANCE	BEGINNING BALANCE	NET BORROWINGS	ENDING BALANCE
	FY 2016			FY 2015		
Intragovernmental - not covered (Note 11)						
Borrowing from Treasury	$ 4,746	$ 110	$ 4,856	$ 4,334	$ 412	$ 4,746
Appropriated capital	1,047	33	1,080	1,020	27	1,047
Refinanced & additional appropriations	2,929	(710)	2,219	3,017	(88)	2,929
Capitalization adjustment	1,341	(64)	1,277	1,406	(65)	1,341
Subtotal	**$ 10,063**	**$ (631)**	**$ 9,432**	**$ 9,777**	**$ 286**	**$ 10,063**
Intragovernmental - covered						
Borrowing from Treasury	$ 215	$ 139	$ 354	$ 119	96	$ 215
Borrowing from FFB	15,529	(130)	15,399	14,529	1,000	15,529
Subtotal	**$ 15,744**	**$ 9**	**$ 15,753**	**$ 14,648**	**$ 1,096**	**$ 15,744**
Debt held by the public (Note 11)	5,955	66	6,019	5,828	127	5,955
Total debt	**$ 31,762**	**$ (556)**	**$ 31,204**	**$ 30,253**	**$ 1,509**	**$ 31,762**

BORROWING FROM TREASURY

BPA is authorized by Congress to issue and sell to the Treasury and have outstanding at any one time up to $7.7 billion aggregate principal amount of bonds. Of the $7.7 billion in Treasury borrowing authority, $1.3 billion is available for electric power conservation and renewable resources, including capital investment at FCRPS hydroelectric facilities owned by the USACE and BOR, and $6.5 billion is available for BPA's transmission capital program and to implement BPA's authorities under the Northwest Power Act. Of the $7.7 billion, $750 million can be issued to finance Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act) related expenses. The interest on BPA's outstanding bonds is set at rates comparable to rates on debt issued by other comparable federal government institutions at the time of issuance. Bonds can be issued with call options.

The WAPA has authority to borrow up to $3.3 billion from the Treasury for planning, constructing, financing, operating, or maintaining new or upgraded electric power transmission lines and facilities; and for delivering or facilitating the delivery of power generated by renewable energy.

The Department is authorized to borrow from Treasury if cash previously collected is not enough to cover interest expense and other items related to the ATVM and Title XVII loan programs. As of September 30, 2016, the maturity range of the debt was September 30, 2036 to September 30, 2048 and the interest rate range was 2.590 percent to 4.723 percent. As of September 30, 2015 the maturity range of the debt was September 30, 2036 to September 30, 2047 and the interest rate range was 2.835 to 4.723 percent. Borrowings from Treasury related to ATVM and Title XVII loan programs are considered covered by budgetary resources as there is no congressional action necessary to pay the debt.

BORROWING FROM THE FFB

To finance its loan programs, the Department is required to use the FFB for the ATVM program and the 100 percent loan guarantees of the Title XVII program. As of September 30, 2016 and September 30, 2015, the maturity range of the debt was from October 3, 2016 to April 3, 2045 and October 2, 2015 to Arpil 3, 2045, respectively. The interest rate range was from 0.520 percent to 4.723 percent and from 1.000 percent to 4.723 percent as of both September 30, 2016 and September 30, 2015. All debt from the FFB is considered covered by budgetary resources as there is no congressional action necessary to pay the debt.

APPROPRIATED CAPITAL

Appropriated capital owed represents the balance of appropriations provided to WAPA, Southwestern Power Administration (SWPA) and Southeastern Power Administration (SEPA) for construction, operation, and maintenance of power facilities that will be repaid to the Treasury General Fund. The amount owed also includes accumulated interest on the net unpaid federal investment in the power projects. The federal investment in these facilities is to be repaid within 50 years from the time the facilities are placed in service or are commercially operational. Replacements of federal investments are generally expected to be repaid over their useful service lives. There is no requirement for repayment of a specific amount of federal investment on an annual basis.

WAPA, SWPA and SEPA receive an annual appropriation from Treasury's General Fund to fund certain construction, operation, and maintenance expenses. To the extent that

funds are not available for payment, such unpaid annual net deficits become payable from the subsequent years' revenues prior to any repayment of federal investment. The Department treated these appropriations as a debt owed to Treasury's General Fund and as such, the *Consolidated Statements of Changes in Net Position* do not reflect these funds as appropriated capital used.

Except for the appropriation refinancing asset described in Note 6 and in the next section, the Department's financial statements do not reflect the federal investment in power generating facilities owned by the USACE; DOI, BOR; and the Department of State (DOS), International Boundary and Water Commission. BPA makes annual payments to Treasury from its net proceeds.

REFINANCED AND ADDITIONAL APPROPRIATED CAPITAL

As discussed in Note 6, BPA refinanced its unpaid capital appropriations as of September 30, 1996. Federal appropriations reflect the responsibility that BPA has to repay congressionally appropriated amounts in the FCRPS. Federal appropriations consist primarily of the remaining unpaid power portion of USACE and BOR capital investments funded through congressional appropriations and include appropriations for Columbia River Fish Mitigation as allocated to the power purpose of the USACE's FCRPS hydroelectric projects. BPA is obligated to establish rates to repay to the U.S. Treasury appropriations for federal generation and transmission plant investments within a specified repayment period, which is the reasonable expected service life of the facilities, not to exceed 50 years. All outstanding federal appropriations are due in fiscal year 2020 and thereafter. BPA establishes schedules for the repayment of federal appropriations when it establishes its power and transmission rates. These schedules can change depending on whether appropriations have been prepaid or deferred. Interest on appropriated amounts begins accruing when the related assets are placed into service.

Federal appropriations may be paid early without penalty, and BPA repaid $1.12 billion appropriations early in fiscal year 2016, primarily due to debt management actions involving Energy Northwest debt. BPA used funds collected in its rates that would otherwise have been provided to Energy Northwest to prepay comparatively higher interest rate federal appropriations.

CAPITALIZATION ADJUSTMENT

Capitalization adjustment is the difference between the outstanding balance of federal appropriations, plus $100 million, before and after refinancing under the Refinancing Act. Consistent with treatment in BPA's power and transmission rate cases, this adjustment is being amortized over a 40-year period through fiscal year 2036. Amortization of the capitalization adjustment was $65 million for fiscal year 2016 (see Note 6).

DEBT HELD BY THE PUBLIC

Debt held by the public primarily includes liabilities associated with the BPA non-operating facilities discussed in Note 6, the BPA purchased generating capability discussed in Note 10, and customer prepaid power purchases described below.

BPA is party to long-term contracts for BPA to acquire all of the generating capability of Energy Northwest's Columbia Generating Station (CGS) and Lewis County PUD's Cowlitz Falls Hydroelectric Project through 2032. These contracts require that BPA meet all of the operating, maintenance and debt service costs for these projects. Under certain agreements, BPA also has financial responsibility for meeting all costs of Energy Northwest's Projects 1 and 3, including debt service costs of bonds and other financial instruments issued for the projects, even though these projects were terminated. BPA is also required by a "Settlement and Termination Agreement" between BPA and Northern Wasco PUD to pay amounts equal to annual debt service on the Northern Wasco Hydro Project. Under the Settlement and Termination Agreement, BPA ceased its participation in this project.

During fiscal year 2016, Energy Northwest funded annual operating costs with a bank borrowing arrangement instead of funding those annual costs from BPA's cash payments. The debt associated with the Energy Northwest bank borrowing arrangement is reflected within BPA's Debt Held by the Public.

During fiscal year 2013, BPA entered into agreements with four regional COUs for the advance payment of portions of their power purchases. Under this program, customers purchased prepaid power in blocks through fiscal year 2028. For each block purchased, BPA repays the prepayment with interest as monthly fixed credits on the customers' power bills.

In March 2013, BPA received $340 million representing $474 million (principal plus interest) in scheduled credits for blocks purchased by customers. BPA accounts for the prepayment proceeds as a financing transaction and reports the value of the obligations associated with the fixed credits as a prepayment liability. Interest expense is recognized using a weighted-average effective interest rate of 4.5 percent. The prepaid liability is reduced and the credits are applied as power is delivered through fiscal year 2028.

The following table summarizes future principal and interest payments required for the debt described above.

($ IN MILLIONS) FISCAL YEAR	BORROWING FROM TREASURY	BORROWING FROM FFB	APPROPRIATED CAPITAL	REFINANCED APPROPRIATIONS	CAPITALIZATION ADJUSTMENT	DEBT HELD BY THE PUBLIC
2017	$ 98	$ 1,376	$ 19	$ -	$ 65	$ 864
2018	14	840	31	-	65	937
2019	575	864	18	-	65	447
2020	389	894	8	8	65	385
2021	275	901	12	63	65	389
2022+	3,859	10,524	992	2,148	952	2,997
Subtotal	**$ 5,210**	**$ 15,399**	**$ 1,080**	**$ 2,219**	**$ 1,277**	**$ 6,019**

13. Deferred Revenues and Other Credits

($ IN MILLIONS)	FY 2016	FY 2015
Intragovernmental	$ 92	$ 82
Nuclear Waste Fund (Note 11)	$ 38,817	$ 37,387
Power Marketing Administrations	1,279	1,304
Reimbursable work advances	355	376
Other	216	227
Subtotal	**$ 40,667**	**$ 39,294**
Total deferred revenues and other credits	**$ 40,759**	**$ 39,376**

NUCLEAR WASTE FUND

NWF revenues are accrued based on fees assessed against owners and generators of high-level radioactive waste and SNF and interest accrued on investments in Treasury securities. These revenues are recognized as a financing source as costs are incurred for NWF activities. Revenues that exceed the NWF expenses are deferred.

POWER MARKETING ADMINISTRATIONS

BPA's deferred revenues and other credits primarily represent advances and unearned revenue: 1) regulatory liabilities primarily relate to amounts previously collected through rates for accumulated plant removal costs collected through rates as part of depreciation and CGS decommissioning and site restoration costs; 2) customer reimbursable projects that consist of advances received from BPA's customers where either the customer or BPA will own the resulting asset; 3) generation interconnection agreements funds held as security for requested new network upgrades and interconnection that will be returned as credits against future transmission service; 4) unearned revenues from customers related to the Third AC intertie transmission line capacity project; 5) derivative instruments that reflect the unrealized losses from BPA's derivative portfolio, which includes physical power purchase and sale transactions; and 6) fiber optic leasing fees that reflect unearned revenue related to the leasing of fiber optic cables.

14. Other Liabilities

($ IN MILLIONS)	FY 2016	FY 2015
Intragovernmental		
Oil held for Department of Defense (Notes 2 and 8)	$ 123	$ 123
Petroleum Pricing Violation Escrow Fund (Notes 2 and 4)	249	248
Negative subsidies and downward re-estimates on loans outstanding	116	114
Other	74	118
Total other intragovernmental liabilities	**$ 562**	**$ 603**
Environment, safety, and health compliance activities (Notes 11, 25 and 26)	$ 1,115	$ 1,107
Accrued payroll, benefits, and withholding taxes	1,401	1,444
Residential exchange	2,781	2,984
Petroleum Pricing Violation Escrow Fund (Notes 2 and 4)	2	6
Asset retirement obligations	186	185
Energy savings performance contracts and similar unfunded contracts (Note 11)	574	533
Other	279	221
Subtotal	**$ 6,338**	**$ 6,480**
Total other liabilities	**$ 6,900**	**$ 7,083**

NEGATIVE SUBSIDIES AND DOWNWARD RE-ESTIMATES ON LOANS OUTSTANDING

FCRA requires the Government's cost of issuing a loan be estimated at the time of obligation. There are cases where the interest received on the loan will exceed the project interest expense and potential defaults; in essence the loan makes money. This will cause a negative subsidy rate. These negative subsidies are owed to the Treasury's General Fund at the time of the loan disbursement.

FCRA requires that the present value of loans outstanding be updated at the end of each FY. If the present value of any loan increases (i.e., the Government's cost of the loan is lower than previously estimated), a downward re-estimate is recorded. The downward re-estimate results in excess subsidies collected that must be returned to the Treasury's General Fund in the following FY.

ENVIRONMENT, SAFETY, AND HEALTH COMPLIANCE ACTIVITIES

The Department's environment, safety, and health (ES&H) liability represents those activities necessary to bring facilities and operations into compliance with existing ES&H laws and regulations (e.g., Occupational Safety and Health Act; Clean Air Act; Safe Drinking Water Act). Types of activities included in the estimate relate to the following: upgrading site-wide fire and radiological programs; nuclear safety upgrades; industrial hygiene and industrial safety; safety related maintenance; emergency preparedness programs; life safety code improvements; and transportation of radioactive and hazardous materials. The estimate covers corrective actions expected to be performed in future years for programs outside the purview of the Department's Environmental Management (EM) Program. ES&H activities within the purview of the EM program are included in the environmental liabilities estimate.

ACCRUED PAYROLL, BENEFITS, AND WITHHOLDING TAXES

Accrued payroll and benefits represent amounts owed to the Department's federal and contractor employees for accrued payroll, unfunded accrued annual leave for federal employees, funded accrued annual leave for contractor employees, payroll withholdings owed to state and local governments, and Thrift Savings Plan withholdings and employer contributions.

RESIDENTIAL EXCHANGE PROGRAM

As provided in the Northwest Power Act, in 1981 BPA began to implement the REP through various contracts with eligible regional utility customers. BPA's implementation of the REP has been the subject of various litigations and settlement agreements.

Beginning in April 2010, over 50 litigants and other regional parties entered into mediation to resolve their numerous disputes over the REP. In February 2011, the parties reached a final settlement agreement – the 2012 Residential Exchange Program Settlement Agreement (2012 REP Settlement Agreement), and in July 2011, BPA also signed the 2012 REP Settlement Agreement. In fiscal year 2012, BPA recorded an associated long-term IOU exchange benefits liability and corresponding regulatory asset of $3.1 billion. Under the 2012 REP Settlement Agreement the IOUs REP benefits were determined for fiscal years 2012-2028 (also referred to herein as Scheduled Amounts). The Scheduled Amounts started at $182 million for fiscal year 2012 and increase over time to $286 million for fiscal year 2028. As provided in the 2012 REP Settlement Agreement, the Scheduled Amounts are established for each IOU based on the IOU's average system cost, its residential exchange load and BPA's applicable Priority Firm Exchange rate. The Scheduled Amounts total $4.1 billion over the 17-year period through 2028, with remaining Scheduled Amounts as of September

30, 2016, totaling $3.1 billion. Amounts recorded of $2.5 billion at September 30, 2016, represent the present value of future cash outflows for these IOU exchange benefits.

In addition to Scheduled Amounts, the 2012 REP Settlement Agreement calls for Refund Amounts to be paid to COUs in the amount of $77 million each year from fiscal year 2012 through fiscal year 2019. The Refund Amounts were established as a regulatory asset and regulatory liability for the refunds that will be provided to COU customers as bill credits. The 2012 REP Settlement Agreement established Refund Amounts totaling $612 million, with remaining refunds as of September 30, 2016, totaling $230 million. Amounts recorded as a regulatory liability of $223 million at September 30, 2016, represent the present value of future cash flows for the amounts to be refunded to COUs.

ASSET RETIREMENT OBLIGATIONS

BPA recognizes asset retirement obligations (AROs) based on the estimated fair market value of the dismantlement and restoration costs associated with the retirement of certain tangible long-lived assets. The liability is adjusted for any revisions, expenditures and the passage of time.

The AROs relate primarily to CGS decommissioning and site restoration, terminated Energy Northwest Projects 1 and 4 site restoration, and decommissioning costs for the former Trojan nuclear power plant. BPA also has tangible long-lived transmission assets without an associated ARO because no obligation exists to remove these assets.

ENERGY SAVINGS PERFORMANCE CONTRACTS AND OTHER SIMILAR CONTRACTS

The Department has entered into a number of Energy Savings Performance Contracts (ESPCs) or Utility Energy Service Contracts which are fixed-price, performance-based contracts that are paid back over time through generated savings guaranteed by the contractor. They represent a partnership between a federal agency and a energy service company (ESCO) or utility to make third-party financed investments in energy and water saving projects which enables the Department to fund these projects without up-front capital or advance appropriations. The liability is the amount owed to the ESCO over the post construction performance period of the contract.

OTHER LIABILITIES

Non-Fed – Other Liabilities with the Public "Other" represents Contract Holdbacks, limited Payroll related liabilities, Undistributed Advances, and various other miscellaneous liabilities.

15. Environmental Cleanup and Disposal Liabilities

($ IN MILLIONS)	FY 2016	FY 2015
Beginning balance	$ 339,819	$ 299,828
Changes to environmental cleanup and disposal liability estimates	39,139	46,806
Costs applied to reduction of legacy environmental liabilities (Note 24)	(5,564)	(5,308)
Capital expenditures related to remediation activities	(1,608)	(1,507)
Ending environmental cleanup and disposal liabilities	**$ 371,786**	**$ 339,819**
Unfunded environmental liabilities (Note 11)	$ 369,067	$ 338,439
Funded environmental liabilities	2,719	1,380
Total environmental cleanup and disposal liabilities	**$ 371,786**	**$ 339,819**

After World War II, the U.S. developed a massive industrial complex to research, produce, and test nuclear weapons and commercial nuclear power reactors. The nuclear complex was comprised of nuclear reactors, chemical processing buildings, metal machining plants, laboratories, and maintenance facilities.

At all sites where these activities took place, some environmental contamination occurred. This contamination was caused by the production, storage, and use of radioactive materials and hazardous chemicals, which resulted in contamination of soil, surface water, or groundwater. In particular, the environmental legacy of nuclear weapons production also included thousands of contaminated buildings and large volumes of waste and special nuclear materials requiring treatment, stabilization, and disposal.

The Nuclear Waste Policy Act of 1982 (the Act) established the Federal Government's responsibility to provide for permanent disposal of the Nation's high-level radioactive waste and SNF. The Act requires all owners and generators of high-level nuclear waste and SNF, including the Department, to pay their respective shares of the full cost of disposal. The Department's liability for disposal reflects its share of the estimated future costs of the disposal of its inventory of high-level waste and SNF. The Department's liability does not include the portion of the cost attributable to commercial owners and generators.

The Department has estimated environmental cleanup liability for the environmental contamination and waste disposition obligations discussed above. The estimates provide for a site-by-site projection of the work required to safely complete all EM projects, while complying with regulatory agreements, statutes, and regulations. Project estimates include projections of the technical scope, schedule, and estimable costs at each site for their cleanup.

In addition to the assumptions and uncertainties discussed above, the following key assumptions and uncertainties relate to the Department's estimates:

- The Department has identified approximately 10,500 potential release sites from which contaminants could migrate into the environment. Although virtually all of these sites have been at least partially characterized, final remedial action and regulatory decisions have not been made for many sites. Site-specific assumptions regarding the amount and type of contamination and the remediation technologies that will be utilized were used in estimating the environmental liabilities related to these sites.
- Cost estimates for management of the Department's high-level waste and SNF have been predicated upon assumptions as to the timing and rate of acceptance of the waste at a geologic repository. Changes in high-level waste and SNF disposition plans could cause departmental projected costs to change.
- Estimates are based on remedies considered technically and environmentally reasonable and achievable by local project managers and appropriate regulatory authorities.
- Estimated cleanup costs at sites for which there is no current feasible remediation approaches are excluded from the estimates, although applicable stewardship and monitoring costs for these sites are included. An example of such a site is the nuclear explosion test area at the Nevada National Security Site. The Department has not been required via regulation to establish remediation activities for these sites.

Changes to the Department's estimates during FYs 2016 and 2015 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 including additional contamination; updated estimates of projected waste volume; changes in the Department's allocable percentage share of future costs; legal and regulatory changes; and cleanup activities performed.

The Department's liabilities also include the estimated cleanup and post-closure responsibilities, including surveillance and monitoring activities, soil and groundwater remediation, and disposition of excess material for sites. The Department is responsible for the post-closure activities at many of the closure sites as well as other sites (former uranium mills and certain sites remediated by the USACE). The costs for these post-closure activities are estimated for a period of 75 years after the balance sheet date, i.e., through 2091 in FY 2016 and through 2090 in FY 2015. While some post-cleanup monitoring and other long-term stewardship activities post 2091 are included, there are others the Department expects to continue beyond 2091 for which the costs cannot reasonably be estimated.

A portion of the environmental liabilities at various field sites includes anticipated costs for facilities managed by the Department's ongoing program operations which will ultimately require stabilization, deactivation, and decommissioning. These estimates are largely based upon a cost-estimating model. The cost-estimate model was updated in FY 2016. Site-specific estimates are used, in lieu of the cost-estimating model, when available. Cost estimates for ongoing program facilities are updated each year. For facilities newly contaminated since FY 1997, costs are allocated to the periods benefiting from the operations of the facilities. Facilities cleanup costs allocated to future periods and not included in the liability amounted to $723 million at September 30, 2016, and $742 million at September 30, 2015.

Estimating the Department's environmental cleanup liability requires making assumptions about future activities and is inherently uncertain. The future course of the Department's environmental cleanup and disposal will depend on a number of fundamental technical and policy choices, many of which have not been made. The cost and environmental implications of alternative choices can be profound. For example, some contaminated sites and facilities could be restored to a condition suitable for any desired use; they could also be restored to a point where they pose no near-term health risks to surrounding communities but are essentially secured, monitored, and left in place. Achieving the former conditions would have a higher cost but may, or may not, warrant the costs or be legally required. The estimates reflect applicable decisions and current expectations as to the extent of cleanup and site and facility reuse, which include consideration of legal requirements and stakeholder input. The environmental liabilities estimate include contingency estimates intended to account for the uncertainties associated with the technical cleanup scope of the program. The environmental liabilities estimate are dependent on annual funding levels and achievement of work as scheduled. Congressional appropriations at lower-than-anticipated levels or unplanned delays in project completion would cause increases in life-cycle costs. All environmental liabilities as of September 30, 2016, and September 30, 2015, are stated in FY 2016 dollars and FY 2015 dollars, respectively, as required by generally accepted accounting principles for federal entities. Future inflation could cause actual costs to be substantially higher than the recorded liability.

HANFORD SITE

The Department's Hanford Site covers 586 square miles in the desert of southeastern Washington State. The area is home to nine former production reactors and their associated processing facilities. The major activities comprising the environmental liabilities at Hanford include the following:

- The Waste Treatment Plant is a multi-year construction project that once complete will process and treat the high-level waste currently stored underground in tanks. The estimate for this project is undergoing updates that are expected to continue beyond FY 2016 and will result in revisions to the liability.
- The Tank Farm project is to safeguard the nuclear waste stored in Hanford's 177 underground tanks and to manage the waste safely and responsible until it can be treated in the Waste Treatment Plant for final disposition.
- The River Corridor Closure Project addresses the remediation of contaminated soils and facilities adjacent to the Columbia River. Much of this work has been completed but remediation activities continue for the 300-296 waste site beneath the 324 Building, the treatment and packaging of radioactive sludge to interim storage; and the high risk 618-10 and 618-11 burial grounds.
- Solid Waste Operations in the central plateau in support of remediation activities on the Hanford Site.
- Soil and groundwater, as well as D&D activities, which addresses the remediation of contaminated soils and facilities in the central plateau.
- Infrastructure services in support of the operations on the Hanford Site including safeguards and security, utility operations, and fire operations.

SAVANNAH RIVER SITE

The Savannah River Site (SRS), located in South Carolina, is 310 square miles in size with 1,000 facilities concentrated within 10 percent of the total land area. The SRS estimate includes disposition of radioactive liquid waste through vitrification of the high activity component at the site's Defense Waste Processing Facility, and decommissioning of facilities. The major activities comprising the environmental liabilities at SRS include the following:

- Radioactive Liquid Waste Stabilization and Disposition project includes safely and effectively treating, stabilizing and disposing of approximately 37 million gallons of legacy radioactive waste stored in 46 underground storage tanks.
- The surplus plutonium disposition program provides the capability to disposition certain inventories of the nations' surplus, weapons-usable plutonium. Given greater than anticipated cost, the Department is currently evaluating options to disposition such plutonium. The Department remains committed to fulfilling international obligation under the US-Russia Plutonium Management and Disposition Agreement.

IDAHO NATIONAL LABORATORY SITE

The Idaho National Laboratory (Idaho) is a research and engineering complex that occupies 890 square miles in southeastern Idaho and has been the center of nuclear energy research since 1949. The Idaho Site has fulfilled numerous DOE missions including the design and testing of 52 nuclear reactors and reprocessing spent nuclear fuel to recover fissile materials. These activities resulted in inventories of high-level, transuranic, mixed low-level, and low-level wastes. The major activities comprising the environmental liabilities at Idaho include the following:

- The Spent Nuclear Fuel Stabilization and Disposition project includes stabilizing legacy spent nuclear fuel and managing the receipt of off-site spent nuclear fuel from research reactors.
- The Radioactive Liquid Tank Waste Stabilization and Disposition Project is treating and disposing the sodium-bearing tank wastes, closing the underground waste tanks, as well as maintaining the Idaho Nuclear Technology and Engineering Center.

GASEOUS DIFFUSION PLANTS

The Department constructed and formerly operated three gaseous diffusion plants (GDPs) located in Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky to enrich uranium which resulted in radioactive and chemical contamination at the sites. The major activities comprising the environmental liabilities at the GDPs include the following:

- Portsmouth and Paducah Nuclear Material Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion projects that include the operation of the depleted uranium hexafluoride conversion facilities at the Portsmouth and Paducah sites. These facilities will convert the material into a more stable form of depleted uranium oxide suitable for reuse or disposition.
- Oak Ridge, Portsmouth, and Paducah Nuclear Facility D&D projects that include environmental cleanup and surveillance and maintenance activities, and decontamination and decommissioning of inactive or excess facilities.

ENVIRONMENTAL LIABILITIES ESTIMATE FOR OTHER SITES

Environmental liabilities exist for other sites and activities across the Department. The cleanup activities at these sites are similar to those mentioned above, including, depending on the site, soil and groundwater remediation; waste retrieval, treatment, and disposal; and decontamination and decommissioning of nuclear reactors and other facilities.

16. Pension and Other Actuarial Liabilities

($ IN MILLIONS)	FY 2016	FY 2015
Contractor pension plans	$ 18,589	$ 16,049
Contractor postretirement benefits other than pensions	10,253	10,231
Contractor disability and life insurance plans	15	16
Federal Employees' Compensation Act	93	96
Total pension and other actuarial liabilities (Note 11)	**$ 28,950**	**$ 26,392**

Most of the Department's major contractors sponsor defined benefit pension plans which promise to pay specified benefits, such as a percentage of the final average pay for each year of service, to their employees. The Department's allowable costs under these contracts include reimbursement of annual contractor contributions to these pension plans. Most of the contractors also sponsor postretirement benefits other than pensions (PRB) consisting of predominantly postretirement health care benefits. The Department approves, for cost reimbursement purposes, these contractors' pension and postretirement benefit plans and is responsible for the allowable costs of funding the plans. As such, the Department follows FASB ASC 715, Compensation – Retirement Benefits, for reporting contractor pension and PRB plans for which the Department has a continuing obligation to reimburse allowable costs. The Department also reimburses these contractors for employee disability insurance plans, and estimates are recorded as unfunded liabilities for these plans.

CONTRACTOR PENSION PLANS

As of September 30, 2016, the Department reports contractor pension assets (i.e., aggregate of net assets for all contractor plans with plan assets in excess of the projected benefit obligation) of $88 million and contractor pension liabilities (i.e., aggregate of net liabilities for all contractor plans with projected benefit obligations in excess of the plan assets) of $18.6 billion. The Department has a continuing obligation to reimburse allowable costs for a variety of contractor-sponsored pension plans (34 qualified and 13 nonqualified).

Contractors are required to make contributions to their plans as required by the Internal Revenue Code and the Employee Retirement Income Security Act (ERISA), as amended. For qualified defined benefit pension plans, the Department's current funding policy is to reimburse contractors for the minimum required contributions made, absent the Department's agreement to reimburse at a different level. For nonqualified plans, the funding policy is pay-as-you-go.

Assumptions and Methods – Contractors use their own actuarial assumptions for determining required contributions to employee pension plans. However, in order to provide consistency among the Department's various contractors, the Department requires the use of certain standardized actuarial assumptions for financial reporting purposes. These standardized assumptions include the discount rates, mortality assumptions, and an expected long-term rate of return on plan assets, salary scale, and any other economic assumptions consistent with an expected long-term inflation rate of 2.0 percent for the entire U.S. economy with adjustments to reflect regional or industry rates as appropriate. In most cases, ERISA valuation actuarial assumptions for demographic assumptions were used.

The following specific assumptions and methods were used to determine the net periodic cost. The weighted average discount rate was 4.25 percent for FY 2016 and FY 2015; the weighted average long-term rate of return on assets was 6.60 percent for FY 2016 and 6.67 percent for FY 2015; and the average rate of compensation increase was 3.5 percent for FY 2016 and 3.9 percent for FY 2015. The average long-term rate of return on assets shown above is the average rate for all of the contractor plans. Each contractor develops its own average long-term rate of return on assets based on the specific investment profile of the specific plans it sponsors. Therefore, there is no one overall approach to setting the rate of return for each of the contractors' plans.

The weighted average discount rates used to determine the benefit obligations as of September 30, 2016, and September 30, 2015, were 3.50 percent and 4.25 percent, respectively.

The September 30, 2016, aggregate accumulated benefit obligation and aggregate fair value of plan assets for plans with accumulated benefit obligations in excess of plan assets are $50.8 billion and $35.4 billion, respectively. The September 30, 2016, aggregate projected benefit obligation and aggregate fair value of plan assets for plans with projected benefit obligations in excess of plan assets are $54.0 billion and $35.4 billion, respectively.

Since the Department reports under Federal accounting requirements, newly measured net prior service costs/(credits) and net (gains)/losses are recognized immediately as components of net periodic cost rather than classified as other comprehensive income under FASB ASC 715 and later amortized and included as components of net periodic cost. All components of the net periodic cost are recognized in the Consolidated Statements of Net

Costs. Service costs are recorded by program and all other net periodic costs are recorded as costs not assigned (see Note 25). If the Department classified these costs as other comprehensive income, the amortization of the net prior service cost/(credit) and the net (gain)/loss for the defined benefit pension plans that would have been included in the net periodic cost would have been ($67) million and $718 million in FY 2016, and ($48) million and $723 million in FY 2015, respectively. Additional amortization of $1 million due to curtailments and settlements would also have been included in FY 2016. The estimated amortization of the net prior service cost/(credit), and the net (gain)/loss that would have been included in the net periodic cost in FY 2017 are ($69) million, and $1.0 billion, respectively.

CONTRACTOR POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

The Department's contractors sponsor a variety of postretirement benefits other than pensions. As of September 30, 2016, the Department reports contractor PRB assets of $13 million and contractor PRB liabilities of $10.2 billion. The Department accrues the cost of PRB during the years that the employees render service. Generally, the PRB plans are unfunded, and the Department's funding policy is to fund on a pay-as-you-go basis. There are five contractors, however, that are partially prefunding benefits as permitted by law.

Assumptions and Methods - In order to provide consistency among the Department's various contractors, certain standardized actuarial assumptions were used. These standardized assumptions include medical and dental trend rates, discount rates, and mortality assumptions.

The following specific assumptions and methods, with respect to trends in the costs of medical and dental benefit plans, were used in determining the PRB estimates. The projected medical trend rates for a point of service plan, HMO, PPO, or similar plan grade (i.e., decrease or increase) from 7.0 percent in 2016 down to 5.0 percent in 2030 and later for under age 65; and 7.5 percent in 2016 down to 5.0 percent in 2030 and later for age 65 and older. The medical trend rates for a traditional indemnity or similar plan grade from 8.0 percent in 2016 down to 5.0 percent in 2030 and later for under age 65; and 8.5 percent in 2016 down to 5.0 percent in 2030 and later for age 65 and older. Separate trend rates were used for a Medicare Advantage plan, a Part D Prescription Drug Plan (PDP), and a Non-Part D PDP. Trend rates for Medicare Advantage plans at all per member per month levels of employer costs grade from 6.0 percent in 2016 down to 5.0 percent by 2030 and later. The trend rates for a Part D PDP grade from 9.5 percent in 2016 down to 5.0 percent in 2030 and later; and for a Non-Part D PDP grade from 10.0 percent in 2016 down to 5.0 percent in 2030 and later. The medical trend rates or combination of rates used to determine the PRB estimates are dependent on each of the contractor's specific plan design and impact of health care reform, if applicable. The projected dental trend rates at all ages grade from 4.0 percent in 2016 up to 5.0 percent in 2030 and later.

The weighted average discount rate of 4.25 percent for FY 2016 and FY 2015, and the weighted average long-term rate of return on assets of 4.93 percent for FY 2016 and 4.94 percent for FY 2015 were used to determine the net periodic cost. The rate of compensation increase was the same rate as each contractor used to determine pension contributions. The average long-term rate of return on assets shown above is the average rate for all of the contractor plans. Each contractor develops its own average long-term rate of return on assets based on the specific investment profile of the specific plans it sponsors. Therefore, there is no one overall approach to setting the rate of return for each of the contractors' plans.

The weighted average discount rates used to determine the benefit obligations as of September 30, 2016, and September 30, 2015, were 3.50 percent and 4.25 percent, respectively.

The September 30, 2016, aggregate accumulated postretirement benefit obligation and aggregate fair value of plan assets for plans with accumulated postretirement benefit obligations in excess of plan assets are $10.4 billion and $135 million, respectively.

Since the Department reports under Federal accounting requirements, newly measured net prior service costs/(credits) and net (gains)/losses are recognized immediately as components of net periodic cost rather than classified as other comprehensive income under FASB ASC 715 and later amortized and included as components of net periodic cost. All components of the net periodic cost are recognized in the Consolidated Statements of Net Costs. Service costs are recorded by program and all other net periodic costs are recorded as costs not assigned (see Note 25). If the Department classified these costs as other comprehensive income, the amortization of the net prior service cost/(credit) and the net (gain)/loss for the PRB plans that would have been included in the net periodic cost would have been ($610) million and $11 million in FY 2016, and ($618) million and $101 million in FY 2015, respectively. Additional amortization of ($3) million due to curtailments and settlements would also have been included in both FY 2016 and FY 2015. The estimated amortization of the net prior service cost/(credit) and the net (gain)/loss that would have been included in the net periodic cost in FY 2017 are ($465) million and $71 million, respectively.

The FY 2016 and FY 2015 values reflect the impact of the passage of health care reform legislation in March 2010. The liabilities reflect the contractors' best estimates given the limited guidance available on implementation of the new laws. Liabilities in future years may need to be adjusted as additional guidance is issued under the laws.

($ IN MILLIONS)	PENSION BENEFITS		OTHER POSTRETIREMENT BENEFITS	
	FY 2016	FY 2015	FY 2016	FY 2015
NET AMOUNT RECOGNIZED IN THE COMBINED BALANCE SHEET				
Accumulated benefit obligation	$ 51,508	$ 45,923		
Effect of future compensation increases	3,190	3,185		
Benefit obligation	**$ 54,698**	**$ 49,108**	$ 10,394	$ 10,374
Plan assets	36,197	33,142	154	154
Net amount recognized in the balance sheet (net funded status)	**$ (18,501)**	**$ (15,966)**	**$ (10,240)**	**$ (10,220)**
RECONCILIATION OF AMOUNTS RECOGNIZED IN THE COMBINED BALANCE SHEET				
Asset (prepaid pension plan costs) (Note 10)	$ 88	$ 83	$ 13	$ 11
Liability	(18,589)	(16,049)	(10,253)	(10,231)
Net amount recognized in the balance sheet (net funded status)	**$ (18,501)**	**$ (15,966)**	**$ (10,240)**	**$ (10,220)**
COMPONENTS OF NET PERIODIC COSTS				
Service costs (Note 26)	$ 906	$ 949	$ 182	$ 208
Interest costs	2,012	2,015	389	423
Expected return on plan assets	(2,157)	(2,191)	(7)	(7)
(Gain)/loss due to curtailments, settlements or special termination benefits	1	-	-	(2)
Net prior service cost/(credit)	(46)	3	(299)	(525)
Net (gain)/loss	3,135	3,497	110	179
Total net periodic costs	**$ 3,851**	**$ 4,273**	**$ 375**	**$ 276**
CONTRIBUTIONS AND BENEFIT PAYMENTS				
Employer contributions (Note 26)	$ 1,316	$ 1,309	$ 353	$ 366
Participant contributions	96	95	79	77
Benefit payments	2,129	1,938	439*	451*

* Includes $7 million paid from plan assets for FY 2016, and $7 million paid from plan assets for FY 2015. For FY 2016, gross benefit payments were $450 million including $11 million of Federal Medicare subsidy. This resulted in net benefit payments of $439 million for FY 2016. For FY 2015, gross benefit payments were $458 million including $7 million of Federal Medicare subsidy. This resulted in net benefit payments of $451 million for FY 2015.

($ IN MILLIONS)	PENSION BENEFITS	OTHER POSTRETIREMENT BENEFITS
Expected contributions for fiscal year ending September 30, 2017		
Employer contributions	$ 1,080	$ 417
Participant contributions	96	85

($ IN MILLIONS)	PENSION BENEFITS	OTHER POSTRETIREMENT BENEFITS		
		GROSS PAYMENT	LESS FEDERAL MEDICARE PART D SUBSIDY *	NET PAYMENT
ESTIMATED FUTURE BENEFIT PAYMENTS FY:				
2017	$ 2,202	$ 503	$ 7	$ 496
2018	2,219	529	8	521
2019	2,321	558	8	550
2020	2,437	584	9	575
2021	2,537	614	9	605
2022 to 2026	14,098	3,381	53	3,328

* Under the Medicare Prescription Drug, Improvement and Modernization Act of 2003, a Federal subsidy is provided to sponsors of retiree healthcare benefit plans that provide a benefit at least actuarially equivalent to the benefit established by the law. Generally, the Department has reflected the impact of the subsidy as a reduction to the employers' cost of the benefits.

The following chart shows the average target allocation for the 34 pension benefit plans and five other postretirement benefit plans with assets. The weighted average actual FY 2016 and FY 2015 allocations of assets are also shown.

	PENSION BENEFITS			OTHER POSTRETIREMENT BENEFITS		
ASSET CLASS	TARGET ALLOCATION	PERCENT OF PLAN ASSETS AT END FY 2016	PERCENT OF PLAN ASSETS AT END FY 2015	TARGET ALLOCATION	PERCENT OF PLAN ASSETS AT END FY 2016	PERCENT OF PLAN ASSETS AT END FY 2015
Cash and Equivalents	3.1%	4.0%	3.0%	0.3%	0.3%	0.2%
US Government Bonds	12.5%	12.4%	10.8%	4.6%	4.6%	2.7%
State and Municipal Government Bonds	0.7%	0.7%	0.8%	0.7%	0.7%	1.1%
Foreign Government Bonds	0.5%	0.4%	0.8%	0.1%	0.1%	0.2%
High-yield Corporate Bonds	1.0%	1.2%	1.1%	0.0%	0.0%	0.0%
Corporate Bonds other than high-yield	8.6%	20.2%	22.7%	3.2%	3.2%	3.3%
Domestic Equities	27.7%	26.6%	24.6%	1.6%	1.6%	1.0%
International Equities	19.7%	19.7%	21.4%	0.8%	0.8%	1.2%
Real Estate Investment Funds	3.2%	3.4%	2.7%	0.0%	0.0%	0.0%
Other Real Estate	1.1%	0.8%	0.8%	0.0%	0.0%	0.0%
Mortgage-Backed Securities	1.0%	1.6%	2.2%	0.2%	0.2%	0.3%
Asset-Backed Commercial Paper	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
Bonds/Notes Issued by Structured Investment Vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Derivatives, including Collateralized Debt Obligations and Credit Default Swaps	0.3%	0.3%	0.9%	0.4%	0.4%	0.6%
Private Investment Funds, including Hedge Funds	5.2%	6.4%	5.7%	0.0%	0.0%	0.0%
Insurance Contracts (general accounts)	0.2%	0.2%	0.3%	82.2%	82.2%	82.4%
Insurance Contracts (separate accounts)	0.0%	0.1%	0.1%	5.6%	5.6%	5.6%
Employer Securities	0.3%	0.4%	0.3%	0.0%	0.0%	0.0%
Aggregate Bond Index, Long Bond Index	1.2%	1.2%	1.2%	0.0%	0.0%	0.0%
Other	13.7%	0.3%	0.5%	0.3%	0.3%	1.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Each contractor develops its own investment policies and strategies for the plans it sponsors. Therefore, there is no one overall investment policy for the contractors' plans. Generally, their objectives provide for benefit security for plan participants through the maximization of total returns while limiting risk and providing liquidity coverage of benefit payments.

The following chart shows the allocation of the assets for FY 2016 and FY 2015 among the levels in the fair value hierarchy for the pension benefit plans with assets.

($ IN MILLIONS)			QUOTED PRICES IN ACTIVE MARKETS FOR IDENTICAL ASSETS		SIGNIFICANT OBSERVABLE INPUTS		SIGNIFICANT UNOBSERVABLE INPUTS	
Asset Class	**Total**		**Level 1**		**Level 2**		**Level 3**	
	FY 2016	**FY 2015**	**FY 2016**	**FY 2015**	**FY 2016**	**FY 2015**	**FY 2016**	**FY 2015**
Cash and Equivalents	$ 1,442	$ 991	$ 370	$ 336	$ 984	$ 585	$ 88	$ 70
US Government Bonds	4,473	3,580	1,186	948	3,010	2,347	277	285
State and Municipal Government Bonds	257	251	-	-	257	251	-	-
Foreign Government Bonds	156	273	1	2	155	271	-	-
High-yield Corporate Bonds	437	380	7	23	430	357	-	-
Corporate Bonds other than high-yield	7,308	7,526	105	100	7,203	7,426	-	-
Domestic Equities	9,624	8,144	6,917	6,175	2,139	1,417	568	552
International Equities	7,142	7,085	3,026	3,078	4,116	4,007	-	-
Real Estate Investment Funds	1,241	878	74	63	179	148	988	667
Other Real Estate	304	260	-	-	-	-	304	260
Mortgage-Backed Securities	578	734	5	5	573	729	-	-
Asset-Backed Commercial Paper	44	43	1	-	43	43	-	-
Bond/Notes Issues by Structured Investment Vehicles	-	9	-	-	-	9	-	-
Derivatives	103	285	-	-	103	285	-	-
Private Investment Funds	2,319	1,887	-	-	796	480	1,523	1,407
Insurance Contracts (general accounts)	90	98	-	-	50	58	40	40
Insurance Contracts (separate accounts)	25	29	-	-	25	29	-	-
Employer Securities	144	114	144	114	-	-	-	-
Aggregate Bond Index, Long Bond Index	443	393	11	2	432	391	-	-
Other	67	182	(111)	20	148	140	30	22
Total Assets	**$ 36,197**	**$ 33,142**	**$ 11,736**	**$ 10,866**	**$ 20,643**	**$ 18,973**	**$ 3,818**	**$ 3,303**

The following chart shows the reconciliation of the Level 3 assets for FY 2016 and FY 2015 for the pension benefit plans with assets.

($ IN MILLIONS)	CASH AND EQUIVALENTS	U.S. BONDS	DOMESTIC EQUITIES	REAL ESTATE INVESTMENT FUNDS	OTHER REAL ESTATE	PRIVATE INVESTMENT FUNDS	INSURANCE CONTRACTS (GENERAL ACCOUNTS)	OTHER	TOTAL
	FY 2016								
Beginning Balance	$ 70	$ 285	$ 552	$ 667	$ 260	$ 1,407	$ 40	$ 22	$ 3,303
Actual return on plan assets:									
Relating to assets still held at the reporting date	(1)	28	70	35	6	(80)	3	-	61
Relating to assets sold during the period	-	10	(3)	(34)	-	122	-	-	95
Purchases, sales, and settlements	19	(46)	(51)	358	43	79	(3)	-	399
Transfers in and/or out of Level 3	-	-	-	(35)	(8)	(2)	-	-	(45)
Other	-	-	-	(3)	3	(3)	-	8	5
Ending Balance	**$ 88**	**$ 277**	**$ 568**	**$ 988**	**$ 304**	**$ 1,523**	**$ 40**	**$ 30**	**$ 3,818**
	FY 2015								
Beginning Balance	$ 128	$ 307	$ 660	$ 575	$ 250	$ 1,513	$ 45	$ 11	$ 3,489
Actual return on plan assets:									
Relating to assets still held at the reporting date	-	(3)	60	69	35	42	2	-	205
Relating to assets sold during the period	-	(4)	81	49	-	32	-	-	158
Purchases, sales, and settlements	(58)	(15)	(249)	(8)	(22)	(132)	(7)	-	(491)
Transfers in and/or out of Level 3	-	-	-	(14)	(5)	(34)	-	-	(53)
Other	-	-	-	(4)	2	(14)	-	11	(5)
Ending Balance	**$ 70**	**$ 285**	**$ 552**	**$ 667**	**$ 260**	**$ 1,407**	**$ 40**	**$ 22**	**$ 3,303**

Pension assets included in Level 1 of the fair value hierarchy are valued daily based on quoted prices in active markets. Assets included in Level 2 are valued using significant observable inputs other than quoted prices in active markets. US Government Bonds and Corporate Bonds included in Level 2 assets are generally part of collective investment funds valued at the net asset values of the funds based on the quoted prices of the underlying investments in active markets. Other bonds in these categories are valued based on interest rates and yield curves observable at commonly quoted intervals or at bid evaluation prices for securities traded on OTC markets as provided by independent pricing vendors. Domestic and International Equities included in Level 2 assets are generally part of collective investment funds valued at the net asset values of the funds based on the quoted prices of the underlying investments in active markets and may be subject to withdrawal restrictions. Assets included in Level 3 are valued using significant unobservable inputs. Private Investment Funds and Real Estate Funds included in Level 3 assets are generally priced by the fund general partners or investment managers, verified by independent third-party appraisers, and audited by independent auditing firms. The actual market values are generally only determinable by negotiations between independent parties pursuant to sales transactions. Assets held in Life Insurance Company General Accounts under Level 3 are generally credited guaranteed interest rates under the contracts or are valued based on the values of the underlying asset holdings of the accounts. Cash and domestic equities under Level 3 generally represent commingled fund investments held in an account utilizing an equity index and cash funds and are valued based on the values of the underlying holdings of the account.

There are two pension plans that have securities of the employer or related parties included in the plan assets. No assets are expected to be returned to the employers during the next FY.

The $154 million of assets in the five other postretirement benefit plans include $135 million of investments in insurance contracts of which $104 million is valued using significant unobservable inputs (Level 3). The balance of the Level 3 insurance contracts decreased by $4 million during FY 2016 from $108 million to $104 million due to the return on assets still held at the reporting date. Assets held in Life Insurance Company General and Separate Accounts under Levels 2 and 3 of the fair value hierarchy are generally credited guaranteed interest rates based on customized fixed income indices. The remaining assets in the other postretirement benefit plans are invested in asset classes similar to the assets of the pension plans. None of the other assets in the other postretirement benefit plans were valued using unobservable inputs.

Some of the Department's contractors' plan assets are invested in investment funds, which are recorded based on the net asset value (NAV) per share (or its equivalent) and reported by the underlying funds without further adjustment, as a practical expedient of fair value. Generally, the fair value of the investment in a privately offered investment fund represents the amount that the investor could reasonably expect to receive from the investment fund if the investment is withdrawn at the measurement date based on the NAV. These investments are redeemable at NAV under ordinary terms of the agreements and based on the operation of the underlying funds. However, it is possible that these redemption rights may be restricted or eliminated by the funds in the future in accordance with the underlying fund agreements. The terms of any fund agreements may vary by contractor.

17. Leases

Capital Leases:

($ IN MILLIONS)	FY 2016	FY 2015
SUMMARY OF ASSETS UNDER CAPITAL LEASE		
Power line equipment	$ 1,579	$ 909
ADP equipment	394	421
Construction work in progress	286	440
Lease-purchase trust funds (Note 10)	177	315
Other assets	1	1
Total capital lease assets	**$ 2,437**	**$ 2,086**
Less accumulated depreciation	(349)	(380)
Net assets under capital leases	**$ 2,088**	**$ 1,706**

($ IN MILLIONS) FISCAL YEAR 2016	POWER LINE EQUIPMENT	OTHER	TOTAL
Future lease payments:			
2017	63	51	114
2018	62	23	85
2019	270	16	286
2020	434	7	441
2021	622	-	622
2022+	1,229	1	1,230
Total future lease payments	**$ 2,680**	**$ 98**	**$ 2,778**
Less imputed interest	(583)	(3)	(586)
Less executory costs	(29)	-	(29)
Net capital lease liability	**$ 2,068**	**$ 95**	**$ 2,163**
Capital lease liabilities covered by budgetary resources			$ (2,091)
Capital lease liabilities not covered by budgetary resources (Note 11)			(72)
Total capital lease liability			**$ (2,163)**

Operating Leases:

($ IN MILLIONS) FISCAL YEAR 2016	BUILDINGS/FACILITIES, EQUIPMENT & OTHER
Future lease payments:	
2017	$ 126
2018	116
2019	103
2020	94
2021	84
2022+	778
Total future lease payments	**$ 1,301**

The Department acquires functional use of various buildings/facilities, equipment, and other assets via operating lease instruments. The above table shows the Department's total future lease payments by fiscal year for all operating leases that have initial or remaining non-cancellable terms in excess of one year as of September 30, 2016. In particular, the bulk of the Department's $1.3 billion of total future lease payments for non-cancellable operating leases is comprised of two Occupancy Agreements (OA) between the DOE and GSA consisting of $1.0 billion in future lease payments.

18. Contingencies and Commitments

($ IN MILLIONS)	FY 2016	FY 2015
Unfunded contingencies (Note 11)		
Spent nuclear fuel litigation	$ 24,691	$ 23,699
Other	436	1,391
Subtotal	**$ 25,127**	**$ 25,090**
Funded contingencies		
Other	7	1
Total contingencies	**$ 25,134**	**$ 25,091**

The Department is a party in various administrative proceedings, legal actions, and tort claims which may ultimately result in settlements or decisions adverse to the federal government. The Department has accrued contingent liabilities where losses are determined to be probable and the amounts can be estimated. Other significant contingencies exist where a loss is reasonably possible or where the loss is probable and an estimate cannot be determined. In some cases, a portion of any loss that may occur may be paid from Treasury's Judgment Fund. The Judgment Fund is a permanent, indefinite appropriation available to pay judgments against the government. The following are significant contingencies:

SPENT NUCLEAR FUEL LITIGATION

In accordance with the Nuclear Waste Policy Act of 1982 (NWPA), the Department entered into contracts with more than 45 utilities (standard contracts) in which, in return for payment of fees into the NWF, the Department agreed to begin disposal of SNF by January 31, 1998. Because the Department has no facility available to receive SNF under the NWPA, it has been unable to begin disposal of the utilities' SNF as required by the contracts. Significant litigation claiming damages for partial breach of contract has ensued as a result of this delay.

To date, 38 suits have been settled involving utilities that collectively produce about 83 percent of the nuclear-generated electricity in the United States. Under the terms of the settlements, the Judgment Fund, 31 U.S.C. 1304, paid $4.4 billion as of September 30, 2016 to the settling utilities for delay damages they have incurred through September 30, 2016. In addition, 41 cases have been resolved by final unappealable judgments. Eight of those cases resulted in an award of no damages by the trial court and 28 of the 33 remaining cases, as well as two partial judgments, resulted in a total of $1.7 billion in damages, which has been paid by the Judgment Fund as of September 30, 2016. The five other final unappealable judgments, totaling $161.5 million are planned for payment in 2017.

The Department's SNF litigation liability is updated to include the effects of final judgments and settlements as well as payments to date from the Judgment Fund. Additional payments under these settled and adjudicated cases may be made if the utilities incur additional costs before the Department permanently disposes of the SNF. The Department believes its assumptions and methodology provide a reasonable basis for the contingent liability estimate.

Eleven cases remain pending either in the Court of Federal Claims or in the Court of Appeals for the Federal Circuit. Liability is probable in these cases, and in many of these cases orders have already been entered establishing the Government's liability and the only outstanding issue to be litigated is the amount of damages to be awarded. The industry is reported to estimate that damages for all utilities with which the Department has contracts ultimately will be at least $50 billion. The Department believes that the industry's estimate is highly inflated and that the disposition of the 79 cases that have either been settled or subject to a judgment in the trial court suggests that the Government's ultimate liability is likely to be significantly less than that estimate. Accordingly, based on these settlement estimates, the total liability estimate as of September 30, 2016 is $30.8 billion. After deducting the amount paid of $6.1 billion as of September 30, 2016 under these settlements and as a result of final judgments, the remaining liability is estimated to be approximately $24.7 billion. Under current law, any damages or settlements in this litigation will be paid out of the Judgment Fund. The Department's contingent liability estimate for SNF litigation is reported net of amounts paid to date from the Judgment Fund.

The Department previously reported several developments that made it difficult to reasonably predict the amount of the Government's likely liability. The Administration has determined that the development of a repository at Yucca Mountain is unworkable and directed the Secretary to establish the Blue-Ribbon Commission (the Commission) on America's Nuclear Future to evaluate alternative approaches for meeting the Federal Government's responsibility. The Commission submitted a final report in January 2012 with its recommendations for consideration by the Administration and Congress. The Administration issued the "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Waste" on January 11, 2013 (Strategy). The successful implementation of the Strategy is contingent on new

statutory authority and the availability of appropriations. In the interim, the Department's position is that its existing SNF litigation model provides a reasonable basis for its accounting liability estimate using key assumptions from the Strategy: (1) a pilot storage facility will be operational in 2021 to allow for the removal of SNF from shut down reactors; (2) an interim storage facility will be operational in 2025 to begin the removal of SNF from operating nuclear power reactors and (3) that reactors will incur costs reimbursable by the Department until the Department has fulfilled its obligations under the agreements. Because legislation has not passed, operational dates were moved forward two years for the purposes of estimating the liability.

ALLEGED EXPOSURES TO RADIOACTIVE AND/OR TOXIC SUBSTANCES

A number of class action and/or multiple plaintiff tort suits have been filed against current and former DOE contractors in which the plaintiffs seek damages for alleged exposures to radioactive and/or toxic substances as a result of the historic operations of the Department's nuclear facilities. The most significant of these cases arise out of operations of the facilities at Rocky Flats, Colorado; Hanford, Washington; and Brookhaven, New York. Collectively, in these cases, damages in excess of $1.5 billion are currently sought.

In the Rocky Flats litigation, the parties entered into an agreement to settle the litigation for $375 million on May 18, 2016. The district court granted preliminary approval of the settlement agreement. On June 20, 2016, the defendants filed a certified claim with DOE under the Contract Disputes Act for the settlement amount.

In the Hanford litigation, following rulings by the court of appeals, seven of twelve "bellwether" plaintiffs' claims were resolved in favor of the defendants, relatively small judgments in favor of two "bellwether" plaintiffs were affirmed, and three "bellwether" plaintiffs' claims were remanded to the district court for further proceedings. After mediation, settlements resolved all of the remaining active claims. On January 28, 2016, the court dismissed with prejudice the In re Hanford consolidated case because the lone opposition to such a decision, Plaintiff Frieda Seaman (deceased and represented by Chuck Seaman), had not actively prosecuted the case since 2002. On February 3, 2016, the Plaintiff appealed in Seaman v. DuPont to the Ninth Circuit. Briefing in that appeal is ongoing.

In the Brookhaven litigation, two class action cases, Oscarczuck v. Associated Universities and Tarzia v. Associated Universities, were filed in which residents and property owners near Brookhaven National Laboratory asserted claims for negligence, gross negligence, abnormally dangerous activity, and private nuisance and sought damages, primarily for air and ground water contamination, as a result of the release of hazardous substances stemming from Lab operations. On September 26, 2016, the trial court in the Oscarczuk case ordered that the plaintiffs' third amended complaint will be stricken as to each and every plaintiff from whom a properly verified response to the defendant AUI's First Set of Interrogatories is not received within 90 days after service of a copy of the court's order upon the plaintiffs' counsel. This case had earlier been remanded to the trial court by a January 30, 2007 decision of the Appellate Division of the New York Supreme Court, which had (1) affirmed that portion of the trial court's May 18, 2005 order dismissing the plaintiffs' claims arising from exposure to nuclear material; (2) reversed that portion of the trial court's May 18, 2005 order dismissing the plaintiffs' claims arising from exposure to non-nuclear hazardous materials as premature; and (3) remanded the case to the trial court for a determination of the plaintiffs' motion for class certification. There has been no activity in the Tarzia case as the Tarzia plaintiffs seem to be waiting until the Oscarczuk case concludes. Plaintiffs in the Brookhaven litigation are seeking $1.1 billion, collectively. However, the Department believes that if any damages are ultimately awarded, the amounts would be significantly less than what plaintiffs seek.

HANFORD SITE NATURAL RESOURCES DAMAGES

The Confederated Tribes of the Yakama Nation filed suit in September 2002 against DOE and the Department of Defense alleging natural resources damages in the 1100 area of the Hanford site. The Yakama Nation has since amended their complaint to add the 100 and 300 areas to the suit, alleging additional natural resources damages. In addition, the States of Washington and Oregon, as well as the Confederated Tribes of the Umatilla and the Nez Perce tribe, have joined the suit. Two of the four claims have been settled, the third claim remains stayed, and the fourth has been dismissed. The government reimbursed the Yakama Nation for its past response costs under claim one of the complaint. Under the settlement for claim two, the government will reimburse the plaintiffs through the Trustee Council for natural resource damage assessments. Claim three, which seeks natural resource damages recovery, remains stayed, until the issue of resource damages (if any) is resolved. Claim four was dismissed.

MOX LITIGATION

South Carolina filed suit against DOE and NNSA for their alleged failure to comply with requirements in 50 U.S.C. § 2566 for the disposition of weapons-grade plutonium at the Savannah River Site in South Carolina. South Carolina seeks $100 million in economic impact and assistance payments. The United States' motion to dismiss and motion to stay proceedings on South Carolina's motion for summary judgment are fully briefed. A hearing was held on the motion to dismiss and the motion for summary judgment on June 30, 2016, and the court took the matter under advisement. If the government loses on the money claim, it will be for the amount of $100 million for 2016. It could also result in DOE owing $100 million per year in future years until DOE can either meet the MOX facility

production objective or remove one metric ton of plutonium from South Carolina.

PADUCAH AND PORTSMOUTH NATURAL RESOURCE DAMAGES

As a result of releases of hazardous substances at the Paducah and Portsmouth Sites, the States of Ohio and Kentucky have potential claims against the Department under CERCLA for damages to natural resource (e.g., ground water) caused by such releases. The Department has had preliminary discussions with Ohio about a possible settlement of its claims for natural resource damages at the Portsmouth site. Kentucky has indicated that it desires a "tolling" agreement with respect to potential claims for natural resource damages at the Paducah site. A tolling agreement would suspend the statute of limitations for the filing of the state's claims for a mutually agreeable period of time. The Department will continue its discussions with the states about their potential claims for natural resource damages. DOE has submitted a draft Director's Final Findings and Order to Ohio EPA to initiate discussions toward a possible settlement of its claims for natural resource damages at the Portsmouth site. The current plan is to perform an environmental project in return for a release of liability from Ohio. Although the Department will be liable for at least some natural resource damages at the sites, it is unable to prepare an estimate of such damages and has not included a provision for damages in the consolidated financial statements. As of the end of FY 2016, Kentucky has not pursued executing a tolling agreement.

PURCHASE POWER AND TRANSMISSION COMMITMENTS AND IRRIGATION ASSISTANCE

The PMAs have entered into commitments to sell expected generation for future dates. When the PMAs forecast a resource shortage they take a variety of operational and business steps to cover a potential shortage including entering into power commitments. If appropriate, the PMAs will enter into long-term commitments to purchase power for future delivery. The PMAs record expenses associated with these purchases in the periods that power is received.

As directed by law, WAPA and BPA are required to establish rates sufficient to make cash distributions to the Treasury for the portion of BOR's original capital construction costs allocated to irrigation purposes, which were determined by the Secretary of the Interior to be beyond the ability of the irrigation customers to pay. These irrigation distributions do not specifically relate to power generation. In establishing power rates, particular statutory provisions guide the assumptions that BPA makes as to the amount and timing of such distributions. As a result, WAPA and BPA include a schedule of irrigation assistance costs in each respective power system's power repayment study to demonstrate repayment of principal within the allowable repayment period. These repayment amounts do not incur or accumulate interest from the date that BOR determines the irrigators' inability to pay. Future irrigation assistance payments are scheduled for BPA to total $442 million over a maximum of 66 years since the time the irrigation facilities were completed and placed in service, and WAPA's payments are scheduled to total $1.8 billion by 2041.

Although these repayments will be recovered through power sales, they do not represent an operating cost of the individual power systems nor a liability on the consolidated balance sheets due to factors such as the variable payment schedule.

The following table summarizes future purchase power and transmission commitments and irrigation assistance. The table includes firm purchase power agreements of known cost that are currently in place to assist in meeting expected future obligations under long-term power sales contracts. BPA has several power purchase agreements with wind-powered and other generating facilities that are not included because payments are based on the variable amount of future energy generated, and there are no minimum payments required.

($ IN MILLIONS) FISCAL YEAR	PURCHASE POWER AND TRANSMISSION (ALL PMA's)	IRRIGATION ASSISTANCE (BPA and WAPA)
2017	$ 167	$ 51
2018	161	27
2019	163	58
2020	119	69
2021	112	15
2022+	180	1,980
Total	**$ 902**	**$ 2,200**

INTEGRATED FISH AND WILDLIFE PROGRAM

The Northwest Power Act directs BPA to protect, mitigate and enhance fish and wildlife resources to the extent they are affected by federal hydroelectric projects on the Columbia River and its tributaries, from which BPA markets power. BPA makes expenditures and incurs other costs for fish and wildlife projects that are consistent with the Northwest Power Act and that are consistent with the Pacific Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program. In addition, certain fish species that inhabit the Columbia River Basin are listed under the Endangered Species Act (ESA) as threatened or endangered. BPA makes expenditures and incurs other costs related to power purchases to comply with the ESA and implement certain biological opinions (BiOp) prepared by the National Oceanic and Atmospheric Administration Fisheries Service and the U.S. Fish and Wildlife Service in furtherance of the ESA. BPA's total commitment including timing of payments under the Northwest Power Act, ESA, and BiOp fluctuates because it is in part dependent on river flows and water conditions. As of September 30, 2016, BPA has entered into long-term fish and wildlife agreements with estimated contractual commitments of $468 million. These agreements will expire at various dates between fiscal years 2018 and 2025.

19. Dedicated Collections

($ IN MILLIONS)	FY 2016					
	NUCLEAR WASTE FUND	D&D FUND	USEC	PMAs	OTHER FUNDS FROM DEDICATED COLLECTIONS	TOTAL FUNDS FROM DEDICATED COLLECTIONS
BALANCE SHEET						
ASSETS						
Fund Balance with Treasury	$ 2	$ 29	$ -	$ 3,538	$ 945	$ 4,514
Investments and related interest, net	36,027	2,565	1,626	478	2	40,698
Accounts receivable, net	2,789	-	-	711	11	3,511
Direct loans and loan guarantees, net	-	-	-	1	-	1
Inventory, net	-	-	-	138	168	306
General property plant and equipment, net	-	4	-	10,039	36	10,079
Regulatory assets	-	-	-	10,983	-	10,983
Other assets	-	13	-	4,254	-	4,267
Total Assets	**$ 38,818**	**$ 2,611**	**$ 1,626**	**$ 30,142**	**$ 1,162**	**$ 74,359**
LIABILITIES AND NET POSITION						
Accounts payable	$ 1	$ 160	$ 1	$ 441	$ 4	$ 607
Debt	-	-	-	15,451	2	15,453
Deferred revenues and other credits	38,817	-	-	1,426	4	40,247
Environmental cleanup and disposal liabilities	-	20,530	-	22	-	20,552
Pensions and other actuarial liabilities	-	6	-	47	-	53
Obligations under capital leases	-	-	-	2,067	-	2,067
Other liabilities	-	(2)	-	3,074	20	3,092
Contingencies and commitments	-	10	-	44	-	54
Unexpended appropriations	-	-	-	-	14	14
Cumulative results of operations	-	(18,093)	1,625	7,570	1,118	(7,780)
Total Liabilities and Net Position	**$ 38,818**	**$ 2,611**	**$ 1,626**	**$ 30,142**	**$ 1,162**	**$ 74,359**
STATEMENT OF NET COST						
Program costs	$ 2	$ 25	$ -	$ 3,872	$ 139	$ 4,038
Less earned revenues	(6)	(114)	-	(4,640)	(107)	(4,867)
Net program costs	**$ (4)**	**$ (89)**	**$ -**	**$ (768)**	**$ 32**	**$ (829)**
Costs not assigned	-	(2,185)	-	-	(2)	(2,187)
Net cost of operations	**$ (4)**	**$ (2,274)**	**$ -**	**$ (768)**	**$ 30**	**$ (3,016)**
STATEMENT OF CHANGES IN NET POSITION						
Cumulative results of operations, beginning balance	$ -	$ (20,412)	$ 1,617	$ 7,248	$ 1,137	$ (10,410)
Appropriations used	-	-	-	2	11	13
Non-exchange revenue	-	-	8	-	(1)	7
Donations and forfeitures of cash	-	-	-	38	-	38
Transfers - in/(out) without reimbursement	(4)	45	-	(525)	1	(483)
Other budgetary financing sources	-	-	-	61	-	61
Imputed financing	-	-	-	8	-	8
Other	-	-	-	(30)	-	(30)
Net cost of operations	4	2,274	-	768	(30)	3,016
Cumulative results of operations, ending balance	**$ -**	**$ (18,093)**	**$ 1,625**	**$ 7,570**	**$ 1,118**	**$ (7,780)**
Unexpended appropriations, beginning balance	$ -	$ -	$ -	$ -	$ 15	$ 15
Appropriations received	-	-	-	2	8	10
Other adjustments	-	-	-	-	-	-
Appropriations used	-	-	-	(2)	(9)	(11)
Unexpended appropriations, ending balance	**$ -**	**$ -**	**$ -**	**$ -**	**$ 14**	**$ 14**

Dedicated Collections (continued)

($ IN MILLIONS)	FY 2015					
	NUCLEAR WASTE FUND	D&D FUND	USEC	PMAs	OTHER FUNDS FROM DEDICATED COLLECTIONS	TOTAL FUNDS FROM DEDICATED COLLECTIONS
BALANCE SHEET						
ASSETS						
Fund balance with Treasury	$ 7	$ 34	$ -	$ 3,274	$ 979	$ 4,294
Investments and related interest, net	34,295	3,298	1,618	697	-	39,908
Accounts receivable, net	3,085	-	-	654	32	3,771
Direct loans and loan guarantees, net	-	-	-	1	-	1
Inventory, net	-	-	-	142	156	298
General property plant and equipment, net	-	-	-	9,627	33	9,660
Regulatory assets	-	-	-	11,466	-	11,466
Other assets	-	41	-	4,409	-	4,450
Total Assets	**$ 37,387**	**$ 3,373**	**$ 1,618**	**$ 30,270**	**$ 1,200**	**$ 73,848**
LIABILITIES AND NET POSITION						
Accounts payable	$ -	$ 206	$ 1	$ 511	$ 24	$ 742
Debt	-	-	-	16,018	1	16,019
Deferred revenues and other credits	37,387	-	-	1,446	2	38,835
Environmental cleanup and disposal liabilities	-	23,576	-	12	-	23,588
Pensions and other actuarial liabilities	-	-	-	52	-	52
Obligations under capital leases	-	-	-	1,649	-	1,649
Other liabilities	-	3	-	3,291	21	3,315
Contingencies and commitments	-	-	-	43	-	43
Unexpended appropriations	-	-	-	-	15	15
Cumulative results of operations	-	(20,412)	1,617	7,248	1,137	(10,410)
Total Liabilities and Net Position	**$ 37,387**	**$ 3,373**	**$ 1,618**	**$ 30,270**	**$ 1,200**	**$ 73,848**
STATEMENT OF NET COST						
Program costs	$ 1	$ 22	$ -	$ 3,746	$ 152	$ 3,921
Less earned revenues	(5)	(630)	-	(4,676)	(84)	(5,395)
Net program costs	**$ (4)**	**$ (608)**	**$ -**	**$ (930)**	**$ 68**	**$ (1,474)**
Costs not assigned	-	3,548	-	(1)	-	3,547
Net cost of operations	**$ (4)**	**$ 2,940**	**$ -**	**$ (931)**	**$ 68**	**$ 2,073**
STATEMENT OF CHANGES IN NET POSITION						
Cumulative results of operations, beginning balance	$ -	$ (17,523)	$ 1,614	$ 6,752	$ 1,196	$ (7,961)
Appropriations used	-	-	-	7	8	15
Non-exchange revenue	-	-	3	-	(1)	2
Donations and forfeitures of cash	-	-	-	15	-	15
Transfers - in/(out) without reimbursement	(4)	51	-	(513)	2	(464)
Other budgetary financing sources	-	-	-	35	-	35
Imputed financing	-	-	-	8	-	8
Other	-	-	-	13	-	13
Net cost of operations	4	(2,940)	-	931	(68)	(2,073)
Cumulative results of operations, ending balance	**$ -**	**$ (20,412)**	**$ 1,617**	**$ 7,248**	**$ 1,137**	**$ (10,410)**
Unexpended appropriations, beginning balance	$ -	$ -	$ -	$ -	$ 21	$ 21
Appropriations received	-	-	-	7	7	14
Other adjustments	-	-	-	-	(6)	(6)
Appropriations used	-	-	-	(7)	(7)	(14)
Unexpended appropriations, ending balance	**$ -**	**$ -**	**$ -**	**$ -**	**$ 15**	**$ 15**

NUCLEAR WASTE FUND
The NWPA requires the owners and generators of nuclear waste to pay their share of disposal costs into the NWF and, to that end, establishes a fee for electricity generated and sold by civilian nuclear power reactors which the Department must collect and annually assess to determine its adequacy. A special fund within Treasury was created to account for the collection of those fees. Fees are invested in Treasury securities and any interest earned is available to pay expenditures related to radioactive waste disposal activities covered by the NWF. The NWPA requires preparation of annual financial statements.

DECONTAMINATION AND DECOMMISSIONING FUND
The Energy Policy Act of 1992 established the D&D Fund to pay for the costs of decontamination and decommissioning of gaseous diffusion facilities through collection of revenues derived from domestic utility assessments and government appropriations. The Energy Policy Act also requires that balances in the D&D fund be invested in Treasury securities and any interest earned would be available to pay the costs of environmental remediation.

U.S. ENRICHMENT CORPORATION FUND
Upon privatization of USEC on July 28, 1998, OMB and Treasury designated the Department as successor to USEC for purposes of disposition of balances remaining in the USEC fund. These funds are invested in Treasury securities.

POWER MARKETING ADMINISTRATIONS
The PMAs are funded primarily from four sources. These include contract and borrowing authority, direct receipts generated from the sale of power, and annual appropriations. Each of the PMAs, except for BPA, receives an annual appropriation from Treasury's General Fund. WAPA also receives an annual appropriation from a receipt fund within the Reclamation Fund. In most instances, these appropriated funds are repaid to Treasury's General Fund and the Reclamation Fund from the receipts generated from power sales.

20. Gross Costs, Intragovernmental

($ IN MILLIONS)	FY 2016	FY 2015
Imputed costs, Compensation Program for Occupational Illnesses - Department of Labor (Notes 25 and 26)	$ 1,642	$ (128)
Interest costs on debt (Note 12)		
Borrowing from Treasury	173	200
Borrowing from FFB	436	453
Power Marketing Administrations' appropriated capital - Treasury	151	139
Imputed costs, Judgment Fund payments made by Treasury		
Spent nuclear fuel contingency (Notes 25 and 26)	796	832
Other Judgment Fund payments (Notes 25 and 26)	10	71
Federal employee benefits		
Agency share of employee retirement benefits - OPM	352	329
Imputed costs, employee retirement benefits - OPM (Note 26)	92	91
Federal Insurance Contributions Act (FICA) employer contributions - Treasury	99	77
Other intragovernmental costs		
Defense agencies	154	212
General Services Administration	234	223
All other agencies	319	327
Total intragovernmental gross costs with other federal agencies	**$ 4,458**	**$ 2,826**
Costs with the public	68,720	78,179
Total gross costs	**$ 73,178**	**$ 81,005**

21. Gross Costs by Strategic Goals

($ IN MILLIONS)	FY 2016	FY 2015
Science and Energy		
Advance the goals and objectives in the President's Climate Action Plan	$ 7,639	$ 7,786
Support the U.S. energy infrastructure	507	629
Discover and strengthen science and technology innovation	4,828	4,806
Total program costs for science and energy	**$ 12,974**	**$ 13,221**
Nuclear Security		
Maintain the nation's nuclear deterrent without nuclear testing	$ 4,774	$ 3,592
Strengthen science, technology, and engineering capabilities	2,675	2,833
Reduce global nuclear security threats	1,743	1,683
Provide integrated nuclear propulsion systems for U.S. Navy	1,223	1,159
Total program costs for nuclear security	**$ 10,415**	**$ 9,267**
Management and Performance		
Continue cleanup from Manhattan Project and Cold War activities	$ 4,993	$ 4,888
Manage assets to support DOE mission	105	109
Manage projects, agreements, contracts, and contractor performance	154	156
Operate the DOE enterprise safely, securely, and efficiently	584	595
Attract, manage, train, and retain the best federal workforce	59	42
Total program costs for management and performance	**$ 5,895**	**$ 5,790**
Total program costs for strategic objectives	**$ 29,284**	**$ 28,278**

SCIENCE AND ENERGY

Goal: Advance foundational science, innovate energy technologies, and inform data driven policies that enhance U.S. economic growth and job creation, energy security, and environmental quality, with emphasis on implementation of the President's Climate Action Plan to mitigate the risks of and enhance resilience against climate change. Objectives include:

- **Advance the goals and objectives in the President's Climate Action Plan** - Support prudent development, deployment, and efficient use of "all of the above" energy resources that also create new jobs and industries.
- **Support the U.S. energy infrastructure** – Support a more economically competitive, environmentally responsible, secure and resilient U.S. energy infrastructure.
- **Deliver and strengthen science and technology innovation** – Deliver the scientific discoveries and major scientific tools that transform our understanding of nature and strengthen the connection between advances in fundamental science and technology innovation.

NUCLEAR SECURITY

Goal: Strengthen national security by maintaining and modernizing the nuclear stockpile and nuclear security infrastructure, reducing global nuclear threats, providing for nuclear propulsion, improving physical and cybersecurity, and strengthening key science, technology, and engineering capabilities. Objectives include:

- **Maintain the nation's nuclear deterrent without nuclear testing –** Sustain a safe, secure, and effective nuclear arsenal.
- **Strengthen science, technology, and engineering capabilities –** Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure.
- **Reduce global nuclear security threats –** Prevent nuclear terrorism and the spread of nuclear weapons-related materials, technology, and expertise.
- **Provide integrated nuclear propulsion systems for U.S. Navy** – DOE provides the design, development, and operational support required to provide militarily effective nuclear propulsion plants and ensure their safe, reliable, and long-lived operation.

MANAGEMENT AND PERFORMANCE

Goal: Position the Department of Energy to meet the challenges of the 21st century and the nation's Manhattan Project and Cold War legacy responsibilities by employing effective management and refining operational and

support capabilities to pursue departmental missions. Objectives include:

- **Continue cleanup from Manhattan Project and Cold War activities –** Continue cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities.

- **Manage assets to support DOE mission –** Manage assets in a sustainable manner that supports the DOE mission.

- **Manage projects, agreements, contracts, and contractor performance –** Improve the effectiveness and efficiency of DOE's financial assistance agreements, contract and project management performance.

- **Operate the DOE enterprise safely, securely, and efficiently –** Ensure the efficiency and effectiveness of DOE's mission success.

- **Attract, manage, train, and retain the best federal workforce –** Plan and improve outreach, recruitment programs, and human resource operations.

22. Earned Revenues

($ IN MILLIONS)	INTRA-GOVERNMENTAL	PUBLIC	DEFERRED REVENUE ADJUSTMENT	TOTAL
	FY 2016			
Science and Energy				
Power Marketing Administrations	$ (92)	$ (4,336)	$ -	$ (4,428)
Loan Programs	(55)	(442)	40	(457)
Petroleum reserve sales	-	(1)	-	(1)
Isotopes program	-	(66)	-	(66)
Other	-	(4)	-	(4)
Earned revenues for science and energy	**(147)**	**(4,849)**	**40**	**(4,956)**
Nuclear Security				
Other	(19)	(13)	-	(32)
Earned revenues for nuclear security	**(19)**	**(13)**	**-**	**(32)**
Management and Performance				
Nuclear Waste Fund	(1,430)	(6)	1,430	(6)
D&D Fund	(25)	(89)	-	(114)
Other	-	(33)	-	(33)
Earned revenues for management and performance	**(1,455)**	**(128)**	**1,430**	**(153)**
Reimbursable programs	(3,550)	(463)	-	(4,013)
Other programs				
FERC (Note 23)	-	(326)	-	(326)
Other (Note 23)	-	(15)	-	(15)
Earned revenues for other programs	**-**	**(341)**	**-**	**(341)**
Total earned revenues	**$ (5,171)**	**$ (5,794)**	**$ 1,470**	**$ (9,495)**
	FY 2015			
Science and Energy				
Power Marketing Administrations	$ (125)	$ (4,310)	$ -	$ (4,435)
Loan Programs	(87)	(421)	27	(481)
Petroleum reserve sales	-	(2)	-	(2)
Isotopes program	-	(42)	-	(42)
Other	1	(3)	-	(2)
Earned revenues for science and energy	**(211)**	**(4,778)**	**27**	**(4,962)**
Nuclear Security				
Other	(12)	(12)	-	(24)
Earned revenues for nuclear security	**(12)**	**(12)**	**-**	**(24)**
Management and Performance				
Nuclear Waste Fund	(1,396)	(1)	1,392	(5)
D&D Fund	(35)	(132)	-	(167)
Other	-	(61)	-	(61)
Earned revenues for management and performance	**(1,431)**	**(194)**	**1,392**	**(233)**
Reimbursable programs	(3,477)	(601)	-	(4,078)
Other programs				
FERC (Note 23)	-	(315)	-	(315)
Other (Note 23)	(2)	(6)	-	(8)
Earned revenues for other programs	**(2)**	**(321)**	**-**	**(323)**
Total earned revenues	**$ (5,133)**	**$ (5,906)**	**$ 1,419**	**$ (9,620)**

POWER MARKETING ADMINISTRATIONS

The Department's four PMAs market electricity generated primarily by federal hydropower projects. Preference for the sale of power is given to public bodies and cooperatives. Revenues from selling power and transmission services are used to repay Treasury annual appropriations, interest on the capital investment repayment, borrowings from Treasury, operation and maintenance costs as well as other payment obligations. Revenues collected by the SEPA, SWPA, and WAPA on behalf of other agencies are reported as custodial activity (see Note 28).

LOAN PROGRAMS

The loan program is required to collect administrative fees for the Title XVII loan program from the borrowers. Those fees are recognized as earned when an expense is accrued. Fees of $8 million and $14 million were earned as of September 30, 2016 and September 30, 2015, respectively. The program also earns interest on the loans made to borrowers and on the cash balances held with Treasury. Interest on cash balances of $55 million and $87 million and on loans from the borrower of $434 million and $407 million were earned as of September 30, 2016 and September 30, 2015, respectively. Amortization of the subsidy (see Note 7) is an adjustment made to the earned revenue and was $(40) million and $(27) million as of September 30, 2016 and September 30, 2015, respectively.

NUCLEAR WASTE FUND

The NWPA authorizes the Department to enter into contracts that require the Department to collect fees from owners and generators of high-level radioactive waste and SNF to fund the costs associated with management and disposal activities under the Act. On November 19, 2013, the U.S. Court of Appeals for the District of Columbia Circuit sustained a challenge to the Department's determination of the adequacy of the Nuclear Waste Fund fee, and directed the Department to transmit to Congress a proposal to reduce the fee to zero. The Department complied and, after a congressional review period, its proposal became effective May 16, 2014. As a result, no fees were recorded as of September 30, 2016 and September 30, 2015. Interest earned on fees owed and on accumulated funds totaled $1.4 billion as of September 30, 2016 and $1.4 billion as of September 30, 2015. Annual adjustments are made to defer the recognition of revenues until earned (i.e., when costs are incurred).

D&D FUND

The Department assessed fees to domestic utilities to pay for the costs for decontamination and decommissioning the Department's gaseous diffusion facilities used for uranium enrichment services. Accumulated funds in excess of those needed to pay current program costs are invested in Treasury securities. Interest earned on these investments totaled $25 million and $35 million as of September 30, 2016, and September 30, 2015, respectively. Gains on the transfer of uranium to Fluor, Babcock and Wilcox, LLC in exchange for environmental clean-up services totaled $89 million as of September 30, 2016, and $132 million as of September 30, 2015. On December 6, 2014, the President signed into law the FY 2015 Consolidated and Further Appropriations Act which provided the EM program with $463 million for the D&D fund. As a result, $463 million was transferred from the Defense Environmental Cleanup account via an expenditure transfer to the D&D Fund. The D&D Fund earned revenues were adjusted to reflect that $463 million was eliminated at the consolidated level.

REIMBURSABLE PROGRAMS

The Department performs work for other federal agencies and private companies on a reimbursable work basis and on a cooperative work basis.

The Department's policy is to establish prices for materials and services provided to public entities at the Department's full cost. In some cases, the full cost information reported by the Department in accordance with SFFAS No. 4, *Managerial Cost Accounting Concepts and Standards for the Federal Government,* exceeds revenues. This results from implementation of provisions contained in the Economy Act of 1932, as amended; the Atomic Energy Act of 1954, as amended; and the National Defense Authorization Act for FY 1999, which provide the Department with the authority to charge customers an amount less than the full cost of the product or service. Costs attributable to generating intragovernmental reimbursable program revenues were $3.5 billion as of September 30, 2016, and $3.5 billion as of September 30, 2015.

FEDERAL ENERGY REGULATORY COMMISSION

FERC is an independent regulatory organization within the Department that regulates essential aspects of electric, natural gas and oil pipeline industries, and non-federal hydropower industries. It ensures that the rates, terms, and conditions of service for segments of the electric and natural gas and oil pipeline industries are just and reasonable; it authorizes the construction of natural gas pipeline facilities; and it ensures that hydropower licensing administration and safety actions are consistent with the public interest. FERC assesses its administrative program costs as an annual charge to each regulated entity (see Note 23).

23. Other Programs

($ IN MILLIONS)	FY 2016	FY 2015
Federal Energy Regulatory Commission		
Program costs	$ 326	$ 315
Less earned revenues (Note 22)	(326)	(315)
Subtotal	$ -	$ -
Other programs		
Program costs	$ 184	$ 141
Less earned revenues (Note 22)	(15)	(8)
Subtotal	$ 169	$ 133
Total net cost for other programs	**$ 169**	**$ 133**

24. Costs Applied to Reduction of Legacy Environmental Liabilities

Costs applied to reduction of legacy environmental liabilities are current year operating expenditures for the remediation of contaminated facilities and wastes generated from past operations. These amounts are excluded from current year environmental liabilities estimate since the expenses have been accrued.

25. Costs Not Assigned

($ IN MILLIONS)	FY 2016	FY 2015
Spent nuclear fuel contingency (Note 18)		
Judgment Fund payments (Notes 20 and 26)	$ 796	$ 832
Change in estimates (Note 26)	990	1,066
Current year spent nuclear fuel contingency costs	$ 1,786	$ 1,898
Change in environmental liabilities estimates (Note 26)	$ 39,129	$ 46,806
Changes in contractor pension and PRB estimates (Note 26)	3,136	3,385
Change in unfunded safety and health liabilities (Notes 11, 14 and 26)	8	(28)
Change in occupational illness program (Notes 20 and 26)	1,642	(128)
Other Judgment Fund payments (Notes 20 and 26)	10	71
Other	(976)	1,324
Total costs not assigned	**$ 44,735**	**$ 53,328**

CHANGES IN CONTRACTOR PENSION AND PRB ESTIMATES

The changes in contractor pension and PRB estimates are comprised of all the components of contractor pension and PRB net periodic costs except for service costs [i.e., interest costs; expected return on plan assets; (gain)/loss due to curtailments, settlements, or special termination benefits; net prior service cost/(credit); and net (gain)/loss including impacts of changes in actuarial assumptions]. Service costs are not included since they are recorded by program (see Notes 16 and 26).

COMPENSATION PROGRAM FOR OCCUPATIONAL ILLNESSES

The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) authorized compensation for certain illnesses suffered by employees of the Department, its predecessor agencies, and contractors who performed work for the nuclear weapons program. EEOICPA covers illnesses associated with exposure to radiation, beryllium, or silica. In general, each eligible employee and survivors of deceased employees will receive compensation for the disability or death of that employee in the amount of $150,000 plus the costs of medical care.

The National Defense Authorization Act of 2005 amended the EEOICPA to grant workers' compensation benefits to covered employees and their families for illness and death arising from exposure to toxic substances at the Department's facilities. The amendment also makes it possible for uranium workers, as defined under Section 5 of the Radiation Exposure Compensation Act, to receive compensation for illnesses due to toxic substance exposure at a uranium mine or mill covered under that Act.

As of September 30, 2005, the law makes payments under these programs the responsibility of the Department of Labor. Therefore, the liability is recorded by the Department of Labor and changes in the total liability are recognized by the Department as an imputed cost and an imputed financing source.

26. Reconciliation of Net Cost of Operations to Budget

($ IN MILLIONS)	FY 2016		FY 2015	
RESOURCES USED TO FINANCE ACTIVITIES				
New obligations and upward adjustments (Note 27)	$ 40,336		$ 40,138	
Less spending authority from offsetting collections and recoveries	(11,263)		(13,186)	
Less offsetting receipts (Note 27)	(3,192)		(3,026)	
Net obligations		**$ 25,881**		**$ 23,926**
Imputed financing from costs absorbed by others				
Increase in occupational illnesses liability (Notes 20 and 25)	$ 1,642		$ (128)	
OPM imputed costs (Note 20)	92		91	
Payments made from Treasury's Judgment Fund (Notes 20 and 25)	806		903	
Total imputed costs absorbed by others		**$ 2,540**		**$ 866**
Transfers-in/(out) without reimbursement		(144)		(120)
Nuclear Waste Fund offsetting receipts, deferred		1,923		1,890
Other		15		26
Total resources used to finance activities		**$ 30,215**		**$ 26,588**
RESOURCES USED TO FINANCE ACTIVITIES NOT PART OF NET COST OF OPERATIONS				
Change in budgetary resources obligated for orders but not yet provided	$ 196		$ 2,856	
Resources that finance the acquisition of assets	(6,144)		(7,206)	
Credit program collection and receipts that increase liabilities	1,147		1,341	
Resources that fund expenses recognized in prior periods	(5,568)		(5,288)	
Other resources and adjustments	(72)		95	
Total resources used to finance items not part of Net Cost of Operations		**$ (10,441)**		**$ (8,202)**
NET COST OF ITEMS THAT DO NOT REQUIRE OR GENERATE RESOURCES IN CURRENT PERIOD				
Contractor Pension and PRB plans				
Contractor pension and PRB estimate changes (Note 25)	$ 3,136		$ 3,385	
Current year pension and PRB service costs (Note 16)	1,088		1,157	
Current year pension and PRB employer contributions (Note 16)	(1,669)		(1,675)	
Total pension and PRB plans	**$ 2,555**		**$ 2,867**	
Change in environmental liability estimates (Note 25)	39,129		46,806	
Change in spent nuclear fuel contingency (Note 25)	990		1,066	
Change in unfunded ESPC and similar unfunded contracts	(4)		(5)	
Change in unfunded safety and health liabilities (Notes 11, 14 and 25)	8		(28)	
Upward/Downward re-estimates of credit subsidy expense	(159)		(98)	
Change in other unfunded liabilities	(810)		1,344	
Depreciation of property, plant and equipment	1,846		1,827	
Amortization of premiums and discounts on Treasury investments	(201)		(659)	
Revaluation of assets and liabilities for loans	46		33	
Other amortization	176		180	
Gain on sale of SPRO oil	-		-	
Other	333		(334)	
Total net cost of items that do not require or generate resources in current		**$ 43,909**		**$ 52,999**
NET COST OF OPERATIONS		**$ 63,683**		**$ 71,385**

NUCLEAR WASTE FUND OFFSETTING RECEIPTS, DEFERRED

The Department defers the recognition of revenues related to the fees paid by owners and generators of SNF, and the interest earned on the invested balance of these funds, to the extent that the receipts exceed current year costs for developing and managing a permanent repository for SNF generated by civilian reactors. In addition, market value adjustments for Treasury securities of the NWF are not recognized as revenues in the current period unless redeemed by the Department. The gross amount of receipts and interest collected are reported as offsetting receipts on the *Combined Statements of Budgetary Resources*. Therefore, a reconciling amount is reported for the portion of the offsetting receipts for which revenues are not recognized in the current period.

27. Combined Statements of Budgetary Resources

The *Statements of Budgetary Resources* are presented on a combined, rather than a consolidated, basis in accordance with OMB guidance.

DETAILS OF NEW OBLIGATIONS AND UPWARD ADJUSTMENTS ($ IN MILLIONS)	FY 2016	FY 2015
Direct		
Category A (by quarter)	$ 15,326	$ 14,603
Category B (by project)	15,998	16,933
Sub-total direct new obligations and upward adjustments	**$ 31,324**	**$ 31,536**
Exempt from apportionment	4,108	3,787
Reimbursable		
Category A (by quarter)	31	14
Category B (by project)	4,873	4,801
Sub-total reimbursable new obligations and upward adjustments	**$ 4,904**	**$ 4,815**
Total new obligations and upward adjustments (Note 26)	**$ 40,336**	**$ 40,138**

UNOBLIGATED BALANCES NOT AVAILABLE ($ IN MILLIONS)	FY 2016	FY 2015
Loan funds reserved for future defaults	$ 1,405	$ 1,509
Unexpired appropriations that did not receive apportionments	14	15
Prior year deobligations in excess of apportioned amount	284	111
Reimbursable work/collections in excess of amount apportioned	5	-
Expired appropriations	75	45
Other amounts not apportioned	-	3
Total unobligated balances not available (Note 3)	**$ 1,783**	**$ 1,683**

Unobligated balances not available represent budgetary resources that have not been apportioned to the Department.

DETAILS OF UNPAID OBLIGATIONS ($ IN MILLIONS)	FY 2016	FY 2015
Undelivered orders	$ 22,829	$ 23,000
Accounts payable and other liabilities	8,129	7,969
Total unpaid obligations (Note 3)	**$ 30,958**	**$ 30,969**

RECONCILIATION TO APPROPRIATIONS RECEIVED ON THE CONSOLIDATED STATEMENTS OF CHANGES IN NET POSITION ($ IN MILLIONS)	FY 2016	FY 2015
Appropriations on the Combined Statements of Budgetary Resources:		
Definite appropriations	$ 29,774	$ 27,943
Permanent indefinite appropriations	41	60
Total appropriations on the Combined Statements of Budgetary Resources	**$ 29,815**	**$ 28,003**
Adjustments to take the SBR from net appropriations to appropriations received:		
Rescissions, sequesters, and other amounts precluded from obligation	$ 27	$ 230
Appropriation transfers	-	36
Other adjustments:		
Special and trust fund appropriated receipts	(773)	(737)
Appropriated capital owed, net	(11)	(11)
Other	2	6
Appropriations received on the Consolidated Statements of Changes in Net Position	**$ 29,060**	**$ 27,527**

PERMANENT INDEFINITE APPROPRIATIONS

The Department is authorized to use indefinite appropriations per the FCRA. These amounts are used to fund upward re-estimates on the FCRA loans.

RECONCILIATION TO THE BUDGET (FY 2015) ($ IN MILLIONS)	BUDGETARY RESOURCES	OBLIGATIONS INCURRED	DISTRIBUTED OFFSETTING RECEIPTS	NET OUTLAYS
Combined Statements of Budgetary Resources as published	$ 49,275	$ 40,138	$ (3,026)	$ 26,638
OMB adjustments made to exclude:				
U.S. Enrichment Corporation Fund	-	-	-	3
Non-budgetary Credit Reform Financing Accounts	(4,103)	(2,581)	-	(1,216)
Expired accounts	(45)	-	-	-
Other	(3)	-	(1)	-
Budget of the United States Government	**$ 45,124**	**$ 37,557**	**$ (3,027)**	**$ 25,425**

The FY 2015 *Combined Statements of Budgetary Resources* are reconciled to the President's Budget that was published in February 2016. The President's Budget containing actual FY 2016 balances is expected to be published and available on the OMB web site in May 2017. Budgetary resources and obligations incurred are reconciled to the departmental balances as published in the Appendix to the Budget; distributed offsetting receipts and net outlays are reconciled to the departmental balances in the Federal Program by Agency and Account section of the Analytical Perspectives Volume of the President's Budget.

The non-budgetary credit reform financing accounts are reported separately in the President's Budget and are not reflected in the budget surplus or deficit.

BORROWING AUTHORITY

The Department's borrowing authority reflected in the *Combined Statements of Budgetary Resources* represents the amount of borrowing authority for the current FY's obligations, which may or may not have been converted to cash. The borrowing authority available at September 30, 2016 and September 30, 2015 is $4.1 billion and $5.3 billion for the Department's loan program, $2.9 billion and $3.1 billion for BPA, and $3.2 billion and $3.2 billion for WAPA, respectively. The amounts available are authority that has not been converted to cash.

28. Custodial Activities

POWER MARKETING ADMINISTRATIONS

The SEPA, SWPA, and WAPA are responsible for collecting and remitting to Treasury and the DOI revenues attributable to the hydroelectric power projects owned and operated by the DoD, USACE; DOI, BOR; and the DOS, International Boundary and Water Commission. These revenues are reported as custodial activities of the Department.

FEDERAL ENERGY REGULATORY COMMISSION

FERC is responsible for billing regulated companies annual charges as a custodian for certain federal agencies. These include: 1) the USACE for licensees to provide maintenance and operations of dams owned by the U.S. and maintenance for operations of headwater or other navigable waters owned by the U.S.; 2) the BOR for the occupancy and use of public lands and national parks owned by the U.S. and for Indian Tribal Trust Funds from licensees for the reservation of Indian land; 3) Treasury for revenues collected based on penalties, interest, and administrative charges for overdue accounts receivables and for civil penalties; and 4) payments to states collected from licensees for the occupancy and use of national forests and public lands from development within the boundaries of any state.

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Consolidating Schedules

U.S. Department of Energy Consolidating Schedules - Balance Sheets

As of September 30, 2016 and 2015

(See independent auditors' report)

($ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2016				
ASSETS:					
Intragovernmental Assets:					
Fund Balance with Treasury	$ 106	$ 3,538	$ 28,164	$ -	$ 31,808
Investments and Related Interest, Net	-	478	40,368	-	40,846
Accounts Receivable, Net	-	212	946	(581)	577
Other Assets	-	-	135	(77)	58
Total Intragovernmental Assets	**$ 106**	**$ 4,228**	**$ 69,613**	**$ (658)**	**$ 73,289**
Investments and Related Interest, Net	-	-	102	-	102
Accounts Receivable, Net	16	506	2,858	-	3,380
Direct Loans and Loan Guarantees, Net	-	1	14,645	-	14,646
Inventory, Net:	-	138	43,930	-	44,068
General Property, Plant, and Equipment, Net	14	10,039	24,452	-	34,505
Regulatory Assets	-	10,983	-	-	10,983
Other Non-Intragovernmental Assets	-	4,254	294	-	4,548
Total Assets	**$ 136**	**$ 30,149**	**$ 155,894**	**$ (658)**	**$ 185,521**
LIABILITIES:					
Intragovernmental Liabilities:					
Accounts Payable	$ 13	$ 80	$ 158	$ (165)	$ 86
Debt	1	9,432	15,752	-	25,185
Deferred Revenues and Other Credits	-	5	164	(77)	92
Other Liabilities	10	23	945	(416)	562
Total Intragovernmental Liabilities	**$ 24**	**$ 9,540**	**$ 17,019**	**$ (658)**	**$ 25,925**
Accounts Payable	1	361	3,238	-	3,600
Loan Guarantee Liability	-	-	139	-	139
Debt Held by the Public	-	6,019	-	-	6,019
Deferred Revenues and Other Credits	-	1,421	39,246	-	40,667
Environmental Cleanup and Disposal Liabilities	-	22	371,764	-	371,786
Pension and Other Actuarial Liabilities	3	47	28,900	-	28,950
Obligations Under Capital Leases	1	2,067	95	-	2,163
Other Non-Intragovernmental Liabilities	41	3,058	3,239	-	6,338
Contingencies and Commitments	1	44	25,089	-	25,134
Total Liabilities	**$ 71**	**$ 22,579**	**$ 488,729**	**$ (658)**	**$ 510,721**
NET POSITION:					
Unexpended Appropriations					
Unexpended Appropriations- Dedicated Collections	$ -	$ -	$ 14	$ -	$ 14
Unexpended Appropriations- Other Funds	-	-	21,364	-	21,364
Cumulative Results of Operations					
Cumulative Results of Operations - Dedicated Collections	-	7,570	(15,350)	-	(7,780)
Cumulative Results of Operations - Other Funds	65	-	(338,863)	-	(338,798)
Total Net Position	**$ 65**	**$ 7,570**	**$ (332,835)**	**$ -**	**$ (325,200)**
Total Liabilities and Net Position	**$ 136**	**$ 30,149**	**$ 155,894**	**$ (658)**	**$ 185,521**

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2015				
$ 96	$ 3,274	$ 26,854	$ -	$ 30,224
-	697	39,354	-	40,051
-	163	1,024	(650)	537
-	-	86	(57)	29
$ 96	**$ 4,134**	**$ 67,318**	**$ (707)**	**$ 70,841**
-	-	111	-	111
14	498	3,184	-	3,696
-	1	14,513	-	14,514
-	142	43,745	-	43,887
11	9,627	23,903	-	33,541
-	11,466	-	-	11,466
-	4,409	311	-	4,720
$ 121	**$ 30,277**	**$ 153,085**	**$ (707)**	**$ 182,776**
$ 3	$ 58	$ 207	$ (125)	$ 143
-	10,063	15,744	-	25,807
-	4	136	(58)	82
34	25	1,068	(524)	603
$ 37	**$ 10,150**	**$ 17,155**	**$ (707)**	**$ 26,635**
13	453	3,237	-	3,703
-	-	154	-	154
-	5,955	-	-	5,955
-	1,442	37,852	-	39,294
-	12	339,807	-	339,819
2	52	26,338	-	26,392
-	1,649	33	-	1,682
10	3,273	3,197	-	6,480
-	43	25,048	-	25,091
$ 62	**$ 23,029**	**$ 452,821**	**$ (707)**	**$ 475,205**
$ -	$ -	$ 15	$ -	$ 15
-	-	19,912	-	19,912
-	7,248	(17,658)	-	(10,410)
59	-	(302,005)	-	(301,946)
$ 59	**$ 7,248**	**$ (299,736)**	**$ -**	**$ (292,429)**
$ 121	**$ 30,277**	**$ 153,085**	**$ (707)**	**$ 182,776**

U.S. Department of Energy Consolidating Schedules of Net Cost

For the Years Ended September 30, 2016 and 2015

(See independent auditors' report)

($ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2016				
STRATEGIC GOALS:					
Science and Energy					
Program Costs	$ -	$ 3,679	$ 9,393	$ (98)	$ 12,974
Less: Earned Revenues	-	(4,523)	(531)	98	(4,956)
Net Cost of Transform Our Energy Systems	-	**(844)**	**8,862**	-	**8,018**
Nuclear Security					
Program Costs	-	-	10,415	-	10,415
Less: Earned Revenues	-	-	(32)	-	(32)
Net Cost of Science and Engineering Enterprise	-	-	**10,383**	-	**10,383**
Management and Performance					
Program Costs	-	-	5,895	-	5,895
Less: Earned Revenues	-	-	(153)	-	(153)
Net Cost of Secure Our Nation	-	-	**5,742**	-	**5,742**
Net Cost of Strategic Goals	-	**(844)**	**24,987**	-	**24,143**
OTHER PROGRAMS:					
Reimbursable Programs					
Program Costs	-	193	4,044	(24)	4,213
Less: Earned Revenues	-	(117)	(3,920)	24	(4,013)
Net Cost of Reimbursable Programs	-	**76**	**124**	-	**200**
Other Programs:					
Program Costs	326	-	451	(267)	510
Less: Earned Revenues	(326)	-	(282)	267	(341)
Net Cost of Other Programs	-	-	**169**	-	**169**
Costs Applied to Reduction of Legacy Environmental Liabilities	-	-	(5,564)	-	(5,564)
Costs Not Assigned	-	-	44,735	-	44,735
Net Cost of Operations	**$ -**	**$ (768)**	**$ 64,451**	**$ -**	**$ 63,683**

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2015				
$ -	$ 3,531	$ 9,762	$ (72)	$ 13,221
-	(4,488)	(546)	72	(4,962)
-	**(957)**	**9,216**	**-**	**8,259**
-	-	9,267	-	9,267
-	-	(24)	-	(24)
-	**-**	**9,243**	**-**	**9,243**
-	-	6,253	(463)	5,790
-	-	(696)	463	(233)
-	**-**	**5,557**	**-**	**5,557**
-	**(957)**	**24,016**	-	**23,059**
-	217	4,055	(21)	4,251
-	(188)	(3,911)	21	(4,078)
-	**29**	**144**	**-**	**173**
315	-	433	(292)	456
(315)	-	(300)	292	(323)
-	**-**	**133**	**-**	**133**
-	(2)	(5,306)	-	(5,308)
-	(1)	53,329	-	53,328
$ -	**$ (931)**	**$ 72,316**	**$ -**	**$ 71,385**

U.S. Department of Energy Consolidating Schedules of Changes in Net Position
For the Years Ended September 30, 2016 and 2015

(See independent auditors' report)

($ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2016				
CUMULATIVE RESULTS OF OPERATIONS:					
Beginning Balances	$ 59	$ 7,248	$ (319,663)	$ -	$ (312,356)
Budgetary Financing Sources:					
Appropriations Used	$ -	$ 2	$ 27,593	$ -	$ 27,595
Non-Exchange Revenue	-	-	9	-	9
Donations and Forfeitures of Cash	-	-	8	-	8
Transfers - In/(Out) Without Reimbursement	-	(381)	(4)	-	(385)
Other Budgetary Financing Sources	-	61	-	-	61
Other Financing Sources (Non-Exchange):					
Donations and Forfeitures of Cash	-	38	-	-	38
Transfers - In/(Out) Without Reimbursement	-	(144)	-	-	(144)
Imputed Financing from Costs Absorbed by Others	13	8	2,519	-	2,540
Other	(7)	(30)	(224)	-	(261)
Total Financing Sources	**$ 6**	**$ (446)**	**$ 29,901**	**$ -**	**$ 29,461**
Net Cost of Operations	-	768	(64,451)	-	(63,683)
Net Change	**$ 6**	**$ 322**	**$ (34,550)**	**$ -**	**$ (34,222)**
Total Cumulative Results of Operations	**$ 65**	**$ 7,570**	**$ (354,213)**	**$ -**	**$ (346,578)**
UNEXPENDED APPROPRIATIONS:					
Beginning Balances	$ -	$ -	$ 19,927	$ -	$ 19,927
Budgetary Financing Sources:					
Appropriations Received	$ -	$ 2	$ 29,058	$ -	$ 29,060
Appropriations Transferred - In/(Out)	-	-	14	-	14
Other Adjustments	-	-	(28)	-	(28)
Appropriations Used	-	(2)	(27,593)	-	(27,595)
Total Budgetary Financing Sources	**$ -**	**$ -**	**$ 1,451**	**$ -**	**$ 1,451**
Total Unexpended Appropriations	**$ -**	**$ -**	**$ 21,378**	**$ -**	**$ 21,378**
Net Position	**$ 65**	**$ 7,570**	**$ (332,835)**	**$ -**	**$ (325,200)**

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2015				
$ 42	$ 6,752	$ (275,374)	$ -	$ (268,580)
$ -	$ 7	$ 27,435	$ -	$ 27,442
-	-	3	-	3
-	-	5	-	5
-	(394)	(2)	-	(396)
-	35	-	-	35
-	15	4	-	19
(1)	(119)	-	-	(120)
12	8	846	-	866
6	13	(264)	-	(245)
$ 17	**$ (435)**	**$ 28,027**	**$ -**	**$ 27,609**
-	931	(72,316)	-	(71,385)
$ 17	**$ 496**	**$ (44,289)**	**$ -**	**$ (43,776)**
$ 59	**$ 7,248**	**$ (319,663)**	**$ -**	**$ (312,356)**
$ -	$ -	$ 22,585	$ -	$ 22,585
$ -	$ 7	$ 27,520	$ -	$ 27,527
-	-	(31)	-	(31)
-	-	(2,712)	-	(2,712)
-	(7)	(27,435)	-	(27,442)
$ -	**$ -**	**$ (2,658)**	**$ -**	**$ (2,658)**
$ -	**$ -**	**$ 19,927**	**$ -**	**$ 19,927**
$ 59	**$ 7,248**	**$ (299,736)**	**$ -**	**$ (292,429)**

U.S. Department of Energy Combining Schedules of Budgetary Resources
For the Years Ended September 30, 2016 and 2015

(See independent auditors' report)

($ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	COMBINED
	FY 2016			
BUDGETARY RESOURCES:				
Unobligated Balance Brought Forward, Oct 1	$ 17	$ 900	$ 8,220	$ 9,137
Recoveries of Prior Year Unpaid Obligations	11	-	758	769
Other Changes in Unobligated Balance (+ or -)	-	-	(464)	(464)
Unobligated Balance from Prior Year Budget Authority, Net	**$ 28**	**$ 900**	**$ 8,514**	**$ 9,442**
Appropriations	4	105	29,706	29,815
Borrowing Authority	-	429	100	529
Contract Authority	-	2,650	-	2,650
Spending Authority from Offsetting Collections	319	1,822	5,175	7,316
Total Budgetary Resources	**$ 351**	**$ 5,906**	**$ 43,495**	**$ 49,752**
STATUS OF BUDGETARY RESOURCES:				
New Obligations and Upward Adjustments (Total)	$ 329	$ 4,997	$ 35,010	$ 40,336
Unobligated Balance, End of Year:				
Apportioned, Unexpired Accounts	$ 19	$ 895	$ 6,693	$ 7,607
Exempt from Apportionment, Unexpired Accounts	-	13	13	26
Unapportioned, Unexpired Accounts	3	1	1,704	1,708
Unexpired, Unobligated Balance, End of Year	**$ 22**	**$ 909**	**$ 8,410**	**$ 9,341**
Expired, Unobligated Balance, End of Year	-	-	75	75
Unobligated Balance, End of Year (Total)	**$ 22**	**$ 909**	**$ 8,485**	**$ 9,416**
Total Budgetary Resources	**$ 351**	**$ 5,906**	**$ 43,495**	**$ 49,752**
CHANGE IN OBLIGATED BALANCE:				
Unpaid Obligations:				
Unpaid Obligations, Brought Forward, Oct 1	$ 57	$ 3,762	$ 27,150	$ 30,969
New Obligations and Upward Adjustments (Total)	329	4,997	35,010	40,336
Outlays (Gross) (-)	(316)	(4,864)	(34,398)	(39,578)
Recoveries of Prior Year Unpaid Obligations (-)	(11)	-	(758)	(769)
Unpaid Obligations, End of Year	**$ 59**	**$ 3,895**	**$ 27,004**	**$ 30,958**
Uncollected Payments:				
Uncollected Pymts, Fed Sources, Brought Forward, Oct 1 (-)	$ -	$ (375)	$ (3,878)	$ (4,253)
Change in Uncollected Pymts, Fed Sources (+ or -)	-	(5)	(63)	(68)
Uncollected Pymts, Fed Sources, End of Year (-)	**$ -**	**$ (380)**	**$ (3,941)**	**$ (4,321)**
Memorandum (non-add) Entries:				
Obligated Balance, Start of Year (+ or -)	**$ 57**	**$ 3,387**	**$ 23,272**	**$ 26,716**
Obligated Balance, End of Year (+ or -)	**$ 59**	**$ 3,515**	**$ 23,063**	**$ 26,637**
BUDGET AUTHORITY AND OUTLAYS, NET:				
Budget Authority, Gross	$ 323	$ 5,006	$ 34,981	$ 40,310
Actual Offsetting Collections (-)	(320)	(4,195)	(5,911)	(10,426)
Change in Uncollected Pymts, Fed Sources (+ or -)	-	(5)	(63)	(68)
Recoveries of Prior Year Paid Obligations	-	-	3	3
Budget Authority, Net (Total)	**$ 3**	**$ 806**	**$ 29,010**	**$ 29,819**
Outlays, Gross	$ 316	$ 4,864	$ 34,398	$ 39,578
Actual Offsetting Collections (-)	(320)	(4,195)	(5,911)	(10,426)
Outlays, Net (Total)	**$ (4)**	**$ 669**	**$ 28,487**	**$ 29,152**
Distributed Offsetting Receipts (-)	(20)	(1,143)	(2,029)	(3,192)
Agency Outlays, Net	**$ (24)**	**$ (474)**	**$ 26,458**	**$ 25,960**

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	COMBINED
FY 2015			
$ 28	$ 797	$ 8,839	$ 9,664
1	-	2,503	2,504
-	-	(3,239)	(3,239)
$ 29	**$ 797**	**$ 8,103**	**$ 8,929**
4	109	27,890	28,003
-	619	2,019	2,638
-	1,946	-	1,946
304	2,213	5,242	7,759
$ 337	**$ 5,684**	**$ 43,254**	**$ 49,275**
$ 320	$ 4,784	$ 35,034	$ 40,138
$ 17	$ 706	$ 6,704	$ 7,427
-	13	14	27
-	181	1,457	1,638
$ 17	**$ 900**	**$ 8,175**	**$ 9,092**
-	-	45	45
$ 17	**$ 900**	**$ 8,220**	**$ 9,137**
$ 337	**$ 5,684**	**$ 43,254**	**$ 49,275**
$ 42	$ 3,694	$ 29,977	$ 33,713
320	4,784	35,034	40,138
(304)	(4,716)	(35,358)	(40,378)
(1)	-	(2,503)	(2,504)
$ 57	**$ 3,762**	**$ 27,150**	**$ 30,969**
$ -	$ (347)	$ (3,938)	$ (4,285)
-	(28)	60	32
$ -	**$ (375)**	**$ (3,878)**	**$ (4,253)**
$ 42	**$ 3,347**	**$ 26,039**	**$ 29,428**
$ 57	**$ 3,387**	**$ 23,272**	**$ 26,716**
$ 308	$ 4,887	$ 35,151	$ 40,346
(305)	(4,333)	(6,076)	(10,714)
-	(28)	60	32
-	-	10	10
$ 3	**$ 526**	**$ 29,145**	**$ 29,674**
$ 304	$ 4,716	$ 35,358	$ 40,378
(305)	(4,333)	(6,076)	(10,714)
$ (1)	**$ 383**	**$ 29,282**	**$ 29,664**
(20)	(776)	(2,230)	(3,026)
$ (21)	**$ (393)**	**$ 27,052**	**$ 26,638**

U.S. Department of Energy Consolidating Schedules of Custodial Activities
For the Years Ended September 30, 2016 and 2015

(See independent auditors' report)

($ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2016				
SOURCES OF COLLECTIONS:					
Cash Collections:					
Power Marketing Administrations	$ -	$ 774	$ -	$ -	$ 774
Federal Energy Regulatory Commission	25	-	-	-	25
Total Cash Collections	**$ 25**	**$ 774**	**$ -**	**$ -**	**$ 799**
Accrual Adjustment	3	2	-	-	5
Total Custodial Revenue	**$ 28**	**$ 776**	**$ -**	**$ -**	**$ 804**
DISPOSITION OF REVENUE:					
Transferred to Others:					
Bureau of Reclamation	$ (9)	$ (286)	$ -	$ -	$ (295)
Department of the Treasury	(4)	(246)	-	-	(250)
Army Corps of Engineers	(8)	(243)	-	-	(251)
Others	(4)	-	-	-	(4)
Decrease/(Increase) in Amounts to be Transferred	(3)	(1)	-	-	(4)
Net Custodial Activity	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
		FY 2015		
$ -	$ 725	$ -	$ -	$ 725
36	-	-	-	36
$ 36	**$ 725**	**$ -**	**$ -**	**$ 761**
3	(5)	-	-	(2)
$ 39	**$ 720**	**$ -**	**$ -**	**$ 759**
$ (9)	$ (275)	$ -	$ -	$ (284)
(14)	(220)	-	-	(234)
(9)	(229)	-	-	(238)
(5)	-	-	-	(5)
(2)	4	-	-	2
$ -	**$ -**	**$ -**	**$ -**	**$ -**

Required Supplementary Stewardship Information (RSSI)

Supplementary Stewardship Reporting on Research and Development Costs for FY 2016 through 2012

UNAUDITED – See accompanying Auditors' Report.

($ IN MILLIONS)	Program Office	FY 2016			FY2015			FY2014			FY2013			FY2012		
		DIRECT & SUPPORT COSTS *	DEPREC-IATION & OTHER	TOTAL	DIRECT COST	DEPREC-IATION & OTHER	TOTAL	DIRECT COST	DEPREC-IATION & OTHER	TOTAL	DIRECT COST	DEPREC-IATION & OTHER	TOTAL	DIRECT COST	DEPREC-IATION & OTHER	TOTAL
BASIC	Efficiency and Renewable Energy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9	$ 1	$ 10
	Fossil Energy	5	-	5	6	-	6	7	-	7	4	1	5	5	1	6
	National Nuclear Security Administration	105	3	108	89	3	92	48	1	49	45	3	48	53	2	55
	Nuclear Energy	37	-	37	34	-	34	-	-	-	-	-	-	-	-	-
	Electricity Delivery and Energy Reliability	4	-	4	6	-	6	3	-	3	4	-	4	6	1	7
	Science	4,364	463	4,827	4,361	445	4,806	3,969	434	4,403	3,941	561	4,502	3,962	766	4,728
	Bonneville Power Administration	4	-	4	4	-	4	5	-	5	9	-	9	9	-	9
TOTAL BASIC		**$ 4,519**	**$ 466**	**$ 4,985**	**$ 4,500**	**$ 448**	**$ 4,948**	**$ 4,032**	**$ 435**	**$ 4,467**	**$ 4,003**	**$ 565**	**$ 4,568**	**$ 4,044**	**$ 771**	**$ 4,815**
APPLIED	Advanced Research Projects Agency - Energy	$ 138	$ -	$ 138	$ 140	$ -	$ 140	$ 112	$ -	$ 112	$ 94	$ 1	$ 95	$ 92	$ -	$ 92
	Efficiency and Renewable Energy	496	11	507	481	10	491	437	7	444	365	46	411	454	47	501
	Environmental Management	5	-	5	4	-	4	4	-	4	4	-	4	11	-	11
	Fossil Energy	195	4	199	216	2	218	247	4	251	158	48	206	219	53	272
	National Nuclear Security Administration	3,855	61	3,916	2,679	71	2,750	1,871	95	1,966	1,898	139	2,037	2,044	193	2,237
	Nuclear Energy	663	19	682	621	22	643	292	6	298	258	40	298	284	41	325
	Electricity Delivery and Energy Reliability	58	-	58	59	-	59	45	-	45	42	5	47	46	5	51
	Science	70	-	70	61	-	61	56	-	56	46	1	47	-	-	-
	Bonneville Power Administration	2	-	2	2	-	2	2	-	2	5	-	5	5	-	5
TOTAL APPLIED		**$ 5,482**	**$ 95**	**$ 5,577**	**$ 4,263**	**$ 105**	**$ 4,368**	**$ 3,066**	**$ 112**	**$ 3,178**	**$ 2,870**	**$ 280**	**$ 3,150**	**$ 3,155**	**$ 339**	**$ 3,494**
DEVELOPMENT	Advanced Research Projects Agency - Energy	$ 102	$ -	$ 102	$ 103	$ -	$ 103	$ 83	$ -	$ 83	$ 77	$ 1	$ 78	$ 39	$ -	$ 39
	Efficiency and Renewable Energy	620	13	633	552	11	563	295	5	300	320	43	363	801	72	873
	Environmental Management	10	-	10	8	-	8	8	-	8	8	-	8	22	-	22
	Fossil Energy	327	6	333	363	3	366	414	7	421	197	60	257	274	66	340
	National Nuclear Security Administration	1,404	51	1,455	1,928	133	2,061	1,563	116	1,679	1,471	163	1,634	1,464	244	1,708
	Nuclear Energy	92	3	95	78	3	81	11	-	11	31	14	45	36	10	46
	Electricity Delivery and Energy Reliability	45	-	45	44	-	44	29	-	29	26	3	29	24	2	26
	Bonneville Power Administration	8	-	8	7	-	7	9	-	9	1	-	1	1	-	1
TOTAL DEVELOPMENT		**$ 2,608**	**$ 73**	**$ 2,681**	**$ 3,083**	**$ 150**	**$ 3,233**	**$ 2,412**	**$ 128**	**$ 2,540**	**$ 2,131**	**$ 284**	**$ 2,415**	**$ 2,661**	**$ 394**	**$ 3,055**
TOTAL R&D		**$ 12,609**	**$ 634**	**$ 13,243**	**$ 11,846**	**$ 703**	**$ 12,549**	**$ 9,510**	**$ 675**	**$ 10,185**	**$ 9,004**	**$ 1,129**	**$ 10,133**	**$ 9,860**	**$ 1,504**	**$ 11,364**

** - FY 2016 and 2015 include Program Direction, Safeguards & Security, and Infrastructure costs that support R&D activities.*

Investment in Research and Development

The Department's research and development programs are classified as Basic Research, Applied Research, and Development. Research and Development (R&D) program offices facilitate the creation, advancement, and deployment of new technologies and support the Department's mission to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. Investment in R&D includes support for crosscutting initiatives which are coordinated across the Department and seek to tap DOE's full capability to effectively and efficiently address the United States' energy, environmental, and national security challenges. (Examples of R&D investments are discussed in the section on "Strategic Plan and Program Performance.")

Goal 1: Science and Energy

(Basic, Applied, and Development)

The Office of Science (SC) is the Nation's largest Federal sponsor of basic research in the physical sciences and the lead Federal agency supporting fundamental scientific research for our Nation's energy future. SC supports research activities in the following areas: *Advanced Scientific Computing Research* supports research to discover, develop, and deploy computational and networking capabilities to analyze, model, simulate, and predict complex phenomena important to the United States; *Basic Energy Sciences* supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels to provide foundations for new energy technologies; *Biological and Environmental Research* supports fundamental research and scientific user facilities to achieve a predictive understanding of complex biological, climatic, and environmental systems for a secure and sustainable energy future; *Fusion Energy Sciences* supports research to expand the fundamental understanding of matter at very high temperatures and densities, and to build the scientific foundation for fusion energy; *High Energy Physics* supports research to understand how the universe works at its most fundamental level by discovering the most elementary constituents of matter and energy, probing the interactions among them, and exploring the basic nature of space and time itself; *Nuclear Physics* supports experimental and theoretical research to discover, explore, and understand all forms of nuclear matter; and *Small Business Innovation Research/ Technology Transfer* support for energy related technologies.

SC also supports the operation of national scientific user facilities that provide researchers with the most advanced tools of modern science including accelerators, colliders, supercomputers, light sources and neutron sources, as well as facilities for studying the nanoworld, the environment, and the atmosphere. In Fiscal Year 2016 over 32,000 researchers from academia, industry, and government laboratories, spanning all fifty states and the District of Columbia, used these unique facilities to perform scientific research. These user facilities are

operated on an open access, competitive merit review, basis, enabling scientists from every state and of many disciplines from academia, national laboratories, and industry to utilize the facilities' unique capabilities and sophisticated instrumentation.

The Office of Energy Efficiency and Renewable Energy (EERE) invests in high-value research and development in clean energy technologies such as Renewable Energy, Energy Efficiency and Sustainable Transportation. To date, third-party evaluations have assessed one-third of EERE's research and development portfolio and found that an EERE taxpayer investment of $12 billion has already yielded an estimated net economic benefit to the United States of more than $230 billion, with an overall annual return on investment of more than 30%. R&D Program activities include: Hydrogen & Fuel Cell Technologies, Biomass & Biorefinery Systems R&D, Solar Energy, Wind Energy, Geothermal Technologies, Water Power, Vehicle Technologies, Building Technologies, and Advanced Manufacturing. In addition, EERE includes the Federal Energy Management Program and Weatherization and Intergovernmental Activities.

As an example, the EERE's Building Technologies program connects basic and applied sciences by developing the next generation of highly efficient technologies and practices for both residential and commercial buildings through Emerging Technologies R&D activities. Similarly, the EERE Advanced Manufacturing program connects basic and applied sciences by bringing together industry, the national laboratories, and academia to: transition scientific innovations into manufacturing capabilities, develop cutting-edge foundational manufacturing technologies relevant to industry, advance broadly applicable manufacturing processes that use energy efficiently, and drive a corporate culture of continuous improvement to reduce energy use in the manufacturing sector. It also integrates national laboratory, university, and industry activities by competitively awarding cost-shared funding to collaborative research teams that rely on industry's active participation to ensure that the technologies meet real-world criteria, thus accelerating technology commercialization.

The Advanced Research Projects Agency-Energy (ARPA-E) is a catalyst for innovation. ARPA-E invests in high-potential, high-impact energy technologies that could radically transform the U.S. energy landscape and create new options for the nation's energy future. ARPA-E awardees are unique because they are creating entirely new ways to generate, store, and use energy. ARPA-E seeks multiple approaches to energy challenges and selects projects for both focused program areas and through open funding opportunities. The streamlined awards process allows for agility, focus, and impact. ARPA-E focuses only on innovative projects that can make a big impact over a finite period of time. Term-limited program directors and technology-to-market advisors provide projects with hands-on support to help them meet specific technical and market milestones. ARPA-E's goal is to develop a funded project to the point where private or public partners commit to advancing it to the next step.

The Office of Fossil Energy (FE) enhances U.S. economic and energy security by managing and performing energy-related research that maximizes the environmentally sound production and use of fossil fuels; supporting the development of policy options that benefit the U.S. public by ensuring access to affordable and clean energy; partnering with industry and others to advance fossil energy with reduced environmental impacts.

FE plays a leadership role in the development of carbon capture and storage (CSS) technologies. The program, in partnership with the private sector, is focused on minimizing the costs of emerging CSS technologies including improving overall economics where possible by utilizing carbon dioxide in applications such as enhanced oil recovery. Past FE research in hydraulic fracturing and horizontal drilling aided development of technologies that are facilitating the current shale gas boom that is benefiting the nation. Building off the early technological successes for producing shale gas, the program is now focusing on evaluating and mitigating environmental concerns with the production of shale gas resources.

The primary mission of the Office of Nuclear Energy (NE) is to advance nuclear power as a resource capable of meeting our 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. NE's program is guided by the four research objectives detailed in its Nuclear Energy Research and Development Roadmap: (1) develop technologies and other solutions that can improve the reliability, sustain the safety, and extend the life of current reactors; (2) develop improvements in the affordability of new reactors to enable nuclear energy to help meet the Administration's energy security and climate change goals; (3) develop sustainable fuel cycles; and (4) understand and minimize the risks of nuclear proliferation and terrorism.

The Office of Electricity Delivery and Energy Reliability (OE) drives electric grid modernization and resiliency in the energy infrastructure. OE pursues technologies to improve grid reliability, efficiency, flexibility, functionality, and security. R&D activities accelerate discovery and innovation in electric transmission and distribution technologies and create "next generation" devices, software, tools, and techniques to help modernize the electric grid. In addition, OE advances technologies, tools, and techniques to reduce risks to the Nation's critical energy infrastructure posed by cyber and other emerging threats. Program activities include transmission reliability, advanced modeling grid research, Smart Grid, microgrids, energy storage, cybersecurity for energy delivery systems, and transformer resilience. R&D activities are planned and implemented in concert with partners from other Federal

programs; electric utilities; equipment manufacturers; regional, state, and local agencies; national laboratories; and universities. Coordination is critical to focusing Federal efforts and ensuring that projects are properly aligned with public, private, local, and national needs.

The Bonneville Power Administration (BPA) Technology Innovation office (TI) manages BPA's strategic approach to research and development (R&D). Its annual portfolio includes projects for transmission, hydropower asset management, demand response, and energy efficiency.

Over the past 10 years this program has invested $70 million. Successful projects have returned $280 million in benefits to BPA. An example accomplishment includes the helical conductor shunt, an alternative to re-conductoring constrained transmission lines that minimizes major prolonged outages, enhances system flexibility, allows for increased power sales revenues, and improves return-on-investment of existing infrastructure while having no environmental impact. This project alone has resulted in $34 million in direct cost savings to date and more than $6 million in savings from avoided planned outages.

Goal 2: Nuclear Security

(Basic, Applied, and Development)

NNSA's science-based Stockpile Stewardship Program (SSP) was established to sustain the credibility of the nuclear deterrent without nuclear explosive testing. Through this program, NNSA has developed leading-edge expertise in advanced simulation and computing, hydrodynamic and subcritical experiments, high energy density physics, and materials and weapons effects science. These capabilities also support NNSA's two other vital missions, nuclear threat reduction and naval nuclear propulsion.

The NNSA Defense Nuclear Nonproliferation Research and Development (DNN R&D) program reduces the risk of nuclear proliferation and terrorism by developing innovative unilateral and multilateral technical capabilities to detect, identify, locate, and characterize foreign nuclear weapons program activities, illicit diversion of special nuclear materials, and global nuclear detonations. The program also includes research and development that supports nuclear counterterrorism and incident response activities. To meet national and departmental nuclear security requirements, DNN R&D leverages the unique facilities and scientific skills of the NNSA Nuclear Security Enterprise, other DOE national laboratories, academia, and industry.

In October 2015, NNSA commemorated the twentieth anniversary of the Stockpile Stewardship Program, which has allowed the Nation to maintain confidence in the nuclear deterrent without nuclear explosive testing. The investment in the Stockpile Stewardship Program has enabled resolution of many stockpile issues and provided more detailed knowledge than had been attained through nuclear explosive testing. NNSA is actively ensuring its capabilities to deliver another 20 years and beyond of Stockpile Stewardship Program success.

To sustain the ability to assess and certify the stockpile, NNSA will continue science-based stockpile stewardship by conducting experimental research and incorporating new knowledge into models and advanced computer codes. This strategy has allowed the stockpile to be assessed as safe, secure, reliable, and effective without underground nuclear explosive testing.

NNSA Defense Programs Research, Development, Testing, and Evaluation (DP RDT&E) program conducts activities using unique diagnostic tools, experimental platforms, and modeling and simulation capabilities. These efforts help prepare the Nation for a range of potential national security challenges by strengthening science, technology, and engineering capabilities, and providing a modernized, responsive infrastructure. Defense Programs provides the experimental and computational capability and infrastructure required to execute the Stockpile Stewardship and Management Plan and other DOE national security missions. By working at the leading edge of multiple scientific and technical disciplines, the Defense Programs nuclear security programs integrate scientific principles, address theory, field physical experiments, and conduct complex modeling and simulation to support the assessment and certification of the Nation's nuclear weapons. These endeavors bolster the capabilities of the U.S. government to address nuclear security threats through research and development, vulnerability analyses, and testing.

The NNSA Naval Reactors program's research and development efforts support new reactor plant development, new technologies for future fleet application, and continued, reliable operation of the nuclear fleet.

Goal 3: Management and Performance

(Applied)

The Office of Environmental Management maintains a Technology Development and Deployment program. The program strives to eliminate technical barriers to cleanup by reducing technical uncertainty, improving safety performance by applying improved or new technologies, increasing confidence in achieving long-term cleanup goals, addressing emerging issues, and leveraging investments in scientific research conducted by other parts of the Department.

Required Supplementary Information (RSI)

UNAUDITED – See accompanying Auditors' Report

This section of the report provides required supplementary information for the Department on deferred maintenance and budgetary resources by major budget account.

Deferred Maintenance

Deferred maintenance and repairs information is a requirement under Statements of Federal Financial Accounting Standards (SFFAS) No. 42, Deferred Maintenance and Repairs (DM&R), which requires deferred maintenance disclosures as of the end of each fiscal year. Deferred maintenance is defined in SFFAS No. 42 as "maintenance and repairs that were not performed when they should have been or were scheduled to be and which are put off or delayed for a future period." DM&R reporting enables the Government to be accountable to citizens for the proper administration and stewardship of its assets. Specifically, DM&R reporting assists users by providing an entity's realistic estimate of DM&R amounts and the effectiveness of asset maintenance practices the entities employ in fulfilling their missions.

Estimates were developed for:

($ in Millions)	
Buildings and Other Structures and Facilities	$5,896
Capital Equipment	186
Total	$6,082

Deferred Maintenance and Repairs - Buildings and Other Structures and Facilities

The Department of Energy has custody of nearly 22 thousand real property assets with an estimated 131 million gross square feet of building area, buildings, real property trailers and structures with a $152 billion replacement value, and a total of 2.7 million acres of land in 41 different states. The Department's portfolio of property, plant and equipment (PP&E) supports preeminent federal research laboratory campuses; user facilities; production, special purpose, and legacy clean-up activities; and facilities used predominantly for office space and warehousing. It is Departmental policy to maintain real property assets in a manner that promotes operational safety, worker health, environmental protection and compliance, property preservation, and cost-effectiveness while meeting the program missions. Estimates reported herein include deferred maintenance and repairs for capitalized or not capitalized and fully depreciated and not fully depreciated buildings, structures, and heritage assets owned by the Department. The Department does not accrue deferred maintenance and repairs on general or stewardship land parcels.

Estimates do not include DM&R for inactive assets not yet screened as excess to the Department's needs. Pursuant to the cost/benefit considerations provided in SFFAS No. 6, the Department has determined that the requirements for deferred maintenance and repair reporting on personal property (capital equipment) are not applicable to assets with an acquisition cost of less than $100,000, except in situations where maintenance is needed to address worker and public health and safety concerns.

Defining and Implementing M&R Policies in Practice

The Department visually assesses the condition of each building and structure at least once every five years to identify all deficiencies, except for some structures where a physical barrier prevents visual assessments (e.g., underground pipe systems). In such cases, sites may employ other methods to identify deficiencies. The requirements to conduct a condition assessment on each asset at least once within a five-year period applies to both active and inactive and excess assets; however, Department guidance gives its component programs and sites the flexibility to apply industry standard methods commensurate with each asset's status, usage, and hazards; or more thorough procedures when mandated by Federal, state, or local codes. Inactive assets must remain in a state safe enough to allow such inspections to occur, to protect life safety and the environment, to support eventual disposition, and so as not to endanger the mission responsibilities borne by other assets.

The recordation of deficiencies as deferred maintenance and repairs depends on programmatic and site policies. Sites estimate the cost to address deferred maintenance and repair deficiencies using unit construction, maintenance and repair cost data available from R. S. Means ("CostWorks"), or other providers of unit cost data. For years in between updates, sites apply inflators derived from annual budget preparation guidance published by the Department's Chief Financial Officer to deferred maintenance and repair estimates to approximate current dollars. Sites remove that item and its estimated cost from their backlog after resolving a deferred maintenance item or when management determines the repair is no longer needed.

Ranking and Prioritizing M&R Activities

The Department does not rank or prioritize maintenance and repair activities for its component programs and sites. Instead, it relies on the prudent site manager to apply his or her limited maintenance budget based on the role each asset has in supporting the site's various missions. Ranking factors may include mission dependency, status, use, ownership, and risks presented by any noted deficiencies among potentially other considerations.

Factors Considered in Setting Acceptable Condition

The DOE Asset Management Plan, identifies Asset Condition Index (ACI) as a real property portfolio performance measure. ACI equals one less the sum of the deferred maintenance of a portfolio of assets divided (normalized) by the replacement value of that same portfolio of assets. Internal reporting guidance assigns qualitative labels to ACI ranges and considers assets with an ACI equal to or greater than 0.95 in at least adequate condition. For this purpose, the Department equates the terms "adequate" and "acceptable". As of September 30, 2016, the percentage of active buildings in a condition at or above "acceptable" based on ACI is approximately 59 percent.

Significant Changes from Prior Year and Related Events

As of September 30, 2016, an amount of $5,508 million of deferred maintenance was estimated to be required to return active real property assets to acceptable operating condition. This is an overall increase of $36 million.

The Department adopted a year-to-year variance threshold of ten percent and considers a greater increase or decrease as significant. The Department recorded significant decreases in estimated deferred maintenance and repair for Active Heritage Assets and for Inactive and Excess Buildings. The Department recorded significant increases in estimated deferred maintenance and repair for Inactive and Excess Structures. Changes result from two sources. First, from continuing efforts to reduce the quantity of inactive and excess assets awaiting the excess screening process. Completion of the screening process realigns uncategorized (inactive but not yet screened as excess) deferred maintenance and repair into the Inactive & Excess category. Second, from an initiative to review categorization of deficiencies as deferred maintenance and repair considering factors such as operational status, mission dependency, and acceptability to management and revise estimates when appropriate. The second initiative also resulted in decreases in estimated deferred maintenance and repair estimates for Active Heritage Assets. FY 2016 deferred maintenance and repair estimates include estimates for assets held at the Western Area Power Administration (WAPA), the Southeastern Power Administration (SEPA), the Southwestern Power Administration (SWPA), and the Bonneville Power Administration (BPA).

Capital Equipment

Pursuant to the cost/benefit considerations provided in SFFAS No. 6 and SFFAS No. 42, the Department has determined that the requirements for deferred maintenance reporting on personal property (capital equipment) are not applicable to property items with an acquisition cost of less than $100,000, except in situations where maintenance is needed to address worker and public health and safety concerns.

Various methods were used for measuring deferred maintenance and determining acceptable operating condition for the Department's capital equipment including periodic condition assessments, physical inspections, review of work orders, manufacturer and engineering specification, and other methods, as appropriate.

An amount of $186 million of deferred maintenance was estimated to be needed as of September 30, 2016, to return capital equipment assets to acceptable operating condition.

Deferred Maintenance and Repair Costs

Estimates of the beginning and ending balances of DM&R for each major category of PP&E for which maintenance and repairs have been deferred include:

($ IN MILLIONS)	2016 Ending Balance DM&R	2016 Beginning Balance DM&R
ACTIVE:		
General PP&E:		
Buildings & Trailers	$ 3,517	$ 3,611
Structures	1,991	1,862
Subtotal - General PP&E Active	**$ 5,508**	**$ 5,473**
Heritage Assets	2	7
Subtotal - All Active	**$ 5,510**	**$ 5,480**
INACTIVE AND EXCESS:		
General PP&E:		
Buildings & Trailers	$ 321	$ 585
Structures	65	52
Subtotal - General PP&E Inactive and Excess	**$ 386**	**$ 637**
Total Deferred Maintenance and Repair Cost	**$ 5,896**	**$ 6,117**

Budgetary Resources by Major Account
For Year Ended September 30, 2016

	Weapons Activities 019 05 0240	Science 019 20 0222	Defense Environmental Cleanup 019 10 0251	Advanced Technology Vehicles Manufacturing Loan Program Account 019 20 0322	Bonneville Power Administration Fund 019 50 4045
BUDGETARY RESOURCES:					
Unobligated Balance Brought Forward, Oct 1	$ 214	$ 41	$ 49	$ 4,294	$ 13
Recoveries of Prior Year Unpaid Obligations	62	72	22	1	-
Other Changes in Unobligated Balance (+ or -)	2	-	-	-	-
Budget Authority, Gross	10,471	5,939	5,290	5	4,107
Total Budgetary Resources	$ 10,749	$ 6,052	$ 5,361	$ 4,300	$ 4,120
STATUS OF BUDGETARY RESOURCES:					
New Obligations and Upward Adjustments	$ 10,506	$ 6,040	$ 5,341	$ 5	$ 4,107
Unobligated Balances Available	242	8	18	4,295	13
Unobligated Balances not Available	1	4	2	-	-
Total Budgetary Resources	$ 10,749	$ 6,052	$ 5,361	$ 4,300	$ 4,120
CHANGE IN OBLIGATED BALANCE:					
Obligated Balance, Start of Year (+ or -)	$ 4,082	$ 3,975	$ 1,984	$ 46	$ 2,921
New Obligations and Upward Adjustments	10,506	6,040	5,341	5	4,107
Outlays (Gross) (-)	(9,822)	(5,623)	(5,157)	(4)	(3,919)
Recoveries of Prior Year Unpaid Obligations (-)	(62)	(72)	(22)	(1)	-
Change in Uncollected Pymts, Fed Sources (+ or -)	8	6	-	-	3
Obligated Balance, End of Year (+ or -)	$ 4,712	$ 4,326	$ 2,146	$ 46	$ 3,112
Agency Outlays, Net	$ 8,186	$ 5,098	$ 5,157	$ 4	$ 509

	Energy Efficiency and Renewable Energy 019 20 0321	Other Defense Activities 019 10 0243	Defense Nuclear Nonproliferation 019 05 0309	Naval Reactors 019 05 0314	Other Budgetary Accounts
BUDGETARY RESOURCES:					
Unobligated Balance Brought Forward, Oct 1	$ 657	$ 32	$ 70	$ 13	$ 2,232
Recoveries of Prior Year Unpaid Obligations	83	22	25	1	481
Other Changes in Unobligated Balance (+ or -)	-	-	-	-	10
Budget Authority, Gross	2,187	2,212	1,938	1,376	5,845
Total Budgetary Resources	$ 2,927	$ 2,266	$ 2,033	$ 1,390	$ 8,568
STATUS OF BUDGETARY RESOURCES:					
New Obligations and Upward Adjustments	$ 2,151	$ 2,230	$ 1,996	$ 1,382	$ 6,009
Unobligated Balances Available	744	23	37	7	2,234
Unobligated Balances not Available	32	13	-	1	325
Total Budgetary Resources	$ 2,927	$ 2,266	$ 2,033	$ 1,390	$ 8,568
CHANGE IN OBLIGATED BALANCE:					
Obligated Balance, Start of Year (+ or -)	$ 2,006	$ 283	$ 1,642	$ 465	$ 4,122
New Obligations and Upward Adjustments	2,151	2,230	1,996	1,382	6,009
Outlays (Gross) (-)	(1,889)	(2,148)	(2,043)	(1,299)	(5,931)
Recoveries of Prior Year Unpaid Obligations (-)	(83)	(22)	(25)	(1)	(481)
Change in Uncollected Pymts, Fed Sources (+ or -)	5	(86)	-	-	(4)
Obligated Balance, End of Year (+ or -)	$ 2,190	$ 257	$ 1,570	$ 547	$ 3,715
Agency Outlays, Net	$ 1,736	$ 797	$ 2,036	$ 1,299	$ 1,025

	Subtotal of Budgetary Accounts	Title 17 Innovative Technology Direct Loan Financing Account 019 20 4455	Title 17 Innovative Loan Guaranteed Loan Financing Account 019 20 4577	Advanced Technology Vehicles Manufacturing Direct Loan Financing Account 019 20 4579	Combined Statement of Budgetary Resources Total
BUDGETARY RESOURCES:					
Unobligated Balance Brought Forward, Oct 1	$ 7,615	$ 1,107	$ 234	$ 181	$ 9,137
Recoveries of Prior Year Unpaid Obligations	769	-	-	-	769
Other Changes in Unobligated Balance (+ or -)	12	(360)	-	(116)	(464)
Budget Authority, Gross	39,370	713	4	223	40,310
Total Budgetary Resources	$ 47,766	$ 1,460	$ 238	$ 288	$ 49,752
STATUS OF BUDGETARY RESOURCES:					
New Obligations and Upward Adjustments	$ 39,767	$ 374	$ 71	$ 124	$ 40,336
Unobligated Balances Available	7,621	-	12	-	7,633
Unobligated Balances not Available	378	1,086	155	164	1,783
Total Budgetary Resources	$ 47,766	$ 1,460	$ 238	$ 288	$ 49,752
CHANGE IN OBLIGATED BALANCE:					
Obligated Balance, Start of Year (+ or -)	$ 21,526	$ 4,202	$ (9)	$ 997	$ 26,716
New Obligations and Upward Adjustments	39,767	374	71	124	40,336
Outlays (Gross) (-)	(37,835)	(1,547)	(72)	(124)	(39,578)
Recoveries of Prior Year Unpaid Obligations (-)	(769)	-	-	-	(769)
Change in Uncollected Pymts, Fed Sources (+ or -)	(68)	-	-	-	(68)
Obligated Balance, End of Year (+ or -)	$ 22,621	$ 3,029	$ (10)	$ 997	$ 26,637
Agency Outlays, Net	$ 25,847	$ 671	$ 67	$ (625)	$ 25,960

Auditors' Report

Memorandum from the Inspector General

DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL

MEMORANDUM

DATE: November 15, 2016

REPLY TO ATTN OF: IG-302 (A16FN004)

SUBJECT: Audit Report on "The Department of Energy's Fiscal Year 2016 Consolidated Financial Statements"

TO: Chief Financial Officer, CF-1

The attached report presents the results of the independent certified public accountants' audit of the Department of Energy's consolidated financial statements as of September 30, 2016 and 2015, and the related consolidated statements of net costs, changes in net position, custodial activity, and combined statements of budgetary resources for the years then ended.

The Office of Inspector General (OIG) engaged the independent public accounting firm of KPMG LLP (KPMG) to conduct the audit, subject to our review. KPMG is responsible for expressing an opinion on the Department's financial statements and reporting on applicable internal controls and compliance with laws and regulations. The OIG monitored audit progress and reviewed the audit report and related documentation. This review disclosed no instances where KPMG did not comply, in all material respects, with generally accepted Government auditing standards. The OIG did not express an independent opinion on the Department's financial statements.

KPMG audited the consolidated financial statements of the Department as of September 30, 2016 and 2015, and the related consolidated statements of net cost, changes in net position, custodial activity, and combined statement of budgetary resources for the years then ended. KPMG concluded that these consolidated financial statements are presented fairly, in all material respects, in conformity with United States generally accepted accounting principles and has issued an unmodified opinion based on its audits and the reports of other auditors for the years ended September 30, 2016 and 2015.

As part of this audit, auditors also considered the Department's internal controls over financial reporting and tested for compliance with certain provisions of laws, regulations, contracts, and grant agreements that could have a direct and material effect on the consolidated financial statements. The audit revealed a certain deficiency in internal control related to the reconciliation of environmental liabilities. The following significant deficiency in the Department's system of internal control is not considered a material weakness.

Reconciliation of Environmental Liabilities: Office of Management and Budget Circular No. A-123, *Management's Responsibility for Internal Control*, indicates that management should have control activities in place to help ensure that agency objectives are met. The Department had not implemented effective controls to properly reconcile

and record adjustments in the environmental liability estimate. Due to turnover late in fiscal year 2016 and the lack of a complete set of procedures for new staff to follow, the Department did not identify and correct accounting entries of $3.05 billion, which would have resulted in a net $1.90 billion understatement of the environmental liability. Upon further review during the process of vetting the finding, with additional information presented by the National Nuclear Security Administration, the Department determined that the largest entry of $2.45 billion was not required. The amounts were corrected prior to the issuance of the Agency Financial Report.

The results of the auditors' review of the Department's compliance with provisions of laws and regulations disclosed no instances of noncompliance or other matters that are required to be reported herein under *Government Auditing Standards*, issued by the Comptroller General of the United States, or Office of Management and Budget Bulletin Number 15-02, *Audit Requirements for Federal Financial Statements*.

The OIG issued numerous notices of findings and recommendations to management during the course of the audit. In nearly all instances, management concurred with the findings and recommendations. However, a response to one information technology-related finding indicated a partial concurrence. In addition, one response to a finding pertaining to the reconciliation of the Department's environmental liability indicated a non-concurrence. All findings will be detailed in forthcoming management letters and a management decision will be requested, as appropriate.

We appreciated the cooperation of your staff during the review.

Sarah B. Nelson
Assistant Inspector General
for Audits and Administration
Office of Inspector General

Attachment

cc: Deputy Chief Financial Officer, CF-2
Director, Office of Finance and Accounting, CF-10
Deputy Director, Office of Finance and Accounting, CF-10
Assistant Director, Office of Financial Policy and Internal Controls, CF-12
Acting Team Leader, Office of Financial Policy and Internal Controls, CF-12
Audit Resolution Specialist, Office of Financial Policy and Internal Controls, CF-12

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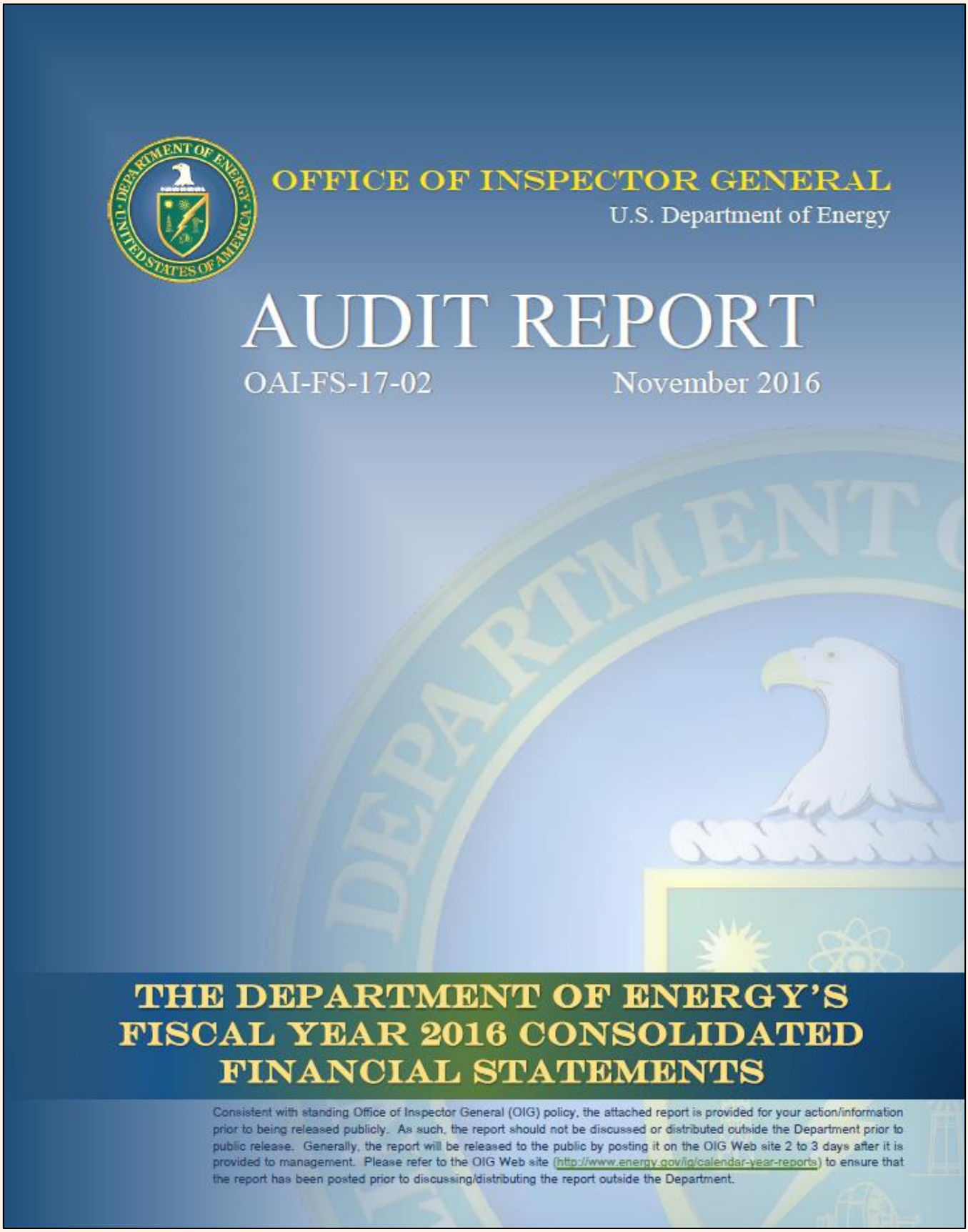
Independent Auditors' Report



Department of Energy
Washington, DC 20585

November 15, 2016

MEMORANDUM FOR THE SECRETARY

FROM: Rickey R. Hass
Acting Inspector General

SUBJECT: INFORMATION: Audit Report on "The Department of Energy's Fiscal Year 2016 Consolidated Financial Statements"

Pursuant to requirements established by the *Government Management Reform Act of 1994*, the Office of Inspector General engaged the independent public accounting firm of KPMG LLP (KPMG) to perform the audit of the Department of Energy's Fiscal Year 2016 Consolidated Financial Statements.

KPMG audited the consolidated financial statements of the Department as of September 30, 2016 and 2015, and the related consolidated statements of net cost, changes in net position, custodial activity, and combined statement of budgetary resources for the years then ended. KPMG concluded that these consolidated financial statements are presented fairly, in all material respects, in conformity with United States generally accepted accounting principles and has issued an unmodified opinion based on its audits and the reports of other auditors for the years ended September 30, 2016 and 2015.

As part of this audit, auditors also considered the Department's internal controls over financial reporting and tested for compliance with certain provisions of laws, regulations, contracts, and grant agreements that could have a direct and material effect on the consolidated financial statements. The audit revealed a certain deficiency in internal control related to the reconciliation of environmental liabilities. The following significant deficiency in the Department's system of internal control is not considered a material weakness.

> **Reconciliation of Environmental Liabilities**: Office of Management and Budget Circular No. A-123, *Management's Responsibility for Internal Control*, indicates that management should have control activities in place to help ensure that agency objectives are met. The Department had not implemented effective controls to properly reconcile and record adjustments in the environmental liability estimate. Due to turnover late in fiscal year 2016 and the lack of a complete set of procedures for new staff to follow, the Department did not identify and correct accounting entries of $3.05 billion which would have resulted in a net $1.90 billion understatement of the environmental liability. Upon further review during the process of vetting the finding, with additional information presented by the National Nuclear Security Administration, the Department determined that the largest entry of $2.45 billion was not required. The amounts were corrected prior to the issuance of the Agency Financial Report.

INDEPENDENT AUDITORS' REPORT

KPMG LLP
Suite 12000
1801 K Street, NW
Washington, DC 20006

Attachment

Independent Auditors' Report

The Acting Inspector General, United States Department of Energy and
The Secretary, United States Department of Energy:

Report on the Financial Statements

We have audited the accompanying consolidated financial statements of the United States Department of Energy (Department), which comprise the consolidated balance sheets as of September 30, 2016 and 2015, and the related consolidated statements of net cost, changes in net position, and custodial activity, and combined statements of budgetary resources for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America, in accordance with the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, and in accordance with Office of Management and Budget (OMB) Bulletin No. 15-02, *Audit Requirements for Federal Financial Statements*. Those standards and OMB Bulletin No. 15-02 require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion on the Financial Statements

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the United States Department of Energy as of September 30, 2016 and 2015, and its net costs, changes in net position, budgetary resources, and custodial activity for the years then ended in accordance with U.S. generally accepted accounting principles.

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Emphasis of Matters

As discussed in Note 7 to the consolidated financial statements, the Department has total direct loans and loan guarantees, net, of $17 billion and $17 billion as of September 30, 2016 and 2015, respectively, which are issued under the *Federal Credit Reform Act of 1990*. Subsidy costs of the direct loans and loan guarantees are intended to estimate the long-term cost to the U.S. Government of its loan program and include interest rate differentials, delinquencies, defaults, fees, and other cash flow items. A subsidy re-estimate is performed annually at September 30. Any adjustment resulting from the re-estimate is recognized as subsidy expense. Our opinion is not modified with respect to this matter.

As discussed in Note 15 to the consolidated financial statements, the cost estimates supporting the Department's environmental cleanup and disposal liabilities of $372 billion and $340 billion as of September 30, 2016 and 2015, respectively, are based upon assumptions regarding funding and other future actions and decisions, many of which are beyond the Department's control. Our opinion is not modified with respect to this matter.

As discussed in Note 18 to the consolidated financial statements, the Department is involved as a defendant in several matters of litigation relating to its inability to accept commercial spent nuclear fuel by January 31, 1998, the date specified in the Nuclear Waste Policy Act of 1982, as amended. The Department has recorded liabilities for likely damages of $25 billion and $24 billion as of September 30, 2016 and 2015, respectively. Our opinion is not modified with respect to this matter.

Other Matters

Interactive Data

Management has elected to reference to information on websites or other forms of interactive data outside the Agency Financial Report to provide additional information for the users of its financial statements. Such information is not a required part of the basic consolidated financial statements or supplementary information required by the Federal Accounting Standards Advisory Board. The information on these websites or the other interactive data has not been subjected to any of our auditing procedures, and accordingly we do not express an opinion or provide any assurance on it.

Required Supplementary Information

U.S. generally accepted accounting principles require that the information in the Management's Discussion and Analysis, Required Supplementary Information, and Required Supplementary Stewardship Information sections be presented to supplement the basic consolidated financial statements. Such information, although not a part of the basic consolidated financial statements, is required by the Federal Accounting Standards Advisory Board who considers it to be an essential part of financial reporting for placing the basic consolidated financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic consolidated financial statements, and other knowledge we obtained during our audits of the basic consolidated financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary and Other Information

Our audits were conducted for the purpose of forming an opinion on the basic consolidated financial statements as a whole. The consolidating information in the Consolidating Schedules section, the Message from the

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Attachment

Secretary, the Message from the Chief Financial Officer, and Other Information section of the Department's Fiscal Year 2016 *Agency Financial Report* are presented for purposes of additional analysis and are not a required part of the basic consolidated financial statements.

The consolidating information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic consolidated financial statements. Such information has been subjected to the auditing procedures applied in the audits of the basic consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic consolidated financial statements or to the basic consolidated financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the consolidating information is fairly stated in all material respects in relation to the basic consolidated financial statements as a whole.

The information in the Message from the Secretary, the Message from the Chief Financial Officer, and Other Information section of the Department's Fiscal Year 2016 Agency Financial Report has not been subjected to the auditing procedures applied in the audits of the basic consolidated financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Other Reporting Required by *Government Auditing Standards*

Internal Control Over Financial Reporting

In planning and performing our audit of the consolidated financial statements as of and for the year ended September 30, 2016, we considered the Department's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the consolidated financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Department's internal control. Accordingly, we do not express an opinion on the effectiveness of the Department's internal control. We did not test all internal controls relevant to operating objectives as broadly defined by the *Federal Managers' Financial Integrity Act of 1982*.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that have not been identified. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. We did identify a deficiency in internal control, described below and in more detail in Exhibit I, that we consider to be a significant deficiency.

- **Reconciliation of Environmental Liabilities.** The Department had not implemented effective controls to properly reconcile and record adjustments to the environmental liability.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Department's consolidated financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws,

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Attachment

regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests of compliance disclosed no instances of noncompliance or other matters that are required to be reported herein under *Government Auditing Standards* or OMB Bulletin No. 15-02.

We also performed tests of its compliance with certain provisions referred to in Section 803(a) of the *Federal Financial Management Improvement Act of 1996* (FFMIA). Providing an opinion on compliance with FFMIA was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests of FFMIA disclosed no instances in which the Department's financial management systems did not substantially comply with the (1) Federal financial management systems requirements, (2) applicable Federal accounting standards, and (3) the United States Government Standard General Ledger at the transaction level.

The Department's Response to Findings

The Department's response to the findings identified in our audit is described in Exhibit I. The Department's response was not subjected to the auditing procedures applied in the audit of the consolidated financial statements and, accordingly, we express no opinion on the response.

***Purpose of the Other Reporting Required by* Government Auditing Standards**

The purpose of the communication described in the Other Reporting Required by *Government Auditing Standards* section is solely to describe the scope of our testing of internal control and compliance and the result of that testing, and not to provide an opinion on the effectiveness of the Department's internal control or compliance. Accordingly, this communication is not suitable for any other purpose.

KPMG LLP

November 14, 2016

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Attachment

Exhibit I – Significant Deficiency

Reconciliation of Environmental Liabilities

Office of Management and Budget Circular No. A-123, *Management's Responsibility for Internal Control*, indicates that management should have control activities in place to help ensure that agency objectives are met. The Department had not implemented effective controls to properly reconcile and record adjustments in the environmental liability estimate. Due to turnover late in FY 2016 and the lack of a complete set of procedures for new staff to follow, the Department did not identify and correct accounting entries of $3.05 billion which would have resulted in a net $1.90 billion understatement of the environmental liability. Upon further review during the process of vetting the finding, with additional information provided by the National Nuclear Security Administration (NNSA), the Department determined that the largest entry of $2.45 billion was not required. The amounts were corrected prior to the issuance of the Agency Financial Report (AFR).

Recommendation

We recommend that the Department implement improved controls over the environmental liability reconciliation process to verify that entries related to the environmental liability estimates are recorded appropriately in the general ledger and reconcile to supporting documentation.

Management's Response

The US Army Corps of Engineers (USACE) provided a revised estimate of the Mixed Oxide Fuel Fabrication Facility (MOX) in mid-August 2016, which extended the timeline for an additional 19 years. This revised estimate did not include costs for additional items such as storage for the additional time period. An Environmental Management (EM) staff member provided a rough (everyone agrees that this was a "back of the envelope") estimate of $2.454 billion for this storage. On October 20, 2016, the Office of the Chief Financial Officer (OCFO) suggested for the $2.454 billion to be disclosed as a footnote due the uncertainty of the cost alignment, but KPMG proposed that OCFO book this $2.454 billion. The requirement to align costs and to book the contingency was originally identified by KPMG during discussions between EM, NNSA and OCFO regarding the timing and scope of a new estimate provided by NNSA and prepared by USACE for MOX. As of October 28, 2016 the OCFO did not record the additional estimated contingent liability.

Subsequent to October 28, 2016 OCFO recorded the $2.454 billion estimated contingent liabilities. The estimated contingent liability was recorded with EM's confirmation it was only to be posted as a contingent liability and not a life cycle cost liability. The rough estimate submitted by EM had yet to go through the full review process by NNSA and EM offices.

However, during the exit conference on November 10, 2016, it was confirmed by the NNSA MOX Program Executive that the $2.454 billion is an uncertain cost to the program and should not have been included as part of the MOX cost alignment. This is also noted [in the finding above]. As a result of the exit conference discussion, the OCFO reversed the $2.454 billion and footnoted the uncertainty of the cost alignment as originally had planned prior to the conversation with KPMG LLP.

OCFO disagrees with KPMG's determination that this issue is a significant deficiency for the following reasons:

- **Procedures and internal controls are and were in place. OCFO has a process in place to review the statements and AFR before it is finalized and published.** OCFO has provided the procedures and evidence of the review activity for FY 2015 and FY 2016 to KPMG. OCFO originally wanted this $2.454 billion cost to be disclosed in the footnote. This approach was

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subsequently confirmed by the NNSA MOX Program Executive that this cost involved too much uncertainty and it shouldn't be included as a liability on our Balance Sheet. Therefore, there is no breakdown in the process controls over the preparation of the financial statements. The measurability and the probability of this cost does not meet the conditions within Statement of Federal Financial Accounting Standards (SFFAS) 5 on contingencies.

- **The amount is not information that management will rely on and will not form a basis for decision-making**. The Government Accountability Office (GAO) Financial Audit Manual (FAM) 540.02 states that consideration should be given to whether the information that was misstated was something that someone would have used for management decision-making purposes. Due to the uncertainty of the program direction/ approach and the associated cost alignment, the entry should not be included in the liability on the Balance Sheet because the MOX approach of the surplus plutonium disposition is facing potential termination of its project. By disclosing the cost alignment information in the footnote, this will ensure that information is presented as accurately reasonable for management decision-making.

- **Even if the adjustment was needed to align with the USACE MOX, it is immaterial** because it was only 0.66% of the total Environmental Cleanup and Disposal Liabilities and makes up 0.48% of the Department's $510.721 billion total liability.

- **Even if the adjustments noted in the Conditions section of the Notification of Findings and Recommendations (NFR) were needed, the amounts are significantly below materiality of total liabilities**. American Institute of Certified Public Accountants (AICPA) AU-C 265.A06 provides the factors that identify the magnitude of a misstatement that might result from a deficiency in internal controls as follows:

  - The financial statement amounts or total of transactions exposed to the deficiency - The DOE error was 4 transactions for an absolute value of $3.05 billion, which is significantly below materiality of the total liabilities of $510.721 billion.

- **The amount in contention is not material to result in a finding of a significant deficiency.** The Gross Costs on the FY 2016 Statement of Net Cost is $79 billion. The errors from the Headquarters (HQ) reconciliation of Note 3 was a net adjustment of $1.90 billion or 2.4% of Gross Costs (GC).

- **The finding on the HQ Note 3 reconciliation process does not rise to the materiality factors in AU-C312.04.**

  - The auditor's consideration of materiality is influenced by the auditor's perception of the needs of users of financial statements. The perceived needs of users are recognized in the discussion of materiality in Financial Accounting Standards Board (FASB) Statement of Financial Accounting Concepts No. 2, Qualitative Characteristics of Accounting Information, which defines materiality as "the magnitude of an omission or misstatement of accounting information that, in the light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would have been changed or influenced by the omission or misstatement".

The 4 noted transactions under the Condition section of the NFR occur once a year and 3 of the 4 transactions were placeholders or contingent liabilities. Given that the Environmental Cleanup and Disposal Liabilities includes subjective judgments on estimates, uncertainty on the future path of the approach currently undertaken, uncertainty of reliability of some of the details of the estimates in calculating certain contingencies related to environmental liabilities as a whole based on current knowledge, experience and technology

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regarding clean-up activities in consideration of future events, the qualitative characteristics involved does not meet a supportable judgment process of this materiality test.

Procedures and internal controls are and were in place. DOE has an established process in place to review the statements and AFR before it is finalized and published. It is management's judgment that Conditions noted in this NFR would have been identified by DOE before the final statements were delivered. In addition it is also management's judgment that [the situation related to MOX] should have been disclosed in the footnote and was confirmed by NNSA from a programmatic perspective. Thus, there was no omission in reporting liabilities that would mislead the reader of the financial statements nor would lead to incorrect management decision-making.

For the above reasons, and on the basis of reasonableness and management professional judgment, we do not concur that the finding rises to a significant deficiency.

Auditor Comments

Management did not agree that improved controls were needed to address the four identified errors. While management asserted that it would have identified the errors prior to the issuance of the financial statements, our review of the documentation provided in response to the finding did not find that the management review referred to in their response operated at a level of precision to identify the errors in a timely manner. A majority of the documentation evidenced reviews that were contemporaneous with the errors and as such did not demonstrate a compensating review. The documentation that evidenced a final review did not demonstrate a level of precision to compensate for the errors we noted. We maintain our recommendation that the Department implement improved controls over the environmental liability reconciliation process.

GAO's Financial Audit Manual identifies a significant deficiency to include a misstatement of the entity's financial statement that is more than inconsequential. We maintain our position that errors aggregating to $3.05 billion, representing 4.8 percent of the Department's net costs, although not material is more than inconsequential.

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FEEDBACK

The Office of Inspector General has a continuing interest in improving the usefulness of its products. We aim to make our reports as responsive as possible and ask you to consider sharing your thoughts with us.

Please send your comments, suggestions, and feedback to OIG.Reports@hq.doe.gov and include your name, contact information, and the report number. You may also mail comments to:

Office of Inspector General (IG-12)
Department of Energy
Washington, DC 20585

If you want to discuss this report or your comments with a member of the Office of Inspector General staff, please contact our office at (202) 253-2162.

Other Information

(Unaudited)

The Joint BioEnergy Institute (JBEI) is a U.S. Department of Energy (DOE) Bioenergy Research Center dedicated to developing advanced biofuels—liquid fuels derived from the solar energy stored in plant biomass that can replace gasoline, diesel and jet fuels.

Combining Schedules of Spending

For the Years Ended September 30, 2016 and 2015

($ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	COMBINED	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	COMBINED
	FY 2016				FY 2015			
WHAT MONEY IS AVAILABLE TO SPEND?								
Total Resources	$ 351	$ 5,906	$ 43,495	$ 49,752	$ 337	$ 5,684	$ 43,254	$ 49,275
Less Amount Available but Not Agreed to be Spent	(19)	(908)	(6,706)	(7,633)	(17)	(719)	(6,718)	(7,454)
Less Amount Not Available to be Spent	(3)	(1)	(1,779)	(1,783)	-	(181)	(1,502)	(1,683)
Total Amounts Agreed to be Spent	$ 329	$ 4,997	$ 35,010	$ 40,336	$ 320	$ 4,784	$ 35,034	$ 40,138
HOW WAS THE MONEY SPENT/ISSUED?								
Personnel Compensation								
Contracts	$ -	$ -	$ -	$ -	$ -	$ -	$ 10	$ 10
Non-Financial Assistance Direct Payments	177	529	1,078	1,784	171	585	1,046	1,802
Total Personnel Compensation	$ 177	$ 529	$ 1,078	$ 1,784	$ 171	$ 585	$ 1,056	$ 1,812
Personnel Benefits								
Contracts	$ -	$ -	$ 8	$ 8	$ -	$ -	$ 5	$ 5
Non-Financial Assistance Direct Payments	54	175	343	572	53	188	319	560
Total Personnel Benefits	$ 54	$ 175	$ 351	$ 580	$ 53	$ 188	$ 324	$ 565
Travel and Transportation of Persons								
Contracts	$ -	$ -	$ 2	$ 2	$ -	$ -	$ 2	$ 2
Non-Financial Assistance Direct Payments	3	32	53	88	3	37	51	91
Total Travel and Transportation of Persons	$ 3	$ 32	$ 55	$ 90	$ 3	$ 37	$ 53	$ 93
Rent, Communications and Utilities								
Contracts	$ 33	$ 38	$ 382	$ 453	$ 27	$ 66	$ 390	$ 483
Other Payment Types	-	-	-	-	-	-	2	2
Total Rent, Communications and Utilities	$ 33	$ 38	$ 382	$ 453	$ 27	$ 66	$ 392	$ 485
Other Contractual Services								
Contracts	$ 45	$ 2,829	$ 24,708	$ 27,582	$ 61	$ 2,702	$ 24,560	$ 27,323
Financial Assistance Direct Payments	-	-	1,146	1,146	-	-	914	914
Grants	-	16	26	42	-	-	35	35
Non-Financial Assistance Direct Payments	-	50	15	65	-	51	12	63
Other Payment Types	-	-	1	1	-	-	-	-
Total Other Contractual Services	$ 45	$ 2,895	$ 25,896	$ 28,836	$ 61	$ 2,753	$ 25,521	$ 28,335
Supplies and Materials								
Contracts	$ 2	$ 44	$ 87	$ 133	$ 2	$ 77	$ 260	$ 339
Financial Assistance Direct Payments	-	-	1	1	-	-	-	-
Other Payment Types	-	-	1	1	-	-	-	-
Total Supplies and Materials	$ 2	$ 44	$ 89	$ 135	$ 2	$ 77	$ 260	$ 339
Equipment								
Contracts	$ -	$ 587	$ 706	$ 1,293	$ 1	$ 257	$ 568	$ 826
Non-Financial Assistance Direct Payments	5	-	-	5	-	-	-	-
Total Equipment	$ 5	$ 587	$ 706	$ 1,298	$ 1	$ 257	$ 568	$ 826
Land and Structures								
Contracts	$ -	$ 332	$ 3,943	$ 4,275	$ -	$ 513	$ 2,403	$ 2,916
Financial Assistance Direct Payments	-	-	100	100	-	-	90	90
Total Land and Structures	$ -	$ 332	$ 4,043	$ 4,375	$ -	$ 513	$ 2,493	$ 3,006
Loans								
Loans	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,990	$ 1,990
Grants, Subsidies and Contributions								
Contracts	$ -	$ -	$ 3	$ 3	$ -	$ -	$ 19	$ 19
Financial Assistance Direct Payments	-	-	528	528	-	-	268	268
Grants	-	39	1,250	1,289	-	46	1,408	1,454
Non-Financial Assistance Direct Payments	8	-	-	8	-	-	2	2
Reestimate	-	-	165	165	-	-	211	211
Total Grants, Subsidies and Contributions	$ 8	$ 39	$ 1,946	$ 1,993	$ -	$ 46	$ 1,908	$ 1,954
Interest								
Contracts	$ 2	$ -	$ 9	$ 11	$ -	$ -	$ -	$ -
Interest and Dividends	-	323	436	$ 759	-	259	459	$ 718
Total Interest	$ 2	$ 323	$ 445	$ 770	$ -	$ 259	$ 459	$ 718
All Other								
Contracts	$ -	$ 3	$ 14	$ 17	$ 2	$ 3	$ 3	$ 8
Non-Financial Assistance Direct Payments	-	-	2	2		-	3	3
Other Payment Types	-	-	3	3	-	-	4	4
Total All Other	$ -	$ 3	$ 19	$ 22	$ 2	$ 3	$ 10	$ 15
Total Amounts Agreed to be Spent	$ 329	$ 4,997	$ 35,010	$ 40,336	$ 320	$ 4,784	$ 35,034	$ 40,138

OTHER INFORMATION (Unaudited)

The *Combining Schedules of Spending* present an overview of how and where the Department spent its funding. The budgetary information in these schedules is presented on a combined basis and not a consolidated basis.

What Money is Available to Spend summarizes the funds the Department obligated during the fiscal year. *How Was the Money Spent/Issued* summarizes the Department's obligations for the fiscal year, categorized by the OMB Budget Object Class definitions found in OMB Circular No. A-11, "Preparation, Submission and Execution of the Budget" and by payment types.

The total amount agreed to be spent in both sections is equivalent to the obligations incurred shown on the *Combined Statements of Budgetary Resources*. Similar data are also submitted to USAspending.gov; however the amounts will differ because USAspending.gov excludes certain types of obligations such as reimbursable work, classified amounts, and individual transactions below $25,000.

Inspector General's Management Challenges

The Office of Inspector General (OIG) annually identifies what it considers to be the most significant management challenges facing the Department. This effort is designed to assess the Agency's progress in addressing previously identified challenges and to consider emerging issues. The identified challenges represent risks inherent in the Department's wide-ranging and complex operations, as well as those related to problems with specific management processes. The OIG's goal is to focus attention on significant issues, with the objective of working with Department managers to enhance the effectiveness of agency programs and operations.

While the fiscal year (FY) 2017 challenge areas remain largely consistent with those in previous years, based on the results of our work over the last year, we have made one notable change. Specifically, because of the large volume of financial assistance awards managed by the Department and the need for adequate oversight to protect the Department's investments, we are including Financial Assistance Management as a management challenge. As a result, the FY 2017 management challenges include the following:

- Financial Assistance and Contract Management
- Cybersecurity
- Environmental Cleanup
- Nuclear Waste Disposal
- Safeguards and Security
- Stockpile Stewardship
- Infrastructure Modernization

In addition to the management challenges, we maintain a watch list of other issues that do not meet the threshold of a management challenge, yet in our view, warrant special attention by Department officials. For FY 2017, the watch list includes Human Capital Management, Loan Guarantee Program, and Worker and Community Safety.

Financial Assistance and Contract Management

The Department is the largest civilian contracting agency in the Federal Government and awards contracts, grants, and other financial assistance instruments to industrial companies, small businesses, academic institutions, and non-profit organizations. Approximately 90 percent of the Department's budget is spent on contracts and large capital asset projects. In FY 2015, the Department managed 11,337 contracts valued at more than $27 billion. Additionally, the Department reported more than $2.7 billion in financial assistance direct payments, including almost $1.5 billion in grants, in FY 2015. The challenges associated with managing the Department's sizeable contracting portfolio have been recognized internally by the agency, as well as externally by the Government Accountability Office (GAO), which has included inadequate contract and project oversight on its High Risk List since 1990.

Acknowledging the Department's progress in this area, as of February 2013, GAO had narrowed the focus of the high-risk designation to the Office of Environmental Management (Environmental Management) and National Nuclear Security Administration (NNSA) major contracts and projects that have an estimated cost of $750 million or more. Together, these two programs accounted for more than 60 percent of the Department's FY 2016 discretionary funding of nearly $30 billion. As recently as 2015, GAO found continuing cost and schedule problems with Environmental Management and NNSA major projects, but it noted that the Department's top leadership continued to be engaged and take action to address this high-risk area. Given the number of contracts handled by the Department and the complexity and importance of the Department's numerous multimillion dollar projects, the area of Financial Assistance and Contract Management is a significant management challenge.

Cybersecurity

The use of information technology by Federal agencies continues to evolve, resulting in greater opportunities for accessibility to Government information and resources. Given the importance and sensitivity of the Department's activities, along with the vast array of data it processes and maintains, cybersecurity is a crucial aspect of the Department's overall security posture. According to the Office of Management and Budget, Federal agencies reported more than 77,000 information security incidents in FY 2015, up 10 percent from FY 2014. The increasing number and impact of these incidents demonstrate that continuously confronting cyber threats must remain a strategic priority. While the usual attacks by hackers and criminals remain persistent challenges, threats are increasingly coming from state-sponsored military and intelligence organizations, terrorists groups, and international crime organizations. These evolving security concerns could lead to devastating consequences in the event of a cyber breach.

Although the Department has made progress, our annual reviews of the Department's Unclassified Cybersecurity Program continue to find deficiencies with the Department's management of the program. In our FY 2015 review, we noted that the Department had made significant progress in remediating weaknesses identified in our FY 2014 evaluation, which resulted in the closure of 22 of 26 reported deficiencies. However, we found that issues related to security reporting, vulnerability management, system integrity of Web applications, and account management continued to persist. Further, in

March 2016, the Office of Management and Budget concluded that the Department failed to reach the Cybersecurity Cross-Agency Priority Goals in the areas of Information Security Continuous Monitoring, Strong Authentication, and Anti-Phishing and Malware Defense. As a result of the identification of continuing cybersecurity weaknesses and the sensitivity of much of the Department's work, Department management must continue to emphasize cybersecurity.

Environmental Cleanup

The Department is responsible for one of the most complex nuclear remediation efforts in the world. To meet this challenge, the Department is faced with developing unique solutions to address often unknown obstacles. As part of this mission, the Department is tasked with safely and cost-effectively transporting and disposing of low-level wastes; decommissioning and decontaminating old facilities; remediating contaminated soil and groundwater; and securing and storing nuclear material in stable, secure locations to protect national security. This includes disposing of multiple waste streams generated during more than 50 years of nuclear defense and energy research work. For example, the Department has 177 large underground tanks at the Hanford Site in southeastern Washington containing 56 million gallons of radioactive and chemical waste. Of these, more than one-third have already leaked, contaminating the subsurface and threatening the nearby Columbia River. The Hanford Tank Waste Treatment and Immobilization Plant (WTP) is currently being constructed to process and stabilize the waste stored at the site. However, the Department faces significant technical challenges in successfully constructing and operating the WTP and the estimated cost of the project has tripled, while the scheduled completion date has slipped by nearly a decade. In another example, we found that the Department had delayed the planned start of operations at the recently constructed Integrated Waste Treatment Unit, the Sodium-Bearing Waste Treatment Facility at the Idaho National Laboratory, a number of times due to cost and schedule issues. In September 2016, the Department announced that it was unlikely to meet the deadline for the start of waste treatment at the Integrated Waste Treatment Unit. The Department's Environmental Cleanup efforts are projected to cost at least $340 billion and will continue well into the foreseeable future. As such, this remains a management challenge that warrants attention on the part of Department management.

Nuclear Waste Disposal

The Department is responsible for the management and safe disposal of nuclear waste. The Department has approximately 88 million gallons of liquid waste stored in underground tanks and approximately 4,000 cubic meters of solid waste derived from the liquids stored in bins. The highly radioactive portion of this waste, located at the Hanford Site, Idaho National Laboratory, and Savannah River Site, must be treated and immobilized. The current Department estimated cost for retrieval, treatment, and disposal of this waste exceeds $50 billion to be spent over several decades.

The Department operates several waste processing and storage facilities. In addition to the challenges noted above at the WTP and the Sodium-Bearing Waste Treatment Facility, the Department continues to experience delays in re-opening the Waste Isolation Pilot Plant (WIPP), located near Carlsbad, New Mexico. The Department suspended operations at WIPP in February 2014 as a result of an accidental radiological release. As the Nation's sole repository for the disposal of defense transuranic (TRU) waste generated by atomic energy defense activities, the closure of WIPP has affected TRU waste operations across the Nation. For example, in September 2016, the Department notified the State of South Carolina, where the Savannah River Site is located, that there is no plan for shipping TRU waste out of South Carolina through the end of July 2017. Legacy TRU waste inventory is located at 4 large-quantity sites and more than 20 small-quantity sites across the United States. While the Department's initial Recovery Plan slated operations to resume in the first quarter of calendar year 2016, this date has been pushed back several times, and WIPP is not expected to resume operations until at least December 2016. Often part of cleanup agreements, nuclear waste disposition is of interest to stakeholders and requires the oversight of regulators. Given the importance of a coherent strategy on nuclear waste disposal that protects public health, safety, and the environment, the area of Nuclear Waste Disposal remains a significant challenge facing the Department.

Safeguards and Security

The Department enhances the security and safety of the Nation through its national security endeavors. As a result of the expertise developed to support its nuclear security missions, the national laboratories also serve as strategic assets in support of broader national security. The Department is responsible for the physical security and protection of electric substations and power system control centers identified as critical assets. Additionally, the Department is responsible for preventing nuclear weapons materials and technologies from falling into the hands of adversaries seeking to develop weapons of mass destruction. To faithfully execute its mission, the Department employs numerous security personnel, protects various classified materials and other sensitive property, and develops policies designed to safeguard national security and other critical assets. In 2013, Safeguards and Security was elevated to the management challenges list primarily as a result of the events at the Y-12 National Security Complex (Y-12), which highlighted the need for a robust security apparatus with effective Federal oversight. In 2016, GAO found that although NNSA had initiated several efforts, it had not completed a Security Infrastructure Plan as required by law. The Security Infrastructure Plan is designed to address physical security threats during the upcoming 5-year fiscal period. Additionally, the Department's management has

continually identified issues in this area in its annual memorandums on Assurances of Internal Control. In fact, in its FY 2016 memorandum, one site noted that the aging security alarm system does not provide sufficient functionality to ensure protection. Given the Department's unique mission and the potential catastrophic consequences of a security failure, Department management must ensure the safety and security of the Department's operations.

Stockpile Stewardship

The Department is responsible for enhancing the safety, security, and effectiveness of the U.S. nuclear weapons stockpile without nuclear testing. In an increasingly unpredictable world, state and non-state actors continue to pursue nuclear and radiological capabilities. The Administration has pledged that as long as nuclear weapons exist, the United States will sustain safe, secure, and effective nuclear forces to both deter adversaries and reassure allies. To maintain a safe, secure, and effective stockpile without nuclear explosive testing, NNSA extends the lifespan of weapons that have reached the end of their original design life. To accomplish this mission, programs are conducted primarily at 8 sites by a contractor workforce of approximately 30,000 people managed by a Federal workforce comprised of civilian and military staff. For FY 2017, NNSA increased the budget request for weapons activities by $396 million. A major element of the budget request is the execution of the Nuclear Weapons Council–approved life extension programs (LEPs), including the B61-12. This LEP will improve both the safety and security of the oldest weapon system in the U.S. arsenal. The current total estimated cost for the B61-12 LEP is $8.1 billion, with a First Production Unit by March 2020. While our 2016 report on the management of the B61-12 LEP found that significant challenges had been overcome, we identified issues within the program that, if not corrected, could make it more difficult for the LEP to proactively ensure that its mission and functions are properly executed. Maintaining a credible deterrent is a central component of national security, and, as such, management should remain vigilant in ensuring the safety, security, and effectiveness of the nuclear arsenal.

Infrastructure Modernization

The Department manages the Federal Government's fifth-largest inventory of real property with an annual operating cost of more than $2 billion. This real property portfolio comprises diverse facilities, including unique fission reactors, accelerators, and high-performance lasers. However, much of the Department's property portfolio reflects an aging infrastructure originating in the 1940s as part of the Manhattan Project. For example, more than 50 percent of NNSA's facilities are more than 40 years old, and almost 30 percent date to the Manhattan Project. To remain safe, secure, and effective, the U.S. nuclear stockpile must be supported by a modern physical infrastructure. In July 2016, the Administrator of NNSA noted that NNSA is long overdue to build a modern, smaller, and safer complex that will meet military requirements; keep the deterrent safe, secure, and effective; and improve worker and public safety. As the United States reduces the number of nuclear weapons, the reliability of the remaining weapons in the stockpile, including the quality of the facilities needed to sustain it, becomes more important. Our reviews continue to identify concerns with aging infrastructure. For example, we found that Y-12's aging facilities pose risk to Y-12 meeting NNSA's mission. Additionally, infrastructure was continually noted as a concern in the executive management's FY 2016 annual memorandums on Assurances of Internal Control. One Environmental Management site noted facility and systems degradation, deferred maintenance, parts obsolescence, and outdated and inefficient equipment as concerns. Given the Department's aging infrastructure and unique mission requirements, the Department must sustain, modernize, and effectively align real property assets with current and future mission requirements.

Summary of Financial Statement Audit and Management Assurances

Audit Opinion	Unmodified				
Restatement	No				
Material Weaknesses	**Beginning Balance**	**New**	**Resolved**	**Consolidated**	**Ending Balance**
Total Material Weaknesses	***0***	***0***	***0***	***0***	***0***

Effectiveness of Internal Control over Financial Reporting (FMFIA Section II)						
Statement of Assurance	Unmodified					
Material Weaknesses	**Beginning Balance**	**New**	**Resolved**	**Consolidated**	**Reassessed**	**Ending Balance**
No material weaknesses reported						
Total Material Weaknesses	***0***	***0***	***0***	***0***	***0***	***0***

Effectiveness of Internal Control over Operations (FMFIA Section II)						
Statement of Assurance	Unmodified					
Material Weaknesses	**Beginning Balance**	**New**	**Resolved**	**Consolidated**	**Reassessed**	**Ending Balance**
No material weaknesses reported						
Total Material Weaknesses	***0***	***0***	***0***	***0***	***0***	***0***

Conformance with Federal Financial Management System Requirements (FMFIA Section IV)						
Statement of Assurance	Federal Systems conform to financial management systems requirements					
Non-Conformances	**Beginning Balance**	**New**	**Resolved**	**Consolidated**	**Reassessed**	**Ending Balance**
No non-conformances reported						
Total non-conformance	***0***	***0***	***0***	***0***	***0***	***0***

Conformance with Section 803 (a) of the Federal Financial Management Improvement Act (FFMIA)		
	Agency	**Auditor**
1. Federal Financial Management System Requirements	No lack of compliance noted	No lack of compliance noted
2. Applicable Federal Accounting Standards	No lack of compliance noted	No lack of compliance noted
3. USSGL at Transaction Level	No lack of compliance noted	No lack of compliance noted

Financial Management Systems Plan

Corporate Business Systems

The Department's enterprise-wide corporate business systems consist of financial, budgetary, procurement and personnel systems. Information from these systems is supported by a data warehouse that links common data elements from each of the Department's business systems and supports both external and internal reporting. The major business systems are:

- Financial System: Standard Accounting and Reporting System (STARS)
- Personnel System: Corporate Human Resource Information System (CHRIS)
- Procurement System: Strategic Integrated Procurement Enterprise System (STRIPES)
- Data Warehouse (IDW)/iPortal
- Travel and payroll processing: Travel processing services are provided through the General Services Administration (GSA) eTravel Services contract using a system called Concur Government Edition. Payroll processing services are outsourced to the Defense Finance and Accounting Service.

Current Systems

Standard Accounting and Reporting System – STARS is the Department's financial management system that provides budget execution, financial accounting, financial reporting, and performance measurement. STARS integrates with procurement, funds distribution, travel, and human resources systems. In FY 2016, STARS implemented and stabilized the Oracle Release 12 upgrade for the Southeastern Power Administration and provided integration to the upcoming FDS 2.0 system. Future activities planned for STARS include upgrading the database to Oracle 12c during FY 2017; automating the Annual Financial Report; and further automating the Reclassified Financial Statements.

Corporate Human Resource Information System – CHRIS is the Human Resources (HR) system. The primary objectives for CHRIS are to improve operational HR efficiency, reduce paperwork, and provide strategic information necessary to make informed human resource management decisions. FY 2016 accomplishments included the standup of three Shared Service Centers and the implementation of PeopleSoft HR Helpdesk. In FY 2017, CHRIS will be completing the database upgrade to Oracle 12c and implementing PeopleSoft Human Capital Management (HCM) Release 9.2.

Strategic Integrated Procurement Enterprise System – STRIPES is the procurement and contracts management system that automates all procurement and contract activities associated with planning, awarding and administering various unclassified acquisition and financial assistance instruments. The STRIPES application connects DOE with the Integrated Acquisition Environment which includes the System for Award Management (SAM), Federal Procurement Data System – Next Generation (FPDS-NG), and Federal Business Opportunities, as well as Grants.gov and FedConnect. In addition, STRIPES is integrated with STARS and IDW.

FY 2016 accomplishments include upgrading to Compusearch PRISM 7.2, while providing nearly 50 live training sessions on the PRISM 7.2 functionality. The STRIPES team also implemented a full review and update to the Department's Corporate Clauses. In FY 2017, STRIPES will analyze the upgrade to PRISM version 7.3, upgrade PRISM to support the DATA Act and upgrade the PRISM databases to Oracle 12c.

Data Warehouse (IDW) – IDW is a central data warehouse linking common data elements from multiple DOE corporate business applications to provide reporting to DOE executives, managers, and staff, including access to business applications, personalized dashboards, messaging, discussion boards, collaboration capabilities, news, reporting, web conferencing, graphing and data exchange capabilities. In FY 2016, IDW implemented changes in subject areas and reporting in conjunction with the STARS R12 upgrades, STRIPES 7.2 upgrades, and upcoming FDS 2.0 system; databases were upgraded to Oracle 12c; and executive dashboards were developed and deployed. In FY 2017, IDW will be completing the migration efforts to Oracle Data Integrator; deploying the new iBenefits application; and upgrading Business Intelligence to the latest release.

Systems Underway

DOE will be making all required system changes to STARS, STRIPES, and IDW to comply with DATA Act reporting requirements by May of 2017. System changes will also be made to STRIPES and IDW to comply with GONE Act reporting by September 30, 2017.

D**O**E is integrating the front-end budget formulation and funds distribution functions into the STARS Oracle eBusiness Suite. The project has 2 phases. The first phase to be completed in the fourth quarter of FY 2016 is underway and will implement a corporate funds distribution system (FDS 2.0) that automates, standardizes, and streamlines the processes and procedures across the Department, retiring multiple legacy applications in use among the various site offices.

The second phase will implement a corporate budget formulation solution to replace the Excel spreadsheets and local systems in use today and will allow budgets to be formulated from the bottom up across the enterprise in a standard framework.

Improper Payments Information and Reporting

The Improper Payments Information Act (IPIA) of 2002, Public Law (P.L.) No. 107-300, as amended by the Improper Payments Elimination and Recovery Act (IPERA) of 2010 and the Improper Payments Elimination and Recovery Improvement Act (IPERIA) of 2012, requires agencies to annually review their programs and activities to identify those susceptible to significant improper payments, to measure and report improper payment rates and amounts for programs that are found to be susceptible to improper payments. In addition, IPERA and the implementing guidance expanded agency authorities and requirements for recapturing overpayments, one type of improper payment. OMB released guidance for implementing IPERA and established specific reporting requirements for agencies with programs that possess a significant risk of erroneous payments and for reporting on the results of recapture activities.

I. Risk Assessment

The Department evaluates the following 9 OMB risk factors in performing risk assessments: 1. Whether the program or activity is new; 2. The complexity of the program, particularly with respect to determining correct payment amounts; 3. The volume and dollar amount of payments by payment category (Vendors/Contracts; Payroll; Travel; Other; Grants and Cooperative Agreements; and Loans); 4. Whether payments or payment eligibility decisions are made outside of the agency; 5. Recent major changes in program funding, authorities, practices or procedures; 6. The level, experience and quality of training for personnel responsible for making payment eligibility determinations or certifying that payments are accurate; 7. Inherent risk of improper payments for each payment category; 8. Significant deficiencies in audit reports that might hinder accurate payment certification; and 9. Results of prior improper payment work, such as OMB Circular A-123 assessments and other internal reviews designed to prevent or detect improper payments. In addition, DOE includes 2 additional risk factors to consider when performing risk assessment. These additional risk factors include evaluating oversight to monitor contractor payment processes and segregation of duties to ensure the integrity of the payment process.

Risk assessments conducted during FY 2015 determined that the Department was not susceptible to significant improper payments. In FY 2016 the payment reporting sites confirmed that none of the following occurred: (1) changes in legislation; (2) increases in its funding level; or (3) changes to the site's payment processes. Therefore, the Department did not perform risk assessments in FY 2016 and will re-evaluate annually to ensure the requirement to perform a risk assessment at least once every 3 years is met. DOE continues to maintain a <1% overall erroneous payment rate (.07%) and actual improper payments at a level below OMB's $100 million threshold. The Departmental erroneous payment rate has remained below 1% since the inception of its program in FY 2002. For FY 2015 information reported in FY 2016, the Department's total payment outlays were $ 38.89 billion, and the actual amount of improper payments identified were $28.35 million (this includes overpayments and underpayments that cannot be recaptured).

II. Statistical Sampling

This section is not applicable to DOE.

III. Improper Payment Reporting

Table 1 – Improper Payment Reduction Outlook. This section and table are not applicable to DOE.

IV. Improper Payment Root Cause Categories

Table 2 – Improper Payment Root Cause Category Matrix. This section and table are not applicable to DOE.

V. Corrective Actions

This section is not applicable to DOE.

VI. Internal Control Over Payments

Table 3 – Example of the Status of Internal Controls. This section and table are not applicable to DOE.

VII. Accountability

This section is not applicable to DOE.

VIII. Agency Information Systems and Other Infrastructure

This section is not applicable to DOE.

IX. Barriers

This section is not applicable to DOE.

X. Payment Recapture Audit Reporting

In accordance with the expanded requirements of IPERA, the Department has established a policy for implementing payment recapture auditing requirements. The Department's low improper payment rate of .07% reported in FY 2016 for FY 2015 payments and high recapture rate of 97.43% reported for the same period,

supports the Department's determination that it is not cost-effective to employ traditional payment recapture audit contracts and notified OMB of this fact in September 2015. The amount determined not collectible by the Department for FY 2016 reporting is $.025 million and is deemed uncollectible due to amounts being below a minimal threshold established for pursuing recapture or due to lost prompt payment discounts.

However, the Department does conduct site specific reviews and analysis of accounting and financial records, supporting documentation, and other pertinent information supporting payments. These activities are detective and corrective in nature and are designed to identify and recapture overpayments. Activities include prepayment review and approval of invoices; performing quarterly prompt-payment reviews; post-payment reviews; contractor internal audits; leveraging the results of cost allowability audits of integrated contractors and interim and close-out reviews of contracts and grants; reviews of grant credits in ASAP and results from travel audits. The Department will continue to scrutinize improper payment activity and controls through its internal control program by emphasizing, evaluating and strengthening controls where needed to maintain our record of low payment errors and ensure the effective stewardship of public funds.

Table 4 - Overpayments Recaptured Outside of Payment Recapture Audits ($ in millions)[1]

PROGRAM/ PAYMENT TYPE	AMOUNTS IDENTIFIED FOR RECAPTURE[2]	AMOUNTS RECAPTURED	FY 2016 RECAPTURE RATE[3]	FY 2017 RECAPTURE RATE TARGET	FY 2018 RECAPTURE RATE TARGET
Contracts	$17.99	$16.31	90.67%	96.00%	96.00%
Benefits - Payroll	$2.71	$2.28	84.25%	96.00%	96.00%
Benefits - Travel	$0.56	$0.48	86.62%	96.00%	96.00%
Other	$0.19	$0.14	74.12%	96.00%	96.00%
Grants	$9.99	$9.94	99.54%	96.00%	96.00%
Loans	$0.00	$0.00	N/A	96.00%	96.00%
Total	**$31.44**	**$29.16**	**92.76%**		

[1] Based on OMB approval received May 25, 2011, DOE reports prior year payment activity in its current year Agency Financial Report (AFR). Recaptured funds include amounts associated with FY 2015 payments and recapture that occurred in FY 2015 for payments made in previous years due to Statement of Cost Incurred and Claimed, Single Audits, contract closeouts, etc. In addition, DOE is considered one program for improper payment reporting and assesses the payment types included in Table 4 for its 43 payment reporting sites. OMB approval for this approach was received August 10, 2011.

[2] Amounts include overpayments and excludes underpayments that cannot be recaptured.

[3] The total recapture rate of 92.76% incorporates prior recapture associated with improper payments identified for payments made in FY 2015 and prior; therefore, differs from the recapture rate of 97.43% associated with only FY 2015 payments disclosed in the narrative above.

Table 5 - Disposition of Recaptured Funds and Table 6 - Aging of Outstanding Overpayments are not applicable as DOE does not conduct payment recapture audits.

Reduction of Improper Payments with the Do Not Pay Initiative

IPERIA requires pre-payment and pre-award reviews to determine eligibility and to prevent improper payments before the releases of Federal funds. IPERIA also requires OMB to submit to Congress an annual report which, in part, includes an evaluation of whether the Do Not Pay (DNP) Initiative has reduced improper payments. To support this requirement, DOE is providing a summary of information related to its efforts to implement use of DNP during FY 2016.

In FY 2016, the Department incorporated the IPERIA listed DNP databases of death records maintained by the Commissioner of Social Security and GSA's System for Award Management (SAM) into existing business processes and programs through implementation of Treasury's DNP adjudication process.

DOE's adjudication process occurs in the DNP Portal. During FY 2016, the Department performed pre-payment reviews using continuous monitoring and batch processing on a monthly basis, as well as online single searches, as necessary. In all instances, it was found that the payments were proper and that the matches were false positives. One additional database DOE has incorporated into its process for reducing improper payments is Treasury's Office of Foreign Assets Control. Furthermore, a pre-award verification process through SAM is performed for every new award.

Table 7 - Results of the Do Not Pay Initiative in Preventing Improper Payments ($ in millions)

($ IN MILLIONS)	October 2015 - September 2016					
	Number (#) of payments reviewed for possible improper payments	Dollars ($) of payments reviewed for possible improper payments	Number (#) of payments stopped	Dollars ($) of payments stopped	Number (#) of potential improper payments reviewed and determined accurate	Dollars ($) of potential improper payments reviewed and determined accurate
Reviews with the IPERIA specified databases - death records maintained by the Commissioner of Social Security and the System for Award Management	321,090	$9,208.74	0	0	21	$0.88
Treasury's Office of Foreign Assets Control	98	$9.97	0	0	0	$0.00

- *Payments reviewed for improper payments:* all payments screened by Do Not Pay databases or other internal databases, as appropriate, that are disbursed by, or on behalf of, the agency (e.g., federally funded state administered programs).
- *Payments Stopped:* payments that were intercepted or were not disbursed due to the Do Not Pay Initiative.
- *Payments requiring further review and determined to be accurate* (false positives): payments that were reviewed by the agency as a result of Do Not Pay databases or other internal databases, and later identified as proper.

Freeze the Footprint

In FY 2016, OMB Circular A-136, Financial Reporting Requirements, requires the Department to report on progress made implementing the "Freeze the Footprint" policy. Specifically, all CFO Act departments and agencies shall not increase the total square footage of their domestic office and warehouse inventory compared to a FY 2012 baseline.

Between its initial FY 2012 baseline and its FY 2015 inventory of memorandum-subject assets, both determined by GSA, the Department's memorandum-subject building area dispositions and reports of excess to GSA exceeded its acquisitions in FY 2015 by 1,167,541 square feet. Concurrently, operating costs associated with Department-owned or leased memorandum-subject assets fell by $41.48 million. The Department plans to continue reporting excess assets to GSA as appropriate and disposing of its unneeded space.

Freeze the Footprint Baseline Comparison		
FY 2012 Baseline	FY 2015 Square Footage	Change in Square Footage (Baseline - FY 2015)
35,733,815 SF	34,566,274 SF	-1,167,541 SF

DOE Owned and Leased Operating Costs ($ in Millions)			
	FY 2012 Reported Cost	FY 2015 Reported Cost	Change in Reported Cost (Baseline - FY 2015)
Operation & Maintenance Costs	$468	$427	($41.48)

The above tables are based on final FY 2015 data, as year-end FY 2016 data is not yet available.

Civil Monetary Penalty Adjustment for Inflation

FERC Civil Monetary Penalty Adjustment for Inflation						
Statutory Authority	**Description of Penalty**	**Year Enacted**	**Latest Year of Adjustment**	**Current Penalty Level**	**Sub-Agency/ Bureau/Unit**	**Location for Penalty Update**
16 U.S.C. § 825o-1(b), Sec. 316A of the Federal Power Act	Violation of any provision of Part II of the FPA or related rule or order.	2005	2016	$1,193,970 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
16 U.S.C. § 823b(c), Sec. 31(c) of the Federal Power Act	Violation of or failure/refusal to comply with any rule or regulation issued under Part I of the FPA or any related order or term of a license, permit, or exemption.	1986	2016	$21,563 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
16 U.S.C. § 825n(a), Sec. 315(a) of the Federal Power Act	Violation of or willful failure to comply with any order of the Commission; file any report required under the FPA; or submit any information or document or respond to subpoena required by the Commission in the course of an investigation conducted under the FPA.	1935	2016	$2,750 per violation	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
15 U.S.C. § 717t-1, Sec. 22 of the Natural Gas Act	Violation of any provision of the NGA or any related rule, regulation, restriction, condition, or order.	2005	2016	$1,193,970 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
15 U.S.C. § 3414(b)(6)(A)(i), Sec. 504(b)(6)(A)(i) of the Natural Gas Policy Act of 1978	Violation of any provision of the NGPA or any related rule or order.	2005	2016	$1,193,970 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
49 App. U.S.C. § 6(10) (1988), Sec. 6(10) of the Interstate Commerce Act	Violation of or failure/refusal to comply with regulations or orders concerning posting and filing rate schedules issued by the Commission under section 6 of the ICA.	1910	2016	$1,250 per offense and $62.50 per day after the first day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
49 App. U.S.C. § 16(8) (1988), Sec. 16(8) of the Interstate Commerce Act	Violation of or failure to comply orders issued by the Commission under sections 3, 13, or 15 of the ICA.	1910	2016	$12,500 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
49 App. U.S.C. § 19a(k) (1988), Sec. 19a(k) of the Interstate Commerce Act	Violation of or failure to comply with Commission's requirements to provide information in connection with the Commission's valuation of a pipeline carrier's property under section 19(a) of the ICA.	1913	2016	$1,250 per offense, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf
49 App. U.S.C. § 20(7)(a) (1988), Sec. 20(7)(a) of the Interstate Commerce Act	Violation of or failure to keep or submit certain accounts, records, or memoranda required by the Commission under authority granted in section 20 of the ICA.	1940	2016	$1,250 per offense, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 81, No. 129 (July 6, 2016) 43937-43941 http://www.ferc.gov/legal/maj-ord-reg/order-826.pdf

Other Statutory Reporting – Management's Response to Audit Reports

Pursuant to the Inspector General Act Amendments of 1988 (Public Law 100-504), agency heads are to report to Congress on the status of final action taken on audit report recommendations. This report complements a report prepared by the Department's Inspector General that provides (1) information on audit reports issued during the period; (2) the status of management decisions made on previously issued IG audit reports; and (3) information on the disposition of funds put to better use and questioned costs. The IG report is available at http://www.ig.energy.gov.

This report also contains information on the resolution of Government Accountability Office (GAO) audits per the reporting requirements in OMB Circular A-50.

Inspector General Audit Reports

The Department responds to audit reports by evaluating the recommendations they contain, formally responding to the IG, and implementing agreed-upon corrective actions. In some instances, we are able to take corrective action immediately and in others, action plans with long-term milestones are developed and implemented. The audit resolution and follow-up process is an integral part of the Department's effort to deliver its priorities more effectively and at the least cost. Actions taken by management on audit recommendations increase the efficiency and effectiveness of our operations and strengthen our standards of accountability.

During FY 2016, the Department received **74** IG reports, of which **43** contained recommendations requiring corrective actions and **31** had no recommendations. The Department took final action on **52** IG reports, of which **14** identified cost impacts, including both questioned costs and funds put to better use. At the end of the period, **123** IG reports awaited final action. As reported here, taking final action on a report includes both the development of an agreed-upon management decision and completion of the corrective actions.

Government Accountability Office Audit Reports

The GAO audits are also included in the Department's audit follow-up program. At the beginning of FY 2016 there were **46** GAO Audits awaiting final action. During FY 2016, the Department received **72** additional final GAO audit reports, of which **22** contained recommendations requiring corrective actions and **50** had no recommendations. The Department completed agreed-upon corrective actions for **21** audits during FY 2015, leaving **47** GAO reports awaiting final action at year-end.

Status of Final Action on IG and GAO Audit Reports for FY 2016

The following chart provides a summary of closure actions for IG and GAO audit and inspection reports during FY 2016.

AUDIT REPORTS	NUMBER OF IG REPORTS	NUMBER OF GAO REPORTS
Reports Pending Final Action at the end of FY 2015*	132	46
Reports Issued in FY 2016 Requiring Corrective Actions	43	22
Total Reports Pending Final Action During FY 2016	175	68
Reports Closed During FY 2016	52	21
Total Reports Pending Final Action as of the End of FY 2016	123	47

*Reflects adjustments to previously reported amounts.

Glossary of Acronyms

ACI	Asset Condition Index
AFR	Agency Financial Report
AM	Additive Manufacturing
APR	Annual Performance Report
ARO	Asset Retirement Obligation
ARPA-E	Advanced Research Projects Agency-Energy
ASC	Accounting Standards Codification
ATVM	Advanced Technology Vehicles Manufacturing
BAO	Baryonic Acoustic Oscillations
BiOp	Biological Opinion
BOR	Bureau of Reclamation
BOSS	Baryon Oscillation Spectroscopic Survey
BPA	Bonneville Power Administration
C.F.R.	Code of Federal Regulations
CASL	Consortium for Advanced Simulation of Light-Water Reactors
CDM	Continuous Diagnostics Mitigation
CEIC	Clean Energy Investment Center
CEM7	Clean Energy Ministerial
CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
CFO	Chief Financial Officer
CGS	Columbia Generating Station
CHP	Combined Heat and Power
CHRIS	Corporate Human Resources Information System
CI	Office of Congressional & Intergovernmental Affairs
CIO	Chief Information Officer
CNSS	Committee on National Security Systems
COE	Center of Excellence
CR	Continuing Resolution
CSRS	Civil Service Retirement System
CY	Calendar Year
D&D	Deactivated, Decontaminated, Decommissioned, and Demolished
D&D Fund	Uranium Enrichment Decontamination and Decommissioning Fund
DATA Act	Digital Accountability and Transparency Act of 2013
DHS	Department of Homeland Security
DM&R	Deferred Maintenance and Repairs
DNN	Defense Nuclear Nonproliferation
DNP	Do Not Pay Initiative
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOS	Department of State
E3A	EINSTEIN 3 Accelerated
EA	Enterprise Assessments
ECC	Enterprise Cyber Capabilities
ECRTS	Engineered Container Retrieval & Transfer System
EEOICPA	Energy Employees Occupational Illness Compensation Program Act
EERE	Office of Energy Efficiency and Renewable Energy
EIA	Energy Information Administration
EM	Office of Environmental Management
EPA	Environmental Protection Agency
EPAct05	Energy Policy Act of 2005
ERISA	Employee Retirement Income Security Act
ES&H	Environment, Safety, and Health
ESA	Endangered Species Act
ESAAB	Energy Systems Acquisition Advisory Board
ESCO	Energy Service Company
ESPA	Early Site Permit Application
ESPC	Energy Savings Performance Contract
ETTP	East Tennessee Technology Park
EU	Enriched Uranium
FASB	Financial Accounting Standards Board
FCRA	Federal Credit Reform Act of 1990
FCRPS	Federal Columbia River Power System
FDS 2.0	Funds Distribution System
FE	Office of Fossil Energy
FERC	Federal Energy Regulatory Commission
FERS	Federal Employees Retirement System
FFB	Federal Financing Bank
FFMIA	Federal Financial Management Improvement Act
FIPP	Financial Institution Partnership Program
FISMA	Federal Information Security Management Act
FMFIA	Federal Managers' Financial Integrity Act
FSSI	Federal Strategic Sourcing Initiative
FY	Fiscal Year
GAIN	Gateway for Accelerated Innovation in Nuclear
GAO	Government Accountability Office
GBD	Global Burst Detector
GDP	Gaseous Diffusion Plant
GPRA	Government Performance and Results Act of 1993
GPS	Global Positioning System

GSA	General Services Administration
GSP	Graded Security Protection
HC	Human Capital
HEU	Highly Enriched Uranium
HLW	High-Level Radioactive Waste
HR	Human Resources
HRIT	Human Resources Information Technology
HVA	High Value Assets
IAEA	International Atomic Energy Agency
ICAM	Identity Credentialing and Access Management Program
ICs	Institutional Controls
IDW	Integrated Data Warehouse
IEC	Infrastructure Executive Committee
IG	Office of Inspector General
iJC3	Integrated Joint Cybersecurity Coordination Center
IL	Ionic Liquids
IOC	Initial Operating Capability
IOU	Investor Owned Utility
IPERA	Improper Payments Elimination and Recovery Act of 2010
IPERIA	Improper Payments Elimination and Recovery Improvement Act of 2012
ISM	Integrated Safety Management
JC3	Joint Cybersecurity Coordination Center
LEP	Life Extension Program
LEU	Low Enriched Uranium
LM	Office of Legacy Management
LoA	Level of Assurance
LOB	Laboratory Operations Board
LPO	Loan Programs Office
M&P	Management and Performance
MFA	Multifactor Authentication
MI	Mission Innovation
MNSR	Miniature Neutron Source Reactor
MOX	Mixed Oxide
MSAs	Metropolitan Statistical Areas
MT	Metric Tons
MTE	Menominee Tribal Enterprises
MTU	Metric Tons of Uranium
MW	Megawatt
MY	Model Year
NAV	Net Asset Value
NICE	National Initiative for Cybersecurity Education
NNSA	National Nuclear Security Administration
NODES	Network Optimized Distributed Energy Systems
NPR	Nuclear Posture Review
NRC	Nuclear Regulatory Commission
NWF	Nuclear Waste Fund
NWPA	Nuclear Waste Policy Act of 1982
OCHCO	Office of the Chief Human Capital Officer
OE	Office of Electricity Delivery and Energy Reliability
OHA	Office of Hearings and Appeals
OMB	Office of Management and Budget
OPM	Office of Personnel Management
P.L.	Public Law
PA	Office of Public Affairs
PDP	Prescription Drug Plan
PEVs	Plug-in Electric Vehicles
PMA	Power Marketing Administration
PMRC	Project Management Risk Committee
PP&E	Property, Plant and Equipment
PPPL	Princeton Plasma Physics Lab
PRB	Postretirement Benefits Other Than Pensions
PSOs	Program Secretarial Offices
PV	Photovoltaic
PWG	Procurement Working Group
QER	Quadrennial Energy Review
R&D	Research and Development
REP	Residential Exchange Program
RHIC	Relativistic Heavy Ion Collider
RSI	Required Supplementary Information
S&E	Science and Energy
SAM	System for Award Management
SCIP	Office of Science
SCIP	Safety Culture Improvement Panel
SDN	Software-Defined Networking
SEPA	Southeastern Power Administration
SFFAS	Statement of Federal Financial Accounting Standards
SHIELD	Single-Pane Highly Insulating Efficient Lucid Design
SMR	Small Modular Reactor
SNF	Spent Nuclear Fuel
SOC	Security Operation Center
SOI	Statement of Intent
SPR	Strategic Petroleum Reserve
SRS	Savannah River Site
SSC	Shared Service Centers
STARS	Standard Accounting and Reporting System
STRIPES	Strategic Integrated Procurement Enterprise System
SWPA	Southwestern Power Administration
SWPF	Salt Waste Processing Facility

T2H	Time-To-Hire	U.S.C.	United States Code
TCF	Technology Commercialization Fund	UF6	Uranium Hexafluoride
Title XVII	Title XVII Loan Guarantee Program for Innovative Technologies	UPF	Uranium Processing Facility
TPC	Total Project Cost	USACE	U.S. Army Corps of Engineers
Treasury	U.S. Department of Treasury	USAF	U.S. Air Force
TRU	Transuranic Waste	USEC	U.S. Enrichment Corporation Fund
TVA	Tennessee Valley Authority	VAM	Vehicle Allocation Methodology
TVPPA	Tennessee Valley Public Power Association	WAPA	Western Area Power Administration
UAMPS	Utah Associated Municipal Power Systems	WIPP	Waste Isolation Pilot Plant
U.S.	United States	WTP	Waste Treatment and Immobilization Plant

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Front Cover:

Top Photo: Providing power from the nation's energy sector.

Center Left Photo: Technologies that produce advanced biofuels from non-food biomass resources, including cellulosic biomass, algae (pictured), and wet waste which can help decrease the nation's dependence on imported oil all while lowering greenhouse gas emissions. The Energy Department supports critical research and development to produce these fuels more sustainably and affordably. Another way the Energy Department helps boost the supply of biofuels in the United States is by supporting the construction of 25 new biorefineries across the country. | Photo by National Renewable Energy Laboratory

Center Right Photo: Lawrence Livermore National laboratory microcapsules containing sodium carbonate solution are suspended on a mesh during carbon dioxide absorption testing.

Bottom Photo: The manufacturing industry consumes about 79 percent of total industrial energy use. The Energy Department is working to lower this through research and development of new technologies and processes like additive manufacturing -- also known as 3D-printing (pictured) -- that can help cut energy consumption of manufactured goods by 50 percent over 10 years. | Photo by Oak Ridge National Laboratory

Back Cover:

Top Photo: More than 3.6 million people work in our nation's energy sector, powering America's economy.

Center Left Photo: When we throw materials into the landfill, we're essentially throwing away the energy used to make those materials. For example, recycled steel requires 75% less energy than brand new steel. That's why the Energy Department announced up to $70 million in funding today for our fifth National Network for Manufacturing Innovation Institute, which focuses on improving technologies and processes to recycle materials in manufacturing-thereby lowering greenhouse gas emissions and reducing energy use and costs.

Center Right Photo: Buildings account for nearly 40 percent of the nation's man-made carbon dioxide emissions, 18 percent of the nitrogen oxide emissions, and 55 percent of the sulfur dioxide emissions. Improving the efficiency of America's homes and commercial buildings through Energy Department-supported innovations like high-tech windows (pictured), heating and cooling systems and lighting can play a big role in slashing these emissions. Building efficiency improvements will also help the nation achieve its goal of reducing energy-related greenhouse gas emissions 17 percent by 2020. | Photo by Lawrence Berkeley National Laboratory

Bottom Photo: Manufacturers participating in the Energy Department's Better Buildings, Better Plants program have saved more than $3 billion in cumulative energy costs over the past five years.

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