DOE/CF-0108
Volume 2

Department of Energy

FY 2016 Congressional Budget Request

Other Defense Activities
Departmental Administration
Inspector General
Working Capital Fund
Crosscutting Activities
Pensions

DOE/CF-0108
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FUNDING BY APPROPRIATION

(Discretionary dollars in thousands)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs. FY 2015 $	FY 2016 vs. FY 2015 %
Department of Energy Budget by Appropriation						
Energy and Water Development, and Related Agencies						
Energy Programs						
Energy Efficiency and Renewable Energy	1,900,641	1,824,876	1,914,195	2,722,987	+808,792	+42.3%
Electricity Delivery and Energy Reliability	147,242	144,205	146,975	270,100	+123,125	+83.8%
Nuclear Energy	888,376	877,620	833,379	907,574	+74,195	+8.9%
Fossil Energy Programs						
Clean Coal Technology	0	0	-6,600	0	+6,600	+100.0%
Fossil Energy Research and Development	561,931	550,630	560,587	560,000	-587	-0.1%
Naval Petroleum and Oil Shale Reserves	19,999	22,457	19,950	17,500	-2,450	-12.3%
Elk Hills School Lands Fund	0	0	15,580	0	-15,580	-100.0%
Strategic Petroleum Reserve	189,360	189,360	200,000	257,000	+57,000	+28.5%
Northeast Home Heating Oil Reserve	8,000	8,000	1,600	7,600	+6,000	+375.0%
Total, Fossil Energy Programs	**779,290**	**770,447**	**791,117**	**842,100**	**+50,983**	**+6.4%**
Uranium Enrichment Decontamination and Decommissioning Fund	598,574	598,574	625,000	542,289	-82,711	-13.2%
Energy Information Administration	116,999	116,999	117,000	131,000	+14,000	+12.0%
Non-Defense Environmental Cleanup	231,741	231,782	246,000	220,185	-25,815	-10.5%
Science	5,066,372	5,131,038	5,067,738	5,339,794	+272,056	+5.4%
Advanced Research Projects Agency - Energy	280,000	280,000	279,982	325,000	+45,018	+16.1%
Departmental Administration	126,449	126,449	125,130	153,511	+28,381	+22.7%
Indian Energy Programs	0	0	0	20,000	+20,000	N/A
Office of the Inspector General	42,120	42,120	40,500	46,424	+5,924	+14.6%
Title 17 - Innovative Technology						
Loan Guarantee Program	20,000	7,857	17,000	0	-17,000	-100.0%
Advanced Technology Vehicles Manufacturing Loan Program	6,000	6,000	4,000	6,000	+2,000	+50.0%
Tribal Indian Energy Loan Guarantee Program	0	0	0	11,000	+11,000	N/A
Total, Energy Programs	**10,203,804**	**10,157,967**	**10,208,016**	**11,537,964**	**+1,329,948**	**+13.0%**
Atomic Energy Defense Activities						
National Nuclear Security Administration						
Weapons Activities	7,781,000	7,790,197	8,180,359	8,846,948	+666,589	+8.1%
Defense Nuclear Nonproliferation	1,954,000	1,941,983	1,615,248	1,940,302	+325,054	+20.1%
Naval Reactors	1,095,000	1,101,500	1,233,840	1,375,496	+141,656	+11.5%
Office of the Administrator	377,000	370,500	0	0	0	N/A
Federal Salaries and Expenses	0	0	369,587	402,654	+33,067	+8.9%
Total, National Nuclear Security Administration	**11,207,000**	**11,204,180**	**11,399,034**	**12,565,400**	**+1,166,366**	**+10.2%**
Environmental and Other Defense Activities						
Defense Environmental Cleanup	5,000,000	4,999,293	5,453,017	5,527,347	+74,330	+1.4%
Other Defense Activities	755,000	755,000	753,449	774,425	+20,976	+2.8%
Total, Environmental and Other Defense Activities	**5,755,000**	**5,754,293**	**6,206,466**	**6,301,772**	**+95,306**	**+1.5%**
Total, Atomic Energy Defense Activities	**16,962,000**	**16,958,473**	**17,605,500**	**18,867,172**	**+1,261,672**	**+7.2%**
Power Marketing Administrations						
Southeastern Power Administration	0	0	0	0	0	N/A
Southwestern Power Administration	11,892	11,892	11,400	11,400	0	0
Western Area Power Administration	95,930	95,930	91,740	93,372	+1,632	+1.8%
Falcon and Amistad Operating and Maintenance Fund	420	420	228	228	0	0
Colorado River Basins Power Marketing Fund	-23,000	-23,000	-23,000	-23,000	0	0
Total, Power Marketing Administrations	**85,242**	**85,242**	**80,368**	**82,000**	**+1,632**	**+2.0%**
Federal Energy Regulatory Commission	0	0	0	0	0	N/A
Subtotal, Energy and Water Development and Related Agencies	**27,251,046**	**27,201,682**	**27,893,884**	**30,487,136**	**+2,593,252**	**+9.3%**
Uranium Enrichment Decontamination and Decommissioning Fund						
Discretionary Payments	0	0	-463,000	-471,797	-8,797	-1.9%
Excess Fees and Recoveries, FERC	-26,236	-19,686	-28,485	-23,587	+4,898	+17.2%
Title XVII Loan Guarantee Program Section 1703 Negative Credit Subsidy Receipt	0	0	0	-68,000	-68,000	N/A
Total, Discretionary Funding by Appropriation	**27,224,810**	**27,181,996**	**27,402,399**	**29,923,752**	**+2,521,353**	**+9.2%**

Other Defense Activities

Other Defense Activities

Other Defense Activities

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Other Defense Activities
Proposed Appropriation Language

For Department of Energy expenses, including the purchase, construction, and acquisition of plant and capital equipment and other expenses, necessary for atomic energy defense, other defense activities, and classified activities, in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, [$754,000,000]*$774,425,000*, to remain available until expended: Provided, That [$249,378,000]*$253,729,000* shall be available until September 30, [2016]2017, for program direction.

Explanation of Changes

No change.

Other Defense Activities

($K)

FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
755,000	755,000	753,449	774,425

Overview

The Other Defense Activities appropriation funds elements that relate to and support the defense oriented activities within the Department. These include Environment, Health, Safety and Security (EHSS), Enterprise Assessments (EA), Specialized Security Activities (SSA), Legacy Management (LM), Hearings and Appeals (HA), and Defense Related Administrative Support (DRAS). Funding from DRAS is used to offset funding within the Departmental Administration (DA) for work supporting defense-oriented activities in the Department. In execution, DRAS funding fully offsets the Chief Information Officer (CIO) budget, and partially offsets the Chief Financial Officer (CFO) and the Office of Management (MA) budgets.

Highlights and Major Changes in the FY 2016 Budget Request

- The Independent Enterprise Assessments Program is renamed Enterprise Assessments.
- Specialized Security Activities' funding is increased in FY 2016 to assure coverage of National Security related activities.
- EHSS funding provides for coordination and policy direction for the Insider Threat activities. Also, an increase in funding will maintain Headquarters Security Operations and provide additional support for classification-declassification efforts.

In FY 2015, the Department was reorganized into three Under Secretariats—Science and Energy, Nuclear Security, and Management and Performance—that recognizes the complex interrelationship among DOE Program Offices. The FY 2016 Budget Request continues crosscutting programs which coordinate 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. These crosscutting initiatives will be discussed further within the Programs in which the crosscuts are funded. The below ODA programs contains the following crosscut:

Cybersecurity: DOE is engaged in three categories of cyber-related activities: protecting the DOE enterprise from a range of cyber threats that can adversely impact mission capabilities; bolstering the U.S. Government's capabilities to address cyber threats; and improving cybersecurity in the electric power subsector and the oil and natural gas subsector. The cybersecurity crosscut supports central coordination of the strategic and operational aspects of cybersecurity and facilitates cooperative efforts such as the Joint Cybersecurity Coordination Center (JC3) for incident response and the implementation of Department-wide Identity Control and Access Management (ICAM). The crosscut also enables the Cyber Sciences Laboratory (CSL) to be funded and supported by multiple programs to focus on longer-term, higher-risk, game-changing technologies targeted towards solving fundamental cybersecurity problems in the DOE mission space.

FY 2016 Crosscuts ($K)

	Cybersecurity
Environment, Health, Safety and Security	4,409
Enterprise Assessments	4,039
Office of Legacy Management	922
Total, Crosscuts	**9,370**

Other Defense Activities
Funding by Congressional Control
($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Health, Safety and Security	251,917	251,917	0	0	0
Specialized Security Activities	202,242	202,242	203,152	221,855	+18,703
Environment, Health, Safety and Security	0	0	180,998	183,798	+2,800
Independent Enterprise Assessments	0	0	73,534	0	-73,534
Enterprise Assessments	0	0	0	73,534	+73,534
Office of Legacy Management	176,983	176,983	171,980	167,180	-4,800
Defense-Related Administrative Support[a]	118,836	118,836	118,836	122,558	+3,722
Office of Hearings and Appeals	5,022	5,022	5,500	5,500	0
Total, Other Defense Activities	**755,000**	**755,000**	**754,000**	**774,425**	**+20,425**
Rescission	**0**	**0**	**-551**	**0**	**+551**
Total, Other Defense Activities	**755,000**	**755,000**	**753,449**	**774,425**	**+20,976**

[a] Defense-Related Administrative Support (DRAS) information is included in the Departmental Administration appropriation.

Other Defense Activities
Proposed Budget Structure Changes

In FY 2016 Independent Enterprise Assessments is renamed Enterprise Assessments.

Budget Structure Crosswalk ($K)
Proposed FY 2016 Budget Structure

	Independent Enterprise Assessments	Enterprise Assessments	Total
FY 2015 Budget Structure			
Independent Enterprise Assessments	**0**	**73,534**	**73,534**

Health, Safety and Security

Overview

Beginning May 4, 2014, all Health, Safety and Security activities were reassigned as follows: health, safety, environment, and security policy, assistance, and corporate program activities as well as DOE Headquarters security operations were realigned to the Environment, Health, Safety and Security program; independent oversight, enforcement, safety and security training, and outreach activities were realigned to the Enterprise Assessment program. FY 2016 funding for these realigned activities is included in the newly established programs within the Other Defense Activities Appropriation.

Health, Safety and Security
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Health, Safety and Security					
Health and Safety					
Worker Safety	4,846	4,846	0	0	0
Nuclear Safety	12,317	12,317	0	0	0
Environment	2,407	2,407	0	0	0
Health Programs					
Domestic Health Programs					
Health Research	2,550	2,550	0	0	0
Former Worker Medical Screening	19,850	19,850	0	0	0
Employee Compensation Program	6,340	6,340	0	0	0
International Health Programs					
Russian Health Studies	2,750	2,750	0	0	0
Japanese Health Studies	14,000	14,000	0	0	0
Marshall Islands Program	6,300	6,300	0	0	0
Total, Health Programs	51,790	51,790	0	0	0
Enforcement	1,947	1,947	0	0	0
Total, Health and Safety	**73,307**	**73,307**	**0**	**0**	**0**
Security					
Safety & Security Training	15,000	15,000	0	0	0
Security Operational Support	5,762	5,762	0	0	0
Classification, Declassification and Controlled Information	8,707	8,707	0	0	0
Security Investigations	9,850	9,850	0	0	0
Headquarters Security Operations	30,990	30,990	0	0	0
Total, Security	**70,309**	**70,309**	**0**	**0**	**0**
Total, Health, Safety and Security	**143,616**	**143,616**	**0**	**0**	**0**
Program Direction	**108,301**	**108,301**	**0**	**0**	**0**
Total, Health, Safety and Security	**251,917**	**251,917**	**0**	**0**	**0**

Health, Safety and Security
Explanation of Major Changes ($K)

	FY 2016 vs FY 2015 Enacted
Health, Safety and Security: Beginning in FY 2015, HSS independent oversight, enforcement, safety and security training, and outreach activities are funded within the Enterprise Assessments program; all other activities are funded within the Environment, Health, Safety and Security program. Program Direction funding was apportioned between the two new programs. All activities are within the Other Defense Activities appropriation.	**0**
Total, Health, Safety and Security	**0**

Other Defense Activities
Facilities Maintenance and Repair

The Department's Facilities Maintenance and Repair activities funded by this budget are tied to its programmatic missions, goals, and objectives.

Costs for Direct-Funded Maintenance and Repair (including Deferred Maintenance Reduction) ($K)

	FY 2014 Actual Costs[1]	FY 2014 Planned Costs[1]	FY 2015 Planned Costs	FY 2016 Planned Costs
National Training Center	1,717	1,282	0	0
Total, Direct-Funded Maintenance and Repair	**1,717**	**1,282**	**0**	**0**

Report on FY 2014 Expenditures for Maintenance and Repair

This report responds to legislative language set forth in Conference Report (H.R. 108-10) accompanying the Consolidated Appropriations Resolution, 2003 (Public Law 108-7) (pages 886-887), which requests the Department of Energy provide an annual year-end report on maintenance expenditures to the Committees on Appropriations. This report compares the actual maintenance expenditures in FY 2014 to the amount planned for FY 2014, including Congressionally directed changes.

Other Defense Activities
Total Costs for Maintenance and Repair ($K)

	FY 2014 Actual Cost[1]	FY 2014 Planned Cost[1]
National Training Center	1,717	1,282
Total, Maintenance and Repair	**1,717**	**1,282**

[1] FY 2015 and 2016 funding for these activities is included in the Enterprise Assessments budget within the Other Defense Activities appropriation.

Environment, Health, Safety and Security

Overview

The Office of Environment, Health, Safety and Security (EHSS) provides corporate leadership and strategic approaches for protecting Department of Energy (DOE or Department) workers, the public, the environment and national security assets. This is accomplished through the maintenance of corporate-level policies and standards and providing implementation guidance; sharing operating experience, lessons learned, and best practices; and providing assistance and supporting services to line management with the goal of mission success as DOE's environment, health, safety and security advocate.

EHSS accomplishes its overall mission in the following focus areas:

Environment, Health and Safety Policy and Support:

- Protecting the health and safety of DOE's Federal and contractor workforce, addressing the health effects legacy of the Nation's nuclear weapons program, and conducting national and international health studies.
- Minimizing DOE's radiological and other environmental footprints and improving DOE's safety performance through analysis, policy development, and sharing lessons learned.
- Promoting the safe design, construction and operation of DOE's facilities, both nuclear and non-nuclear, and providing cross-organizational leadership in resolving related issues.

Security Policy and Support:

- Establishing effective policies, through a collaborative, enterprise approach, by which the national security assets entrusted to the Department are protected and secured.
- Furthering DOE's national security, nonproliferation and open governmental goals through the identification of classified, controlled and unclassified information.
- Providing specialized security services to DOE Headquarters facilities and securing the work environment for Federal and contractor personnel.

As the Department's environment, health, safety and security advocate, EHSS supports the Department by identifying the risks in these areas that could jeopardize DOE's mission. EHSS works closely with DOE line management who is ultimately responsible for ensuring that the Department's work is managed and performed in a manner that protects workers, the public, and the Department's material and information assets. As part of this partnership, EHSS develops and promulgates environment, health, safety and security policy and provides expert advice and implementation assistance to help line management accomplish the Department's mission in a safe and secure manner. EHSS also represents the Department in national and international environment, health, safety, and security matters.

EHSS plays a leadership role in meeting the Department's expectation that all its organizations embrace a healthy organizational culture where safe and secure performance of work and involvement of workers are deeply, strongly, and consistently held by managers and workers. EHSS contributes to more efficient and cost-effective mission accomplishment by providing quality products and timely expertise aimed at eliminating or mitigating major risks that can lead to adverse impacts to mission. EHSS informs Secretarial decisions and improves DOE performance by providing expert advice to the Department's senior nuclear safety and nuclear security decision makers. As a strong, top-level environment, health, safety and security organization, EHSS's activities are critical to helping the Department deliver the innovative and transformative scientific and technological solutions to energy, security, economic, and environmental challenges facing the United States in the 21st century.

Environment, Health, Safety and Security
Funding ($K)

	FY 2014 Enacted[1]	FY 2014 Current[1]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Environment, Health, Safety and Security					
Environment, Health and Safety					
Worker Safety	0	0	4,346	4,346	0
Nuclear Safety	0	0	5,696	5,696	0
Environment	0	0	2,407	2,407	0
Health Programs					
Domestic Health Programs					
Health Research	0	0	2,420	2,270	-150
Former Worker Medical Screening	0	0	19,850	19,850	0
Employee Compensation Program	0	0	6,340	6,120	-220
International Health Programs					
Russian Health Studies	0	0	2,750	2,750	0
Japanese Health Studies	0	0	14,000	14,000	0
Marshall Islands Program	0	0	6,300	6,300	0
Total, Health Programs	**0**	**0**	**51,660**	**51,290**	**-370**
Total, Environment, Health and Safety	**0**	**0**	**64,109**	**63,739**	**-370**
Security					
Insider Threat Program	0	0	2,000	3,000	+1,000
Security Operational Support	0	0	5,762	5,762	0
Classification, Declassification and Controlled Information	0	0	8,457	9,757	+1,300
Security Investigations	0	0	7,445	7,445	0
Headquarters Security Operations	0	0	30,990	30,990	0
Total, Security	**0**	**0**	**54,654**	**56,954**	**+2,300**
Total, Environment, Health, Safety and Security	**0**	**0**	**118,763**	**120,693**	**+1,930**
Program Direction	**0**	**0**	**62,235**	**63,105**	**+870**
Total, Environment, Health, Safety and Security	**0**	**0**	**180,998**	**183,798**	**+2,800**
Rescission	**0**	**0**	**-132**	**0**	**+132**
Total, Environment, Health, Safety and Security	**0**	**0**	**180,866**	**183,798**	**+2,932**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.

Environment, Health, Safety and Security
Explanation of Major Changes ($K)

	FY 2016 vs FY 2015
Environment, Health, Safety and Security: The increase provides for the acceleration of FY 2015 levels of effort in support of Presidential and Departmental declassification milestones, and the protection of DOE assets and facilities through security, suitability, and credentialing activities, as well as increases to salaries and benefits for Federal staff, offset by reductions in support for public health studies and records searches associated with the Energy Employees Occupational Illness Compensation Program Act.	+2,932
Total, Environment, Health, Safety and Security	**+2,932**

Environment, Health and Safety

Description

The Environment, Health and Safety subprogram provides technical and analytical expertise to protect and enhance the safety of DOE workers, the public, and the environment. This subprogram maintains policies and guidance for the establishment of safe, environmentally sound work practices to achieve best-in-class performance in occupational, facility, nuclear, and radiation safety; protection of the environment and cultural and natural resources; and quality assurance. Environment, Health and Safety provides assistance to DOE offices and laboratories through site-specific activities, such as nuclear facility safety basis reviews, and corporate-wide services, such as accrediting commercial laboratories used by DOE sites for regulatory compliance and employee monitoring programs; administering the accident investigation program; supporting the Radiation Emergency Assistance Center/Training Site; and testing of high efficient particulate air filters. Corporate databases, such as those pertaining to accidents and illnesses, occurrence reporting, radiation monitoring and dose assessment, safety basis information, and hazardous substances inventories are maintained and used to support analyses of health and safety performance for senior management.

Environment, Health and Safety provides technical support for the implementation of Department-wide safety and environmental programs such as the DOE Federal occupational safety and health program, the voluntary protection program which encourages and rewards safety performance that exceeds industry averages through universally recognized certifications, environmental management systems which support sustainable practices that promote pollution prevention, greenhouse gas reduction, and effective resource utilization, and radiological clearance and control programs for the safe reuse and recycle of DOE equipment and materials and radiological release of lands and buildings. These DOE-wide safety and environmental programs are integrated with mission activities to optimize protection and effective implementation.

The Environment, Health and Safety subprogram also provides support to the Department of Labor for the implementation of the Energy Employees Occupational Illness Compensation Program Act, the former worker medical screening program, and radiation health studies in Japan and Russia. These projects and programs provide for the evaluation and documentation of health effects and outcomes that support the basis for national and international worker protection policies and standards, which, in turn, provide updated levels of protection appropriate for the risk posed to DOE workers and the public.

In FY 2016, Environment, Health and Safety will continue:

1. Developing cost-effective solutions for achieving best-in-class safety performance founded on integrated safety management and enhanced through such concepts as safety culture, voluntary protection, and environmental management systems.
2. Honoring the national and Departmental commitment to current and former workers through cost-effective implementation of the former worker medical screening program and support to the Department of Labor for the implementation of the Energy Employees Occupational Illness Compensation Program Act.

Worker Safety

Worker safety and health policies establish Department wide safe work practices to achieve best-in-class safety performance as compared to industrial operations resulting in work conducted with a full understanding of health and safety related risks and controls necessary to mitigate those risks leading to minimization or avoidance of worker compensation liabilities. Funding provides for the maintenance of existing standards and the development of new requirements based on new or evolving working conditions; technical assistance to DOE programs, laboratories, and sites in implementing health and safety requirements and programs; promotion of improvements in overall safety culture; and implementation of corporate health- and safety-related programs and information technology systems. Funding also provides for collecting, analyzing, and trending operational data to identify strengths and weaknesses of safety programs in support of continuous improvement in safety performance and cost effective implementation.

Nuclear Safety

Nuclear Safety activities include establishing and maintaining nuclear safety policies and requirements to ensure adequate protection of workers, the public, and the environment from hazards associated with the design and operation of DOE nuclear facilities. This includes the establishment of general facility safety requirements in fire protection, response to natural phenomena, maintenance, and quality assurance to ensure that products and services meet or exceed the

Department's objectives. Nuclear safety provides assistance to field elements in implementing requirements and resolving issues; and provides oversight of DOE nuclear operations and facilities.

Environment

Environmental activities support DOE's strategic sustainability performance objectives by fostering efficient use of resources and energy, assisting in the responsible management of natural and cultural resources on and around DOE facilities, reducing DOE's carbon footprint, and avoiding future environmental liabilities. Funding provides technical support for the development of policies, requirements, and guidance related to environmental compliance; the encouragement of green purchasing; sustainable environmental stewardship, pollution prevention, and greenhouse gas reduction; and implementation of environmental performance tracking across the DOE complex. Environmental activities also provide technical support to ensure DOE's environmental radiation protection program is consistent with the Department's risk management strategies and national and international radiation protection standards associated with the management of DOE radioactive wastes and associated property. Funding supports programs that provide assurance that environmental monitoring and sampling data meet DOE data quality objectives and ensures computer codes that are used to demonstrate compliance with DOE public and environmental protection requirements are appropriate and employ the best science. Funding also supports the development and maintenance of plans, models, and guidance to respond to radiological- and nuclear-related emergencies and support for interagency and national consensus standard development with a goal to harmonize Federal radiation protection policies and guidance for protection of the public and environment.

Domestic Health Programs: Health Research

Domestic health research activities provide for the conduct of health studies on DOE workers and communities surrounding DOE sites, technical assistance to DOE Programs in addressing specific health issues, support to national assets used to respond to radiological events throughout the country, and expertise to support national and international efforts in response to disease outbreaks. These activities also support the maintenance of the electronic comprehensive epidemiologic data resource, the beryllium and U.S. transuranium and uranium registries; the illness and injury surveillance database and access to the data these systems contain.

Domestic Health Programs: Former Worker Medical Screening

Former worker medical screening activities provide for the conduct of medical screenings for former DOE and DOE-related beryllium vendor employees to identify adverse health conditions that may have resulted from work conducted at DOE or DOE-related beryllium vendor facilities on behalf of DOE, as mandated by Congress in the FY 1993 Defense Authorization Act (Public Law 102-484). Workers who are found to have illnesses related to work on behalf of DOE are referred to the Department of Labor for potential compensation through the Energy Employees Occupational Illness Compensation Program Act.

Domestic Health Programs**:** Employee Compensation Program

DOE Energy Employees Occupational Illness Compensation Program Act (EEOICPA) activities support the implementation of Parts B and E of the Act by the Department of Labor to provide compensation to DOE and DOE-related vendor employees who have become ill as a result of work for DOE. Part B provides for compensation to workers with beryllium disease, silicosis, or radiation-induced cancer, and Part E provides for compensation and medical benefits to DOE contractor and subcontractor employees whose illnesses were caused by exposure to any toxic substance, such as beryllium or other chemical hazards. DOE's support consists primarily of providing information regarding employment status, exposures to radiation and toxic substances, and operational history of DOE facilities to the Department of Labor, the National Institute for Occupational Safety and Health, and the President's Advisory Board on Radiation and Worker Health in support of claims filed by current and former DOE Federal and contractor employees.

International Health Programs: Russian Health Studies

The Russian health studies program supports the collaborative radiation health effects research program between U.S. and Russian scientists to determine the risks associated with working at or living near Russian former nuclear weapons production sites. The research is performed under the Cooperation in Research on Radiation Effects for the Purpose of Minimizing the Consequences of Radioactive Contamination on Health and the Environment, an agreement between the United States and Russia that was signed in 1994 and renewed in 2000, 2007, and 2011. The agreement is implemented through the Joint Coordinating Committee for Radiation Effects Research, representing agencies from the United States and the Russian Federation. The goals of the program are to better understand the relationship between health effects and

chronic, low-to-medium radiation exposure; determine radiation-induced cancer risks from exposure to gamma, neutron, and alpha radiation; and improve and validate U.S. and international radiation protection standards and practices.

International Health Programs: Japanese Health Studies
The Japanese health studies activity supports the Radiation Effects Research Foundation, managed through a bi-national agreement between the United States and Japan, to conduct epidemiologic studies and medical surveillance of the survivors of the atomic bombings of Hiroshima and Nagasaki. The foundation engages in innovative science to develop new research methods and approaches for assessing radiation health effects that are used as a basis for the development of radiation standards.

International Health Programs: Marshall Islands Program
The Marshall Islands program provides for medical surveillance and treatment of Marshallese citizens affected by the nuclear weapons testing conducted by the United States in the Pacific Ocean between 1946 and 1958. The program also provides for environmental monitoring in support of safe resettlement of four atolls affected by the testing. The work is performed as required by the Compact of Free Association Acts of 1986 and 2003 between the United States and the Republic of the Marshall Islands and the Insular Areas Act of 2011 requiring enhanced monitoring of Runit Island Nuclear Waste Containment Structure beginning in FY 2013.

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Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Environment, Health, Safety and Security		
$64,109,000	**$63,739,000**	**-$370,000**
Worker Safety $4,346,000	**$4,346,000**	**$0**
• Research, update, and maintain existing DOE regulations, directives and technical standards, and develop new safety and health requirements based on new or evolving working conditions, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in the implementation of health and safety requirements and programs, such as integrated safety management; • Provide support in development of technical qualification standards and description of required competencies and training for Federal staff involved in management of defense nuclear facilities; • Promote the implementation of the DOE voluntary protection program, which encourages and rewards safety performance that exceeds industry averages; • Provide for the health and safety aspects of the DOE human reliability program, designed to ensure that individuals who occupy positions that afford access to certain national security materials and nuclear explosive devices meet high standards for trustworthiness, dependability, and physical and mental reliability; • Provide technical support for the implementation of the DOE contractor employee assistance program that provides for the collection and analysis of causes of lost time and disabilities and the medical and psychological interventions available to reduce those losses;	• Research, update, and maintain existing DOE regulations, directives and technical standards, and develop new safety and health requirements based on new or evolving working conditions, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in the implementation of health and safety requirements and programs, such as integrated safety management; • Provide support in development of technical qualification standards and description of required competencies and training for Federal staff involved in management of defense nuclear facilities; • Promote the implementation of the DOE voluntary protection program, which encourages and rewards safety performance that exceeds industry averages; • Provide for the health and safety aspects of the DOE human reliability program, designed to ensure that individuals who occupy positions that afford access to certain national security materials and nuclear explosive devices meet high standards for trustworthiness, dependability, and physical and mental reliability; • Provide technical support for the implementation of the DOE contractor employee assistance program that provides for the collection and analysis of causes of lost time and disabilities and the medical and psychological interventions available to reduce those losses;	No change in work scope.

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• Maintain the electronic Radiation Exposure Monitoring System, which serves as the Department's central repository for radiation exposure information at DOE in support of 10 C.F.R. 835, Occupational Radiation Protection, Subpart I, requirements regarding annual monitoring of individual occupational radiation exposure records for DOE employees, contractors, and subcontractors, as well as members of the public who visit DOE sites; • Provide technical support for the implementation of the DOE Federal employee occupational safety and health program, as required by Presidential Executive Order 12196, Occupational Safety and Health Programs for Federal Employees; Section 19 of Public Law 91-596, the Occupational Safety and Health Act of 1970; and 29 C.F.R. 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters; • Conduct and communicate analysis and trending of safety performance information to identify excellent performance and areas needing improvement in order to reduce or prevent adverse events and injuries and minimize mission interruptions; • Provide information to DOE operating entities regarding operating experience, lessons learned, and suspect, defective, and counterfeit items; • Provide overall program administration and assistance, including training, to DOE program offices in support of implementing the Department's accident investigation program, which provides for independent Federal investigations of high-consequence incidents involving worker fatalities or serious injuries,	• Maintain the electronic Radiation Exposure Monitoring System, which serves as the Department's central repository for radiation exposure information at DOE in support of 10 C.F.R. 835, Occupational Radiation Protection, Subpart I, requirements regarding annual monitoring of individual occupational radiation exposure records for DOE employees, contractors, and subcontractors, as well as members of the public who visit DOE sites; • Provide technical support for the implementation of the DOE Federal employee occupational safety and health program, as required by Presidential Executive Order 12196, Occupational Safety and Health Programs for Federal Employees; Section 19 of Public Law 91-596, the Occupational Safety and Health Act of 1970; and 29 C.F.R. 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters; • Conduct and communicate analysis and trending of safety performance information to identify excellent performance and areas needing improvement in order to reduce or prevent adverse events and injuries and minimize mission interruptions; • Provide information to DOE operating entities regarding operating experience, lessons learned, and suspect, defective, and counterfeit items; • Provide overall program administration and assistance, including training, to DOE program offices in support of implementing the Department's accident investigation program, which provides for independent Federal investigations of high-consequence incidents involving worker fatalities or serious injuries,	

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acute exposures to radiation or chemicals, environmental releases, or significant loss of capital assets. Upon request or as directed by DOE leadership, assist DOE program offices in conducting specific accident investigations; and • Maintain corporate health- and safety-related information management technology systems, such as the Computerized Accident/Incident Reporting System, the Occurrence Reporting and Processing System, the Radiation Exposure Monitoring System, and the lessons learned system.	acute exposures to radiation or chemicals, environmental releases, or significant loss of capital assets. Upon request or as directed by DOE leadership, assist DOE program offices in conducting specific accident investigations; and • Maintain corporate health- and safety-related information management technology systems, such as the Computerized Accident/Incident Reporting System, the Occurrence Reporting and Processing System, the Radiation Exposure Monitoring System, and the lessons learned system.	
Nuclear Safety $5,696,000	**$5,696,000**	**+$0**
• Assess, update, and maintain DOE regulations, directives, and technical standards and lead the development of nuclear safety and quality assurance requirements based on new or evolving facility hazards and/or operating conditions, when warranted (including fire protection, natural phenomena hazards, nuclear materials packaging, and maintenance); • Maintain a DOE-wide nuclear safety research and development program to provide corporate-level leadership supporting the coordination and integration of nuclear safety science and technology, share nuclear safety research and development information across the Department, and coordinate the conduct of nuclear safety research and development activities; • Provide technical assistance to DOE program and line organizations, national laboratories, and sites in implementing nuclear safety and quality assurance requirements and programs and resolving issues and recommendations identified by the Defense Nuclear Facilities Safety Board; • Provide technical assistance to national standards	• Assess, update, and maintain DOE regulations, directives, and technical standards and lead the development of nuclear safety and quality assurance requirements based on new or evolving facility hazards and/or operating conditions, when warranted (including fire protection, natural phenomena hazards, nuclear materials packaging, and maintenance); • Maintain a DOE-wide nuclear safety research and development program to provide corporate-level leadership supporting the coordination and integration of nuclear safety science and technology, share nuclear safety research and development information across the Department, and coordinate the conduct of nuclear safety research and development activities; • Provide technical assistance to DOE program and line organizations, national laboratories, and sites in implementing nuclear safety and quality assurance requirements and programs and resolving issues and recommendations identified by the Defense Nuclear Facilities Safety Board; • Provide technical assistance to national standards	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
development organizations in developing and maintaining nuclear safety and quality assurance consensus standards; • Support DOE program offices in assessing conduct of operations, maintenance, and/or training evaluations for hazard category 1, 2, and 3 nuclear facilities prior to authorizing startup or restart of these facilities or their operations; • Facilitate continuous improvement to the DOE facility representative and safety system programs, supporting approximately 280 site office resident nuclear safety subject matter experts funded by and reporting to DOE line management; • Assist in funding and coordinating information exchanges in various safety concepts relevant to DOE including nuclear safety; safety and organizational culture, high reliability performance and human performance improvement; and probabilistic risk assessment with the Institute of Nuclear Power Operations, a non-profit organization established by the commercial nuclear power industry to promote the highest levels of safety and reliability in the operation of nuclear power plants; • Maintain web-based systems to provide the status of the safety basis of each hazard category 1, 2, or 3 DOE nuclear facility and provide public information on how to obtain copies of safety basis and related documents for DOE nuclear facilities; • Maintain the differing professional opinion program and process, including a web page and online submittal form that DOE and contractor employees can use to identify and document differing professional opinions concerning	development organizations in developing and maintaining nuclear safety and quality assurance consensus standards; • Support DOE program offices in assessing conduct of operations, maintenance, and/or training evaluations for hazard category 1, 2, and 3 nuclear facilities prior to authorizing startup or restart of these facilities or their operations; • Facilitate continuous improvement to the DOE facility representative and safety system programs, supporting approximately 280 site office resident nuclear safety subject matter experts funded by and reporting to DOE line management; • Assist in funding and coordinating information exchanges in various safety concepts relevant to DOE including nuclear safety; safety and organizational culture, high reliability performance and human performance improvement; and probabilistic risk assessment with the Institute of Nuclear Power Operations, a non-profit organization established by the commercial nuclear power industry to promote the highest levels of safety and reliability in the operation of nuclear power plants; • Maintain web-based systems to provide the status of the safety basis of each hazard category 1, 2, or 3 DOE nuclear facility and provide public information on how to obtain copies of safety basis and related documents for DOE nuclear facilities; • Maintain the differing professional opinion program and process, including a web page and online submittal form that DOE and contractor employees can use to identify and document differing professional opinions concerning	

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
technical issues; • Implement safety software quality assurance activities that provide for the maintenance of the DOE safety software central registry of approved computer codes, including a user-oriented communication forum, and operation of the safety software expert working group for enabling effective and consistent use of high-quality safety software across DOE; and • Provides for the testing of 100 percent of all high efficiency particulate air filters used in safety class and safety significant systems, and other ventilation systems for confinement of radioactive materials prior to their use at DOE nuclear facilities.	technical issues; • Implement safety software quality assurance activities that provide for the maintenance of the DOE safety software central registry of approved computer codes, including a user-oriented communication forum, and operation of the safety software expert working group for enabling effective and consistent use of high-quality safety software across DOE; and • Provides for the testing of 100 percent of all high efficiency particulate air filters used in safety class and safety significant systems and other ventilation systems for confinement of radioactive materials prior to their use at DOE nuclear facilities.	
Environment $2,407,000	**$2,407,000**	**$0**
• Research, update, and maintain existing DOE regulations, directives, and technical standards, and develop new sustainability, environmental protection, and public radiation protection requirements based on new or evolving science, protection strategies, national radiation protection guidance, and techniques based on new or evolving DOE activities and programs, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in implementing sustainability, environmental protection, and public radiation protection requirements and programs; • Provide technical support to DOE site and program offices and laboratories in evaluating and resolving regulatory compliance issues through the interpretation of regulatory requirements, development of cost-effective implementation strategies, and maintenance of	• Research, update, and maintain existing DOE regulations, directives, and technical standards, and develop new sustainability, environmental protection, and public radiation protection requirements based on new or evolving science, protection strategies, national radiation protection guidance, and techniques based on new or evolving DOE activities and programs, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in implementing sustainability, environmental protection, and public radiation protection requirements and programs; • Provide technical support to DOE site and program offices and laboratories in evaluating and resolving regulatory compliance issues through the interpretation of regulatory requirements, development of cost-effective implementation strategies, and maintenance of	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
web-based compliance tools; • Coordinate and develop consolidated responses to proposed changes in environmental regulations that may impact Departmental operations, in order to improve implementation and optimize the use of protective resources; • Review data from environmental reports required by Federal and state environmental protection agencies to validate adherence to reporting requirements; evaluate the effectiveness of the Department's toxic chemical release reduction and pollution prevention efforts; produce annual reports on DOE environmental sustainability performance; and develop annual radionuclide emissions summaries submitted to the Environmental Protection Agency under an interagency agreement; • Conduct proficiency and quality assurance audits and reviews of environmental analytical laboratories and commercial waste treatment, storage, and disposal vendors used by DOE operating entities in support of ongoing operations, remediation, and other cleanup projects; compliance programs; and long-term monitoring and surveillance activities to ensure consistency of services while minimizing the number of DOE audits of these commercial service providers; • Support development and maintenance of software toolkits to assist DOE operating elements in meeting data quality objectives related to environmental field sampling and to support user training at DOE field element sites; • Administer the DOE environmental awards program such as the Green Buy Awards and the Migratory Birds Protection awards and support	web-based compliance tools; • Coordinate and develop consolidated responses to proposed changes in environmental regulations that may impact Departmental operations, in order to improve implementation and optimize the use of protective resources; • Review data from environmental reports required by Federal and state environmental protection agencies to validate adherence to reporting requirements; evaluate the effectiveness of the Department's toxic chemical release reduction and pollution prevention efforts; produce annual reports on DOE environmental sustainability performance; and develop annual radionuclide emissions summaries submitted to the Environmental Protection Agency under an interagency agreement; • Conduct proficiency and quality assurance audits and reviews of environmental analytical laboratories and commercial waste treatment, storage, and disposal vendors used by DOE operating entities in support of ongoing operations, remediation, and other cleanup projects; compliance programs; and long-term monitoring and surveillance activities to ensure consistency of services while minimizing the number of DOE audits of these commercial service providers; • Support development and maintenance of software toolkits to assist DOE operating elements in meeting data quality objectives related to environmental field sampling and to support user training at DOE field element sites; • Administer the DOE environmental awards program such as the Green Buy Awards and the Migratory Birds Protection awards and support	

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
the Department in other sustainability awards programs that recognize DOE entities for outstanding achievement in sustainable environmental stewardship; • Provide assistance to and oversight of DOE site property radiological clearance and control programs to ensure the public and environment are protected from radiological harm associated with the use or disposition of DOE property; • Continue development and maintenance of residual radioactivity models and codes that support evaluations and safe disposition of lands, structures, equipment, soil, and other material that may contain small amounts of residual radioactive material; • Support development of Federal radiation protection policies and guidelines and consistent, cost effective implementation of radiation protection programs within DOE including the review, evaluation and implementation of the 2014 and 2015 updates to the recommendations of International Commission on Radiological Protection and associated revised Federal guidance for DOE regulations and directives; • Provide assistance to support development and effective use of national consensus standards for radiation protection, radioactive waste and materials management, environmental protection, and climate change preparedness; • Support the Center for Radiation Protection Knowledge at the Oak Ridge National Laboratory to ensure U.S. leadership in radiation dosimetry and risk assessment; and • Maintain operational guidelines and other radiological criteria that support protective action decisions and Federal policy governing response	the Department in other sustainability awards programs that recognize DOE entities for outstanding achievement in sustainable environmental stewardship; • Provide assistance to and oversight of DOE site property radiological clearance and control programs to ensure the public and environment are protected from radiological harm associated with the use or disposition of DOE property; • Continue development and maintenance of residual radioactivity models and codes that support evaluations and safe disposition of lands, structures, equipment, soil, and other material that may contain small amounts of residual radioactive material; • Support development of Federal radiation protection policies and guidelines and consistent, cost effective implementation of radiation protection programs within DOE including the review, evaluation and implementation of the 2014 and 2015 updates to the recommendations of International Commission on Radiological Protection and associated revised Federal guidance for DOE regulations and directives; • Provide assistance to support development and effective use of national consensus standards for radiation protection, radioactive waste and materials management, environmental protection, and climate change preparedness; • Support the Center for Radiation Protection Knowledge at the Oak Ridge National Laboratory to ensure U.S. leadership in radiation dosimetry and risk assessment; and • Maintain operational guidelines and other radiological criteria that support protective action decisions and Federal policy governing response	

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
to and recovery from radiological and nuclear terrorism incidents (radiological dispersal devices and improvised nuclear devices) and major nuclear accidents and support NNSA emergency response and preparedness activities associated with such incidents.	to and recovery from radiological and nuclear terrorism incidents (radiological dispersal devices and improvised nuclear devices) and major nuclear accidents and support NNSA emergency response and preparedness activities associated with such incidents.	
Domestic Health Programs $28,610,000	**$28,240,000**	**-$370,000**
Health Research $2,420,000 • Provide for the operation and maintenance of the electronic comprehensive epidemiologic data resource, the illness and injury surveillance database, and the U.S. transuranium and uranium registries; • Provide funding support to the Radiation Emergency Assistance Center/Training Site, which provides medical expertise to DOE occupational medicine clinics, supplies chelating pharmaceuticals to treat radiation-exposed workers, and trains physicians to respond to radiological accidents anywhere in the United States; • Provide for the maintenance of the beryllium registry, which collects, analyzes, summarizes, and disseminates health and exposure data to improve chronic beryllium disease prevention programs; and • Provide for the conduct of public health studies and other activities performed by the Department of Health and Human Services through the National Institute for Occupational Safety and Health, the National Center for Environmental Health, and the Agency for Toxic Substances and Disease Registry to provide third-party objectivity regarding the effect of DOE operations on communities surrounding DOE sites.	*Health Research $2,270,000* • Provide for the operation and maintenance of the electronic comprehensive epidemiologic data resource, the illness and injury surveillance database, and the U.S. transuranium and uranium registries; • Provide funding support to the Radiation Emergency Assistance Center/Training Site, which provides medical expertise to DOE occupational medicine clinics, supplies chelating pharmaceuticals to treat radiation-exposed workers, and trains physicians to respond to radiological accidents anywhere in the United States; • Provide for the maintenance of the beryllium registry, which collects, analyzes, summarizes, and disseminates health and exposure data to improve chronic beryllium disease prevention programs; and • Provide for the conduct of public health studies and other activities performed by the Department of Health and Human Services through the National Institute for Occupational Safety and Health, the National Center for Environmental Health, and the Agency for Toxic Substances and Disease Registry to provide third-party objectivity regarding the effect of DOE operations on communities surrounding DOE sites.	*(-$150,000)* The decrease reflects a shift toward reliance on targeted public health studies performed by the Department of Health and Human Services to determine the effect of DOE operations on communities surrounding DOE sites.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Former Worker Medical Screening $19,850,000 • Conduct site assessments to identify groups of at-risk former DOE Federal and contractor/ subcontractor workers and DOE site-specific exposures; • Provide for outreach efforts to inform former workers of the availability and benefits of the program; • Provide for approximately 8,000 medical screenings annually to check for adverse health effects that could be related to occupational exposures to radiation, noise, beryllium, asbestos, silica, lead, cadmium, chromium, and solvents, conducted by independent health experts through seven cooperative agreements held by a consortia of universities, labor unions, and commercial organizations throughout the United States with expertise in administration of medical programs; • Refer workers who are found to have illnesses related to work on behalf of DOE to the Department of Labor for potential compensation through the Energy Employees Occupational Illness Compensation Program Act; and • Support the DOE central institutional review board, jointly funded with Science and the National Nuclear Security Administration, which reviews all medical screening programs funded by DOE and/or involving the DOE workforce to ensure that the risks to human participants are minimized and reasonable in relation to the anticipated benefits.	*Former Worker Medical Screening $19,850,000* • Conduct site assessments to identify groups of at-risk former DOE Federal and contractor/ subcontractor workers and DOE site-specific exposures; • Provide for outreach efforts to inform former workers of the availability and benefits of the program; • Provide for approximately 8,000 medical screenings annually to check for adverse health effects that could be related to occupational exposures to radiation, noise, beryllium, asbestos, silica, lead, cadmium, chromium, and solvents, conducted by independent health experts through seven cooperative agreements held by a consortia of universities, labor unions, and commercial organizations throughout the United States with expertise in administration of medical programs; • Refer workers who are found to have illnesses related to work on behalf of DOE to the Department of Labor for potential compensation through the Energy Employees Occupational Illness Compensation Program Act; and • Support the DOE central institutional review board, jointly funded with Science and the National Nuclear Security Administration, which reviews all medical screening programs funded by DOE and/or involving the DOE workforce to ensure that the risks to human participants are minimized and reasonable in relation to the anticipated benefits.	No change in work scope.
Employee Compensation Program $6,340,000 • Conduct searches for records related to the employment and hazardous exposures for workers who applied to the Department of Labor	*Employee Compensation Program $6,120,000* • Conduct searches for records related to the employment and hazardous exposures for workers who applied to the Department of Labor	*(-$220,000)* The decrease reflects an expected decrease in requests for record searches for individuals who may have Energy Employee Occupational Illness

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
for benefits under EEOICPA, declassify relevant records, and provide copies of those records to the Department of Labor and the National Institute for Occupational Safety and Health; • Provide for large-scale records research projects conducted by the Department of Labor, the National Institute for Occupational Safety and Health, and the President's Advisory Board on Radiation and Worker Health; • Provide for the continued transition of hard copy, paper records to electronic records, as well as records indexing projects to improve the efficiency of responses to the Department of Labor and the National Institute for Occupational Safety and Health; and • Continue coordination and interface between former worker medical screening activities and EEOICPA activities, including identifying mechanisms for outreach to former workers and enhancing the exchange of medical, site, and exposure information among former worker medical screening service providers, the Department of Labor, and the National Institute for Occupational Safety and Health to assist the agencies tasked with adjudicating claims.	for benefits under EEOICPA, declassify relevant records, and provide copies of those records to the Department of Labor and the National Institute for Occupational Safety and Health; • Provide for large-scale records research projects conducted by the Department of Labor, the National Institute for Occupational Safety and Health, and the President's Advisory Board on Radiation and Worker Health; • Provide for the continued transition of hard copy, paper records to electronic records, as well as records indexing projects to improve the efficiency of responses to the Department of Labor and the National Institute for Occupational Safety and Health; and • Continue coordination and interface between former worker medical screening activities and EEOICPA activities, including identifying mechanisms for outreach to former workers and enhancing the exchange of medical, site, and exposure information among former worker medical screening service providers, the Department of Labor, and the National Institute for Occupational Safety and Health to assist the agencies tasked with adjudicating claims.	Compensation Act claims resulting from work at DOE facilities.
International Health Program $23,050,000	**$23,050,000**	**$0**
Russian Health Studies $2,750,000 • Provide for the conduct of radiation exposure historical dose reconstruction studies, epidemiologic studies, and for a tissue repository of Russian nuclear workers and people living in communities surrounding the Russian nuclear facilities; • Assess radiation health effects of ionizing radiation; and • Publish analyses of radiation health effects	*Russian Health Studies $2,750,000* • Provide for the conduct of radiation exposure historical dose reconstruction studies, epidemiologic studies, and for a tissue repository of Russian nuclear workers and people living in communities surrounding the Russian nuclear facilities; • Assess radiation health effects of ionizing radiation; and • Publish analyses of radiation health effects	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
assessments.	assessments.	
Japanese Health Studies $14,000,000 • Conduct epidemiologic studies and medical surveillance of the survivors of the atomic bombings of Hiroshima and Nagasaki; • Assess radiation health effects of ionizing radiation; and • Publish analyses of radiation health effects assessments.	*Japanese Health Studies $14,000,000* • Conduct epidemiologic studies and medical surveillance of the survivors of the atomic bombings of Hiroshima and Nagasaki; • Assess radiation health effects of ionizing radiation; and • Publish analyses of radiation health effects assessments.	No change in work scope.
Marshall Islands Program $6,300,000 • Conduct whole-body counting and plutonium urinalyses to measure individual exposure to radionuclides; • Conduct comprehensive annual screening examinations; • Provide medical care for specified Marshallese; and • Provide environmental monitoring services in support of resettlement activities.	*Marshall Islands Program $6,300,000* • Conduct whole-body counting and plutonium urinalyses to measure individual exposure to radionuclides; • Conduct comprehensive annual screening examinations; • Provide medical care for specified Marshallese; and • Provide environmental monitoring services in support of resettlement activities.	No change in work scope.

Security

Description

The Security subprogram provides support to develop and assist in the implementation of safeguards and security programs that provide protection to national security and other vital national assets entrusted to DOE, and to implement the U.S. Government's nuclear weapons-related technology classification and declassification program. Policies and guidance related to physical, personnel, and information security and nuclear materials accountability are designed to promote responsiveness to national security needs and changing threat environments. Assistance is provided to DOE programs and site offices and laboratories via working groups, site-specific support, and corporate program support to implement cost-effective security measures tailored to Departmental mission accomplishment. Corporate security-related information management systems are maintained to identify and reduce the potential for undue risk to individual sites, the Department, and national security. This subprogram also provides for the continuous physical protection and security of DOE facilities and information in the National Capital Area and access authorization security background investigations for DOE Headquarters Federal and contractor personnel. Additionally, DOE implements the information control program for the U.S. Government to mitigate national security threats by preventing the release of information regarding weapons of mass destruction and other data that could lead to damage of the Nation's energy infrastructure. Support is also provided to review over 400 million pages of documents backlogged at the National Archives for potential release as required by Executive Order.

In FY 2016, Security activities will include developing competent, reasonable, and cost effective security policies and operational guidelines to assure that the Nation's nuclear and energy assets and DOE's personnel and facilities are secure from insider and external threats.

Insider Threat Program

The DOE insider threat program is intended to deter cleared employees from becoming insider threats; detect insiders who pose a risk to personnel, facilities, or classified or personal information; and mitigate the risks through administrative, investigative or other response actions. EHSS, as directed by the Secretary, has designated a Senior Insider Threat Official to provide guidance and oversight for the insider threat program. On a continuing basis the Designated Senior Official for insider threats is responsible for identifying and advising the Secretary on resource needs for the program. In FY 2016, the insider threat program will continue to cut across several components of DOE and the Designated Senior Official will continue to coordinate resource needs with those components. This budget justification shows only the funding needed to implement EHSS's share of program responsibilities. Funding provides for the protection of DOE assets and facilities through security, suitability, and credentialing activities necessary to implement E.O. 13467.

Security Operational Support

Security operational support provides technical expertise to develop safeguards and security requirements and guidance; provide assistance to DOE operations; and maintain and manage corporate-level safeguards and security-related programs and information technology systems. These activities support Departmental objectives by providing an appropriately tailored level of security requirements for a wide range of scientific, research, and national security operations based on the significance of the national assets involved. Security policies, requirements, and guidance are developed to be clear and easily implemented, with the goal of securing nuclear material and classified matter and protecting the highly specialized DOE workforce.

Classification, Declassification, and Controlled Information

The classification, declassification, and controlled information activity ensures that the Department meets its statutory responsibility to implement the U.S. Government-wide program to classify and declassify nuclear weapons-related information (i.e., Restricted Data and Formerly Restricted Data) in order to prevent proliferation of nuclear weapons and technology. Funding for this activity supports the implementation of Executive Order 13526, Classified National Security Information, to classify other information critical to national security (i.e., National Security Information), such as security-related information concerning U.S. nuclear sites, energy critical infrastructure, and chemical/biological and radiological dispersal devices. Funding provides for declassification review of DOE records and the development of policies, requirements, and guidance and technical support for the protection of controlled unclassified information.

Security Investigations

Security investigation activities provide for background investigations conducted by the Office of Personnel Management and the Federal Bureau of Investigation of DOE Headquarters Federal and contractor personnel who require access to classified information or certain quantities of special nuclear material, as required by Section 145 of the Atomic Energy Act of 1954 (as amended) and Executive Order 12968, Access to Classified Information. The conduct of investigations and granting of access authorizations are based on 10 C.F.R. 710, Criteria and Procedures for Determining Eligibility for Access to Classified Matter or Special Nuclear Material. DOE program offices provide funding for security investigations for personnel whose access authorizations are managed through offices other than DOE Headquarters.

This activity also provides support to personnel security programs associated with maintaining access authorizations to personnel who meet the criteria noted above. The conduct of investigations and granting of access authorizations is based on 10 C.F.R. 710, Criteria and Procedures for Determining Eligibility for Access to Classified Matter or Special Nuclear Material.

Headquarters Security Operations

Headquarters security operations provide a comprehensive safeguards and security program for the protection of DOE Headquarters facilities and assets in the Washington, DC, area. This is accomplished through the deployment of a protective force; security education programs; the management and operation of countermeasures, alarms, and access control equipment; and the implementation of security-related programs. Funding provides for a safe and secure work environment and assures management, workers, and stakeholders that activities within Headquarters facilities are effectively protected

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Security $54,654,000	**Security $56,954,000**	**+$2,300,000**
Insider Threat Program $2,000,000	**$3,000,000**	**+$1,000,000**
• Develop and maintain a robust program to deter, detect, and centrally analyze and respond to insider threats facing the Department; • Deploy information technology enabled techniques, detectors, and triggers on all DOE and NNSA classified and unclassified computer networks to identify anomalous activity; • Enhance existing information-sharing partnerships with law enforcement, intelligence, and community organizations; • Develop measures of success and program review criteria. • Develop and implement insider threat program training in fundamentals of counterintelligence, security, agency procedures for insider threat response, as well as applicable laws and regulations on gathering, integrating, retaining, safeguarding and use of collected insider threat data; and • Produce an annual report for the Secretary to provide to the President.	• Develop and maintain a robust program to deter, detect, and centrally analyze and respond to insider threats facing the Department; • Deploy information technology enabled techniques, detectors, and triggers on all DOE and NNSA classified and unclassified computer networks to identify anomalous activity; • Enhance existing information-sharing partnerships with law enforcement, intelligence, and community organizations; • Develop measures of success and program review criteria. • Develop and implement insider threat program training in fundamentals of counterintelligence, security, agency procedures for insider threat response, as well as applicable laws and regulations on gathering, integrating, retaining, safeguarding and use of collected insider threat data; and • Produce an annual report for the Secretary to provide to the President. • Provide for the protection of DOE assets and facilities through security, suitability, and credentialing activities.	The increase provides for the protection of DOE assets and facilities through security, suitability and credentialing activities.
Security Operational Support $5,762,000	**$5,762,000**	**$0**
• Research, update, and maintain existing DOE regulations, directives and technical standards, and develop new safeguards and security requirements based on new or evolving threats or working conditions, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in implementing	• Research, update, and maintain existing DOE regulations, directives and technical standards, and develop new safeguards and security requirements based on new or evolving threats or working conditions, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in implementing	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
safeguards and security requirements and programs; • Provide technical support, training, and awareness materials for the security-related aspects of the human reliability program, including deployment of the human reliability program database and standard certification management system to ensure that over 10,000 individuals with access authorizations/clearances who occupy positions requiring access to special nuclear materials, nuclear explosive devices, or related facilities and information meet the highest standards of reliability and physical and mental suitability; • Provide support to the security awareness special interest group for DOE and contractor safeguards and security awareness coordinators to share security awareness methods and products, solve problems, and disseminate security-related information to satisfy Presidential and other regulatory requirements; • Operate, maintain, and perform data analysis of the electronic Safeguards and Security Information Management System, a centralized classified browser-based database that serves as the repository of current and historical DOE safeguards and security information pertaining to inspection deficiencies, corrective action status, facility clearance levels, classified addresses, and asset information; • Provide technical support and assistance for risk communication, risk management, vulnerability assessments, and security system performance evaluations, verifications, and validations, which are used to identify and cost-effectively address and mitigate current and emerging threats to	safeguards and security requirements and programs; • Provide technical support, training, and awareness materials for the security-related aspects of the human reliability program, including deployment of the human reliability program database and standard certification management system to ensure that over 10,000 individuals with access authorizations/clearances who occupy positions requiring access to special nuclear materials, nuclear explosive devices, or related facilities and information meet the highest standards of reliability and physical and mental suitability; • Provide support to the security awareness special interest group for DOE and contractor safeguards and security awareness coordinators to share security awareness methods and products, solve problems, and disseminate security-related information to satisfy Presidential and other regulatory requirements; • Operate, maintain, and perform data analysis of the electronic Safeguards and Security Information Management System, a centralized classified browser-based database that serves as the repository of current and historical DOE safeguards and security information pertaining to inspection deficiencies, corrective action status, facility clearance levels, classified addresses, and asset information; • Provide technical support and assistance for risk communication, risk management, vulnerability assessments, and security system performance evaluations, verifications, and validations, which are used to identify and cost-effectively address and mitigate current and emerging threats to	

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Departmental assets at the site level; • Provide assistance to DOE programs, sites, and laboratories in the use of security technology as a means to mitigate vulnerabilities, reduce recurring costs, and lessen environmental impacts, and maintain the Security Technology Information Archive for the collection, storage, and dissemination of security technology cost, performance, safety, and implementation information; and • Maintain corporate security-related information technology systems, such as the DOE electronic Foreign Ownership, Control, or Influence program mandated by the Federal acquisition regulations system (48 C.F.R. 904.7003, 952.204-2, 970.0404, 904.404, and 952.204-73) and by Executive Order 12829, National Industrial Security Program; the DOE foreign visits and assignments program that enables foreign nationals' participation in unclassified DOE work, as well as classified visits involving foreign nationals; and the Radiological Source Registry and Tracking database, which is used to inventory approximately 18,000 radioactive sealed sources at DOE sites in support of the Department's nonproliferation and antiterrorist programs, U.S. and DOE regulatory compliance, and international treaty obligations.	Departmental assets at the site level; • Provide assistance to DOE programs, sites, and laboratories in the use of security technology as a means to mitigate vulnerabilities, reduce recurring costs, and lessen environmental impacts, and maintain the Security Technology Information Archive for the collection, storage, and dissemination of security technology cost, performance, safety, and implementation information; and • Maintain corporate security-related information technology systems, such as the DOE electronic Foreign Ownership, Control, or Influence program mandated by the Federal acquisition regulations system (48 C.F.R. 904.7003, 952.204-2, 970.0404, 904.404, and 952.204-73) and by Executive Order 12829, National Industrial Security Program; the DOE foreign visits and assignments program that enables foreign nationals' participation in unclassified DOE work, as well as classified visits involving foreign nationals; and the Radiological Source Registry and Tracking database, which is used to inventory approximately 18,000 radioactive sealed sources at DOE sites in support of the Department's nonproliferation and antiterrorist programs, U.S. and DOE regulatory compliance, and international treaty obligations.	
Classification, Declassification and Controlled Information **$8,457,000**	**$9,757,000**	**+$1,300,000**
• Provide technical support in developing U.S. Government and DOE-wide policy and technical guidance to ensure that classified nuclear weapons-related information and other information critical to national security and to U.S. Governmental, commercial, or private interests is identified for proper protection;	• Provide technical support in developing U.S. Government and DOE-wide policy and technical guidance to ensure that classified nuclear weapons-related information and other information critical to national security and to U.S. Governmental, commercial, or private interests is identified for proper protection;	The increase provides for FY 2014 levels of support for Presidential and Departmental declassification milestones while safeguarding national security information.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
• Provide specialized technical expertise to foreign governments and to DOE and other U.S. departments and agencies regarding the national security implications of classification and declassification decisions for nuclear proliferation issues; • Provide training and certification of DOE and other agency personnel in classification and information control programs and related areas; • Provide support to the National Declassification Center for review of 400 million pages in backlog at the National Archives and follow-on record collections; • Review documents in support of DOE operations and other U.S. Government entities, such as Congress, Presidential Libraries, U.S. Patent Office, the Defense Nuclear Facilities Safety Board, the Government Accountability Office, and the Inspector General; and • Perform the final review of classified DOE documents and documents containing DOE equities from all U.S. Government departments and agencies, including DOE, when they are requested under the Freedom of Information Act and the mandatory provisions of Executive Order 13526, to ensure that DOE classified and controlled information is identified and protected from unauthorized release to the public as required by 10 C.F.R. 1004, Freedom of Information, and 10 C.F.R. 1045, Nuclear Classification and Declassification.	• Provide specialized technical expertise to foreign governments and to DOE and other U.S. departments and agencies regarding the national security implications of classification and declassification decisions for nuclear proliferation issues; • Provide training and certification of DOE and other agency personnel in classification and information control programs and related areas; • Provide support to the National Declassification Center for review of 400 million pages in backlog at the National Archives and follow-on record collections; • Review documents in support of DOE operations and other U.S. Government entities, such as Congress, Presidential Libraries, U.S. Patent Office, the Defense Nuclear Facilities Safety Board, the Government Accountability Office, and the Inspector General; and • Perform the final review of classified DOE documents and documents containing DOE equities from all U.S. Government departments and agencies, including DOE, when they are requested under the Freedom of Information Act and the mandatory provisions of Executive Order 13526, to ensure that DOE classified and controlled information is identified and protected from unauthorized release to the public as required by 10 C.F.R. 1004, Freedom of Information, and 10 C.F.R. 1045, Nuclear Classification and Declassification.	
Security Investigations $7,445,000	**$7,445,000**	**$0**
• Provide for the Federal Bureau of Investigation to conduct background investigations of DOE Headquarters Federal and contractor employees applying for or occupying sensitive positions, as	• Provide for the Federal Bureau of Investigation to conduct background investigations of DOE Headquarters Federal and contractor employees applying for or occupying sensitive positions, as	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
dictated by the Atomic Energy Act (as amended). Funding provides for initial background investigations, periodic reinvestigations, and reimbursement for fingerprint and name checks; • Provide for the Office of Personnel Management to conduct most background investigations of DOE Headquarters Federal and contractor employees. Funding provides for initial single-scope background investigations, periodic reinvestigations, and initial and reinvestigation national agency checks; • Research, update, and maintain existing DOE regulations, directives, and technical standards, and develop new personnel security requirements based on new or evolving threats or working conditions, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in implementing personnel security requirements and programs; • Conduct corporate-level access authorization adjudications (i.e., performing case reviews, conducting evaluations, and preparing decision packages), as necessary; • Operate and manage the electronic DOE Integrated Security System, which consists of interrelated databases and associated client applications and web pages that automate the processing and tracking of access authorizations, access and visitor control, personal identity verification, and related personnel security processes; and • Continue deployment of the personnel security case management system, as well as the integration of this system with DOE field site human resources, financial management, and access control systems to reduce overall	dictated by the Atomic Energy Act (as amended). Funding provides for initial background investigations, periodic reinvestigations, and reimbursement for fingerprint and name checks; • Provide for the Office of Personnel Management to conduct most background investigations of DOE Headquarters Federal and contractor employees. Funding provides for initial single-scope background investigations, periodic reinvestigations, and initial and reinvestigation national agency checks; • Research, update, and maintain existing DOE regulations, directives, and technical standards, and develop new personnel security requirements based on new or evolving threats or working conditions, when warranted; • Provide technical assistance to DOE programs, laboratories, and sites in implementing personnel security requirements and programs; • Conduct corporate-level access authorization adjudications (i.e., performing case reviews, conducting evaluations, and preparing decision packages), as necessary; • Operate and manage the electronic DOE Integrated Security System, which consists of interrelated databases and associated client applications and web pages that automate the processing and tracking of access authorizations, access and visitor control, personal identity verification, and related personnel security processes; and • Continue deployment of the personnel security case management system, as well as the integration of this system with DOE field site human resources, financial management, and access control systems to reduce overall	

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
personnel security program costs by eliminating redundant systems at DOE field sites and reduce processing time by integrating directly with other databases.	personnel security program costs by eliminating redundant systems at DOE field sites and reduce processing time by integrating directly with other databases..	
Headquarters Security Operations $30,990,000	**$30,990,000**	**$0**
• Provide a protective force engaged in the physical protection of classified information, facilities, and the workforce 24 hours a day, 365 days a year at DOE Headquarters facilities and satellite facilities in Washington, DC, and Germantown, MD; • Operate and maintain security alarms and access control systems, including security screening equipment, vehicle inspection scanning devices, internet protocol video, turnstiles, unmanned access/egress portals, other access control equipment; and protective force shelters; • Conduct performance testing of information control systems to ensure the protection of sensitive and classified information vital to both national and economic security; • Conduct technical surveillance countermeasures activities, such as surveys, inspections, in-conference monitoring, pre-construction consultation services, and threat analysis, in support of Presidential Decision Directive 61, Energy Department Counterintelligence, to detect and prevent hostile intelligence collection operations intent on penetrating DOE installations to steal technology or sensitive or classified information; • Conduct the telecommunications security activities consisting of emission security, protected transmission systems, and communications security to ensure the protection of DOE's sensitive unclassified and classified	• Provide a protective force engaged in the physical protection of classified information, facilities, and the workforce 24 hours a day, 365 days a year at DOE Headquarters facilities and satellite facilities in Washington, DC, and Germantown, MD; • Operate and maintain security alarms and access control systems, including security screening equipment, vehicle inspection scanning devices, internet protocol video, turnstiles, unmanned access/egress portals, other access control equipment; and protective force shelters; • Conduct performance testing of information control systems to ensure the protection of sensitive and classified information vital to both national and economic security; • Conduct technical surveillance countermeasures activities, such as surveys, inspections, in-conference monitoring, pre-construction consultation services, and threat analysis, in support of Presidential Decision Directive 61, Energy Department Counterintelligence, to detect and prevent hostile intelligence collection operations intent on penetrating DOE installations to steal technology or sensitive or classified information; • Conduct the telecommunications security activities consisting of emission security, protected transmission systems, and communications security to ensure the protection of DOE's sensitive unclassified and classified	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
telecommunications through various security components; • Provide access authorization adjudication services (i.e., case reviews and analysis, interviews, and use of court reporters and consulting physicians as needed) for DOE Headquarters personnel to assure that access to DOE classified information is permitted only after a determination that such access will not endanger the common defense and national security; • Implement Homeland Security Presidential Directive 12 requirements related to the secure and reliable identification of DOE Federal and contractor employees; • Provide technical support for the implementation of the DOE Headquarters security awareness and classified matter protection and control programs; • Administer the DOE Headquarters facility clearance registration and foreign ownership, control, or influence programs for contractors granted access to classified information; and • Conduct safeguards and security surveys, self-assessments, and program reviews to ensure that DOE Headquarters operations comply with Departmental and national-level requirements.	telecommunications through various security components; • Provide access authorization adjudication services (i.e., case reviews and analysis, interviews, and use of court reporters and consulting physicians as needed) for DOE Headquarters personnel to assure that access to DOE classified information is permitted only after a determination that such access will not endanger the common defense and national security; Implement Homeland Security Presidential Directive 12 requirements related to the secure and reliable identification of DOE Federal and contractor employees; • Provide technical support for the implementation of the DOE Headquarters security awareness and classified matter protection and control programs; • Administer the DOE Headquarters facility clearance registration and foreign ownership, control, or influence programs for contractors granted access to classified information; and • Conduct safeguards and security surveys, self-assessments, and program reviews to ensure that DOE Headquarters operations comply with Departmental and national-level requirements.	

Program Direction

Overview

Program Direction provides for Federal staffing and mission support services to provide overall direction and execution of the EHSS mission of conducting the Department's activities in environment, health, safety, and security policy, technical assistance, analysis, and corporate programs.

Technical Support Services: Defense Nuclear Facilities Safety Board (DNFSB) Liaison Activities

Liaison activities facilitate the Department's interaction with the DNFSB.

Other Related Expenses

Other related expenses provide support required for EHSS to accomplish its mission. Support includes working capital fund services; training for Federal employees; funding for information technology equipment and services and DOE common operating environment fees; and executive protection and other security-related equipment.

Program Direction
Funding ($K)

	FY 2014 Current[1]	FY 2014 Current[1]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Program Direction					
Salaries and Benefits	0	0	45,573	46,348	+775
Travel	0	0	1,665	2,193	+528
Mission Support	0	0	300	300	0
Other Related Expenses	0	0	14,697	14,264	-433
Total, Program Direction	**0**	**0**	**62,235**	**63,105**	**+870**
Federal FTEs	**0**	**0**	**260**	**260**	**0**
Support Services					
Technical Support					
Defense Nuclear Facilities Safety Board Liaison Activities	0	0	300	300	0
Total, Technical Support	0	0	300	300	0
Total, Support Services	**0**	**0**	**300**	**300**	**0**
Other Related Expenses					
Working Capital Fund	0	0	9,674	9,539	-135
Tuition/Training of Federal Staff	0	0	223	260	+37
Other Services Procured	0	0	4,800	4,465	-335
Total, Other Related Expenses	**0**	**0**	**14,697**	**14,264**	**-433**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $62,235,000	**$63,105,000**	**+$870,000**
Salaries and Benefits $45,573,000	**$46,348,000**	**+$775,000**
• Provide: corporate-level leadership and strategic vision to coordinate and integrate environment, health, safety, and security policy development and technical assistance; analysis; corporate safety and security programs including insider threat activities; quality assurance programs; executive protection; and effective cross-organizational coordination to resolve Defense Nuclear Facilities Safety Board-related technical and management issues necessary to ensure worker and public health and safety; • Manage the conduct of domestic and international health programs; • Implement physical and personnel security programs for DOE Headquarters facilities; and • Manage the U.S. Government-wide program to classify and declassify nuclear weapons-related technology and other national security information.	• Provide: corporate-level leadership and strategic vision to coordinate and integrate environment, health, safety, and security policy development and technical assistance; analysis; corporate safety and security programs including insider threat activities; quality assurance programs; executive protection; and effective cross-organizational coordination to resolve Defense Nuclear Facilities Safety Board-related technical and management issues necessary to ensure worker and public health and safety; • Manage the conduct of domestic and international health programs; • Implement physical and personnel security programs for DOE Headquarters facilities; and • Manage the U.S. Government-wide program to classify and declassify nuclear weapons-related technology and other national security information.	The increase reflects an expected rise in cost of living adjustments in Federal employee salaries and benefits.
Travel $1,665,000	**$2,193,000**	**+$528,000**
• Supports the management and conduct of environment, health, safety, and security programs for the Department; and • Supports executive protection activities for the Secretary, Deputy Secretary, and other dignitaries as assigned.	• Supports the management and conduct of environment, health, safety, and security programs for the Department; and • Supports executive protection activities for the Secretary, Deputy Secretary, and other dignitaries as assigned.	The increase reflects an expected rise in travel costs and executive protection support.
Support Services $300,000	**$300,000**	**$0**
Technical Support: Defense Nuclear Facilities Safety Board (Board) Liaison Activities • Promote resolution of recommendations and agreed-upon safety issues; • Provide requested reports on nuclear safety issues; • Provide ready access to such facilities, personnel,	*Technical Support: Defense Nuclear Facilities Safety Board (Board) Liaison Activities* • Promote resolution of recommendations and agreed-upon safety issues; • Provide requested reports on nuclear safety issues; • Provide ready access to such facilities, personnel,	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
and information as are necessary for the Board to carry out its responsibilities; • Provide technical evaluation and analysis of safety and management issues identified by the Board; Provide advice and support to DOE line managers on addressing and resolving such issues; and • Monitor Department-wide performance in addressing issues raised by the Board.	and information as are necessary for the Board to carry out its responsibilities; • Provide technical evaluation and analysis of safety and management issues identified by the Board; Provide advice and support to DOE line managers on addressing and resolving such issues; and • Monitor Department-wide performance in addressing issues raised by the Board.	
Other Related Expenses $14,697,000	**$14,264,000**	**-$433,000**
• Working capital fund fees, based on guideline estimates issued by the working capital fund manager, for the cost of common administrative services such as building occupancy and alterations, computer and telephone infrastructure and usage, mail service, copying, printing and graphics, procurement closeouts, supplies, online learning, computer network support, and payroll processing; • Federal employee training to obtain and/or maintain the technical competence of Federal employees, assuring that Federal personnel are fully capable of performing current and future missions of the Department; • The DOE common operating environment initiative that provides a single point of contact for all common information technology systems and services and brings security, service, efficiency, and scale to these projects; • Information technology investments that support Headquarters Federal and contractor staff with hardware, software, hotline, and other desktop computer maintenance support on per-user count and level of service; • Information technology systems exclusive to EHSS such as the classified local area network that includes a Secret/Restricted Data network that	• Working capital fund fees, based on guideline estimates issued by the working capital fund manager, for the cost of common administrative services such as building occupancy and alterations, computer and telephone infrastructure and usage, mail service, copying, printing and graphics, procurement closeouts, supplies, online learning, computer network support, and payroll processing; • Federal employee training to obtain and/or maintain the technical competence of Federal employees, assuring that Federal personnel are fully capable of performing current and future missions of the Department; • The DOE common operating environment initiative that provides a single point of contact for all common information technology systems and services and brings security, service, efficiency, and scale to these projects; • Information technology investments that support Headquarters Federal and contractor staff with hardware, software, hotline, and other desktop computer maintenance support on per-user count and level of service; • Information technology systems exclusive to EHSS such as the classified local area network that includes a Secret/Restricted Data network that	The overall decrease reflects a one-time correction to the Working Capital Fund resulting in a reduction of assessed fees offset by an increase in Federal employee training.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
supports Headquarters users and the Secret Internet Protocol Router Network that provides access to the Department of Defense classified network to effect coordination between the two departments; • Executive protection services to the Secretary of Energy and others designated by the Secretary; and the conduct of inquiries and investigations into significant matters of security concern; and • Specialized security equipment and services.	supports Headquarters users and the Secret Internet Protocol Router Network that provides access to the Department of Defense classified network to effect coordination between the two departments; • Executive protection services to the Secretary of Energy and others designated by the Secretary; and the conduct of inquiries and investigations into significant matters of security concern; and • Specialized security equipment and services.	

Environment, Health, Safety and Security
Safeguards and Security Crosscut
($K)

	FY 2014[1]	FY 2015	FY 2016	FY 2016 vs FY 2015
Environment, Health, Safety and Security (EHSS)				
Protective Forces	0	23,410	23,410	0
Physical Security Systems	0	5,488	5,488	0
Information Security	0	8,457	9,757	+1,300
Cyber Security[2]				
Protecting Networks and Information	0	3,291	4,315	+1,024
Detect, Analyze, and Mitigate intrusions	0	806	806	0
Continuous Monitoring	0	248	248	0
Shaping the Cyber Security environment	0	40	40	0
Total, Cyber Security	0	4,385	4,409	+1,024
Personnel Security	0	5,342	5,342	0
Material Control and Accountability	0	0	0	0
Program Management	0	5,762	5,762	0
Security Investigations	0	4,195	4,195	0
Transportation Security	0	0	0	0
Specialized Security Activities	0	0	0	0
Total, Environment, Health, Safety and Security (EHSS)	**0**	**57,039**	**59,363**	**+2,324**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.
[2] Includes $360,000 for FY 2015 and $214,000 within the Working Capital Fund Cyber One business line.

Enterprise Assessments

Overview

The Office of Enterprise Assessments (EA)[1] is the DOE organization responsible for performance of assessments in the areas of nuclear and industrial safety, cyber and physical security, and other critical functions as directed by the Secretary; and for implementing an expanded investigative capability to conduct Congressionally mandated enforcement functions in the areas of worker safety and health, nuclear safety, and classified information security. EA is also responsible for incorporating the lessons learned from inspections, reviews and assessments into safety and security training courses through its management of the National Training Center (NTC). EA provides an open and effective means of communicating and creating collaborative relationships within and outside the Department through its stakeholder outreach activities. EA serves as an important check-and-balance that assists the Department in meeting its safety and security responsibilities and advises the Secretary and Deputy Secretary on all matters related to independent assessments, enforcement, safety and security training, and outreach activities across the Department.

"The establishment of EA reflects the Department's commitment to the health and safety of DOE Federal and contractor employees and the public, environmental stewardship, and protection of the Department's national security assets."[2] Because EA reports directly to the Office of the Secretary, it is organizationally independent of the DOE offices that develop and implement policy and programs and can therefore objectively observe and report on these policies and programs as they relate to Departmental operations. EA activities complement, but do not replace the responsibility of DOE line management - reporting through the Under Secretaries - to oversee contractor's compliance with environment, health, safety and security requirements and achieve effective safety and security performance.

EA:

- Performs independent assessments of the Department's safeguards and security; cybersecurity; emergency management; environment, safety, and health; and other critical functions led by highly experienced technical experts who provide the Office of the Secretary, DOE and contractor managers, Congress, and other stakeholders analyses of the effectiveness of line management performance and Departmental policies and offer practical recommendations for improvements.
- Administers the Department's statutory worker safety and health, nuclear safety and classified information security enforcement authorities to reinforce the Department's expectations that DOE missions must be accomplished safely and securely and promote overall improvement in the Department's operations.
- Promotes continuous improvement in the health and safety of DOE employees, the public, and the protection of national security assets by incorporating lessons learned from independent assessments and enforcement activities into NTC training programs.
- Establishes and maintains open and effective methods of communication and collaborative relationships within and outside the organization to include DOE line and senior management, other Federal agencies, labor unions, stakeholders, field offices, and Departmental contractors.
- Strives to be a proactive organization with the ability to identify the Department's vulnerabilities and emerging trends in the areas of safety and security, and deploy resources to support the Department's missions.
- Operates in a transparent fashion by exercising assigned authorities in a fair, respectful and impartial manner, and promoting organizational learning and continuous improvement.

[1] Formerly the Office of Independent Enterprise Assessments.

[2] June 27, 2014, memorandum from the Secretary and Deputy Secretary of Energy to the heads of Departmental elements regarding the establishment of EA.

Enterprise Assessments
Funding ($K)

	FY 2014 Enacted[1]	FY 2014 Current[1]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Enterprise Assessments					
Nuclear Safety Assessments[2]	0	0	6,621	6,621	0
Enforcement	0	0	1,947	1,947	0
Safety and Security Training[3] (HS)	0	0	15,000	15,000	0
Outreach and Analysis[4]	0	0	500	500	0
Total, Enterprise Assessments	**0**	**0**	**24,068**	**24,068**	**0**
Program Direction	**0**	**0**	**49,466**	**49,466**	**0**
Total, Enterprise Assessments	**0**	**0**	**73,534**	**73,534**	**0**
Less Rescission	0	0	-54	0	+54
Total, Enterprise Assessments	**0**	**0**	**73,480**	**73,534**	**+54**

Enterprise Assessments
Explanation of Major Changes ($K)

	FY 2016 vs FY 2015
Enterprise Assessments: No change.	**0**
Total, Enterprise Assessments	**0**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.
[2] Formerly Nuclear Safety Oversight.
[3] Formerly National Training Center.
[4] Formerly Outreach.

Enterprise Assessments

Description

The EA Program provides for the evaluation of DOE performance in nuclear safety; the implementation of the health and safety, nuclear safety, and classified information security enforcement programs; the development and administration of safety and security training that reflects the most current Departmental policy and lessons learned on safety and security issues; and the establishment and maintenance of collaborative relationships with internal and external organizations to foster improvements in health, safety, environmental and security performance at DOE sites.

Nuclear Safety Assessments

Provides for the conduct of independent assessments of DOE high hazard nuclear facility construction projects, nuclear facilities and operations to determine compliance with nuclear safety requirements contained in Title 10 Code of Federal Regulations (C.F.R.) Part 830, Nuclear Safety Management, and DOE directives.

Enforcement

Enforcement activities provide the Department with the capability to implement regulatory enforcement programs specified in Title 10 C.F.R. Part 851, Worker Safety and Health Program; Title 10 C.F.R. Part 820, Procedural Rules for DOE Nuclear Activities; and Title 10 C.F.R. Part 824, Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations. These activities provide a consistent and transparent method of contractor accountability for health and safety, nuclear safety and classified information security performance that complements the Department's contract management mechanisms. The goal of the enforcement activity is to ensure that DOE contractors adhere to worker safety and health, nuclear safety, and classified information security requirements, and to promote proactive improvement through timely self-identification, reporting, and correction of noncompliant conditions to enable contractors to achieve excellence in mission accomplishment without the need for enforcement actions.

Safety and Security Training

Safety and security training activities assist the Department in developing and maintaining the proficiency and competency of DOE safety and security personnel. The training activities also improves senior executives' capabilities to fulfill safety and security leadership responsibilities through standardized training for the protection of the environment, the safety and health of the public and the workforce, and the security of critical Departmental and national security assets. The DOE National Training Center, located in Albuquerque, New Mexico, serves as the primary resource for DOE safety and security training.

Outreach and Analysis

Establishes and maintains collaborative relationships with line management, labor unions, and other U.S. Government entities in order to inform the Secretary of their input and positions, and foster improvements in health, safety, environmental and security performance at DOE sites. This activity also leverages and provides analytic materials to help EA leadership determine areas of critical need and vulnerability.

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Enterprise Assessments $24,068,000	**$24,068,000**	**$0**
Nuclear Safety Assessments $6,621,000	**$6,621,000**	**$0**
• Conduct independent oversight of high hazard nuclear facility (as defined in 10 C.F.R. 830) construction projects to ensure compliance with nuclear safety requirements; and • Provide independent oversight of DOE nuclear facilities and operations to ensure compliance with nuclear safety requirements.	• Conduct independent assessments of high hazard nuclear facility construction projects to ensure compliance with nuclear safety requirements; and • Provide independent assessments of DOE nuclear facilities and operations to ensure compliance with nuclear safety requirements.	No change in work scope.
Enforcement $1,947,000	**$1,947,000**	**$0**
• Review and analyze operational data from the DOE data management systems designed specifically for noncompliance reporting, as well as reports from independent oversight activities, the DOE Occurrence Reporting and Processing System, the DOE Computerized Accident/Incident Reporting System, the DOE Safeguards and Security Information Management System, Federal accident investigations, and DOE site and program office assessments and evaluations to determine whether enforcement investigations are warranted and to analyze trends in noncompliance events; • Conduct regulatory reviews; • Conduct enforcement investigations; • Develop and issue enforcement actions and other regulatory outcomes, such as notices of violation, enforcement letters, consent orders, and compliance orders, and assess civil penalties or other sanctions for regulatory violations; and • Conduct periodic outreach and training activities to communicate the Department's approach to safety and security enforcement, convey noncompliance reporting expectations, and	• Review and analyze operational data from the DOE data management system designed for noncompliance reporting, as well as reports from independent assessment activities, the DOE Occurrence Reporting and Processing System, the DOE Computerized Accident/Incident Reporting System, the DOE Safeguards and Security Information Management System, Federal accident investigations, and DOE site and program office assessments and evaluations to determine whether enforcement investigations are warranted and to identify trends in noncompliance events; • Conduct regulatory reviews; • Conduct enforcement investigations; • Develop and issue enforcement actions and other regulatory outcomes, such as notices of violation, enforcement letters, consent orders, and compliance orders, and assess civil penalties or other sanctions for regulatory violations; and • Conduct periodic outreach and training activities to communicate the Department's approach to safety and security enforcement, convey noncompliance reporting expectations, and	No change in work scope.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
provide information about DOE regulatory performance.	provide information about DOE regulatory performance.	
Safety and Security Training (HS) $15,000,000	**$15,000,000**	**$0**
• Develop and provide security-and safety-related training and professional development programs at the DOE National Training Center (NTC), at DOE sites through mobile training teams, and through Webinars, video conferencing, and synchronous distance learning ; • Maintain and upgrade equipment and technologies to support a greater web presence and "just-in-time" online training products, such as webcasts and topical area seminars; and • Operate and maintain the NTC, including classrooms, administrative offices, weapons live-fire ranges, and the Integrated Safety and Security Training and Evaluation Complex, a simulated DOE research and operational facility designed to allow for the use and evaluation of training methodologies and evolving safety and security technologies through hands-on, performance-based instruction.	• Develop and provide security-and safety-related training and professional development programs at the DOE National Training Center (NTC), at DOE sites through mobile training teams, and through Webinars, video conferencing, and synchronous distance learning; • Maintain and upgrade equipment and technologies to support a greater web presence and "just-in-time" online training products, such as webcasts and topical area seminars; and • Expand the reciprocity program whereby certified safety training programs are recognized by other DOE contractors and sites and; • Operate and maintain the NTC, including classrooms, administrative offices, weapons live-fire ranges, and the Integrated Safety and Security Training and Evaluation Complex, a simulated DOE research and operational facility designed to allow for the use and evaluation of training methodologies and evolving safety and security technologies through hands-on, performance-based instruction.	No change in work scope.
Outreach and Analysis $500,000	**$500,000**	**$0**
• Establish and maintain collaborative relationships with organizations both internal and external to DOE in order to foster improvements in health, safety, environmental and security performance at DOE sites.	• Establish and maintain collaborative relationships with organizations both internal and external to DOE; and • Leverage and provide analytic materials to help EA leadership determine areas of critical need and vulnerability.	No change in work scope.

Program Direction

Overview

Program Direction provides for Federal staffing and mission support services to provide overall direction and execution of the EA mission to conduct expert evaluations of management performance in safety, security and other areas; implement health and safety, nuclear safety, and classified information security enforcement programs; develop and administer safety and security training that reflects the most current Departmental policy on safety and security issues; and establish and maintain collaborative relationships with organizations both internal and external to DOE.

Critical to achieving its vision and goals is the ability of EA to maintain a highly qualified workforce with the expertise and skills necessary to support, manage, and conduct its mission. The EA workforce is composed of health, safety, and security professionals grounded in science, engineering, and technology that are led by effective program and project managers with exceptional communication and leadership skills and supported by innovative resource management experts. The judicious use of contractor support continues to be a practical and cost-effective means of providing a surge pool of technical experts.

Support Services - Independent Assessments

Independent assessment activities provide high value to the Department by identifying gaps and vulnerabilities in safety (worker, nuclear, and facility safety), physical security, and cybersecurity programs and related performance. Independent assessment activities are selected based on careful consideration and analysis of risk to Departmental operations and performance trends, and are tailored to the unique missions and needs of each DOE program and site office. Safeguards and security, information security, and cybersecurity-related independent assessment activities are designed to determine whether special nuclear materials, classified matter (parts and information), and sensitive information are adequately protected from unauthorized or inadvertent disclosure or diversion, including from the actions of malicious insiders. Assessment activities are also designed to evaluate whether the Department's overarching management and governance structure is effective in promoting robust protection strategies and informed risk management decisions. Safety-related independent assessment activities help to ensure that workers and the public are protected from the hazards associated with the Department's operations, and to preclude events that could negatively impact the Department's ability to perform its mission and achieve its goals. Independent assessment activities provide accurate and timely information and analysis to the Department's senior leadership regarding the effectiveness of the Department's safety and security programs and other functions of interest. Information is made available to Department management, congressional committees, and stakeholders, such as unions and local public interest groups, to provide confidence that the Department's operations are performed in a safe and secure manner.

Independent assessment activities complement but do not replace DOE line management's responsibility for security, safety, and contract performance management as required by Departmental policies. Independent assessment provides a check-and-balance function that is vital for a self-regulating agency to provide assurance of its safety and security posture to its leadership, its workers, the public and Congress, and to maintain confidence in the Department's ability to be an effective self-regulator. As required by DOE Order 227.1, Independent Oversight Program, independent assessment activities are performed by personnel who are organizationally independent of the DOE program and site offices that implement policies and programs, and who can therefore objectively observe and report on those policies and programs as they relate to Departmental operations. Independent assessment processes are governed by documented, formal protocols that are continuously evaluated, revised, and refined based on Departmental and national events and activities that have an impact on DOE security and safety in order to provide more useful performance data and related information to line managers.

Other Related Expenses

Support includes working capital fund services; training for Federal employees; information technology equipment and services, and the DOE common operating environment initiative.

Program Direction
Funding ($K)

	FY 2014 Enacted[1]	FY 2014 Current[1]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	0	0	16,126	16,336	+210
Travel	0	0	1,235	1,235	0
Support Services	0	0	28,013	27,765	-248
Other Related Expenses	0	0	4,092	4,130	+38
Total, Program Direction	**0**	**0**	**49,466**	**49,466**	**0**
Federal FTEs	**0**	**0**	**92**	**92**	**0**
Support Services					
Technical Support					
Independent Assessments[2]	0	0	28,013	27,765	-248
Total, Technical Support	**0**	**0**	**28,013**	**27,765**	**-248**
Total, Support Services	**0**	**0**	**28,013**	**27,765**	**-248**
Other Related Expenses					
Working Capital Fund	0	0	2,718	2,756	+38
Training	0	0	78	78	0
Other Services Procured	0	0	1,296	1,296	0
Total, Other Related Expenses	**0**	**0**	**4,092**	**4,130**	**+38**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.
[2] Formerly Independent Oversight

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015 Enacted
Program Direction $49,466,000	**$49,466,000**	**$0**
Salaries and Benefits $16,126,000	**$16,336,000**	**+$210,000**
• Federal staffing and mission support services to provide overall direction and execution of the IEA mission to conduct expert evaluations of management performance in safety, security and other areas; implement health and safety, nuclear safety, and classified information security enforcement programs; develop and administer safety and security training that reflects the most current Departmental policy on safety and security issues; and establish and maintain collaborative relationships with organizations both internal and external to DOE in order to foster improvements in health, safety, environmental and security performance at DOE sites.	• Federal staffing and mission support services to provide overall direction and execution of the EA mission to conduct expert evaluations of management performance in safety, security and other areas; implement health and safety, nuclear safety, and classified information security enforcement programs; develop and administer safety and security training that reflects the most current Departmental policy on safety and security issues; and establish and maintain collaborative relationships with organizations both internal and external to DOE in order to foster improvements in health, safety, environmental and security performance at DOE sites.	Increase supports anticipated cost of living adjustments for Federal employee salaries and benefits.
Travel $1,235,000	**$1,235,000**	**$0**
• Management and conduct of IEA activities for the Department.	• Provides for Federal employee travel in support of EA enforcement, independent assessment, training outreach and other mission-related activities as directed by the Secretary.	No change in work scope.
Support Services $28,013,000	**$27,765,000**	**-$248,000**
Independent Oversight • Observe operations and conduct technical assessments and performance tests that examine the effectiveness of safety and security programs and policies, giving priority to the highest security interests, such as strategic quantities of special nuclear material, and activities that present the most significant safety risks to workers and the public, such as nuclear facilities and operations; • Conduct performance tests for the highest-priority safeguards and security interests,	*Independent Assessments* • Observe operations and conduct technical assessments and performance tests that examine the effectiveness of safety and security programs and policies, giving priority to the highest security interests, such as strategic quantities of special nuclear material, and activities that present the most significant safety risks to workers and the public, such as nuclear facilities and operations; • Conduct performance tests for critical safeguards and security interests, including protective force	*Independent Assessments* The reduction accounts for a change in skills mix to reflect FY 2016 independent assessment goals.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015 Enacted
including protective force tests (e.g., force-on-force exercises) using weapons simulation systems and a specially trained composite adversary team to assess overall security effectiveness; • Conduct announced and unannounced internal and external network penetration testing to provide a full understanding of a site's cybersecurity protection posture; • Conduct the annual independent evaluation of classified information systems security programs for DOE as required by the Federal Information Security Management Act; • Conduct an annual evaluation of classified information systems security programs for systems that process intelligence information on behalf of the DOE Office of Intelligence and Counterintelligence; • Provide input to the DOE Office of Inspector General for the annual evaluation of the DOE unclassified information systems security program; • Conduct annual "red team" cybersecurity assessments of the computer networks within the National Nuclear Security Administration weapons laboratories; • Conduct independent oversight of high hazard nuclear facility construction projects to ensure compliance with nuclear safety requirements; • Conduct targeted reviews of selected nuclear safety functional areas across the DOE complex based on such factors as performance trends, changes to applicable requirements, and/or performance information gaps; • Maintain the nuclear safety site lead program to monitor the status of DOE nuclear facilities and	tests (e.g., force-on-force exercises) using weapons simulation systems and a specially trained composite adversary team to assess overall security effectiveness; • Conduct limited-notice performance testing of site protective forces to maximize response realism and broaden the spectrum of tested threat scenarios; • Conduct assessments of the implementation of the Department's insider threat program to deter, detect, and mitigate potential insider threats posed by Federal and DOE contractor employees; • Conduct announced and unannounced internal and external network penetration testing to provide a full understanding of a site's cybersecurity protection posture; • Conduct the annual independent evaluation of classified information systems security programs for DOE as required by the Federal Information Security Management Act; • Conduct an annual evaluation of classified information systems security programs for systems that process intelligence information on behalf of the DOE Office of Intelligence and Counterintelligence; • Provide input to the DOE Office of Inspector General for the annual evaluation of the DOE unclassified information systems security program; • Conduct annual "red team" cybersecurity assessments of the computer networks within the National Nuclear Security Administration weapons laboratories; • Conduct targeted reviews of selected nuclear safety functional areas across the DOE complex based on such factors as performance trends,	

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015 Enacted
activities and facilitate the selection and execution of risk-informed oversight activities; • Conduct special reviews and studies of safety and security policies, programs, and implementation to identify needed program corrections; • Develop reports identifying findings and opportunities for improvement; • Conduct follow-up reviews to evaluate corrective action effectiveness ; and • Provide lessons learned and trending of inspection results to the National Training Center to be used to develop or amend safety and security curricula.	changes to applicable requirements, and/or performance information gaps; • Maintain the nuclear safety site lead program to monitor the status of DOE nuclear facilities and activities and facilitate the selection and execution of risk-informed assessment activities; • Conduct risk-informed reviews of worker safety and health programs. • Conduct reviews to assess emergency planning, preparedness, and response and recovery capabilities. • Conduct special reviews and studies of safety and security policies, programs, and implementation to identify needed program corrections; • Develop reports identifying findings and opportunities for improvement; • Develop and broadly disseminate abstracts of key results to promote performance improvements; • Continuously analyze results, and develop periodic summary reports that identify cross-cutting issues and performance trends; • Conduct follow-up reviews to evaluate corrective action effectiveness ; and • Provide lessons learned and trending of inspection results to the National Training Center to be used to develop or amend safety and security curricula.	
Other Related Expenses $4,092,000	**$4,130,000**	**+$38,000**
• Working capital fund fees, based on guideline estimates issued by the working capital fund manager, for the cost of common administrative services such as building occupancy and alterations, computer and telephone infrastructure and usage, mail service, copying, printing and graphics, procurement closeouts, supplies, online learning, computer network	• Working capital fund fees, based on guideline estimates issued by the working capital fund manager, for the cost of common administrative services such as building occupancy and alterations, computer and telephone infrastructure and usage, mail service, copying, printing and graphics, procurement closeouts, supplies, online learning, computer network	The incremental increase is due to the Working Capital Fund business line structure.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015 Enacted
support, and payroll processing; • Federal employee training to obtain and/or maintain the technical competence of IEA Federal employees, assuring that Federal personnel are fully capable of performing missions of the Department; and • The DOE common operating environment initiative that provides a single point of contact for all common information technology systems and services and brings security, service, efficiency, and scale to these projects.	support, and payroll processing; • Federal employee training to obtain and/or maintain the technical competence of EA Federal employees, assuring that Federal personnel are fully capable of performing missions of the Department; and • The DOE common operating environment initiative that provides a single point of contact for all common information technology systems and services and brings security, service, efficiency, and scale to these projects.	

Other Defense Activities
Facilities Maintenance and Repair

The Department's Facilities Maintenance and Repair activities funded by this budget are tied to its programmatic missions, goals, and objectives.

Costs for Direct-Funded Maintenance and Repair (including Deferred Maintenance Reduction) ($K)

	FY 2014 Actual Cost[1]	FY 2014 Planned Cost[1]	FY 2015 Planned Cost	FY 2016 Planned Cost
National Training Center	0	0	409	411
Total, Direct-Funded Maintenance and Repair	**0**	**0**	**409**	**411**

Report on FY 2014 Expenditures for Maintenance and Repair

This report responds to legislative language set forth in Conference Report (H.R. 108-10) accompanying the Consolidated Appropriations Resolution, 2003 (Public Law 108-7) (pages 886-887), which requests the Department of Energy provide an annual year-end report on maintenance expenditures to the Committees on Appropriations. This report compares the actual maintenance expenditures in FY 2014 to the amount planned for FY 2014, including Congressionally directed changes.

Other Defense Activities
Total Costs for Maintenance and Repair ($K)

	FY 2014 Actual Cost[1]	FY 2014 Planned Cost[1]
National Training Center	0	0
Total, Maintenance and Repair	**0**	**0**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.

Enterprise Assessments
Homeland Security / Safeguards and Security Crosscut
($K)

	FY 2014[1]	FY 2015	FY 2016	FY 2016 vs FY 2015
Enterprise Assessments (EA)				
	0	0	0	0
Subtotal, HS Program Unique Elements (Not S&S elements)	**0**	**0**	**0**	**0**
Safeguards and Security Components of Homeland Security				
Protective Forces	0	0	0	0
Physical Security Systems	0	0	0	0
Information Security	0	0	0	0
Personnel Security	0	0	0	0
Material Control and Accountability	0	0	0	0
Program Management	0	0	0	0
Transportation Security	0	0	0	0
Construction	0	0	0	0
Other (Safety and Security Training)	0	15,000	15,000	0
Cybersecurity				
Protecting Networks and Information	0	20	20	0
Detect, Analyze, and Mitigate intrusions	0	60	60	0
Continuous Monitoring	0	105	105	0
Shaping the Cybersecurity environment	0	3,767	3,767	0
Working Capital Fund (CyberOne contribution)[2]	0	92	87	-5
Subtotal, Cybersecurity	0	4,044	4,039	-5
Subtotal, Safeguards and Security within Homeland Security	**0**	**19,044**	**19,039**	**-5**
Total, Homeland Security	**0**	**19,044**	**19,039**	**-5**
Security Investigations (SI)	0	0	0	0
Total, Safeguards and Security (Inclusive of SI)	**0**	**19,044**	**19,039**	**-5**

[1] FY 2014 funding for these activities is included in the Health, Safety and Security budget within the Other Defense Activities appropriation.
[2] Working Capital Fund CyberOne contribution resides in Program Direction "Other."

Legacy Management

Overview

The Office of Legacy Management's (LM) program is the final element of site remediation and closure after active remediation is complete – fulfilling the Department's commitments to ensure protection of human health and the environment and ensure all contractual obligations are met. The majority of LM's activities are long-term, involved with maintaining the Department's regulatory and contractual commitments. Short-term activities assist with the targeted outcome of the Department's 2014-2018 Strategic Plan to complete environmental remediation of our legacy and active sites. The mission of LM achieves the Strategic Plan goal of 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.

LM provides funding for Long-Term Surveillance and Maintenance (LTS&M), Environmental Justice (EJ), Archives and Information Management (AIM), Pension and Benefit Continuity, Asset Management, and Program Direction.

Highlights and Major Changes in the FY 2016 Budget Request

LM will continue its activities at approximately the same level as FY 2015. The funding levels of the program request will allow LM to conduct its monitoring and associated activities at its sites and pay the post-retirement benefits of eligible former contractor employees.

Legacy Management
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Legacy Management					
Legacy Management					
Long-Term Surveillance and Maintenance	46,205	46,205	46,051	45,252	-799
Environmental Justice	1,303	1,303	1,303	1,303	0
Archives and Information Management	14,158	14,158	13,967	13,967	0
Pension and Benefit Continuity	92,374	92,374	88,200	84,000	-4,200
Asset Management	9,231	9,231	9,118	9,558	+440
Total, Legacy Management	**163,271**	**163,271**	**158,639**	**154,080**	**-4,559**
Program Direction	**13,712**	**13,712**	**13,341**	**13,100**	**-241**
Rescission of Prior Year Balances	**0**	**0**	**-126**	**0**	**+126**
Total, Legacy Management	**176,983**	**176,983**	**171,854**	**167,180**	**-4,674**

Legacy Management
Explanation of Major Changes ($K)

	FY 2016 vs FY 2015
• **Legacy Management:** Funding requirements for Pension and Benefit Continuity have decreased because of participant mortality, use of health reimbursement arrangements, and eligibility into Medicare.	**-4,559**
• **Program Direction:** No significant change. LM will add one FTE during FY 2016.	**-241**
• **Rescission of Prior Year Balances**	**+126**
Total, Legacy Management	**-4,674**

Legacy Management

Description

The Legacy Management (LM) subprogram contains essential elements to assist the Department in achieving the strategic goal of providing a long-term solution to the environmental legacy of the Cold War and ensure that DOE fulfills its long-term commitments to protect human health and the environment and continue providing post-retirement benefits for former contractor workers. By funding the long-term activities in the LM subprogram, other DOE programs are able to concentrate on risk reduction and site closure.

Long-Term Surveillance and Maintenance

This activity is required for remediated sites. Before transferring to LM, cleanup is performed to a level that protects human health and the environment. DOE maintains the sites to ensure the cleanup remains protective of human health and the environment. Site conditions must meet the regulatory requirements established by state and federal agencies in cooperation with local governments, Tribal Nations, and public stakeholders.

The funding requested for FY 2016 will allow LM to monitor and conduct long-term treatment at its sites in accordance with legal, contractual and regulatory agreements. Routine functions include soil, water, and air monitoring, long-term treatment of contaminants, maintenance of disposal cells, and security. Funding for this activity is required to meet legal and regulatory requirements for LM sites.

A related cost, directly supporting this activity and embedded within the total activity cost, is safeguards and security for LM properties. The costs include protective forces and physical security systems as follows: FY 2014 - $139 thousand; FY 2015 - $160 thousand; and FY 2016 - $200 thousand. The cost is derived from protective forces and physical security systems in Weldon Spring and Fernald (Stoller subcontract).

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice (EJ) in Minority and Low-Income Populations, directed each Federal agency to make achieving EJ part of its mission. LM provides leadership and coordination of Departmental EJ activities and represents the Department in interagency planning and activities.

The FY 2016 funding continues actions under a Memorandum of Understanding (MOU) that includes participation from 17 Federal agencies to work collaboratively with communities to increase their ability to sustain a healthy quality of life.

Archives and Information Management

LM is the custodian of legacy physical and electronic records for LM sites including the major closure sites of Fernald, Mound, and Rocky Flats. LM is responsible for approximately 114,000 cubic feet of physical records and nearly 245 terabytes of electronic files. LM's responsibility in this area includes the management of the records and information systems (e.g., the Licensing Support Network) associated with the Yucca Mountain site.

Within this activity, LM provides records management services for its active program elements and maintains legacy archives of inherited collections, including electronic records and records in other media, e.g., x-ray film. Elements include records of management policy and procedure development, planning, and development of oversight processes and actions that guide and govern physical and electronic records management operations. This latter element includes critical preservation efforts for fragile or deteriorating records. The archives and information management activity also includes managing records over the standard record life-cycle and developing records retention schedules in conjunction with National Archives and Records Administration (NARA) requirements. These functions encompass operational records retention, records maintenance and use, and records disposition processes and activities to ensure proper documentation of LM's environmental protection, environmental remediation, and hazardous waste disposition-related policies and activities.

The activity has frequent public interactions through support of requests associated with the Freedom of Information Act (FOIA), Privacy Act, and other information requests and DOE stakeholders processing claims associated with the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). LM currently receives ~1,600 information requests each year.

This activity also provides LM's information management and technology needs. This work involves the coordination of information collection, storage, dissemination, and destruction as well as managing the policies, guidelines, and standards regarding information management. LM maintains its information technology (IT) infrastructure – including maintaining functional equipment, operating systems, and software capable of accessing electronic records – and provides planning, design, and maintenance of an IT infrastructure to effectively support automated needs (e.g., platforms, networks, servers, printers, etc.) and provides IT security for LM's unclassified computing networks.

IT security involves all processes and activities pertaining to the securing of Federal data and systems through the creation and definition of security policies, procedures and controls covering such services as identification, authentication, and non-repudiation in accordance with Federal Information Processing Standards (FIPS) and the Federal Information Security Management Act (FISMA). The cost of the embedded cyber security functions are as follows: FY 2014 - $986 thousand (includes security testing and evaluation (ST&E)); FY 2015 - $904 thousand; and, FY 2016 - $922 thousand.

Pension and Benefit Continuity

This activity fulfills the Department's commitment to its former contractor employees from closure sites and certain employees from other sites. For sites that have been closed following the end of active programs and completion of site remediation, LM is responsible for ensuring the former contractor employees receive the pensions and post-retirement benefits (PRB) that are part of the contractual agreements for the respective sites. Dependent upon the contract provisions for the respective sites, LM provides former contractor employees with all or some of the following benefits: pension fund contributions, health insurance, Medicare Part B, and life insurance.

In FY 2016, LM will administer pensions and/or PRB for eight sites: Fernald (OH), Grand Junction (CO), Mound (OH), Paducah (KY), Pinellas (FL), Portsmouth (OH), Rocky Flats (CO), and Yucca Mountain (NV).

The number of participants in the pension and/or other benefit plans (including spouses covered under the retiree medical plans) is ~11,000. The total number of participants is expected to decrease over time due to a closed participant population and normal mortality.

Asset Management

This activity will assist the Department in achieving the targeted outcome of reducing the Cold War legacy waste site footprint.

LM manages tens of thousands of acres of land and other assets. This activity focuses on management of those assets – including administration of leases for property used in program functions, infrastructure and facility management – and on reuse or transfer of the real and personal property to other agencies or private interests. Transferring land to a private interest allows the land to be reused productively, reduces the Department's "footprint," and enables resumption of local property taxes. Transfer of excess assets to non-DOE ownership is a priority. LM has a target to transfer five properties by the end of FY 2016. Reduced costs of managing LM leases have also contributed to the funding requirements remaining relatively constant.

This activity also includes management of lease tracts for uranium mining on selected Federal lands in Colorado. By managing lands for domestic production of uranium, LM enables prudent development of our natural resources. Uranium lease management will continue to strengthen LM's capacity for long-term management of uranium-related issues.

A related cost directly supporting this activity and embedded within the total activity cost is safeguards and security for LM properties. The costs include protective forces, physical security systems, personnel security, information security, and program management as follows: FY 2014 - $640 thousand; FY 2015 - $552 thousand; and, FY 2016 - $850 thousand. The increase in FY16 cost is due to the addition of the Stoller Security Support contract for $295 thousand.

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Long-Term Surveillance and Maintenance		
• Conduct surveillance and maintenance at 89 sites. • Accept responsibility for eight additional sites. • Conduct needed actions to prepare for transfer of future sites.	• Conduct surveillance and maintenance at 97 sites. • Accept responsibility for three additional sites. • Conduct needed actions to prepare for transfer of future sites.	• The decrease is primarily due to the planned installation of monitoring wells at the Central Nevada Test Area and the Rio Blanco, CO site during FY 2015. No monitoring well drilling is currently planned at these two sites during FY 2016, so each site's budget request decreased.
Environmental Justice (EJ)		
• Continue EJ functions as the Departmental focus for that program element. • Promote EJ functions in the communities affected by DOE closure actions.	• Continue EJ functions as the Departmental focus for that program element. • Promote EJ functions in the communities affected by DOE closure actions.	• No change.
Archives and Information Management		
• Continue records/IT management functions for all sites and activities. • Accept responsibility for records/IT for sites transferred to LM during the fiscal year.	• Continue records/IT management functions for all sites and activities. • Accept responsibility for records/IT for sites transferred to LM during the fiscal year.	• No change.
Pension and Benefit Continuity		
• Continue to pay pensions and/or PRB for eight sites.	• Continue to pay pensions and/or PRB for eight sites.	• Mortality and shifting participants into Medicare have offset medical inflation. Medical inflation rates have decreased.
Asset Management		
• Continue asset management support for 89 existing sites. • Add eight sites by the end of FY 2015. * • Manage infrastructure and facilities at LM sites. • Continue management of the Uranium Leasing program.	• Continue asset management support for 97 existing sites. • Add three sites by the end of FY 2016. • Manage infrastructure and facilities at LM sites. • Continue management of the Uranium Leasing program.	• The increase is primarily due to LM programmatic security support activities.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
• Continue to increase and manage beneficial reuse initiatives at sites available for reuse. • Disposition of one property during FY 2015.	• Continue to increase and manage beneficial reuse initiatives at sites available for reuse.	

*Includes addition of Burris Park, CA in November, 2014.

Legacy Management
Performance Measures

In accordance with the GPRA Modernization Act of 2010, the Department sets targets for, and tracks progress toward, achieving performance goals for each program.

	FY 2014	FY 2015	FY 2016
Performance Goal (Measure)	**Conduct surveillance and maintenance actions at all sites within LM's responsibility to ensure the effectiveness of cleanup remedies in accordance with legal agreements or identify sites subject to additional remedial action**		
Target	89 sites inspected	97 sites inspected	100 sites inspected
Result	89 sites inspected	Not Applicable	Not Applicable
Endpoint Target	Inspections will continue indefinitely. Inspection of 100 percent of the sites will continue to be the goal.		
Performance Goal (Measure)	**Reduce the cost of performing long-term surveillance and maintenance activities while meeting all regulatory requirements to protect human health and the environment. Reduction is measured in percent from the life-cycle baseline. Goal is a 2 percent reduction each year based on an independently reviewed baseline.**		
Target	2 percent reduction below the baseline	2 percent reduction below the baseline	2 percent reduction below the baseline
Result	7.9 percent reduction	Not Applicable	Not Applicable
Endpoint Target	Two percent reduction below the life-cycle baseline each year.		

Program Direction

Overview

The LM mission is carried out by a workforce composed mainly of contractors paid mostly from program funds. Oversight, policy, and inherently governmental functions (e.g., contract administration and budget formulation and execution) are provided by a federal workforce funded from program direction. Within the program direction subprogram, most costs are associated with Federal personnel salaries and benefits.

LM was designated as an HPO in 2007. Since 2007, LM has limited the number of Federal Full Time Equivalents (FTEs) to levels negotiated with OMB. The total FTEs have fluctuated due to the addition or reduction of functions. The FY 2016 Request includes one additional FTE to meet growing site management responsibilities.

Highlights of the FY 2016 Budget Request

During FY 2016, LM will add one FTE to manage additional site responsibility and staff retirements. Efficiencies will allow LM to add this FTE without increasing the program direction request.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	9,906	9,906	10,100	10,246	+146
Travel	508	508	508	522	+14
Support Services	985	985	758	346	-412
Other Related Expenses	2,313	2,313	1,975	1,986	+11
Total, Program Direction	**13,712**	**13,712**	**13,341**	**13,100**	**-241**
Federal FTEs	**62**	**62**	**63**	**64**	**+1**
Support Services					
Technical Support					
System Definition	120	120	110	50	-60
Total, Technical Support	120	120	110	50	-60
Management Support					
Manpower Systems Analysis	136	136	125	50	-75
Training and Education	102	102	70	71	+1
Analysis of DOE Management Processes	165	165	110	50	-60
Reports and Analyses Management and General Administrative Support	462	462	166	81	-85
Total Management Support	865	865	471	252	-219
Total, Support Services	**985**	**985**	**581**	**302**	**-279**
Other Related Expenses					
Other Services and Supplies	292	292	250	159	-91
DOE/COE	130	130	132	134	+2
Working Capital Fund *	1,891	1,891	1,770	1,649	+121
Total, Other Related Expenses	**2,313**	**2,313**	**2,152**	**1,942**	**-210**

***** $207K of the Working Capital Fund in FY16 is allocated to overall Cyber Security Upgrades.

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Salaries and Benefits		
• Federal staff will perform functions to ensure the objectives under each LM program goal are met. Often the functions include oversight, audit, and policy development for contractors' activities.	• Continue functions to manage LM's activities in order to achieve LM's program goals. • Increase the number of federal employees to meet the additional site management responsibility.	• The increase will allow promotions within the career ladders, within grade increases, and 1 additional FTE.
• Travel enables staff to conduct necessary surveillance and maintenance functions, business and site operations, oversight, and related activities.	• Continue to conduct necessary functions without an increase except for inflation factors.	• Increase for inflation factors.
Support Services		
• Support services assist in the preparation of both routine and extraordinary reports. In addition, contractual support assists with staff training.	• Continue in an effort to prepare more analyses and reports with Federal staff. Some training will be done by Federal staff.	• The decrease reflects the shift of functions from contractor to Federal staff.
Other Related Expenses		
• Other services include LM's contribution to the DOE Working Capital Fund as well as expenses not encompassed by the fund, supplies, computer software and hardware, and the Department's computer support.	• Continue with procuring services and supplies at relatively the same level with the exception of the working capital fund.	• The decrease is due to reduced working capital fund expenses.

Legacy Management
Facilities Maintenance and Repair

The Department's Facilities Maintenance and Repair activities are tied to its programmatic missions, goals, and objectives. Facilities Maintenance and Repair activities funded by this budget are displayed below.

Costs for Direct-Funded Maintenance and Repair (including Deferred Maintenance Reduction) ($K)

	FY 2014 Actual Cost	FY 2014 Planned Cost	FY 2015 Planned Cost	FY 2016 Planned Cost
Office of Legacy Management				
CERCLA Sites	1,442	1,442	2,771	1,380
	860			1,838
Non-CERCLA Sites		860	1,090	
Total, Direct-Funded Maintenance and Repair	2,302	2,302	3,861	3,218

Report on FY 2014 Expenditures for Maintenance and Repair

This report responds to legislative language set forth in Conference Report (H.R. Conf. Rep. No. 108-10) accompanying the Consolidated Appropriations Resolution, 2003 (Public Law 108-7) (pages 886-887), which requests the Department of Energy provide an annual year-end report on maintenance expenditures to the Committees on Appropriations. This report compares the actual maintenance expenditures in FY 2014 to the amount planned for FY 2014, including Congressionally-directed changes.

Legacy Management
Safeguards and Security ($K)

	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Protective Forces	585	532	549	+17
Physical Security Systems	118	113	139	+26
Information Security	6	6	6	0
Cyber Security	986	904	922	+18
Personnel Security	38	33	33	0
Material Control and Accountability	0	0	0	0
Program Management*	32	28	323	+295
Security Investigations	0	0	0	0
Total, Safeguards and Security	1,765	1,616	1,972	+356

*Includes addition of Stoller Security Support Contract of $295K.

Office of Hearings and Appeals
Program Direction

Overview

The Office of Hearings and Appeals (OHA) provides adjudicatory and conflict resolution services for DOE's programs so that disputes may be resolved at the agency level in a fair, impartial and efficient manner. OHA supports all DOE strategic goals, including management and operational excellence. The bulk of OHA work is defense-related and consists of the adjudication of security clearance cases that determine the eligibility of employees to have access to special nuclear materials or classified information.

Within the Other Defense Activities Appropriation, OHA operates with three staffs: the Personnel Security and Appeals Division, the Employee Protection and Exceptions Division, and the Office of Conflict Prevention and Resolution.

OHA offers fair, timely, impartial, and customer-friendly processes for adjudicating matters pursuant to regulatory authority or special delegation from the Secretary. Such cases include: (i) eligibility for a security clearance, (ii) whistleblower protection for employees of DOE contractors and for employees of firms receiving funds under the American Recovery and Reinvestment Act, (iii) Freedom of Information and Privacy Act Appeals, (iv) relief from DOE product efficiency regulations to prevent special hardship, (v) and other matters that the Secretary may delegate. With respect to alternative dispute resolution (ADR), OHA offers mediation and other services for a variety of matters.

Highlights of the FY 2016 Budget Request

The FY 2016 Budget Request funds Salary and Benefit expenses along with projected increases in IT services. The request also funds a pilot program to employ a contractor employee to provide docket services. The request will ensure that OHA can continue to provide effective and timely adjudication services in support of DOE's security clearance cases and fund ADR functions.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	3,832	3,832	4,282	4,216	-66
Travel	40	40	40	40	0
Support Services	0	0	0	60	+60
Other Related Expenses	1,150	1,150	1,174	1,184	+10
Total, Program Direction	**5,022**	**5,022**	**5,496**	**5,500**	**+4**
Federal FTEs	**24**	**17**	**22**	**22**	**0**
Support Services					
Docket Contractor Support	0	0	0	60	+60
Other Related Expenses					
Energy IT Services	145	145	170	175	+5
Working Capital Fund	1,005	1,005	1,004	1,009	+5
Total, Other Related Expenses	**1,150**	**1,150**	**1,174**	**1,184**	**+10**

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs. FY 2015
Program Direction $5,500,000	**$5,500,000**	**$0**
Salaries and Benefits $4,282,000	**$4,216,000**	**-$66,000**
Supports current staffing level of 22 FTEs.	Supports staffing level of 22 FTEs.	Decrease in funding based on anticipated operational levels for FY 2016.
Travel $40,000	**$40,000**	**$0**
Supports travel to conduct security hearings at DOE field locations.	Continuation of FY15 activities.	No change in funding level.
Support Services $0	**$60,000**	**+$60,000**
No activities.	Supports use of a pilot program to employ a contractor employee to perform OHA docket functions.	Supports use of a pilot program to employ a contractor employee to perform OHA docket functions.
Other Related Activities $1,174,000	**$1,184,000**	**+$10,000**
Funding supports the Working Capital Fund (WCF), which provides for shared service costs and Departmental overhead expenses; Energy IT Services; and other services.	Continuation of FY15 activities.	Increase due to overhead cost increases.

Department Of Energy

FY 2016 Congressional Budget

Funding By Appropriation By Site

($K)

Other Defense Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Argonne National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	945	945
Health Safety and Security			
Health Safety and Security (All other)	850	0	0
Total, Argonne National Laboratory	**850**	**945**	**945**
Brookhaven National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	250	250
Health Safety and Security			
Health Safety and Security (All other)	250	0	0
Total, Brookhaven National Laboratory	**250**	**250**	**250**
Chicago Operations Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	50	50
Health Safety and Security			
Health Safety and Security (All other)	50	0	0
Total, Chicago Operations Office	**50**	**50**	**50**
Consolidated Business Center			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	259	259
Total, Consolidated Business Center	**0**	**259**	**259**
Fernald Site			
Office of Legacy Management			
Legacy Management	16,802	16,202	15,785
Total, Fernald Site	**16,802**	**16,202**	**15,785**
Grand Junction Office			
Office of Legacy Management			
Legacy Management	32,867	33,641	34,150
Total, Grand Junction Office	**32,867**	**33,641**	**34,150**
Idaho National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	150	150
Health Safety and Security			
Health Safety and Security (All other)	50	0	0
Total, Idaho National Laboratory	**50**	**150**	**150**

Department Of Energy

FY 2016 Congressional Budget

Funding By Appropriation By Site

($K)

Other Defense Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Idaho Operations Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	400	400
Health Safety and Security			
Health Safety and Security (All other)	400	0	0
Total, Idaho Operations Office	**400**	**400**	**400**
Kansas City Plant			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	10	10
Health Safety and Security			
Health Safety and Security (All other)	10	0	0
Total, Kansas City Plant	**10**	**10**	**10**
Lawrence Livermore National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	3,050	3,050
Health Safety and Security			
Health Safety and Security (All other)	3,050	0	0
Total, Lawrence Livermore National Laboratory	**3,050**	**3,050**	**3,050**
Lexington Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	200	200
Health Safety and Security			
Health Safety and Security (All other)	200	0	0
Total, Lexington Office	**200**	**200**	**200**
Los Alamos National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	95	95
Health Safety and Security			
Health Safety and Security (All other)	95	0	0
Total, Los Alamos National Laboratory	**95**	**95**	**95**
Morgantown Office			
Office of Legacy Management			
Legacy Management	14,158	11,432	11,462
Total, Morgantown Office	**14,158**	**11,432**	**11,462**
Mound Site			
Office of Legacy Management			
Legacy Management	19,112	17,235	15,611
Total, Mound Site	**19,112**	**17,235**	**15,611**

Department Of Energy

FY 2016 Congressional Budget

Funding By Appropriation By Site

($K)

Other Defense Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Nevada Field Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	15	15
Health Safety and Security			
Health Safety and Security (All other)	15	0	0
Total, Nevada Field Office	**15**	**15**	**15**
NNSA Albuquerque Complex			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	1,000	1,000
Health Safety and Security			
Health Safety and Security (All other)	1,000	0	0
Enterprise Assessments			
Enterprise Assessments	0	150	150
Total, NNSA Albuquerque Complex	**1,000**	**1,150**	**1,150**
Oak Ridge Institute for Science & Education			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	1,305	1,305
Health Safety and Security			
Health Safety and Security (All other)	1,305	0	0
Total, Oak Ridge Institute for Science & Education	**1,305**	**1,305**	**1,305**
Oak Ridge National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	1,035	1,035
Health Safety and Security			
Health Safety and Security (All other)	1,035	0	0
Total, Oak Ridge National Laboratory	**1,035**	**1,035**	**1,035**
Oak Ridge Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	2,795	2,795
Health Safety and Security			
Health Safety and Security (All other)	2,795	0	0
Total, Oak Ridge Office	**2,795**	**2,795**	**2,795**
Office of Scientific & Technical Information			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	300	300
Health Safety and Security			
Health Safety and Security (All other)	300	0	0
Total, Office of Scientific & Technical Information	**300**	**300**	**300**

Department Of Energy

FY 2016 Congressional Budget

Funding By Appropriation By Site

($K)

Other Defense Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Ohio Field Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	5	5
Health Safety and Security			
Health Safety and Security (All other)	5	0	0
Total, Ohio Field Office	**5**	**5**	**5**
Pacific Northwest National Laboratory			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	1,905	1,905
Health Safety and Security			
Health Safety and Security (All other)	1,985	0	0
Enterprise Assessments			
Enterprise Assessments	0	125	125
Total, Pacific Northwest National Laboratory	**1,985**	**2,030**	**2,030**
Paducah Gaseous Diffusion Plant			
Office of Legacy Management			
Legacy Management	3,400	3,000	3,000
Total, Paducah Gaseous Diffusion Plant	**3,400**	**3,000**	**3,000**
Pantex Plant			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	10	10
Health Safety and Security			
Health Safety and Security (All other)	10	0	0
Total, Pantex Plant	**10**	**10**	**10**
Pinellas Site			
Office of Legacy Management			
Legacy Management	9,143	7,218	7,643
Total, Pinellas Site	**9,143**	**7,218**	**7,643**
Portsmouth Gaseous Diffusion Plant			
Office of Legacy Management			
Legacy Management	6,800	6,100	6,100
Total, Portsmouth Gaseous Diffusion Plant	**6,800**	**6,100**	**6,100**
Richland Operations Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	1,000	1,000
Health Safety and Security			
Health Safety and Security (All other)	1,000	0	0
Total, Richland Operations Office	**1,000**	**1,000**	**1,000**

Other Defense Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Rocky Flats Site			
Office of Legacy Management			
Legacy Management	57,031	54,853	53,460
Total, Rocky Flats Site	**57,031**	**54,853**	**53,460**
Sandia National Laboratories			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	1,210	1,210
Health Safety and Security			
Health Safety and Security (All other)	820	0	0
Total, Sandia National Laboratories	**820**	**1,210**	**1,210**
Savannah River Operations Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	500	500
Health Safety and Security			
Health Safety and Security (All other)	500	0	0
Total, Savannah River Operations Office	**500**	**500**	**500**
Savannah River Site Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	10	10
Health Safety and Security			
Health Safety and Security (All other)	10	0	0
Total, Savannah River Site Office	**10**	**10**	**10**

Department Of Energy
FY 2016 Congressional Budget
Funding By Appropriation By Site
($K)

Other Defense Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Washington Headquarters			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	102,244	104,174
Program Direction	0	62,235	63,105
Total, Environment, Health, Safety and Security	**0**	**164,479**	**167,279**
Health Safety and Security			
Health Safety and Security (All other)	127,861	0	0
Program Direction			
Program Direction	108,301	0	0
Hearings and Appeals			
Program Direction	5,022	5,500	5,500
Office of Legacy Management			
Legacy Management	15,015	14,644	14,403
Enterprise Assessments			
Enterprise Assessments	0	23,793	23,793
Program Direction	0	49,466	49,466
Total, Enterprise Assessments	**0**	**73,259**	**73,259**
Specialized Security Activities			
Specialized Security Activities	202,242	203,152	221,855
Total, Washington Headquarters	**458,441**	**461,034**	**482,296**
Weldon Spring Site Office			
Office of Legacy Management			
Legacy Management	2,455	5,020	3,061
Total, Weldon Spring Site Office	**2,455**	**5,020**	**3,061**
Y-12 Site Office			
Environment, Health, Safety and Security			
Environment, Health, Safety and Security	0	20	20
Health Safety and Security			
Health Safety and Security (All other)	20	0	0
Total, Y-12 Site Office	**20**	**20**	**20**
Yucca Mountain Site Office			
Office of Legacy Management			
Legacy Management	200	2,635	2,505
Total, Yucca Mountain Site Office	**200**	**2,635**	**2,505**
Total, Other Defense Activities	**636,164**	**635,164**	**651,867**

Departmental Administration

Departmental Administration

Departmental Administration

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Departmental Administration
Proposed Appropriation Language

For salaries and expenses of the Department of Energy necessary for departmental administration in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), **[**$245,142,000**]***$270,682,000*, to remain available until September 30, **[**2016**]***2017*, including the hire of passenger motor vehicles and official reception and representation expenses not to exceed $30,000, plus such additional amounts as necessary to cover increases in the estimated amount of cost of work for others notwithstanding the provisions of the Anti-Deficiency Act (31 U.S.C. 1511 et seq.): *Provided*, That such increases in cost of work are offset by revenue increases of the same or greater amount: *Provided further*, That moneys received by the Department for miscellaneous revenues estimated to total **[**$119,171,000**]***$117,171,000* in fiscal year **[**2015**]***2016* may be retained and used for operating expenses within this account, as authorized by section 201 of Public Law 95–238, notwithstanding the provisions of 31 U.S.C. 3302: *Provided further*, That the sum herein appropriated shall be reduced as collections are received during the fiscal year so as to result in a final fiscal year **[**2015**]***2016* appropriation from the general fund estimated at not more than **[**$125,971,000]*$153,511,000*.

Explanation of Change

No change.

Departmental Administration

($K)

FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
126,449	126,449	125,130	153,511

Overview

The Departmental Administration (DA) appropriation funds 12 management and mission support organizations that have enterprise-wide responsibility for administration, accounting, budgeting, contract and project management, congressional and intergovernmental liaison, domestic and international energy policy, information management, life-cycle asset management, legal services, workforce diversity and equal employment opportunity, ombudsman services, small business advocacy, sustainability and public affairs.

The DA appropriation budgets for Strategic Partnership Projects (formerly Cost of Work for Others) and receives Miscellaneous Revenues from other sources. Additionally, the DA appropriation receives funding from the Other Defense Activities (ODA) appropriation, Defense-Related Administrative Support (DRAS), which is used to offset funding within the DA appropriation in support of defense oriented activities at DOE.

Highlights of the FY 2016 Budget Request

In FY 2016, the DA Budget reflects increases from the FY 15 enacted level to strengthen enterprise-wide management and mission support functions and invest in initiatives with the potential for innovative and collaborative endeavors in the energy sector, as outlined below:

- Office of Management (MA): $13,281,000 increase includes additional support for Sustainability and Performance Office ($3,712,000, includes transfer of 4 FTEs from Energy Efficiency and Renewable Energy); Environmental Management (EM) transfer of 10 FTEs and support needs for the new Project Assessment Office ($3,000,000); Office of Planning and Management Oversight staff support for the Under Secretary for Science and Energy ($2,000,000); Cross Agency Priorities ($422,000); and Ombudsman staff support ($200,000).
- Office of International Affairs (IA): $10,600,000 increase to support leveraging international partnerships on energy security, clean energy cooperation, and climate change activities.
- Chief Information Officer (CIO): $9,636,000 additional support for a new Digital Services Team ($4,000,000); Corporate IT Program Support, which includes Policy and Governance and IT Modernization ($8,194,000); offset by decreases in Cybersecurity (-$358,000) and Program Direction (-$2,200,000).
- Office of Energy Policy and Systems Analysis (EPSA): $3,819,000 additional support for creating comprehensive data sets and systems models to develop a more rigorous analytical basis for evaluation of energy-related policy drivers, including support for follow-on phases of the Quadrennial Energy Review activities.
- Chief Financial Officer (CFO): $3,000,000 additional support for Digital Accountability and Transparency Act of 2014 (DATA Act) requirements.
- Office of Economic Impact and Diversity (ED): $1,000,000 increase to support Minorities in Energy Initiative activities and Equal Employment Opportunity functions at the Department.
- Office of Small and Disadvantaged Business Utilization (OSDBU): $747,000 increase to support 3 additional FTEs to ensure that Small Business Administration goals are being met or exceeded at the Department each year.

Additionally, in FY 2016, revised estimates for Strategic Partnership Projects (formerly Cost of Work for Others) have resulted in the program's estimate being reduced by approximately $2,000,000 from FY 2015.

The Department is organized into three Under Secretariats — Science and Energy, Nuclear Security, and Management and Performance — which recognizes the complex interrelationship among DOE Program Offices. The FY 2016 Budget continues crosscutting programs which coordinate across the Department and seek to tap DOE's full capability to effectively and efficiently address the U.S.'s energy, environmental, and national security challenges. These crosscutting initiatives will be discussed further within the programs in which the crosscuts are funded.

The FY 2016 DA appropriation contains funding for the following crosscuts:

Grid Modernization: U.S. prosperity and energy innovation in a global clean energy economy depends on the modernization of the National Electric Grid. To support this transformation, the Department of Energy's Grid Modernization Initiative will create tools and technologies that measure, analyze, predict, and control the grid of the future; focus on key policy questions related to regulatory practices, market designs, and business models; and collaborate with stakeholders to test and demonstrate combinations of promising new technologies.

Energy-Water Nexus:
The energy-water nexus crosscut is an integrated set of cross-program collaborations designed to accelerate the Nation's transition to more resilient energy and coupled energy-water systems. The crosscut supports: (1) an advanced, integrated data, modeling, and analysis platform to improve understanding and inform decision-making for a broad range of users and at multiple scales; (2) investments in targeted technology research opportunities within the system of energy-water flows that offer the greatest potential for positive impact; and (3) policy analysis and stakeholder engagement designed to build from and strengthen the two preceding areas while motivating more rapid community involvement and response.

Cybersecurity: DOE is engaged in three categories of cyber-related activities: protecting the DOE enterprise from a range of cyber threats that can adversely impact mission capabilities; bolstering the U.S. Government's capabilities to address cyber threats; and, improving cybersecurity in the electric power subsector and the oil and natural gas subsector. The cybersecurity crosscut supports central coordination of the strategic and operational aspects of cybersecurity and facilitates cooperative efforts such as the Joint Cybersecurity Coordination Center for incident response and the implementation of Department-wide Identity Credential and Access Management.

FY 2016 Crosscuts ($K)

	Grid Modernization	Energy-Water Nexus	Cybersecurity	Total
Energy Systems and Policy Analysis	1,000	4,500	0	**5,500**
International Affairs	0	300	0	**300**
Chief Information Officer	0	0	21,006	**21,006**
Total, Crosscuts	**1,000**	**4,800**	**21,006**	**26,806**

Departmental Administration
Funding by Congressional Control ($K)

	FY 2014 Current	FY 2014 Operating Level	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Administrative Operations					
Salaries and Expenses					
Office of the Secretary	5,008	5,008	5,008	5,300	+292
Chief Financial Officer	47,825	47,825	47,000	50,182	+3,182
Management	57,599	57,599	62,946	76,227	+13,281
Chief Human Capital Officer	24,488	24,488	24,500	25,400	+900
Chief Information Officer (CIO)	35,401	35,401	33,188	30,988	-2,200
Congressional & Intergovernmental Affairs (CI)	4,700	4,700	6,300	6,300	0
Office of Indian Energy Policy & Programs[1]	2,506	2,506	16,000	0	0
Small & Disadvantaged Business Utilization	0	1,253	2,253	3,000	+747
Economic Impact & Diversity (ED)	6,473	5,220	6,200	7,995	+1,795
General Counsel (GC)	33,053	33,053	33,000	33,000	0
Energy Policy and Systems Analysis (EPSA)	16,181	16,181	31,181	35,000	+3,819
International Affairs (IA)	13,066	15,023	13,000	23,600	+10,600
Public Affairs	3,597	3,597	3,431	3,431	0
Subtotal, Salaries and Expenses	**249,897**	**251,854**	**284,007**	**300,423**	**+16,416**
Program Support					
Minority Economic Impact (ED)	2,483	1,233	2,800	2,005	-795
Small & Disadvantaged Business Utilization	0	1,250	0	0	0
Policy Analysis and Systems Studies (EPSA)	441	441	0	0	0
Environmental Policy Studies (IA)	520	520	0	0	0
Climate Change International (IA)	2,287	2,287	0	0	0
Climate Change Domestic (EPSA)	2,647	2,647	0	0	0
Cybersecurity (CIO)	30,795	30,795	21,364	21,006	-358
Corporate IT Program Support (CIO)	15,866	15,866	19,612	27,806	+8,194
Digital Services Team (CIO)	0	0	0	4,000	+4,000
Subtotal, Program Support	**55,039**	**55,039**	**43,776**	**54,817**	**+11,041**
Total, Administrative Operations (Gross)	**305,124**	**306,893**	**327,783**	**355,240**	**+27,457**
Strategic Partnership Projects (formerly Cost of Work for Others)	**48,537**	**48,537**	**42,000**	**40,000**	**-2,000**

[1] In FY 2016, the Office of Indian Energy Policy & Programs will be funded under a separate appropriation.

	FY 2014 Current	FY 2014 Operating Level	FY 2015 Enacted	FY 2016 Request	FY 2016 vs. FY 2015
Adjustments					
Use of Prior Year Balances (CIO)	0	0	-2,205	0	+2,205
Use of Prior Year Balances (CI)	0	0	-1,600	0	+1,600
Use of Prior Year Balances (GC)	0	0	-2,000	-2,000	0
Total, Adjustments	0	0	-5,805	-2,000	+3,805
Funding from Other Defense Activities (ODA)/ Defense-Related Administrative Support					
Funding to support CFO	-36,774	-36,774	-46,877	-35,758	+11,119
Funding to support CIO	-82,062	-82,062	-71,959	-83,800	-11,841
Funding to support EM transfer to MA	0	0	0	-3,000	-3,000
Rescission of Prior Year Balances			+87		-87
Total, Funding from ODA	**-118,836**	**-118,836**	**-118,749**	**-122,558**	**-3,809**
Total, Departmental Administration	**234,637**	**236,594**	**244,301**	**270,682**	**+26,381**
Miscellaneous Revenues					
Revenues Associated with Strategic Partnership Projects (formerly Cost of Work for Others)	-48,537	-48,537	-42,000	-40,000	+2,000
Other Revenues	-59,651	-59,651	-77,171	-77,171	0
Total, Miscellaneous Revenues	**-108,188**	**-108,188**	**-119,171**	**-117,171**	**+2,000**
Rescission of Prior Year Balances (DA)	0	0	-928	0	+928
Total, Departmental Administration (Net)	**126,449**	**128,406**	**125,130**	**153,511**	**+28,381**
Federal FTEs	**1,143**	**1,143**	**1,124**	**1,148**	**+24**

Defense-Related Administrative Support

Overview

Beginning in FY 1999, funding has been provided within the Other Defense Activities appropriation to offset amounts within the DA appropriation that support defense-related activities. This offset addresses the significant level of administrative support performed within DA in support of the Department's defense-related programs. This includes administrative work that supports: National Nuclear Security Administration (NNSA), Defense Environmental Cleanup, Defense Nuclear Waste Disposal, and Other Defense Activities. Functions provided do not duplicate those provided within Federal Salaries and Benefits (formerly, Office of the Administrator) for the NNSA.

The services provided by the offices within DA are performed without distinction between defense and non-defense related activities and provide benefit for all headquarters organizations proportionally. Among other things, Defense-Related Administrative Support (DRAS) funding supports salaries and benefits for the administrative operations of the Office of the Chief Information Officer, Office of the Chief Financial Officer, and partially offsets the Office of Management (MA) budget for the transfer of the Acquisition and Project Management staff and function from Environmental Management (EM) to the new Office of Project Assessment in MA.

Defense-Related Administrative Support
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Defense-Related Administrative Support					
Chief Financial Officer	36,774	36,774	46,877	35,758	-11,119
Chief Information Officer	82,062	82,062	71,959	83,800	+11,841
Office of Management (EM transfer)	0	0	0	3,000	+3,000
Rescission of Prior Year Balances			-87		+87
Total, Defense-Related Administrative Support	**118,836**	**118,836**	**118,749**	**122,558**	**+3,809**

Defense-Related Administrative Support

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Salaries and Benefits		
Includes costs for about 350 FTEs in areas such as budget, financial accounting, logistics, and information technology management.	Includes costs for about 360 FTEs in areas such as budget, financial accounting, logistics, information technology management, and acquisition and project management.	Increase (+1,860,000) for transfer of 10 FTEs from EM's Office of Acquisition and Project Management staff to MA's new Office of Project Assessment in FY 2016.
Support Services and Other Related Expenses		
• Finances technical and management support services and other related expenses (e.g., Energy IT Services, Working Capital Fund, training, travel, etc.). The areas of support include information technology support, project control and performance, facilities and infrastructure, strategic planning, independent financial auditing, automated data processing, project management evaluations, delivery of training, operation of the Headquarters technical and law libraries, database maintenance, financial system operations, and minimal technical financial support.	Continuation of FY 2015 activities, with additional activities in the area of project assessment.	Increase (+1,140,000) for support services and other related expenses associated with EM's Office of Acquisition and Project Management. This function is transferring to MA's Office of Project Assessment in FY 2016.
Program Support		
• Includes a proportional share of the iManage system to design and implement new, integrated and user-friendly financial management systems for the Department. These systems will help the Department fulfill its fiduciary responsibilities. • Supports the Department's cybersecurity program which provides consistent principles and requirements for cybersecurity that Departmental organizations can implement for the protection of classified and unclassified information, as required by law and policies.	• Includes a proportional share of the iManage system to design and implement new, integrated and user-friendly financial management systems for the Department. These systems will help the Department fulfill its fiduciary responsibilities. • Ensures that information technology (IT) is acquired and information resources are managed in a manner that complies with statutory requirements, and Administration policies and procedures. Funding provides for IT performance management, investment management, acquisition, security, and policy at the Department.	Net change of +$809,000 is due to increased support from DRAS from FY 2015 level. In FY 2016, the increase in CIO funding level (+$11,841,000) is resulting in a decrease in funds available (-$11,119,000) to offset CFO's operating costs.

Strategic Partnership Projects (formerly Cost of Work for Others)

Overview

The Strategic Partnership Projects (SPP) program provides funding to DOE's multi-purpose field offices and National Laboratories to finance the cost of products and services requested by non-DOE users, both foreign and domestic. The products and services provided by the Department under this program generally are not available from alternate sources and are either (1) a revenue program which results from a budgeted mission of the Department or (2) reimbursable work for non-federal entities where the sponsor is precluded by law from providing advance funding. The costs of the SPP program are offset by revenues received from the sale of products and services to customers.

The SPP program includes a portion of the Department's Foreign Research Reactor Spent Fuel Program. This program, which involves the receipt and storage of foreign research reactor spent fuel, is provided for in the SPP program only to the extent of revenues provided.

The benefits for this program are: continued access to the Department's Laboratory complex and the availability of by-products for sale to non-federal customers. The SPP program satisfies the needs of our non-federal customers. For this reason, performance evaluation for this work is the responsibility of our customers. The success of this program is indicated by the steady influx of business from the targeted groups.

Strategic Partnership Projects (formerly Cost of Work for Others)
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015 Request
Chicago Operations Office	3,746	3,746	400	200	-200
Idaho Operations Office	1,000	1,000	1,000	1,000	0
Lawrence Berkeley Laboratory	2,866	2,866	1,392	4,634	+3,242
National Energy Technology Laboratory	300	300	150	150	0
National Renewable Energy Laboratory	200	200	360	510	+150
New Brunswick Laboratory	150	150	0	0	0
NNSA Albuquerque Complex	9,150	9,150	9,330	6,630	-2,700
Oak Ridge National Laboratory	11,861	11,861	14,768	8,968	-5,800
Pacific Northwest Laboratory	9,344	9,344	9,000	10,000	+1,000
Richland Operations Office	550	550	100	100	0
Savannah River Ops Office	9,370	9,370	5,500	6,700	+1,200
Washington, DC (Reserve)	0	0	0	1,108	+1,108
Subtotal, Strategic Partnership Projects	**48,537**	**48,537**	**42,000**	**40,000**	**-2,000**
Revenues Associated with Strategic Partnership Projects	**-48,537**	**-48,537**	**-42,000**	**-40,000**	**+2,000**

Miscellaneous Revenues
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Revenues Associated with Strategic Partnership Projects					+2,000
(formerly Cost of Work for Others)	-48,537	-48,537	-42,000	-40,000	
Other Revenues	-59,651	-59,651	-77,171	-77,171	0
Total, Miscellaneous Revenues	**-108,188**	**-108,188**	**-119,171**	**-117,171**	**+2,000**

Overview

The Departmental Administration account receives Miscellaneous Revenues from the following:

- Revenues associated Strategic Partnership Projects (SPP), which represent the full-cost recovery offset to the Cost of Work for Others account. SPP is the program associated with providing products and services to our customers.
- Other Revenues received from the sale of by-products that have no cost associated with the Departmental Administration appropriation. These items are by-products of activities funded by other on-going Departmental programs and are collected as Miscellaneous Revenues. Included in this estimate are revenues collected from the Reimbursable Work program for Federal Administrative Charges.

Revenues Associated with Strategic Partnership Projects (formerly Cost of Work for Others)
Funding ($K)

Description of FY 2016 Activities	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Chicago Operations Office • Brookhaven National Laboratory support to University of Washington for nanoparticle loading and standard metal loaded scintillator for optical measurements ($200,000).	3,746	3,746	400	200	-200
Idaho Operations Office • Support to state and local governments ($1,000,000).	1,000	1,000	1,000	1,000	0
Lawrence Berkeley National Laboratory • Support for Small Business Innovation Research & Small Business Technology Transfer ($2,844,000); • Additional university support for Composite for Basic Science research in Life Sciences ($400,000); • University of Washington for comprehensive Identification of Worm and Fly Transcription Factors ($400,000) and Material Genome Project for SAP Devices ($75,000); • University of California-Davis for nanoparticle loading and standard metal loaded scintillator for optical measurements ($300,000); • Additional university support for Composite for Basic Science Research in Genome ($250,000); • Lake County Seismic monitoring ($215,000); and • National Laboratory High Energy Physics for Particle Data Group ($150,000).	2,866	2,866	1,392	4,634	+3,242
National Energy Technology Laboratory • Support to state/local governments ($150,000).	300	300	150	150	0
National Renewable Energy Laboratory • University of Michigan for Chemistry at Harvard Macromolecular Mechanics (CHARMM) Modernization, Performance, and Continued Development ($88,000); • Georgia Institute of Technology for Foundational Program to Advance Cell Efficiency II (FPACE-II) project, which aims at breaking the cell efficiency record of a silicon solar cell ($200,000); and • Support to state/local governments ($222,000).	200	200	360	510	+150
New Brunswick Laboratory • No planned activities in FY 2016.	150	150	0	0	0

Description of FY 2016 Activities	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
NNSA Complex (formally NNSA Albuquerque Complex) • Y-12 National Security Complex support to long-term supply contracts with foreign governments to provide uranium fuel ($3,930,000); • Lawrence Livermore National Laboratory support to State of California Ambient Groundwater Monitoring & Assessment (GAMA) program ($1,000,000); • Y-12's Global Threat Reduction Initiative support to arrange for the return of enriched uranium from foreign countries ($750,000); • NNSA to address multiple smaller projects for state/local governments, universities and institutes, including work for the State of Washington Department of Health, Maryland Transit Authority, and New Mexico Office of the State Engineer ($500,000); • Sandia National Laboratory support to state & local governments ($300,000); and • State of Washington aerial radiological survey of the City of Seattle performed by the Nevada Field Office Remote Sensing Laboratory ($150,000).	9,150	9,150	9,330	6,630	-2,700
Oak Ridge Operations Office • Oak Ridge National Laboratory support to Intercomparison Studies Program–Bioassay Samples; Defense Advanced Research Projects Agency Unconventional Processing of Signals for Intelligent Data Exploitation (DARPA UPSIDE) Proposal Win; Beam Dump Research & Development and Conceptual Design; National Center for Computational Science; etc. ($8,213,000); • Stanford Linear Accelerator Center (SLAC) support to U.S./Japan Cooperative Program in High Energy Physics ($605,000); • Oak Ridge Institute for Science and Education (ORISE) support to Radiation Emergency Assistance Center/Training courses ($100,000); and • Thomas Jefferson National Laboratory support for research and development on Superconducting Radio Frequency (SRF) cavity fabrication, processing and instrumented testing at cryogenic temperatures for high performance SRF cavities ($50,000).	11,861	11,861	14,768	8,968	-5,800
Pacific Northwest National Laboratory • Maritime Radiological/Nuclear training, logistics management, and technical assistance ($10,000,000).	9,344	9,344	9,000	10,000	+1,000
Richland Operations Office • Training in support of disaster recovery, emergency response, fire protection, transportation, law enforcement, military readiness, technology deployment ($100,000).	550	550	100	100	0

Description of FY 2016 Activities	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Savannah River Operations • Savannah River Forest Service Timber Management program ($5,840,000); • Savannah River National Laboratory support to the University of Washington ($500,000); and • South Carolina Institute of Archaeology and Anthropology cooperative agreement to comply with archaeological regulatory requirements needed to support the U.S. Forest Service Savannah River timber program ($360,000).	9,370	9,370	5,500	6,700	+1,200
Washington, DC (in Reserve) • Reserve funds set aside for use at Headquarters.	0	0	0	1,108	+1,108
Total, Revenues Associated with Strategic Partnership Projects	**48,537**	**48,537**	**42,000**	**40,000**	**-2,000**

Other Revenues
Explanation of Major Changes ($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Federal Administrative Charges – Revenues collected from other federal agencies as well as non-federal entities for reimbursable activity conducted by the Department in accordance with full-cost recovery policy.	-31,000	-30,000	+1,000
Y-12 Site Office – Revenues generated from shipment of surplus Highly Enriched Uranium and Low Enriched Uranium for use in foreign research and test reactors.	-14,000	-14,000	0
Pittsburgh Naval Reactors Office - The Department of Navy reimburses the Pittsburgh Naval Reactors Office for the nuclear material burn-up while the core is in operation and when residual nuclear material is removed during core refuelings and defuelings. While nuclear material burn-up is relatively consistent across years, major fluctuations in this line item are attributable to the refueling and defueling schedules, which are based on ship availability and quantity of nuclear material left in the cores.	-26,271	-27,700	-1,429
Other Revenues, including Timber Sales - Estimate based on current rate of collections for various miscellaneous revenues collected at all Departmental sites, including timber sales at Savannah River Site.	-5,900	-5,471	+429
Total, Other Revenues	**-77,171**	**-77,171**	**0**

Office of the Secretary
Program Direction

Overview

The Office of the Secretary (OSE) provides leadership and policy direction to the Department of Energy (DOE) in fulfilling its responsibilities for advancing the energy, environmental, and nuclear security of the United States; promoting scientific and technological innovation in support of that mission; sponsoring basic research in the physical sciences; and ensuring the environmental cleanup of the nation's nuclear weapons complex. These responsibilities will be fulfilled through:

Science and Energy – DOE leads the nation in the transformational research, development, demonstration, and deployment of an extensive range of clean energy and efficiency technologies, supporting the President's Climate Action Plan and an "all of the above" energy strategy. 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. 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. DOE conducts robust, integrated policy analysis and engagement to support the nation's energy agenda. DOE is the largest federal sponsor of basic research in the physical sciences. DOE world-leading research in the physical, chemical, biological, environmental, and computational sciences contributes fundamental scientific discoveries and technological solutions that support the nation's primacy in science and innovation.

Nuclear Security – DOE enhances the security and safety of the nation through its national security endeavors: maintaining a safe, secure, and effective nuclear weapons stockpile in the absence of nuclear testing and managing the research, development, and production activities and associated infrastructure needed to meet national security requirements; accelerating and expanding efforts to reduce the global threat posed by nuclear weapons, nuclear proliferation and unsecured or excess nuclear materials; and providing safe and effective nuclear propulsion for the U.S. Navy. As a result of the expertise developed to support these nuclear security missions, the DOE laboratories also serve as strategic assets in support of broader national security missions.

Management and Performance – DOE leads the largest cleanup effort in the world to remediate the environmental legacy of over six decades of nuclear weapons research, development, and production through investments in science and technology research. As DOE carries out its mission, it employs effective and cost-efficient management, supports an engaged workforce, and provides a modern, secure physical and information technology infrastructure. DOE remains committed to maintaining a safe and secure work environment for all personnel and to ensuring that its operations preserve the health, safety, and security of the surrounding communities.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Washington Headquarters					
Salaries and Benefits	4,473	4,473	4,473	4,765	+292
Travel	529	529	529	529	0
Support Services	0	0	0	0	0
Other Related Expenses	6	6	6	6	0
Total, Program Direction	**5,008**	**5,008**	**5,008**	**5,300**	**+292**
Federal FTEs	**32**	**32**	**32**	**32**	**0**
Other Related Expenses					
Training	6	6	6	6	0
Total, Other Related Expenses	**6**	**6**	**6**	**6**	**0**

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $5,008,000	**$5,300,000**	**+$292,000**
Salaries and Benefits $4,473,000	**$4,765,000**	**+$292,000**
Funding supports 32 FTEs in the Office of the Secretary, Deputy Secretary and Under Secretary for Management and Performance. Funding for the Under Secretary for Science and Energy's Office of Planning and Management Oversight staff is provided through use of prior year balances.	Continuation of FY 2015 activities. In FY 2016, funding for the Office of Planning and Management Oversight is being requested through the Office of Management.	The increase will support payroll costs for 32 FTEs.
Travel $529,000	**$529,000**	**$0**
Funding for the Office of the Secretary, Deputy Secretary, Under Secretary for Management and Performance, Under Secretary for Science and Energy's Office of Planning and Management Oversight, and Special Assistants to travel both internationally and domestically in support of the Department's mission.	Continuation of FY 2015 activities.	No changes.
Other Related Expenses $6,000	**$6,000**	**$0**
Training and course registration cost for OSE employees for essential training activities.	Continuation of FY 2015 activities.	No changes.

Chief Financial Officer
Program Direction

Overview

The Office of the Chief Financial Officer (CF) is responsible for the effective management and financial integrity of Department of Energy (DOE) programs, activities and resources by developing, implementing, and monitoring DOE-wide policies and systems in budget formulation and execution, finance and accounting, internal controls and financial policy, corporate financial systems, and strategic planning.

Highlights of the FY 2016 Budget Request

The FY 2016 request is $50.2 million, which is an increase of $3.2 million above the FY 2015 Enacted level. The additional funds are required to support modifications to DOE business systems and processes to implement requirements of the Digital Accountability and Transparency Act of 2014 (DATA Act).

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction					
Washington Headquarters					
Salaries and Benefits	28,681	28,681	29,155	29,420	+265
Travel	200	200	200	200	0
Support Services	9,189	9,189	9,189	12,189	+3,000
Other Related Expenses	9,755	9,755	8,456	8,373	-83
Total, Program Direction	**47,825**	**47,825**	**47,000**	**50,182**	**+3,182**
Federal FTEs	**212**	**212**	**212**	**212**	0
Support Services					
Management Support					
iManage	5,450	5,450	5,450	8,450	+3,000
Systems Support (legacy systems/hardware/software)	3,000	3,000	3,000	3,000	0
Other Support Services	739	739	739	739	0
Total, Support Services	**9,189**	**9,189**	**9,189**	**12,189**	+3,000
Other Related Expenses					
Energy IT Services	1,775	1,775	1,600	1,600	0
Training	140	140	140	140	0
Interagency Agreements/Data Licenses/Other	600	600	600	600	0
Working Capital Fund	7,240	7,240	6,116	6,033	-83
Total, Other Related Expenses	**9,755**	**9,755**	**8,456**	**8,373**	**-83**

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $47,000,000	**$50,182,000**	**+$3,182,000**
Salaries and Benefits $29,155,000	**$29,420,000**	**+$265,000**
Funds 212 full-time equivalent employees (FTEs).	Funds 212 FTEs.	Increase covers employee pay increases.
Travel $200,000	**$200,000**	**$0**
Supports travel requirements for 212 FTEs.	Continuation of FY 2015 activities.	No change from FY 2015.
Support Services $9,189,000	**$12,189,000**	**$3,000,000**
The FY 2015 iManage budget funds the continued operation of the iManage platform, including the iManage Data Warehouse, which supports over 2,000 users and maintains structured data from multiple data sources; the integration of funds distribution and work on automated budget formulation processes; and operation and maintenance of the Foreign Travel Management System.	The FY 2016 iManage budget funds the operation of the iManage platform and continuing integration of DOE-wide budget formulation with budget execution to automate and manage budget formulation. The increase funds implementation of the DATA Act to modify DOE systems and processes to comply with data standards and other DATA Act requirements.	Increase supports implementation of the DATA Act requirements.
Other Related Expenses $8,456,000	**$8,373,000**	**-$83,000**
Funding supports Working Capital Fund (WCF), interagency agreements, employee training, data licenses, and IT support requirements for 212 FTEs.	Continuation of FY 2015 activities.	Decrease in WCF results from reduction in rent expense due to office space consolidation.

Management
Program Direction

Overview

The Office of Management (MA) provides the Department of Energy (DOE) with centralized direction and oversight for the full range of management, procurement, and administrative services. MA's activities include project and contract management, policy development and oversight, and delivery of procurement services to DOE Headquarters (HQ) organizations. Administrative activities include the management of HQ facilities and the delivery of other services critical to the operation of the Department. MA also fulfills the statutory responsibilities of the Chief Acquisition Officer and the Director of the Office of Acquisition and Project Management serves as DOE's Senior Procurement Executive. The Under Secretary of Management and Performance and the Office of Management provide support for various initiatives, including the newly transferred functions for sustainability performance, Environmental Management project assessments, and the Energy Systems Acquisition Advisory Board.

In FY 2016, MA will accomplish its mission through its program office components and associated Departmental budget lines:

- Aviation Management – Manage all DOE-owned aircraft and contract aviation services world-wide by developing and implementing policies and procedures; provide technical and management assistance to program leaders and field elements with aviation responsibilities; and conduct independent oversight over all DOE elements that own or use aviation as a part of their mission.
- Executive Secretariat – Facilitate quality document management of executive correspondence, departmental actions and decision documents; ensure the timely delivery of Congressional reporting requirements, executive commitments and information; serve as the Department's Federal Historic Preservation Officer; serve as the Department's Advisory Committee Management Officer and manage the Department's Advisory Committee Management Program.
- Information Resources – Implement the Department's Freedom of Information Act (FOIA); oversee the Directives Management and Delegation of Authority System; and manage the Department's Conference Management Program.
- Acquisition and Project Management – Validate the project performance baselines to include scope, cost, and schedule of all the Department's construction and environmental cleanup projects with a total project cost greater than $100 million prior to the budget request to Congress; ensure DOE's real property portfolio is managed effectively, efficiently and sustainably; conduct independent cost estimates at critical decisions for capital asset projects with a total project cost of $100M or more; drive improvement in project, facilities and infrastructure, property, and procurement management systems; and provide policy, guidance and oversight for contract, project and property management, procurement, and financial assistance.
    - Beginning in FY 2016, funding and staff for the project assessment function will transfer from Environmental Management (EM) to MA. MA and EM project management staffs are being consolidated into a single operational function reporting to the Under Secretary for Management and Performance. In addition to all of the previous project management functions that occurred within MA, this new office will now also provide independent oversight and assessments of EM construction and capital asset projects greater than $100 million, including all activities involved with cost, schedule, technical and management status review, as well as performance progress of the projects. This was required by the Secretary's "Improving the Department's Management of Projects" memorandum, dated December 1, 2014. In this memo, the Secretary directed each Under Secretary to establish its own project assessment office that does not have line responsibility for project execution.
- Administration – Manage HQ facilities and support services, including operations management, building automation, lease and office space management, supply management, foreign travel/transportation/courier services, concession services, exchange visitor program, and mail/printing services.
- Scheduling and Advance – Manage scheduling, logistical, and advance preparations for the Office of the Secretary.
- Secretary of Energy Advisory Board (SEAB) – Administer and coordinate the activities of the Board and its subcommittees for the Secretary to obtain timely, balanced, and independent external advice on issues of national importance related to the missions of the Department.

- Energy Systems Acquisition Advisory Board (ESAAB) – Serve as Secretariat of the Board and its subcommittee, called the Project Management Risk Committee (PMRC), for the Deputy Secretary. The ESAAB responsibilities have been expanded to include review of all capital asset projects with the total project cost of $100 million (vice $750M) or greater, focusing on those projects at risk of not meeting their performance baselines, and making critical decisions for capital asset projects with a total project cost greater than $750 million. The Board will no longer be an ad hoc board, but will be a standing board, meeting at least once a quarter, if not more frequently. The ESAAB will be supported by a new board, the PMRC. The Secretariat of the PMRC will reside within the new project management office, reporting directly to the Under Secretary for Management and Performance.
- Ombudsman – Serve as an independent, confidential and neutral resource available to all DOE federal employees to address workplace concerns by increasing employee engagement and improving office and Departmental culture so that employees and leaders can focus on mission-critical activities.
- Sustainability Performance Office (SPO) – Beginning in FY 2016, funding for SPO function and responsibilities will transfer from the Office of Energy Efficiency and Renewable Energy (EERE) to MA. SPO manages DOE implementation of Federal energy and Sustainability goals; coordinates data collection, reporting, and analysis to support these goals, including energy, water, and resource use; updates and ensures implementation of DOE's Strategic Sustainability Performance Plan; and provides oversight of implementation efforts at DOE sites and National Laboratories.
- Office of Planning and Management Oversight – Supports the Office of the Under Secretary for Science and Energy in the implementation of its strategic vision for its program portfolio through coordinated planning and program management oversight, which was previously funded in the Office of the Secretary.

Highlights of the FY 2016 Budget Request

The Department requests $76.2 million in FY 2016 for MA; this request is $13.3 million above the FY 2015 Enacted level of $62.9 million. This increase supports the following Secretarial driven funding transfers: (1) Transfer of staff and associated funding for Project Assessment from EM to MA ($3 million); (2) Transfer of staff and funding for Sustainability and Performance function from EERE to MA ($3.7 million). In addition, MA is requesting funding for the Office of Planning and Management Oversight staff ($2 million), which was previously funded in the Office of the Secretary; Cross Agency Priorities ($0.4 million); and funding for one FTE for the Ombudsman's office ($0.2 million).

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Washington Headquarters					
Salaries and Benefits	34,703	34,703	35,383	39,824	+4,441
Travel	986	986	940	1,166	+226
Support Services	8,221	8,221	12,619	20,400	+7,781
Other Related Expenses	13,689	13,689	14,004	14,837	+833
Total, Program Direction	**57,599**	**57,599**	**62,946**	**76,227**	**+13,281**
Federal FTEs—MA	**234**	**234**	**226**	**250**	**+24**
Federal FTEs—WCF	**40**	**40**	**40**	**40**	**0**
Support Services					
Management Support					
External Independent Reviews (EIRs)	2,203	2,203	2,203	2,203	0
Cross Agency Priority Goals	0	0	0	422	+422
Sustainability and Performance	0	0	0	2,912	+2,912
Project Assessment	0	0	0	500	+500
Earned Value Management System (EVMS)	429	429	429	429	0
Project Assessment and Reporting System (PARS II)	2,000	2,000	2,000	2,000	0
Foreign Travel Management Program (FTMP)	450	450	0	0	0
Acquisition Career Management Program (ACMP)	500	500	500	500	0
Freedom of Information Act (FOIA) Backlog	0	0	0	0	0
National Laboratory Operations Board (NLOB)	0	0	0	195	+195
Contract Management Improvement	0	0	500	0	-500
Cost Estimating/Cost Analysis Improvement	0	0	1,948	3,600	+1,652
Internal Evaluation	0	0	2,400	5,000	+2,600
Other Support Services	2,639	2,639	2,639	2,639	0
Total Management Support	**8,221**	**8,221**	**12,619**	**20,400**	**+7,781**
Total, Support Services	**8,221**	**8,221**	**12,619**	**20,400**	**+7,781**

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Other Related Expenses					
Training	143	143	143	196	+53
Energy IT Services	1,181	1,181	1,207	1,917	+710
Working Capital Fund (WCF)	10,881	10,881	11,170	11,240	+70
Other Services	1,484	1,484	1,484	1,484	0
Total, Other Related Expenses	**13,689**	**13,689**	**14,004**	**14,837**	**+833**

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $62,946,000	**$76,227,000**	**$13,281,000**
Salaries and Benefits $35,383,000	**$39,824,000**	**+$4,441,000**
Funding in support of 226 MA FTEs. Funding provides for salaries/benefits, overtime, lump sum leave, and performance awards.	Funding in support of 248 MA FTEs. In addition to the continuation of FY 2015 activities, funding increase supports the transfer of 10 FTEs from EM for Project Assessment, 4 FTEs from EERE for Sustainability and Performance, 9 FTEs (5 transferred from OSE, plus 4 new FTEs) for the Office of Planning and Management Oversight (S4.1); and the addition of 1 FTE for Ombudsman.	Additional funding supports the transfer of 10 FTEs from EM for Project Assessment (+$1,860,000), 4 FTEs from EERE for Sustainability and Performance (+$606,000), 9 FTEs (5 transferred from OSE, plus 4 new FTEs) for the Office of Planning and Management Oversight (+$1,775,000); and the addition of 1 FTE for Ombudsman (+$200,000). Pay increases and cost of living adjustments will be offset by savings that result from anticipated staff attrition.
Travel $940,000	**$1,166,000**	**+$226,000**
Funding in support of MA/SEAB staff travel; all travel associated with scheduling and logistics for Secretarial trips; travel related to meetings of the National Laboratory Operations Board and subgroups of the Board held at DOE HQ and Laboratories relative to data collection and analysis efforts connected with enhancing efficiency and effectiveness; and travel associated with program oversight and evaluation, procurement, project engineering, and construction management activities. Includes the rental of vehicles from the General Services Administration	Continuation of FY 2015 activities, with additional funding to support travel for the Project Assessment Team, Sustainability and Performance Office, and for the Office of Planning and Management Oversight.	Additional funding to support travel for the Project Assessment Team (+$120,000), Sustainability and Performance Office (+$6,000), and for the Office of Planning and Management Oversight ($100,000).

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
motor pool and the DOE fleet.		
Support Services $12,619,000	**$20,400,000**	**+$7,781,000**
Funding in support of MA's contractual requirements, including External Independent Reviews (EIRs) ($2,203,000), EVMS ($429,000), PARS II ($2,000,000), ACMP ($500,000); Contract Management ($500,000); Cost Estimating/Cost Analysis ($1,948,000); and Internal Evaluation ($2,400,000); and Other Support Services ($2,639,000). More detail provided in following sections.	Continuation of FY 2015 activities, with additional funding to support Cross Agency Priority Goals, Sustainability and Performance, Project Assessment, National Laboratory Operations Board, Cost Estimating/Cost Analysis, and Internal Evaluation..	No funding to support the Contract Management Improvement initiative, as it was a one-time cost in FY 2015 (-$500,000). Additional funding for the implementation of the Cross Agency Priority Goals ($422,000); Sustainability and Performance ($2,912,000); Project Assessment ($500,000); National Laboratory Operations Board ($195,000); Cost Estimating/Cost Analysis ($1,652,000); and Internal Evaluation ($2,600,000).
External Independent Reviews (EIRs) $2,203,000 Finances EIRs, which provide assurance that projects can be executed at the proposed performance baseline (scope, cost, and schedule). EIRs are conducted for projects greater than $100 million for major programs and greater than $50 million for others lacking Project Management Support Offices.	**$2,203,000** Continuation of FY 2015 activities.	**$0** No change.
Cross Agency Priority Goals $0	**$422,000** Contribution for implementation of the Cross Agency Priority Goals.	**+ $422,000** Funding supports implementation of Cross Agency Priority Goals.
Earned Value Management System (EVMS) $429,000 Finances certification and surveillance reviews to ensure contractor EVMSs comply with industry standards. MA ensures contractors are EVMS compliant for projects greater than $100 million. EVMS is an industry-accepted process to ensure that projects are completed on cost, schedule, and within scope against a baseline. EVMS enables trend analysis and evaluation of estimated cost at completion and provides a sound basis for problem identification, corrective actions, and management re-planning.	**$429,000** Continuation of FY 2015 activities.	**$0** No change.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Sustainability and Performance $0 Funded by the EERE in FY 2015.	**$2,912,000** Beginning in FY 2016, funding for the Sustainability and Performance Office (SPO) function will transfer from EERE to MA. Funding is required manage and provide oversight on DOE's implementation of Federal energy and sustainability goals. This office will also coordinate data collection, reporting, and analysis, including energy, water, and resource use; updates and implementation of DOE's Strategic Sustainability Performance Plan; and oversight of implementation at DOE sites and National Laboratories.	**+$2,912,000** Funding is required to transfer SPO function in MA in FY 2016. Funds will be transferred from EERE to MA in FY 2016 for this capability.
Project Assessment $0 Funded by the EM program in FY 2015.	**$500,000** Beginning in FY 2016, the project assessment function will transfer from EM to MA. Funding is required to provide independent oversight of EM construction and capital asset projects, including all activities involved with cost, schedule, technical and management status review as well as performance progress of the projects.	**+$500,000** Additional funding supports project assessment activities.
Project Assessment and Reporting System (PARS II) $2,000,000 PARS II provides project status and assessment information for senior management and other stakeholders. Current funding will be used to provide operations and maintenance for the existing system. This system is critical to enable appropriate project execution oversight, accurate monthly project assessments, and recommendations for senior management decision-making.	**$2,000,000** Continuation of FY 2015 activities.	**$0** No change.
Acquisition Career Management Program (ACMP) $500,000 ACMP provides a training and career development certification program for contracting, purchasing,	**$500,000** Continuation of FY 2015 activities.	**$0** No change.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
financial assistance, personal property management, contracting officers, and contracting officers' representatives.		
Freedom of Information Act (FOIA) Backlog $0 Aligns functional and programmatic reporting and creates organizational positions to focus and accelerate decision-making/accountability; provides review, analysis and processing of FOIA requests to assist in reducing the backlog. Funding supports the hiring of contractor attorneys and FOIA activities centralization.	**$0** Continuation of FY 2015 activities.	**$0** No change.
National Laboratory Operations Board (NLOB) $0 The objectives of the NLOB are to strengthen and enhance the partnership between the Department and the National Laboratories, and to improve management and performance in order to more effectively and efficiently execute the missions of the Department and its National Laboratories. Funding in support of the NLOB provides discrete projects to be undertaken by the NLOB, including data collection and analysis in support of efforts to improve efficiency and effectiveness on an enterprise-wide basis.	**$195,000** Funding in support of the NLOB provides discrete projects to be undertaken by the NLOB, including data collection and analysis in support of efforts to improve efficiency and effectiveness on an enterprise-wide basis.	**+$195,000** Funding NLOB efforts, enterprise-wide.
Contract Management Improvement $500,000 Enhances STRIPES functionality to include reporting and analysis capabilities; provides an IT tool that automates procurement system data quality reviews and enhances data transparency; and develops DOE-specific courses, beyond the Federal Acquisition Institute's basic curriculum, to improve the skills/capabilities and enhance the efficiency of the Department's acquisition workforce.	**$0** $0 funding is provided in FY 2016 for the Contract Management Improvement Initiative as enhancement will be completed in FY15.	**-$500,000** No funding in support of the Contract Management Improvement initiative as this was a one-time cost for FY 2015.
Cost Estimating/Cost Analysis Improvement $1,948,000 Enhances ongoing efforts in cost estimating and schedule analysis capability; develops a standard Work Breakdown Structure (WBS) for DOE Program	**$3,600,000** Continuation of FY 2015 activities. Additional funds will support continuing education and professional development courses such as earned value management, cost estimating and	**+$1,652,000** Additional funds enhances ongoing efforts in cost estimating and schedule analysis capability and funds continuing education and professional development courses such as earned value management, cost

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Offices; develops a standardized WBS cost and schedule data extractor; provides for an IT tool that automates schedule integrity and critical path analysis.	schedule analysis.	estimating and schedule analysis.
Internal Evaluation $2,400,000 Enables the Under Secretary for Management and Performance to establish an ongoing program to conduct performance evaluation studies of selected Departmental programs and operations. These studies will seek to document the impacts and benefits of DOE programs, and the effectiveness and efficiency of DOE operations. The studies will also develop recommendations for improvements in program or operational effectiveness and efficiency. Such studies also will inform and enhance DOE compliance with the GPRA Modernization Act of 2010. All individual program and operations evaluation studies will be centrally managed by the Office of the Under Secretary for Management and Performance to ensure objectivity and consistency. Evaluations will be conducted in close collaboration with program managers. The agenda for the studies will be determined by the Secretary of Energy and the Under Secretary for Management and Performance. Most studies will be conducted by independent contractors based on task descriptions set forth by the Office of the Under Secretary for Management and Performance.	**$5,000,000** Continuation of FY 2015 activities. Additional funding enables the Under Secretary for Management and Performance to continue the ongoing program to conduct performance evaluation studies of selected Departmental programs and operations. These studies will seek to document the impacts and benefits of DOE programs, and the effectiveness and efficiency of DOE operations. The studies will also develop recommendations for improvements in program or operational effectiveness and efficiency. Such studies also will inform and enhance DOE compliance with the GPRA Modernization Act of 2010. All individual program and operations evaluation studies will be centrally managed by the Office of the Under Secretary for Management and Performance to ensure objectivity and consistency. Evaluations will be conducted in close collaboration with program managers. The agenda for the studies will be determined by the Secretary of Energy and the Under Secretary for Management and Performance. Most studies will be conducted by independent contractors based on task descriptions set forth by the Office of the Under Secretary for Management and Performance.	**+$2,600,000** Additional funding supports performance evaluation studies of selected Departmental programs and operations.
Other Support Services $2,639,000 Finance management and professional support services, studies, analyses and evaluations; and engineering and technical services. Areas of support	**$2,639,000** Continuation of FY 2015 activities.	**$0** No change.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
include project management control and performance; facilities and infrastructure; FAIR Act; contract management and administration; database maintenance; historic preservation; and aviation assessments.		
Other Related Expenses $14,004,000	**$14,837,000**	**+$833,000**
Other related expenses to cover Training, Energy IT Services, Working Capital Fund (WCF) and other services.	Continuation of FY 2015 activities.	Additional funding for WCF and Energy IT Services associated with Project Assessment ($500,000); SPO ($180,000); and Planning and Management Oversight ($100,000). Additional funding also requested for training associated with Project Assessment ($20,000), SPO ($8,000), and Planning and Management Oversight ($25,000).

Performance Measures

In accordance with the GPRA Modernization Act of 2010, the Department established FY 2014-2015 agency priority goals (APGs) in the 2014-2018 Strategic Plan published in April 2014. APGs support improvements in near-term outcomes and advance progress toward longer-term, outcome-focused strategic goals and objectives in the Strategic Plan.

	FY 2014	FY 2015	FY 2016
Performance Goal (Measure)	**Project Success —On a 3-year rolling basis, the percentage of departmental projects baselined since the start of FY 2008 that were completed within the original scope baseline and not to exceed 110% of the cost as reflected in the performance baseline established at Critical Decision 2.**		
Target	90%	90%	90%
Result			
Endpoint Target	On a three-year rolling basis, complete at least 90% of departmental projects baselined since the start of FY 2008 within the original scope baseline and not to exceed 110% of the cost as reflected in the performance baseline established at Critical Decision 2 through FY 2015. This performance measure is used to track progress on the Management agency priority goal.		

The Office of Management is responsible for part of the following agency priority goal.

Agency Priority Goal: Increase the focus on efficient and effective management across the DOE enterprise and improve performance in the areas of environmental cleanup, construction project management, and cybersecurity. In support of this goal, DOE will:

- On a three-year rolling basis, complete at least 90% of departmental projects baselined since the start of FY 2008 within the original scope baseline and not to exceed 110% of the cost as reflected in the performance baseline established at Critical Decision 2 through FY 2015

The Office of the Under Secretary for Management & Performance, in coordination with the National Laboratory Operations Board, National Laboratory Policy Council, and other Departmental offices, is responsible for the following agency priority goal.

Agency Priority Goal: Restructure the relationship and interactions between the Department and the National Laboratories and sites to ensure the continued status of the National Laboratories as world-class research institutions best able to achieve DOE's mission, maximize the impact of federal R&D investment in the laboratories, accelerate the transfer of technology into the private and government sectors, and better respond to opportunities and challenges. In support of this goal, DOE will:

- Establish the National Laboratory Policy Council to address high-level policy challenges and develop initiatives to build and focus the laboratory system on critical economic, research and national security priorities.
- Establish the National Laboratory Operations Board to address operational and administrative issues and enhance the effectiveness and efficiency of DOE's management of the national laboratories.
- Improve stewardship of national assets across the national laboratories and DOE operating sites to assure that DOE physical plants and their operating practices comply with DOE Directives and achieve Administration priority initiatives by end of FY 2015.

Chief Human Capital Officer
Program Direction

Overview

The mission of the Office of the Chief Human Capital Officer (HC) is to provide the most efficient and effective human resources (HR) services and human capital programs to the Department of Energy (DOE). The vision of HC is to help DOE accomplish its mission through collaborative and responsive partnerships; proactive problem identification and resolution; and innovative and sound human capital management services. HC advises and assists the Secretary and Deputy Secretary of Energy, and other agency officials, in recruiting, staffing, developing, training, and managing a highly skilled, productive, and diverse workforce, in accordance with merit system principles and all applicable statutory requirements.

Highlights of the FY 2016 Budget Request

The Department requests $25.4 million in FY 2016 for HC. This request will sustain FY 2015 operational levels, while improving customer service and reducing administrative overhead. HC began to experience an increase in workload in FY 2012 related to delegated HR authority returned to Headquarters (HQ) from certain field Servicing Personnel Offices (SPOs), which is expected to continue into FY 2015-16. Workload increase is tied to the transfer of functions back to HQ as well as oversight of multiple SPOs that have lost delegated HR authority as a result of HR accountability and audit findings.

In November 2013, the Secretary of Energy approved HC's recommendation to implement a more efficient and effective HR Service Delivery (HRSD) model across the Department. HC will complete implementation of DOE's transformation from a highly decentralized (17 separate HR offices) and delegated HR operating environment to a hybrid model that is more centralized (5 Shared Service Centers with local HR Advisory Offices) by October 2016. This effort will improve the effectiveness, efficiency and service of Human Resources, thus aligning with the President's second term management agenda and executing the Secretary's DOE 2014-2018 Strategic Plan commitment to reduce employee cost of providing HR services across the Department by 50%, while moving to a corporate approach by the end of FY 2016. With the new HRSD model implementation now underway, HC is being judicious with managed hiring and utilizing short-term contractor support to fill gaps due to unplanned attrition of HC FTEs.

In FY 2016 HC will also continue to focus on change and project management, employee development, and organizational skill set capabilities to support the major transformational changes expected as a result of HRSD implementation. Increased visibility of needs in workforce and succession planning, retention and recruitment, as well as performance management will be emphasized. HC will be assessing internal adjustments (reassignments) to optimize workforce capability and potential during transition to the new HRSD model.

Alignment to Strategic Plan

HC priority initiatives through FY 2016 align with Strategic Objective 12 of the 2014-2018 DOE Strategic Plan: Attract, manage, train, and retain the best federal workforce to meet future mission needs. These initiatives, organized under the focus areas of People, Culture and HR, include: improve the effectiveness, efficiency and delivery of HR services through a corporate approach; improve hiring and onboarding processes and outcomes; implement enterprise-wide strategies to strengthen corporate workforce planning, recruitment, development and management succession in alignment with mission needs; improve DOE employee engagement and accountability for achieving the mission; implement an enterprise-wide strategy and framework to strengthen corporate leadership development and succession in alignment with mission needs; improve HC customer service, communication, and collaboration; and promote DOE diversity and inclusion in partnership with DOE organizations.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction					
Washington Headquarters					
Salaries and Benefits	18,475	18,475	18,965	20,269	+1,304
Travel	135	135	130	100	-30
Support Services	940	940	350	45	-305
Other Related Expenses	4,938	4,938	5,055	4,986	-69
Total, Program Direction	**24,488**	**24,488**	**24,500**	**25,400**	**+900**
Federal FTEs	**141[1]**	**151**	**146**	**148**	**+2**
Support Services					
Management Support					
Training and Education	150	150	100	0	-100
Management Support, Other	790	790	250	45	-205
Total, Support Services	**940**	**940**	**350**	**45**	**-305**
Other Related Expenses					
Other Services	1,120	1,120	1,218	1,214	-4
Working Capital Fund	3,818	3,818	3,837	3,772	-65
Total, Other Related Expenses	**4,938**	**4,938**	**5,055**	**4,986**	**-69**

[1] FTE number of 151 for FY 2014 was incorrect; error was not caught prior to the FY 2014 Congressional Budget Submission.

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $24,500,000	**$25,400,000**	**+$900,000**
Salaries and Benefits $18,965,000	**$20,269,000**	**+$1,304,000**
Provides for 146 full time equivalents (FTEs). In addition to salaries and benefits, funding is also provided for workers' compensation payments on behalf of all employees funded through the Departmental Administration appropriation. FTEs support core HC mission functions of: policy, oversight and automation; learning and development; HR operations and services (including executive resources, staffing/classification, benefits and labor management relations); strategic alignment and measurement of human capital management; and internal business management.	Provides for 148 FTEs which support core HC mission functions as well as workers' compensation payments.	Change reflects an increase of +2 FTEs from the FY 2015 request level. Increase in salaries and benefits is linked to additional FTEs needed to meet critical mission-support and mandated requirements; and the filling of certain vacant positions at a higher grade, due to planned changes within the HC organization structure related to the HRSD implementation and transition of roles and responsibilities with the stand-up of two Shared Service Centers in FY 2016.
Travel $130,000	**$100,000**	**-$30,000**
HC staff travel includes program oversight, program evaluation, recruitment, and permanent change of station moves. Primary travel need is associated with OPM-mandated HC/HR accountability audits; these audits are critical to maintaining agency-delegated HR authority.	Continuation of required HC staff travel activities in FY 2015. HC will explore options to partner with other internal organizations and web and video conference as feasible.	Change reflects a minor decrease in staff travel funding.
Support Services $350,000	**$45,000**	**-$305,000**
Includes funding for: HC staff training; HC Core Contractors; and other minor items.	Continuation of FY 2015 activities. Provides for Labor Relation Services and services for the Albuquerque office. HC will use non-cost training opportunities as feasible.	Net decrease in support services, includes: decrease in staff training (-$50,000); reduction of HC /Core Contractor positions (-$515,000); addition of the Student Ambassador Program ($225,000); and Labor Management Relations services (+35,000).

[1] FTE number of 151 for FY 2014 was incorrect; error was not caught prior to the FY 2014 Congressional Budget Submission.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Other Related Expenses $5,055,000	**$4,986,000**	**-$69,000**
Other Related Expenses provides for Working Capital Fund (WCF) and Energy IT Services. Includes funding for HC-internal office administration needs (e.g., software and hardware, Council fees, small automation system support, and rent for HC's duty station facility in Albuquerque). HC relocated the Albuquerque duty station, partnering with the Office of Health Safety and Security, to utilize existing space in the local area in an effort to reduce rent and offset increases in WCF and Energy IT Services.	Continuation of FY 2015 activities.	Change reflects a minor decrease in projected annual overhead costs resulting from relocation of HC Albuquerque duty station from GSA leased space to shared space with Office of Health, Safety, and Security.

[1] FTE number of 151 for FY 2014 was incorrect; error was not caught prior to the FY 2014 Congressional Budget Submission.

Chief Information Officer

Overview

To realize the Department's forward-leaning information and IT vision, the Office of the Chief Information Officer (CIO) will continue to build upon the three pillars - *Transform, Protect, Advance* - established in the 2012 IT Modernization Strategy and codified in the 2014-2018 Information Resource Management Strategy. These three pillars describe the means by which DOE will accomplish four strategic goals:

- Ensure the delivery of high-quality information and IT solutions that meet DOE customers' needs and enable mission outcomes;
- Safeguard resources through the cost-effective management of information and IT solutions;
- Protect the integrity of Departmental information by strengthening DOE's cybersecurity posture; and
- Invest in the IT workforce and partnerships required to advance the Department's mission.

Within the Departmental Administration appropriation the CIO funds Corporate IT Program Support, Cybersecurity, Digital Services Team, and Program Direction.

Highlights of the FY 2016 Budget Request

A funding level of $83,800,000 is required to sustain IT operations and to meet Clinger-Cohen, Federal Information Security and Management Act (FISMA) responsibilities, and the Federal IT Acquisition Reform Act (FITARA). FY 2016 activities include:

- Strengthening the Department's cybersecurity defensive strategy by identifying and evaluating cyber defense technologies to improve enterprise situational awareness and "machine speed" information sharing for deployment through the Joint Cybersecurity Coordination Center (JC3).
- Managing the implementation of the Information Resources Management (IRM) Strategic Plan and the recommendations of the 120-Day IT Service Delivery Study to increase service quality, improve security, and minimize redundancy and complexity.
- Establishing a segregated, secure, virtual environment for developing and testing new and enhanced IT solutions, reduce the risk to the operational environment, and enable new technologies to be delivered faster.
- Supporting strong authentication (Identity, Credential and Access Management) by increasing the percentage of employees and contractors required to use Personal Identity Verificatin (PIV) card to access Federal information systems.

Chief Information Officer
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Cybersecurity					
Incident Management (IM-32)	23,488	23,488	12,233	0	-12,233
Enterprise Services[1] (IM-33)	4,182	4,182	6,582	0	-6,582
Policy, Guidance, and Planning (PG&P) (IM-31)	3,125	3,125	2,549	0	-2,549
Program, Policy, and Reporting (IM-31)	0	0	0	8,402	+8,402
Strategic Planning and Initiatives (IM-32/33)	0	0	0	12,604	+12,604
Total, Cybersecurity	**30,795**	**30,795**	**21,364**	**21,006**	**-358**
Corporate IT Program Support					
IT Policy and Governance[2] (IM-20)	3,982	3,982	3,694	4,968	+1,274
Corporate IT Project Management (IM-10)	1,574	1,574	1,460	0	-1,460
Technology and Innovation[3] (IM-50)	643	643	597	9,747	+9,150
Energy IT Services (IM-60)	9,667	9,667	13,861	11,047	-2,814
IT Modernization (IM-1)	0	0	0	2,044	+2,044
Total, Corporate IT Program Support	**15,866**	**15,866**	**19,612**	**27,806**	**+8,194**
Program Direction					
Salaries and Benefits	22,394	22,394	20,863	18,663	-2,200
Travel	181	181	208	208	0
Support Services	3,690	3,690	3,424	3,424	0
Other Related Expenses	9,136	9,136	8,693	8,693	0
Total, Program Direction	**35,401**	**35,401**	**33,188**	**30,988**	**-2,200**
DOE Digital Services Team	**0**	**0**	**0**	**4,000**	**+4,000**
Use of Prior Year Balances	**0**	**0**	**-2,205**	**0**	**+2,205**
Total, Chief Information Officer	**82,062**	**82,062**	**71,959**	**83,800**	**+11,841**
Federal FTEs	**129**	**129**	**125**	**113**	**-12**

[1] Realigned under Program, Policy, and Reporting in FY 2016.
[2] The name change reflects the reorganization of IM-20 in May 2014; "IT Planning, Architecture, and E-Government" is now the "Office of IT Policy and Governance."
[3] Formerly the Office of the Chief Technology Officer (also referred to as IM-50).

Chief Information Officer
Explanation of Major Changes ($K)

	FY 2016 vs FY 2015
Cybersecurity: Decrease reflects a reduction in costs related to the transfer of work activities to other organizations within the CIO.	**-358**
Corporate IT Program Support: Increase reflects realignments as well as new and enhanced activities in the areas of IT Policy and Governance, Technology and Innovation; Energy IT Services (EITS); and IT Modernization. These shifts support an effort to provide a more secure DOE Federal IT environment. The $6,954,000 increase to the Technology and Innovation program budget reflects the shift of funds for Identity, Credential and Access Management (ICAM) planning and developmental activities from the Working Capital Fund to the program's direct appropriation. The FY 2016 EITS budget reflects a $2,814,000 reduction in direct appropriations. EITS will enact full cost recovery in FY 2016 and therefore all costs other than those supported by the direct appropriation will be covered by increased customer funds (via price increases).	**+8,194**
Program Direction: FTE level will be reduced in FY 2016 to 113, based on historical operation levels.	**-2,200**
Digital Services Team: Increase support establishment of an agency Diginal Services Team to contribute to improving the efficiency and effectiveness of the agency's highest-impact digital services.	**+4,000**
Use of Prior Year Balances: The FY 2015 request provided for a one-time use of prior-year balances to offset operations. The funds were used for general operations of the program. This offset is not being proposed for FY 2016.	**+2,205**
Total, Chief Information Officer	**+11,841**

Chief Information Officer
Cybersecurity

Overview

To address the diverse missions of Departmental organizations, DOE has implemented a federatedmodel for information technology (IT) management, including cybersecurity. The federatedmodel supports broad IT and cybersecurity policy at the enterprise level (provided by the CIO) that is tailored at the organizational level based on mission risk tolerances. On behalf of the Secretary, (under this federated approach), the CIO Cybersecurity Program provides direction through the issuance of Departmental Directives, to Program Secretarial Office and Staff Office organizations for implementing the requirements of a mission-focused, risk-based management approach. As part of the overall program, the Office of Cybersecurity also administers enterprise projects and programs that interface across the Federal Government, such as Supply Chain Risk Management (SCRM), Information Security Continuous Monitoring (ISCM) and Federal Initiatives which support enterprise policy, developing and managing technical programs, and required reporting.

In FY 2014, funds for implementation and operations of the JC3 were provided through the Working Capital Fund (CyberOne business line). Therefore, the FY 2016 request supports only projects and programs outside of JC3.

Highlights of the FY 2016 Budget Request

In FY 2016, the budget for Cybersecurity will be realigned into three areas to better address mission objectives and work activities; increase transparency and accountability. A summary of the structural realignments in IM-30 is provided below:

- Program Policies and Reporting (IM-31) is requesting $8,402,000 in order to support activities previously funded in FY 2015 under Enterprise Services; support activities funded under Policy, Guidance and Planning in FY 2015 (+$5,853,000); and to support training and awareness programs.
- Incident Management (IM-32) is requesting zero dollars in FY 2016 due to the transfer of local Headquarters incident response to Energy IT Services (IM-60). Cyber-related technical directives that were funded through Incident Management in FY 2015 will be funded through IM-33 in FY 2016. JC3-related activities will be supported through WCF CyberOne business line.
- Strategic Planning and Initiatives (IM-33) is requesting $12,604,000 to focus on forward-looking strategic planning and emerging cyber initiatives to align departmental efforts to address the dynamic challenges in cybersecurity. The office supports technical initiatives previously covered by Incident Management in FY 2015 and a subset of activities (cybersecurity strategic planning and executive briefing) previously covered by Enterprise Services in FY 2015.

<u>Program, Policy, and Reporting</u> $8,402,000

This Division provides enterprise-level service and supports Departmental and Federal initiatives for:

Reporting (Data Collection, Analysis, and Metrics) ($1,680,000)

- Coordinate Departmental response to internal and external data calls as required by DOE initiatives or others (e.g., Inspector General (IG), Office of Management and Budget (OMB), Government Accountability Office (GAO), or Congressional inquiries).
- Perform analysis and validation on collected data from various sources, including IG, OMB, and GAO reports as well as FISMA, scorecard, and metrics data.
- Perform validation and verification of reported Plan of Action and Milestones (POA&M) data collected from Departmental elements.
- Expand business processes to include extensive data analysis, metrics, and scorecarding of Cross-Agency Priority (CAP) goal status and progress.

Cybersecurity Awareness and Training ($1,355,000)

- Act as a centralized training authority for cybersecurity education in the Department by developing standard role-based curriculum and provding courseware from Departmental, Federal, and non-Federal sources to be locally administered.

- Develop and maintain program foundational documents to include in the Enterprise Essential Body of Knowledge (EBK).
- Create and administer mandatory role-based training and provides training assistance for developing supplemental training via a central Learning Management System.
- Coordinate awareness events at Headquarters facilities with the annual DOE cybersecurity conference.
- Act as the DOE point of contact for the Federal Information System Security Line of Business (ISSLoB) Tier 1 refresher training, coordinating the selection and/or development of a compliant product for use within the Department.

Policy ($427,000)

- Develop and update DOE-wide cybersecurity policy, including management of policy review and drafting and approval processes.

Supply Chain Risk Management ($1,500,000)

- Provide vendor and product risk assessment capabilities, and develop mechanisms to assess and monitor the overall effectiveness and efficiency of Supply Chain Risk Management activities across the Department, including NNSA.
- Coordinate development of policy and implementing guidance regarding the planning and execution of IT asset management and supply chain risk management.
- Complete strategy to reach full operational capability (FOC) by March 2016.

Federal Initiatives ($500,000)

- Develop and operate programs and projects to support and advance the Departmental approach to programmatic mandates required by Federal laws, standards, and initiatives (e.g., Federal Risk and Authorization Management Program and United States Government Configuration Baseline).
- Administering enterprise policy, developing and managing technical programs, and reporting to OMB, Congress, the Department of Homeland Security (DHS), and others as required.

Enterprise Risk Management ($1,500,000)

Develop and execute the strategy and implementation plans for Risk Management Plan Essential Elements Guidance, Measures and Metrics, and Maturity Models.

- Development and deployment of a technical assistance process for Senior DOE Mangement and site organizations implementing the DOE Risk Management Approach (RMA).
- Verify the organization's status for meeting RMA implementation requirements through a systematic and objective review and metrics process.

Information Security Continuous Monitoring ($1,440,000)

- Participate in Continuous Data Monitoring (CDM) activities to include status tracking of purchases, reading room index status activities, hosting reading rooms, training, etc.
- Monitor the security controls in Federal information systems and the environments in which those systems operate on an ongoing basis in accordance with DHS, OMB and NIST requirements.
- Address the requirements listed in OMB Memorandum 14-03 and the evolving Information Security Continuous Monitoring Program (ISCM) Concept of Operations (ConOps).

FY 2015 and FY 2016 Key Milestones

- Enhancement of program capabilities in areas like Cyber Metrics Program, Information Sharing & Safeguarding (IS&S), Continuous Diagnostics and Mitigation (CDM), Supply Chain Risk Management (SCRM), and Cybersecurity Training and Awareness (CTA)
- Major activities to progress data collection, analysis, and reporting capability automation
- Finalization and deployment of revised Cybersecurity policy to the Department

Strategic Planning and Initiatives $12,604,000
This activity provides Cybersecurity requirements management, outreach to DOE on cyber matters, and DOE representation for Federal cyber groups/meetings through the National Security Council, DOE Cyber Council Secretariat support, strategic planning on cyber concepts for the CIO and Chief Information Security Officer, as well as development and management of cyber initiatives. These activities are in support of DOE IRM Strategic Goal 3 "Enhancing Information Security."

The FY 2016 Cybersecurity budget formulation incorporates the following:

- CIO Secretariat support functions for cybersecurity were transferred to IT Policy and Governance (IM-20). FY 2016 Budget request reflects that transfer.
- Increase in FY 2016 funding toward support Information Sharing and Safeguards.
- Increase in FY 2016 funding toward Cybersecurity Initiatives.

Strategic Planning ($3,700,000)
Strategic Planning involves multiple high-level activities in support of the White House National Security Staff, the DOE Secretary and Deputy Secretary, and the CIO. These programs enable security for classified processes and policy development, securing DOE information management.

- Programmatic Support: Providing support on cybersecurity requirements management to ensure DOE cyber-related interests are addressed at executive-level meetings and that CIO messages and strategies are sent to other departmental elements ($900,000).
- Analysis and Documentation: Collecting, quantifying, and prioritizing requirements and requests, based on CIO and CISO guidance; and developing strategies to support DOE missions and operations ($1,620,000).
- Information Sharing and Safeguarding (IS&S): Supporting the Senior Agency Officer's (SAO's) efforts to establish and direct a policy-based IS&S risk management framework for DOE; and ensuring enterprise-wide alignment, coordination and technical standardization in accordance with the National Strategy for Information Sharing and Safeguarding (NSISS) ($700,000).
- Automation Support: Tracking and management of tasks through an automated tracking system ($480,000).

Strategic Initiatives ($8,904,000)
Strategic Initiatives involves the management of various short-term projects concerning technologies and methodologies intended to augment cybersecurity practices throughout the DOE enterprise.

- Management Initiatives: Addresses cybersecurity issues driven by Federal mandates, senior leadership, internal governance, or IT management ($2,306,000).
- Operational Initiatives: Focuses on the enhancement of cybersecurity and productivity of day-to-day operations of the staff that oversee an organization's computer information system ($2,222,000).
- Technical Initiatives: Introduces new cybersecurity products or services, such as hardware, software, applications, and equipment, designed to protect the DOE IT infrastructure ($4,376,000).

FY 2016 Crosscut ($K)

	Cybersecurity	Total
Cybersecurity – CIO	21,006	**21,006**
JC3 – WCF	28,935	**28,935**
ICAM – WCF	4,046	**4,046**
Total	**53,987**	**53,987**

The CIO appropriation and WCF requests include funding for the Cybersecurity crosscut:

Cybersecurity: DOE is engaged in three categories of cyber-related activities: protecting the DOE enterprise from a range of cyber threats that can adversely impact mission capabilities; bolstering the U.S. Government's capabilities to address cyber threats; and improving cybersecurity in the electric power subsector and the oil and natural gas subsector.

The cybersecurity crosscut supports central coordination of the strategic and operational aspects of cybersecurity and facilitates cooperative efforts such as the Joint Cybersecurity Coordination Center (JC3) for incident response and the implementation of Department-wide Identity Credential and Access Management (ICAM). The CIO oversees these functions via the Working Capital Fund (WCF), CyberOne business line.

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Cybersecurity $21,364,000	**$21,006,000**	**-$358,000**
Incident Management $12,233,000	**$0**	**-$12,233,000**
Incident Management will cover unclassified network incident response support, including support to EITS, the Department's unclassified backbone. CIO will sponsor cybersecurity initiatives, including technical reviews, proof of concepts, pilots, and first year operation and maintenance for evaluation of new technologies and advancing capabilities.	No funding requested in FY 2016.	Activity is now aligned under the JC3. FY 2016 Request for projects and programs within the Joint Cybersecurity Coordination Center (JC3) are funded through CyberOne. Cybersecurity initiatives, including technical reviews, proof of concepts, pilots, and first year operation and maintenance for evaluation of new technologies and advancing capabilities will now be funded under the Strategic Planning and Initiatives activity line.
Enterprise Services $6,582,000	**$0**	**-$6,582,000**
• Support in responding to inter-agency and internal senior management task requests for reviews of legislation, governance, and departmental publications, Plan of Actions and Milestones (POA&M) module support activities and planned expansion of the Supply Chain Risk Management (SCRM) Resource Center and threat analysis activities. • Implement additional capabilities for the Enterprise Cyber Governance System (ECGS). • Implement the Continuous Monitoring Strategy and Continuous Diagnostics and Mitigation Program across the enterprise.	No funding requested in FY 2016.	Activities realigned to new Strategic Planning and Initiatives activity line.
Policy, Guidance, and Planning (PG&P) $2,549,000	**$0**	**-$2,549,000**
Mandated reporting to include FISMA, POA&M and Cross Agency Priority (CAP) goals, fulfilling legislative requirements for DOE role-based and awareness training and developing and maintaining Departmental cybersecurity policy that aligns with Federal requirements .	No funding requested in FY 2016.	Activities realigned to new Program, Policy, and Reporting activity line.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program, Policy, and Reporting $0	**$8,402,000**	**+$8,402,000**
Program, Policy, and Reporting ($0) No funding requested in FY 2015.	Provides policy, training and awareness, reporting, and risk management programmatic activities and programs to directly support the Department's overall cybersecurity effort. This includes providing support in promulgation of Departmental Cybersecurity requirements and directives through Program Offices' Risk Management Implementation Plans.	This is a new alignment in FY 2016. Funding request will support statutory requirements (+$7,047,000) and Training and Awareness activities (+$1,355,000). Specifically, funds will support the continued development, enhancement, and management of major Cybersecurity programs, such as supply chain risk management, training and awareness, continuous monitoring and others. These programs address evolving Federal Cybersecurity requirements and activities (e.g., FedRAMP, IS&S, etc.) and directly support overall cybersecurity efforts at DOE.
Strategic Planning and Initiatives $0	**$12,604,000**	**+$12,604,000**
No funding requested in FY 2015.	The Strategic Planning and Initiatives (SPI) program continuously assesses the ever-changing cybersecurity threat landscape at the Department and identifies, evaluates, and deploys advanced cybersecurity capabilities within a structured project management framework. Advanced cyber security capabilities that meet SPI evaluation parameters and obtain approval from the DOE Chief Information Security Officer are transferred to the appropriate departmental elements for out-year operations and maintenance.	This is a new alignment in FY 2016. Funding request will provide for Strategic Planning activities (+$3,700,000) and Strategic Initiatives (+$8,904,000). By centrally managing cybersecurity programs, the Department will improve efficiency by eliminating redundant initiatives, implement a standard program management framework, and improve program oversight through periodic program reviews.

Overview

Corporate IT Program Support consists of four subprograms focused on providing quality IT products and services and an efficient and effective IT platform: IT Policy and Governance, Technology and Innovation, Energy IT Services (EITS), and IT Modernization. Relevant projects and activities of the Corporate IT Project Management subprogram have been realigned across the aforementioned subprogram offices.

Highlights of the FY 2016 Budget Request

The Office of IT Policy and Governance has assumed responsibility for the Corporate IT Project Management function and IT Sustainability Federal-wide IT Initiative transitioned over from another office. A new functional area Executive Secretariat for IM Governance has been established and will be a part of the Office of IT Policy and Governance. The new governance process is designed to collaboratively review investments, establish DOE-wide policies and ensure the most efficient use of resources across the entire enterprise. Other significant activities in FY 2016 include:

- Concept of Operations for an Information Sharing Platform;
- Creation of specific data services to be shared and accessible across the Department;
- The Headquarters Network Security Team (HQNST) and Enterprise Assurance Incident Response Team (EAIRT) formerly budgeted under Cybersecurity will move to EITS;
- Begin build out of an EITS lab environment to minimize risk to production infrastructure as new technologies are introduced; and
- Creation of IT Modernization office to act as liaison to CIO on IT Modernization efforts such as 120-Day Study implementation and the provision of advisory services for the Information Management Governance Board (IMGB).

<u>IT Policy and Governance</u> $4,968,000

The Office of the Associate CIO for IT Policy and Governance (IM-20), formerly IT Planning, Architecture, and E-Government, is a strategic organization focused on creating business value for stakeholders and customers aligned with DOE missions and CIO strategies. IM-20 delivers value to the Department by providing IT leadership, policy, guidance, management, integration, and governance, while supporting the CIO and other DOE senior managers on the strategic use of IT for core business processes and achievement of mission critical goals. IM-20 carries out its mission in four functional areas: Secretariat for IM Governance, Portfolio and Analysis Division (IM-21), Policy and Performance Management Division (IM-22), and Records and Privacy Management Division (IM-23).

Portfolio and Analysis (IM-21) $1,215,000

The Portfolio and Analysis Division supports the governance of DOE's strategic IT investment portfolio to ensure alignment with DOE and CIO missions through the Capital Planning and Investment Control (CPIC) and Enterprise Architecture programs. IM-21 engages in the following activities:

- Conducts portfolio analyses to drive investment decision-making across the Department.
- Improves the quality of business cases for IT-enabled business investments by working closely with project managers to assess, define, and articulate the cost, schedule, value, and risk of IT investments in the portfolio.
- Designs real-time benchmarking and analytic capabilities as a portfolio management best practice, and closely engages with business stakeholdersto cultivate inclusive IT and business partnerships for collaborative investment decision-making:
    - Capital Planning and Investment Control (CPIC) – Ensures IT investments integrate strategic planning, budgeting, procurement, and IT management in support of agency missions and business needs. ($1,100,000)
    - Enterprise Architecture – Promotes a unified, agile, and federated enterprise architecture that is responsive to internal and external organizational changes and fully supports the DOE and CIO missions by

ensuing that DOE IT assets are up to date and providing warning for those that are about to become unsupported (software) or obsolete (hardware). ($115,000)

Policy and Performance Management (IM-22) $1,911,000

The Policy and Performance Management Division provides leadership in IT planning, policy, and IT performance evaluation by focusing on the following: IT risk management, business value delivery, strategic alignment, performance evaluation and management, and resource management. The function provides strategic and tactical IT policy development, maintenance, and implementation through internal and external governance working groups. This function is the steward of CIO's openness and data transparency initiatives, priorities, projects, and programs including E-Government initiatives across the Department. The Office performs the following functions and activities:

- Policy Management – Oversees DOE Orders/Directives and collaboration/concurrence processes. Advocates for Department-wide policy concerning information standards, and participates in interagency and international committees' efforts to advance delivery of IT services and dissemination of electronic information. ($150,000)
- Strategy Management – Ensures that strategy formulation and strategy execution are linked in a closed-loop process. Advances the organization's alignment with the strategy, including linking the Performance Management System to strategic and functional goals and objectives. ($835,000)
- Performance Management – Facilitates the process of translating the IRM strategy into a dashboard to manage goals, objectives, strategies, and measures. ($250,000)
- Project Management – Establishes the necessary tools, documentation, certifications, process, and techniques required for successful project management and implementation. ($300,000)
- IT Sustainability Support – Supports "green" efforts to consolidate IT where applicable to reduce DOE's energy footprint, which may include actions that are part of the Federal Desktop Core Consolidation Initiative. ($200,000)
- Federal Initiatives – Plans, develops, and implements innovative informational solutions to advance connectivity with citizens through the Digital Government Strategy and Open Government initiatives. Oversees the tools, documentation, processes, and techniques to support DOE's transition to IPv6. ($176,000)

Records and Privacy Management (IM-23) $1,230,000

The Records and Privacy Management Division provides overall coordination and implementation of Records Management and Privacy policies and procedures for the Department. It ensures that the Department's government records are managed in an economical, effective, and efficient manner throughout their lifecycle in support of mission accomplishment and accountability. This division also works to ensure that personally identifiable information (PII) is managed and protected Department-wide. In FY 2016, the following activities and functions will be funded:

- Information and Collections Management – Establish and maintain policies and procedures that support the efficient and effective information collections compliant with the Paperwork Reduction Act. Act as the principal DOE liaison to the public and DOE offices for issues related to Information Collection & Forms Management programs. Provide training and awareness programs for all Federal and contractor employees regarding responsibilities for information collection. ($320,000)

- Records Management – Establish and maintain policies and procedures that support the efficient and economical management of federal records compliant with the Federal Records Act. Act as the principal DOE liaison with the National Archives and Records Administration (NARA) and the Federal Records Council, and to the public for issues related to Records Management. Assess Records Management program performance and effectiveness. Provide training and awareness programs for all Federal and contractor employees regarding responsibilities for federal records. ($400,000)

- Privacy Management – Establish and maintain privacy policies and procedures that adhere to and support the Paperwork Reduction Act. Provide broad oversight, guidance, and specific technical support and reviews for unauthorized disclosures of privacy information. Provide training and awareness programs for all federal and contractor employees regarding responsibilities for privacy information ($510,000)

Information Management (IM) Governance $612,000
IM Governance provides oversight, support, and maintenance of government structures that enable coordination with elements from across the DOE enterprise on issues related to cybersecurity and information management. Functions include technical and administrative services for governance groups; research and analysis for requests from internal and external government entities; and implementation of an Information Sharing and Safeguarding (IS&S) program within the CIO.

FY 2015 and FY 2016 Key Milestones

- Coordination and submission of the annual IT Investment Portfolio and associated mandatory reporting requirements.
- Execution and management of an Investment Review Board (IRB) to evaluate the risks and returns associated with IT investments.
- Execution and management of a revised Information Management Governance model.
- Ongoing support and implementation of Federal IT initiatives.

Technology and Innovation ($9,747,000):
The Office of the Associate CIO for Technology and Innovation (IM-50) – formerly the Office of the Chief Technology Officer – provides strategic direction and vision for applying technology to enhance the mission of the DOE. IM-50 monitors mission requirements and industry trends to forecast emerging information management initiatives and solutions. The office liaises with other DOE programs, laboratories, government and industry partners to ensure that the Department takes full advantage of the technology available, while protecting systems, information and investments. IM-50 supports three functional areas, as outlined below:

- Outreach and Innovation (IM-50): Funding will support the activities, including: management of the Technology Advisory Board (TAB), Capital Planning and Investment Control (CPIC), implementation of federal policy initiatives like Open Data and the President's Management Agenda, hosting Technology Summits, and integration of DOE-developed technologies with commercialization opportunities. Outreach and Innovation work products will include a Proof-of-Concept and pilot framework, Technology Summits, and Demonstration Days. ($777,000)

- Emerging Technology (IM-51): Funding will provide analysis on the impact of emerging technologies and solutions on current strategies, and develop a vision of the technological future of the organization. Work products will include, but are not limited to: partner engagement framework, partner engagement catalogue, strategic vendor reports, targeted market validation, and the DOE Technology Roadmap. ($1,276,000)

- Strategic Programs (IM-52): Funding will support mandatory requirements, such as Spectrum Management and Identity, Credential and Access Management (ICAM). Expected work products include, but are not limited to: overall implementation of the ICAM program, an analysis of the geospatial and program investment report, geospatial marketing and education seminars, an Open Data assessment and Strategy report, and demonstration of the Innovation and Collaboration Center's Initial Operating Capability. ($7,694,000)

FY 2015 and FY 2016 Key Milestones

- Initiation and management of Innovation and Collaboration Center
- Administer the Identity, Credential and Access Management (ICAM) Program
- Deliver the first ever enterprise wide DOE Technology Roadmap
- Establish a Parntership Engagement Framework
- Convene technology summits and conduct working groups

Energy IT Services ($11,047,000):
Energy Information Technology Services (EITS) enables programs to operate with effective IT products and services while promoting economic stability and delivering IT services to customers in DOE Headquarters and field sites. EITS provides

hardware and software, desktop seat management, application hosting and housing, integrated security, voice, video and data networking, and IT professional services. In FY 2016, the EITS appropriation will fund a core engineering team and technology projects under Technology, Research and Development and fund its share of IT costs for services provided to themselves as a customer. Starting in FY 2015, EITS will conduct a full cost recovery effort and develop cost models for the various IT business lines. These cost models will go into effect in FY 2016 and will transfer into the WCF by FY 2017.

- Technology, Research and Development (R&D) ($5,823,000): Funding supports the EITS operational architecture, contributes to technical project management, and supports technology investigation, evaluation and insertion (projects). Tech R&D covers a base (bench) engineering team ($3,005,000), and the costs of internal upgrades and new projects that EITS initiates ($2,818,000).
- EITS Cost of Business Share ($5,224,000):
  While EITS manages and operates the core services for Headquarters (HQ) Program Offices and field sites, it is also its own customer and therefore is required to pay for the services received.

FY 2015 and FY 2016 Key Milestones

- phase out Blackberry service
- Roll out of credential management across the Department

IT Modernization ($2,044,000):

IT Modernization directly supports the achievement of the DOE Information Resources Management (IRM) mission to advance the Department's mission through policy, standards, and services, which meet mission requirements, balance risk and innovation, and set clear performance goals and expectations for the information environment. IT Modernization enables the CIO to articulate a strategic direction for Departmental IT, transforming the way we manage, use, and secure our information and IT to support the Department's mission. The office also provides insight to CIO on Departmental IT modernization projects and activities, as outlined below:

IT Modernization Support Activities ($1,000,000):

- Develop and implement support of the CIO Work Breakdown Structure (WBS).
- Provide support for the development of the CIO Operating Model to align with the IRM Strategic Plan and WBS.
- Provide guidance on the development of the CIO cost model(s), supporting establishment of a baseline for understanding current costs against the WBS elements, and enabling the CIO to make informed decisions based on future spend projections.
- Provide advisory services for the the Information Management Governance Board (IMGB), supporting development of a governance model that is fully integrated with other strategic priorities defined in the IRM Strategic Plan and DOE IT Roadmap.

120-Day IT Study Implementation Support ($1,044,000):

- Provide Content Development Support, which will be necessary to deliver tools and content in an accelerated manner. Items for development may include: Project Charter, Work-plan, Templates, Approach for Assessment and Analysis, Reports, and Presentations.
- Provide analysis/assessment skills and support, which is critical for providing a strong methodology, data analysis, and accelerated delivery of leadership decisions related to future cost efficiencies.
- Provide Partnership Engagement and Facilitated Analysis Support to maintain collaborative dialogue throughout the 120-Day Study with Program Office stakeholders.

FY 2015 and FY 2016 Key Milestones

- A Structured Analysis of Federal IT Service Delivery for the Department of Energy (120-Day Study) Implementation
- DOE IRM Strategic Plan Ongoing Measurement and Management
- CIO IRM Operational Plan Development
- DOE IRM Implementation Plan Development
- DOE IRM Balanced Scorecard Development and Operation
- Ongoing Enterprise Architecture Support and Integration

Supplemental funding is also available to the Energy IT Services and IT Policy and Governance programs for WCF-related activities:

Working Capital Fund Estimates* ($K)

	FY 2014	FY 2015	FY 2016
Telecommunications	30,258	30,100	31,756
Interagency Agreements	6,000	6,000	6,500

*Estimates subject to change

Energy IT Services User Fees

Energy IT Services also receives user-based fees for services provided. The figures provided below are estimates for services being provided to DOE Program Offices and are subject to modification. These collections will shift to the Working Capital Fund in FY 2017. The OCIO will partner with the WCF fund manager and our customers as we adjust to full cost recovery through FY 2016 and into FY 2017 to ensure full transparency of the cost and service structure/levels required for full cost recovery.

Energy IT Services User Fees ($K)

	FY 2014	FY 2015	FY 2016
Estimated EITS Fees	43,821	50,072	64,425

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Corporate IT Program Support $19,612,000	**$27,806,000**	**+$8,194,000**
IT Policy and Governance $3,694,000	**$4,968,000**	**+$1,274,000**
Efforts focused on IT Portfolio Management and Reporting, IT Council leadership and support, IT Policy Development and maintenance, CIO Strategic Planning, Records Management Program, Privacy Program, Spectrum Management, and E-Government Initiative oversight.	Funds provide for governance and oversight of the IRM Strategic Plan implementation, management, and performance measurement, 120-Day Study recommendation implementation, and support of Federal-wide IT initiatives. Additionally, funds will improve IT investment portfolio analysis, implementation of NARA's Capstone strategy, improve Privacy Program Operations, and establishment, execution, and management of a revised Information Management Governance model. Funding will support: • Portfolio and Analysis ($1,215,000) • Policy and Performance Management ($1,911,000) • IM Governance ($612,000) • Records and Privacy Management ($1,230,000)	Funds support directed activities with programmatic and Departmental implications, including compliance with recommendations and mandates such as the annual Departmental IT Investment Portfolio submission and support of Federal-Wide IT initiatives. The recently aligned Corporate IT Project Management function as well as support of the revised Information Management Governance model will be supported, with slight increases to two programmatic areas: • Policy and Performance Management (+$662,000) • IM Governance (+$612,000)
Corporate IT Project Management $1,460,000	**$0**	**-$1,460,000**
Funding supports IT project development and implementation for IT Sustainability, Public Key Infrastructure(PKI), Identity, Credential, and Access Management (ICAM) project management, Internet Protocol version 6 (IPv6), Enterprise Mobility, and PMO.	No funding requested in FY 2016.	Activities shifted to IT Policy and Governance and Technology and Innovation offices.
Technology and Innovation $597,000	**$9,747,000**	**+$9,150,000**
Mandated reporting to include FISMA, POA&M and Cross Agency Priority (CAP) goals, fulfilling legislative requirements for Departmental role-based and awareness training and sustaining statutory and legislative alignment and compliance.	Funds support organizational realignment, program management of ICAM, the development of a proposal for a new Innovation and Collaboration Center for engagement with stakeholders and the DOE Technology Roadmap. Funds will contribute to the development and implementation of a Partner Engagement	The scope of the Technology and Innovation's functions and capabilities increased (moving beyond compliance and participation) to include the development of Technology Roadmap and Partner Engagement framework activities. The following new functions are in addition to the ICAM and

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
	framework, development of a ConOps for an Information Sharing platform, Spectrum support, and the expansion and creation of specific data services that will be shared and accessible across the Department. Funding will support: • Strategic Programs ($7,694,000) • Emerging Technology ($1,276,000) • Outreach and Innovation ($777,000)	Spectrum mandated functions: • Strategic Programs (+$1,191,000): Organizational realignment, Geospatial Sciences, sponsorship of the Innovation Collaboration Center. • Emerging Technology (+$1,067,000): Technology Roadmap and Partner Engagement Framework. • Outreach and Innovation (+$392,000): Technology Summits, Proof-of-Concept and pilot framework.
Energy IT Services (EITS) $13,861,000	**$11,047,000**	**-$2,814,000**
EITS will deliver base operational services; provide service catalog-based products and services; implement operational upgrades to maintain and support base operations; and deliver refreshment of hardware/ software as part of base operations. As part of DOE's IT modernization plan, approximately 9,000 users (federal and direct support contractors currently not supported by EITS) will be transitioned to CIO IT Services. As part of this effort, EITS will expand and upgrade the DOENet Wide-Area Network and Trusted Internet Connection to provide connectivity to all federal locations and support increased network traffic. Hardware upgrades to support full future load are estimated to be $5.7 million. • Program Management ($1,100,000) • Cybersecurity ($3,100,000) • Technology, Research and Development ($5,400,000) • Service Catalog—Cost of Business Share ($4,261,000)	From FY 2016 onwards, the EITS direct appropriation will fund a core engineering team and technology projects under Technology, Research and Development and will pay the EITS bill as their own customer. All other costs will be covered by customer funds or the Working Capital Fund. Funding will support: • Technology, Research and Development ($5,823,000) • EITS Cost of Business Share ($5,224,000)	All Program Management and Cybersecurity activities funded in previous years by appropriated budget will now be funded by the Working Capital Fund. Technology, Research and Development increases by +$423,000 to allow for additional technology projects. EITS customer cost increases by +$963,000 due to full cost recovery pricing increases that all customers including EITS itself will have to pay. Summary changes, by activity, include the following: • Program Management (-$1,100,000) • Cybersecurity (-$3,100,000) • Technology, Research and Development (+$423,000) • EITS Cost of Business Share (+$963,000)

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
IT Modernization $0	**+$2,044,000**	**+$2,044,000**
IT Modernization ($0) No funding requested in FY 2015.	Funds provide for a structured analysis of the Federal IT Service Delivery of the Department of Energy (120-Day Study). Additionally, funds will provide program management support, to include IT Modernization and 120-Day Study Implementation.	Funding is applied to this new division of Corporate IT Program Support to lead in analysis and program management as it pertains to IT modernization efforts, including the 120-Day Study implementation. • IT Modernization support (+$1,000,000): Provides support and guidance to IT modernization efforts and products within the CIO and across DOE programs. • 120 Day Study Implementation (+$1,044,000): Provides guidance and development support to implement the findings of the 120 day IT study.

Program Direction

Overview

Program Direction provides Federal staffing and associated costs for the overall management of activities carried out by the Chief Information Officer (CIO).

Program Direction funding provides resources needed to carry out Departmental activities of the CIO, including the operation and delivery of Department-wide information technology and telecommunication infrastructure services, policy development, IT strategic planning, IT governance process support, enterprise architecture development, program and field oversight, reviews and assistance visits, records management oversight, Enterprise-wide agreements, IT procurement, IT operations support, contingency planning, and inter-agency coordination.

The balance of the Department's IT portfolio funding is directly managed by the Department's program offices and their field sites and laboratories. The CIO exercises Clinger-Cohen related IT portfolio management responsibilities in reviewing IT business cases and portfolio requests of all Departmental program elements.

Highlights of the FY 2016 Budget Request

In FY 2016, no significant shifts in operational functions are anticipated. Focus will be placed on quality improvements with existing functions to satisfy requests from senior management and subprogram offices.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	22,394	22,394	20,863	18,663	-2,200
Travel	181	181	208	208	0
Support Services	3,690	3,690	3,424	3,424	0
Other Related Expenses	9,136	9,136	8,693	8,693	0
Total, Program Direction	**35,401**	**35,401**	**33,188**	**30,988**	**-2,200**
Federal FTEs	**129**	**129**	**125**	**113**	**-12**
Support Services					
Technical Support Services	1,669	1,669	1,549	1,549	0
Business, Finance, and Procurement	2,021	2,021	1,875	1,875	0
Total, Support Services	**3,690**	**3,690**	**3,424**	**3,424**	**0**
Other Related Expenses					
Training	96	96	120	120	0
Working Capital Fund	8,181	8,181	7,714	7,714	0
Energy IT Services	859	859	859	859	0
Total, Other Related Expenses	**9,136**	**9,136**	**8,693**	**8,693**	**0**

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $33,188,000	**$30,988,000**	**-$2,200,000**
Salaries and Benefits $20,863,000	**$18,663,000**	**-$2,200,000**
Funding supports staff who monitor (oversight and audit) activities to ensure appropriate and cost-effective information protection measures are applied to information technology assets.	Continuation of FY 2015 activities.	Funding allows a FTE staffing level of 113.
Travel $208,000	**$208,000**	**$0**
Travel supports federal staff attending mission-critical training and development events. Funds are also used to facilitate communication with field sites.	Continuation of FY 2015 activities.	No change.
Support Services $3,424,000	**$3,424,000**	**$0**
Technical Support Services: $1,549,000 Funding to sustain operations within the front office of the CIO. Funds support contractor activities and memberships/subscription services.	*$1,549,000* Sustain operations within the front office of the CIO. Funds support contractor activities and memberships/subscription services.	*$0* No change.
Business, Finance and Procurement: $1,875,000 Funding used to maintain contractor activities in the areas of Budget and Internal Controls, Acquisitions, and Human Capital. These activities are critical to programmatic operations and accomplishment of program goals.	*$1,875,000* Continuation of FY 2015 activities.	*$0* No change.
Other Related Expenses		
Training: $120,000 Funding ensures all FTEs are appropriately trained to perform their duties, and development opportunities are available to CIO's federal staff.	*$120,000* Continuation of FY 2015 training activities.	*$0* No change.
Working Capital Fund (WCF): $7,714,000 Funding to support facility requirements and overhead costs. In FY 2015, the projected customer costs, as identified in guidance from the WCF manager, will increase by 22%.	*$7,714,000* Continuation of FY 2015 activities.	*$0* No Change. Prior year balances will be used to offset total WCF estimated needs ($9,838,000) in FY 2016.
Energy IT Services: $859,000 Funds are used to provide IT desktop and hardware to employees.	*$859,000* Continuation of FY 2015 activities.	*$0* No change.

Digital Services Team

Overview

The Digital Services Team (DST) will be responsible for driving the efficiency and effectiveness of the agency's highest-impact digital services.

The success rate of government digital services is improved when agencies have digital service experts on staff with modern digital product design, software engineering and product management skills. To ensure DOE can effectively build and deliver important digital services, the FY 2016 Budget includes $4 million in funds for staffing costs to enable the Department of Energy to build Digital Service teams that will focus on transforming DOE's digital services with the greatest impact to citizens and businesses so they are easier to use and more cost-effective to build and maintain. DOE will also hire or identify a technology executive to lead the digital service team.

Digital Services Team

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Digital Services Team $0	**$4,000,000**	**+$4,000,000**
($0) No funding requested in FY 2015.	Funding to support the Department's management of critical digital services with the greatest impact on citizens and business.	New Initiative to improve DOE digital service.

Chief Information Officer
Performance

In accordance with the GPRA Modernization Act of 2010, the Department established FY 2014-2015 agency priority goals (APGs) in the 2014-2018 Strategic Plan published in April 2014. APGs support improvements in near-term outcomes and advance progress toward longer-term, outcome-focused strategic goals and objectives in the Strategic Plan.

The Office of the Chief Information Officer is responsible for the following agency priority goal, which is funded through CyberOne in the Working Capital Fund.

Agency Priority Goal: Increase the focus on efficient and effective management across the DOE enterprise and improve performance in the areas of environmental cleanup, construction project management, and cybersecurity.

In support of this goal, DOE will:

- Achieve full operational capability of the JC3, including Top Secret-Sensitive Compartmented Information (TS-SCI) operations, by the end of FY 2015.

Congressional & Intergovernmental Affairs
Program Direction

Overview

The Office of Congressional and Intergovernmental Affairs (CI) is responsible for overseeing and managing the Department's interface with Congress, States, territorial, Tribal and local governments and stakeholder groups and officials. CI engages with these stakeholders to ensure their views are considered in the Department's decision making process and to coordinate accurate and timely communications regarding Departmental activities. Specifically, CI:

- Provides strategic advice and counsel to the Secretary, Deputy Secretary, and other Departmental leaders on engagement with Congress, governors, local elected officials, Tribal governments, and other key stakeholders.
- Develops, manages, and ensures coordination of Departmental policies and other priorities between Departmental officials and stakeholders.
- Works with Members of Congress, their staff, and committees to define, articulate and advance DOE's position on energy policy and legislation. Develops and recommends legislative strategies working directly with relevant committees and Member offices to monitor, inform, and advocate on behalf of the Department in the legislative process.
- Coordinates briefings and meetings for congressional and intergovernmental stakeholders, including preparation of Departmental officials in conveying Departmental policies and responding to issues of concern.
- Develops, plans and implements strategies for engagement with Departmental stakeholders to ensure the exchange of information on initiatives and policies of the Administration.
- Provides timely notifications on Departmental actions including pending awards/grants/contracts that have an impact upon their constituencies. Ensures timely and full response to inquiries and requests for information.
- Directs and coordinates the preparation of testimony and briefing materials for congressional hearings and meetings.
- Ensures timely responses and completeness of content of transcripts, pre- and post-hearing questions and answers, and inserts for the record.

Highlights of the FY 2016 Budget Request

The Department requests $6,300,000 in FY 2016 for CI to maintain operational levels consistent with Departmental needs and Secretarial priorities. Funding will ensure CI can continue to provide accurate and timely communications of Administration and Departmental activities and objectives to Congress, State, local and tribal governments and external organizations.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2014 Operating Level	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary						
Washington Headquarters						
Salaries and Benefits	3,193	3,193	4,182	4,656	4,663	+7
Travel	30	30	47	95	95	0
Support Services	177	177	178	234	254	+20
Other Related Expenses	1,300	1,300	954	1,315	1,288	-27
Subtotal, Program Direction	**4,700**	**4,700**	**5,361**	**6,300**	**6,300**	**0**
Use of Prior Year Balances	0	0	-661[1]	-1,600[2]	0	+1,600
Federal FTEs	**25**	**25**	**27**	**33**	**33**	**0**
Support Services						
Management Support						
Subscription Services	67	67	84	75	86	+11
Contractor support	0	0	0	100	102	+2
Other	110	110	94	59	66	+7
Total Management Support	177	177	178	234	254	+20
Total, Support Services	**177**	**177**	**178**	**234**	**254**	**+20**
Other Related Expenses						
Training	24	24	10	25	25	0
Energy IT Services	216	216	154	238	243	+5
Working Capital Fund	1,060	1,060	790[3]	1,052	1,020	-32
Total, Other Related Expenses	**1,300**	**1,300**	**954**	**1,315**	**1,288**	**-27**

[1] $661,000 of prior year balances was used to fully fund CI's FY 2014 Salaries & Benefits totaling $4,182,000.
[2] Congressional directed use of prior year balances to fully fund CI's Salaries & Benefits for FY 2015.
[3] Prior year obligations expended in FY 2014 to fully fund the Working Capital Fund and Energy IT Services.

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $6,300,000	**$6,300,000**	**$0**
Salaries and Benefits $4,656,000	**$4,663,000**	**+$7,000**
Funding will be used to support the CI operational level and expand intergovernmental outreach, for a total staffing level of 33 FTEs. With the requested funding, the office will: • Improve the timeliness and efficiency of information sharing between DOE offices and state and local governments. • Provide reliable and efficient communications to state and local government representatives who have questions or ongoing concerns with DOE. • Engage and coordinate with state and local government representatives and meet with leaders of associations of state and local government officials (such as the National Governors Association) on their respective goals and strategies for their energy programs, policies and plans. Coordinate Department participation in these association events to ensure proper representation and consistency in communication of DOE policy, programs and goals.	Funding will be used to support CI operational level for a total staffing level of 33 FTEs.	Slight increase supports anticipated cost of living expenses, offset by staff attrition (cost savings).
Travel $95,000	**$95,000**	**$0**
Funding supports travel requirements for CI and its enhanced congressional and intergovernmental outreach and coordination.	Continuation of FY 2015 activities.	No change.
Support Services $234,000	**$254,000**	**+$20,000**
The majority of costs associated with CI's support services are related to the acquisition of annual subscriptions to information sources which are essential resources to ensure CI staff is well-informed of congressional and intergovernmental activities and interests, and to efficiently communicate with Congressional members, their staffs, as well as state and local government officials.	Continuation of FY 2015 activities.	This increase will meet the needs of CI staff to access subscription information, and address anticipated inflationary increases of continuing subscription costs and support services in FY 2016.
Other Related Expenses $1,315,000	**$1,288,000**	**-$27,000**
Funds support business costs associated with the Department's Working Capital Fund (office space, phones, utilities, etc.); IT equipment and support; E-Gov costs; as well as staff development and training to maintain and enhance work-related skills and capabilities.	Continuation of FY 2015 activities.	The decrease reflects anticipated reductions in overhead, including IT equipment and support costs.

Office of Small and Disadvantaged Business Utilization
Program Direction

Overview

The Office of Small and Disadvantaged Business Utilization (OSDBU) is responsible for maximizing contracting and subcontracting opportunities for small businesses interested in doing business with the Department of Energy (DOE). A primary responsibility of OSDBU is to work in partnership with DOE program elements to achieve Departmental prime and subcontracting small business goals, as annually negotiated with the U.S. Small Business Administration (SBA). In FY 2015, the Department's small business goal is 6% and the subcontracting goal is 50%. The socio-economic small business goals (prime & subcontract) are 5% for Women Owned Small Businesses and Small Disadvantaged Businesses; and 3% for Historically Underutilized Business Zones and Service-Disabled Veteran Owned Small Businesses.

To achieve its mission, OSDBU is tasked with monitoring, enforcing, and strengthening DOE programs and policies by implementing a wide range of initiatives that strengthen small and disadvantaged business support at the Department.

In FY 2016, OSDBU will work to enhance the Department's small business program and enable it to more effectively perform its statutory requirements. Priorities activities include: subcontracting policy, Mentor Protégé Program policy, data analysis of prime and subcontracting procurement base (metrics and quality assurance program), implementation of amendments to the Small Business Act (SBAct), consolidation of the Department's small business forecast, and execution of small business outreach.

Highlights of the FY 2016 Budget Request

In FY 2016, OSDBU will build upon prior year activities, shifting focus to small business outreach, program office in-reach, policy development, and enhanced data analysis to impact policy and decision-making. Additional staff (+3 FTEs) will help support and strengthen small business activities at the Department and implement policies and practices as dictated by the SBAct, which will ensure adequate resources are devoted to small business contracting opportunities, as DOE has the largest civilian procurement base.

Office of Small and Disadvantaged Business Utilization
Funding Summary ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2014 Operating Level[1]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Office of Small and Disadvantaged Business Utilization						
Program Direction	0	0	1,253	2,253	3,000	+747
Program Support	0	0	1,250	0	0	0
Total, Small and Disadvantaged Business Utilization	**0**	**0**	**2,503**	**2,253**	**3,000**	**+747**
Federal FTEs	**0**	**0**	**6**	**6**	**9**	**+3**

[1] In FY 2014, funding for the OSDBU program activity (program direction and support) was moved out of the Office of Economic Impact and Diversity (ED) and managed by the Director of OSDBU, in accordance with an MOU signed in December 2013 to comply with the National Defense Authorization Act of Fiscal Year 2013.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Washington Headquarters					
Salary & Benefits	0	0	1,013	1,545	+532
Travel	0	0	20	34	+14
Support Services	0	0	1,000	1,022	+22
Other Related Expenses	0	0	220	399	+179
Total, Program Direction	**0**	**0**	**2,253**	**3,000**	**+747**
Federal FTEs	**0**	**0**	**6**	**9**	**+3**
Support Services					
Mentor Protégé Program	0	0	80	100	+20
Policy and Data Analysis	0	0	300	300	0
Consolidated Acquisition Forecast	0	0	95	120	+25
Communications and Management Support Services	0	0	140	160	+20
Other Advisory and Assistance Services	0	0	385	342	-43
Total, Support Services	**0**	**0**	**1,000**	**1,022**	**+22**
Other Related Expenses					
Energy IT Services	0	0	40	40	0
Working Capital Fund	0	0	167	333	+166
Training	0	0	13	26	+13
Total, Other Related Expenses	**0**	**0**	**220**	**399**	**+179**

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $2,253,000	**$3,000,000**	**+$747,000**
Salaries and Benefits $1,013,000	**$1,545,000**	**+$532,000**
Funding covers salaries and benefits for 6 full-time Federal employees.	Funding covers salaries and benefits for 9 FTEs.	Funding increase supports 3 additional FTEs. An increase in Federal personnel is critical for the full implementation and execution of the functions and duties of Sections 8 and 15 of the Small Business Act (SBAct).
Travel $20,000	**$34,000**	**+$14,000**
Funding supports travel for essential outreach to small and disadvantaged businesses (including women-owned, veteran-owned, HUB-zone, etc.).	Continuation of FY 2015 activities.	Funding increase covers travel activities associated with small business outreach efforts of 9 FTEs.
Support Services $1,000,000	**$1,022,000**	**+$22,000**
Funding provides for OSDBU support services. All of OSDBU program activities were consolidated under program direction (support services) in FY 2015. OSDBU maintains a staff of 4 acquisition specialists. OSDBU will employ support services contractors to enhance the Department's small business program and enable it to more effectively perform its statutory requirements. An abbreviated list of priorities the support service contractors will address include subcontracting policy, Mentor Protégé Program policy, data analysis of prime and subcontracting procurement base (metrics and quality assurance program), SBA's implementation of the 2010 Small Business Jobs Act (Multiple Award Contract final rule, Mentor Protégé final rule, etc.), the Department's small business forecast and execution of small business outreach.	Continuation of FY 2015 activities.	Funding increase covers administrative, communications, data analysis and marketing support by contractors, with slight inflation from FY 2015.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Other Related Expenses $220,000	**$399,000**	**+$179,000**
Funding provides for computer hardware and software services, WCF contributions, and necessary supplies, as well as acquisition specialist staff training costs.	Funding provides for computer hardware and software services, WCF contributions, space, and necessary supplies, staff training and outreach (co-sponsorships).	Funding increase supports overhead costs associated with 9 FTEs.

Economic Impact and Diversity

Overview

The Office of Economic Impact and Diversity (ED) advises the Secretary of Energy on the impact of energy policies, regulations, and Department of Energy (DOE) programs on minority communities, minority institutions, and specific segments of the U.S. population. ED is tasked with facilitating involvement of minority serving institutions, minority businesses, and other organizations in all aspects of energy, and monitoring and strengthening DOE programs and policies by implementing a wide range of initiatives that address underrepresentation of minorities; women; veterans; and American Indians in the Department's programs, activities, and the energy workforce.

ED ensures compliance at DOE with Titles VI & VII of the Civil Rights Act of 1964 and Title IX of the Education Amendments Act of 1972. ED is also responsible to the Secretary of Energy for planning and executing a strategy that promotes a diverse workforce and an inclusive work environment as directed by Executive Order 13583 (Establishing a Coordinated Government-wide Initiative to Promote Diversity and Inclusion in the Federal Workforce), along with implementation guidance provided by the Office of Personnel Management. On behalf of the Secretary of Energy, ED is responsible for planning and leading DOE's Minorities in Energy Initiative (MIE).

Highlights of the FY 2016 Budget Request

The FY 2016 ED budget includes an increase of $1 million from the FY15 enacted level. This increase will support additional program direction dollars to build capacity to provide statutory minority business and economic development and maintain a model Equal Employment Opportunity (EEO) program (in accordance with EEO Commission Management Directive 715). The ED request also includes support for MIE, which spans all functional areas of ED and externally links academia, industry, government, and nonprofits to address challenges in areas of energy economic development; energy-related science, technology, engineering and math (STEM) education and workforce development; and energy literacy. MIE supports multiple Administration Initiatives, including My Brother's Keeper, increases in the number of STEM teachers, and specific Initiatives on Women and Girls, Educational Excellence for African Americans and for Hispanics. In addition, ED provides long-term support of initiatives related to minority serving institutions and minority communities in general.

Economic Impact and Diversity
Funding ($K)

	FY 2014 Enacted[1]	FY 2014 Current[2]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Economic Impact and Diversity					
Program Direction	6,197	5,220	6,200	7,995	+1,795
Minority Economic Impact	2,759	1,233	2,800	2,005	-795
Total, Economic Impact and Diversity	**8,956**	**6,453**	**9,000**	**10,000**	**+1,000**
Federal FTEs	**31**	**25**	**28**	**37**	**+9**

[1] Enacted level included funding for the Office of Small and Disadvantaged Business Utilization (OSDBU) program staff and activities ($1.253 million for program direction; $1.25 million for program support) which are now funded in a separate DA account.
[2] In FY 2014 the OSDBU function was moved out of ED, in accordance with an MOU signed by ED and OSDBU in December 2013 to implement statutory requirements. As a result, current funding levels reflect a reduction in ED's program direction line (-$1.253 million) for costs associated with 6 FTEs in OSDBU; and a reduction in ED's program support line (-$1.25 million) for small business program activities.

Minority Economic Impact

Overview

ED carries out its mission with an organization comprised of five support offices, as described below. Program support funding is contingent on organizational, Departmental, and national priorities. The FY16 request reflects an emphasis on minority business and workforce challenges, Equal Employment Opportunity, and the Minorities in Energy Initiative.

The Office of Minority Economic Impact (OMEI) is responsible for developing programs to support Minority Serving Institutions (MSIs) and under-served communities. OMEI engages in outreach and assistance programs to identify and inform MSIs; community-based education organizations; minority-focused science, technology, engineering, and mathematics (STEM) organizations; and minority student groups about research, development, and other opportunities at the Department and the larger energy sector. Within OMEI, the minority education and community development function also includes funding for 80 – 100 internships each year.

The Minority Business & Economic Development (MBED) provides technical assistance in the development of minority communities, as described in P.L. 95-619. This program conducts market research to identify aspects of Departmental and energy sector programs and activities that represent business opportunities for minority enterprises, minority educational institutions, and other appropriate minority-based organizations. Technical assistance and outreach provided to minority businesses encourages, promotes, and assists with the establishment and expansion of energy-related businesses in minority communities. MBED supports the energy economic development and energy workforce development goals within the Department's Minorities in Energy Initiative. The MBED function complements the Department's OSDBU function by addressing minority businesses of all sizes, while OSDBU focuses solely on small minority business contracts with DOE. MBED routinely refers small business contract candidates to the OSDBU.

The Office of Civil Rights (OCR) is responsible for monitoring and enforcing Titles VI & VII of the Civil Rights Act of 1964 and Title IX of the Education Amendments Act of 1972 for all Federal workers. As part of its enforcement responsibilities, OCR manages the processing of discrimination complaints filed by DOE Federal workers, along with the DOE Employee Concerns Program for DOE Federal workers and approximately 100,000 contract employees. OCR is also responsible for ensuring that recipients of federal financial assistance do not engage in discriminatory practices.

The Office of Diversity and Inclusion (ODI) is the lead office for all aspects of diversity, inclusion, and workforce engagement within the Department headquarters and program offices, and reviews and provides advice on diversity and inclusion efforts across the 17 DOE Laboratories. ODI is responsible for developing strategies and implementing actions across the DOE complex to create and maintain an inclusive work environment, improve employee engagement, and ensure compliance with DOE's Diversity and Inclusion Strategic Plan and Executive Order 13583 (Establishing a Coordinated Government-wide Initiative to Promote Diversity and Inclusion in the Federal Workforce). Diversity and inclusion practices across the Department will facilitate a system-wide inclusive culture that supports high performance and positions the agency as an employer of choice while building on the fairness and opportunity foundation supported by equal employment opportunity.

The Office of Equal Employment Opportunity (EEO) at DOE headquarters provides EEO career professionals at the agency, in compliance with Equal Employment Opportunity Commission (EEOC) Management Directive 715. This office supports the DOE strategic mission, proactively prevents unlawful discrimination, supports recruiting employees across diverse backgrounds, provides education and training on EEOC requirements, and ensures compliance with relevant laws and directives. EEO also provides field office oversight of EEO specialists across the complex.

Minority Economic Impact
Funding ($K)

	FY 2014 Enacted[1]	FY 2014 Current[2]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Support					
Minority Economic Impact	1,100	970	1,400	1,009	-391
Small & Disadvantaged Business Utilization	1,250	—	—	—	—
Minority Business & Economic Development	—	—	400	300	-100
Civil Rights	70	63	400	496	+96
Equal Employment Opportunity	—	—	300	100	-200
Diversity and Inclusion	339	200	300	100	-200
Total, Program Support	2,759	1,233	2,800	2,005	-795

[1] Enacted level includes funding for the Office of Small and Disadvantaged Business Utilization (OSDBU) program staff and activities ($1.253 million for program direction; $1.25 million for program support).

[2] In FY 2014, funding for the Small and Disadvantaged Business Utilization program activity ($1.25 million) is being managed by the Director of OSDBU, in accordance with an MOU signed by ED and OSDBU in December 2013. As a result, ED's funding level for the OSDBU program reflects zero dollars.

Minority Economic Impact

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Office of Minority Economic Impact (OMEI) $1,400,000	**$1,009,000**	**-$391,000**
Funding supports the following activities in FY 2015: • MSI Grant Program that provides financial assistance to minority educational institutions and 501(3)(c) entities engaging in STEM-related programs and activities. • Outreach to pre-college programs, primarily in minority communities, that promote energy literacy, academic excellence, and interest in STEM disciplines relevant to energy (e.g., Science Bowl competitions are conducted at middle and high schools). • Socioeconomic research and analysis that includes addressing environmental and energy-related concerns in underserved communities.	Request provides continuation of FY 2015 activities at a reduced level, with a shift in resources to support Minorities in Energy (MIE) initiatives, which include energy-related engagement of MSIs and minority communities. MIE educational outreach includes K-12 and higher education support. MIE also supports Administration initiatives such as My Brother's Keeper, Initiative on Women and Girls, minority communities, and STEM teachers. ED works through partnerships with the Department of Housing and Urban Development and the Department of Education to reach minority youth in public housing and low-income communities.	Decrease in funding for financial assistance to MSIs and 501(c)(3) entities; while additional resources will support the newly established MIE Initiative.
Minority Business & Economic Development (MBED) $400,000	**$300,000**	**-$100,000**
Funding supports a new Minority Business Enterprise Program that will help develop and disseminate information on aspects of energy programs to minority business enterprises, minority educational institutions and other appropriate minority organizations. Funding for this activity will allow the Department to: • Conduct market research, planning economic and business analysis, and feasibility studies to identify and define economic opportunities for minorities in energy research, production, conservation, and development. • Develop technical assistance programs to encourage, promote, and assist minority business enterprises in establishing and expanding energy-related business opportunities which are located in minority communities and that can provide jobs to workers in such Communities. • Assist minority business enterprises in the commercial application of energy-related technologies, expanding energy-related business opportunities which are located in minority communities and that can provide jobs to workers in such Communities. • Assist minority business enterprises in the commercial application of energy-related technologies.	Continuation of FY 2015 activities. Request will support development of technical assistance programs to encourage, promote, and assist minority business enterprises in establishing and expanding energy-related business opportunities in minority communities that can provide jobs to residents. ED will bring together communities and corporations to support minority participation in major energy development projects. Resource applications include support of ED's partnership with the Minority Business Development Agency to plan and execute local and regional programs that prepare minority businesses to participate in the energy sector work.	Decrease in minority business program and community support dollars reflects a use of outside resources (MBDA) and stakeholders in developing minority energy-related businesses. This initiative supports the Nation's All-of-the-Above Energy Strategy by promoting economic growth and job creation, specifically within minority communities.
Civil Rights $400,000	**$496,000**	**+96,000**

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
The Office of Civil Rights is responsible for: • Managing the processing of discrimination complaints filed by DOE Federal workers. • Ensuring that recipients of Federal financial assistance do not engage in discrimination. • Managing the Department's Employee Concerns Program (ECP) and advising DOE programs and field elements on the subject of employee concerns.	Continuation of FY 2015 activities. Develop and deliver Civil Rights training tailored to the DOE enterprise. Conduct investigations of civil rights issues and Management of the Employee Concerns Program requires resources to address up to 500 concerns per year that originate from approximately 115,000 federal employees and DOE contractors.	Consolidation of program direction support services under the program support element in FY 2016 results in a larger program budget, but provides transparency on the true operating costs of the office.
Equal Employment Opportunity $300,000	**$100,000**	**-$200,000**
Resources to conduct a comprehensive review of EEO requirements, prioritize resource allocations, and establish a transitional staff to begin implementation of the headquarters element. Complete a comprehensive analysis of EEO and diversity across the DOE complex, establish EEO training requirements, prepare position descriptions, and make preparations for a permanent EEO function. Survey DOE site-based EEO functions and activities and develop an integration strategy for a complex-wide program.	Continuation of 2015 activities as well as using contractual resources to assist integration of HQ EEO program with site based EEO functions, as outlined in Management Directive 715 and other EEOC directives.	Decrease reflects a shift to permanent EEO staff in FY 2016 to fulfill inherently governmental requirements established by the EEOC and regulation.
Diversity and Inclusion $300,000	**$100,000**	**-$200,000**
Funding supports the Department's implementation of the Diversity and Inclusion Strategic Plan, required by Executive Order 13583, including activities that support the plan, such as: • Conducting diversity and inclusion training sessions; • Establishing external outreach and partnerships with stakeholders to determine best practices; and • Sponsoring Special Emphasis programs designed to create awareness and educate employees about various cultures and groups of people.	Continuation of FY 2015 activities at reduced levels due to a shift in activities to EEO and the MIE Initiative. The Diversity and Inclusion staff will continue to work closely with EEO staff to extend the EEO principles and practices from a model EEO program to a fully inclusive DOE work environment that supports high performance and high employee satisfaction, while positioning DOE to attract the future diverse workforce necessary to accomplish the DOE mission responsibilities on an enduring basis.	Reduction reflects reprioritization of resources to support EEO functions and MIE Initiative at the Department.

Economic Impact and Diversity
Program Direction

Overview

Program Direction provides for 37 federal staff responsible for the overall direction and mission support of the Office of Economic Impact and Diversity (ED). The Office staff supports a wide range of mission responsibilities that include engaging minority communities across the United States for the purposes of an inclusive energy sector that reflects participation of minority serving educational institutions, minority businesses, and the minority and American Indian populations in general. Internally, the ED staff is also responsible for civil rights, EEO, diversity and inclusion, and advising the Secretary of Energy on the impact of national energy policies on minorities and minority communities.

Highlights of the FY 2016 Budget Request

ED's Program Direction budget request includes 37 full-time equivalents (FTEs). Seven new FTEs will support the Department of Energy (DOE) Headquarters EEO function to ensure a consistent approach at all DOE facilities across the complex in meeting the requirements of Management Directive 715 and EEO Commission mandates. Two new FTEs are required to stand-up the Office of Minority Business and Economic Development to meet ED statutory mission responsibility to facilitate involvement of minority businesses of all sizes in the energy sector across the country. The new FTEs will also support the MIE Initiative.

Economic Impact and Diversity
Funding ($K)

	FY 2014 Enacted[5]	FY 2014 Current[6]	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction					
Washington Headquarters					
Salaries and Benefits	4,374	3,637	4,200	5,750	+1,550
Travel	58	46	120	120	0
Support Services	756	756	731	225	-506
Other Related Expenses	1,009	781	1,149	1,900	+751
Total, Program Direction	**6,197**	**5,220**	**6,200**	**7,995**	**+1,795**
Federal FTEs	**31**	**25**	**28**	**37**	**9**
Support Services					
Reviews of Technical Operations	383	383	371	75	-296
Training and Education	103	103	98	75	-23
Management Support	270	270	262	75	-187
Total, Support Services	**756**	**756**	**731**	**225**	**-506**
Other Related Expenses					
Energy IT Services	165	100	249	370	+121
Working Capital Fund	844	681	900	1,530	+630
Total, Other Related Expenses	**1,009**	**781**	**1,149**	**1,900**	**+751**

[5] Enacted level includes funding for the Office of Small and Disadvantaged Business Utilization (OSDBU) program staff and activities ($1.253 million for program direction; $1.25 million for program support).

[6] In FY 2014 the OSDBU function was moved out of ED. Funding for the OSDBU program activity is being managed by the Director of OSDBU, in accordance with an MOU signed by ED and OSDBU in December 2013. As a result, current funding levels reflect a reduction in ED's program direction line (-$1.253 million) for costs associated with 6 FTEs in OSDBU; and a reduction in ED's program support line (-$1.25 million) for small business program activities.

Program Direction

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $6,200,000	**$7,995,000**	**+1,795,000**
Salaries and Benefits $4,200,000	**$5,750,000**	**+1,550,000**
Funding covers salaries and benefits for 28 full-time Federal employees, including 3 new FTEs to support ED leadership in the functional areas of civil rights enforcement, small business outreach, and diversity and inclusion activities.	Funding covers salaries and benefits for 37 full-time Federal employees, including FTEs to support ED leadership in the functional areas of EEO, diversity and inclusion, and minority business development.	Increase due to staffing requirements for the minority business and economic development and equal employment opportunity offices. In addition to fulfilling statutory minority business and EEO requirements, these personnel will provide critical support to the DOE MIE Initiative.
Travel $120,000	**$120,000**	**$0**
Travel supports essential outreach to minority communities, populations, and small businesses; travel also supports accomplishment of legislatively mandated Title VI and Title IX reviews.	Continuation of FY 2015 activities.	No increase.
Support Services $731,000	**$225,000**	**-$506,000**
Use of contractor services to provide technical assistance and administrative services to support the Office of Civil Rights, including reviews of operations, the Employee Concerns Program database, counseling, and investigations of discriminatory practices. Contract support is also required for employee training and education.	Use of contractor services to technical assistance and support not available within ED; and selected training and education as required.	Decrease due to transfer of support contract for the Office of Civil Rights, including complaint processing, the Employee Concerns Program database, counseling, and investigations of discriminatory practices to Program support.
Other Related Expenses $1,149,000	**$1,900,000**	**+$751,000**
Funding for computer hardware and software services, working capital fund (WCF) contributions, and necessary supplies.	Continuation of FY 2015 activities.	Increase includes WCF cost increases and other related expenses associated with additional FTEs in FY 2016.

General Counsel
Program Direction

Overview

The Office of the General Counsel (GC) is responsible for providing legal services to all Department of Energy (DOE) offices, and for determining the Department's authoritative position on any question of law with respect to all offices and programs, except for those belonging exclusively to the Federal Energy Regulatory Commission. GC's responsibilities include the provision of legal opinions, advice, and services to administrative and program offices, and participation in or management of both administrative and judicial litigation. GC is responsible for the coordination and clearance of proposed legislation affecting energy policy and DOE activities. The General Counsel serves as the Department's Regulatory Policy Officer under Executive Order 12866, and is responsible for ensuring consistency and legal sufficiency of the Department's regulations. GC administers and monitors standards of conduct requirements, conducts patent program and intellectual property activities, and coordinates rulemaking actions of the Department with other federal agencies.

GC includes the Office of NEPA (National Environmental Policy Act) Policy and Compliance, which provides independent technical and policy reviews to ensure that proposed Department actions comply with the NEPA and related environmental requirements. This office also serves as the focal point of the Department's NEPA expertise, develops NEPA compliance strategies, coordinates with other agencies on key policy matters, and prepares guidance and provides technical assistance to improve the efficiency and effectiveness of DOE's implementation of the NEPA process. GC also includes the Office of Standard Contract management, which manages the Standard Contracts for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste between the Department and the nuclear industry under the Nuclear Waste Policy Act. This office also manages the Department's Nuclear Waste Fund activities.

Highlights of the FY 2016 Budget Request

There are no major programmatic changes proposed for General Counsel.

General Counsel
Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction					
Washington Headquarters					
Salaries and Benefits	23,034	23,034	23,050	22,992	-58
Travel	85	85	86	87	+1
Support Services	919	919	928	938	+10
Other Related Expenses	9,015	9,015	8,936	8,983	+47
Subtotal, Program Direction	**33,053**	**33,053**	**33,000**	**33,000**	**0**
Prior Year Balance Use			-2,000	-2,000	0
Total, Program Direction	**33,053**	**33,053**	**31,000**	**31,000**	**0**
Federal FTEs	**145**	**145**	**145**	**145**	**0**
Support Services					
Technical Support					
NEPA	909	909	918	928	+10
Intellectual Property	10	10	10	10	0
Total, Support Services	**919**	**919**	**928**	**938**	**+10**
Other Related Expenses					
Government Agencies - Intellectual Property	347	347	351	354	+3
Information Technology	1,435	1,435	1,450	1,405	-45
Online Legal Resources	918	918	700	735	+35
Law Library Materials	191	191	192	155	-37
Working Capital Fund	5,944	5,944	6,061	6,150	+89
Miscellaneous	180	180	182	184	+2
Total, Other Related Expenses	**9,015**	**9,015**	**8,936**	**8,983**	**+47**

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Salaries and Benefits $23,050,000	**$22,992,000**	**-$58,000**
Provides funding for 145 FTE to include salaries, benefits, overtime, etc. (Note: In the FY 2015 budget request, GC estimated $2 million in prior year balances would be used to offset Salary and Benefits costs. Based upon current projected staffing levels, GC is projected to use $3.22 million.)	Same as FY 2015. Prior year balance use of $2 million will be applied to offset Salaries and Benefits.	Additional prior year balances will be used to offset costs for Salaries and Benefits in FY 2016.
Travel $86,000	**$87,000**	**+$1,000**
Provides funding for travel for hearings, depositions, court proceedings, site visits, conferences, and training.	Same as FY 2015.	Inflationary increase.
Support Services $928,000	**$938,000**	**+$10,000**
($918,000) *NEPA* Provides contractor support for technical analysis of Environmental Impact Statements and other information required by the National Environmental Policy Act.	($928,000) Same as FY 2015.	Inflationary increase.
($10,000) Intellectual Property Provides for outside patent law firms to process the Department's intellectual property actions.	($10,000) Same as FY 2015.	No change.
Other Related Expenses $8,936,000	**$8,983,000**	**+$47,000**
($351,000) Government Agencies-Intellectual Property - Provides for U.S. Patent Office costs of processing/maintaining DOE patents, trademarks, copyrights, etc.	($354,000) Same as FY 2015.	(+$3,000) Inflationary increase.
($1,450,000) Information Technology Provides for all GC IT service including desktop workstations and support, database systems hosting, FISMA reviews and reporting, etc.	($1,405,000) Same as FY 2015.	(-$45,000) Slight decrease by 3% (estimated).
($700,000) Online Legal Resources Provides for legal research resources such as Westlaw, LexisNexis, etc.	($735,000) Same as FY 2015.	(+$35,000) Inflationary increase and effect of some services being moved from Law Library Materials category.
($192,000) *Law Library Materials* Provides for legal research materials.	($155,000) Same as FY 2015.	(-$37,000) Inflationary increase and effect of some services being moved to Online Legal Resources category.
($6,061,000) *Working Capital Fund* Provides for rent, telecommunications, Imanage, supplies, copiers, printing, etc. Included are several new cost items – CyberOne, Health Services, network upgrade, etc.	($6,150,000) Same as FY 2015.	(+$97,000) Inflationary increase.
($182,000)Miscellaneous Provides for training, E-Gov, office furniture, supplies, IT hardware and software, etc.	($184,000) Same as FY 2015.	(+$2,000) Inflationary increase.

Energy Policy and Systems Analysis

Overview

The Office of Energy Policy and Systems Analysis (EPSA) serves as the principal policy advisor to the Secretary of Energy on energy and related integration of energy systems. The Office serves as a focal point for policy coordination within the Department on the formulation, analysis, and implementation of energy policy and related programmatic options and initiatives that could facilitate the transition to a clean and secure energy economy.

EPSA carries out strategic studies and policy analysis, and maintains and coordinates a supporting set of analytical capabilities. EPSA carries out assessments of the strength, resiliency, and anticipated challenges of national energy systems and identifies and prioritizes ways in which DOE programs may be strengthened to contribute to the economic well-being, environmental quality, and national energy security of the United States. EPSA advises the Secretary on DOE's energy policy and program strategies. EPSA coordinates with and helps to orchestrate technical assistance and advice to State and local entities on various energy policies and measures.

EPSA serves as the Secretariat of the Quadrennial Energy Review (QER), and provides systems analysis to support the Administration's initiative. The QER is the cornerstone of the Administration's commitment to establishing a comprehensive, integrated review of energy policy that is formulated with the active engagement of interagency and external stakeholders.

EPSA will be completing the third year of the QER process in FY 2016 as well as implementing first and second year QER policy recommendations. The QER is a rigorous, analytical document that looks at the status of the national energy infrastructure system, identifies vulnerabilities and opportunities, and identifies findings and policy recommendations for the executive and legislative branches, as well as providing insight for state and local policy makers in the energy sphere. It is a multi-agency process that is led by the White House's Office of Science and Technology Policy and the Domestic Policy Council.

EPSA is comprised of six program offices:

- Climate, Environment, and Efficiency (EPSA-20) serves as the Departmental focal point for the development, coordination, and implementation of DOE-related aspects of climate change and environmental policies and strategies to address impacts and vulnerabilities, including technical programs and initiatives.
- Energy Security (EPSA-30) serves as the focal point for policy analysis, analytic support, and advice relating to energy supply and demand and energy markets. It assists in developing long-term strategies to ensure energy security and to prepare for and respond to energy supply disruptions.
- Energy Systems and Integration (EPSA-40) analyzes complex interactions within the energy system, which requires integrating overlapping policies, including those related to all aspects of energy supply and demand, such as the electric grid and natural gas delivery infrastructure.
- Energy Finance, Incentives and Program Analysis (EPSA-50) serves as the focal point within the Department for coordinating the development of policies and programs to accelerate investment and deployment of clean energy technologies that make use of innovative financing incentives. This group provides technical analytic support and identifies opportunities that will promote investment and financing in the energy sector.
- State and Local Cooperation (EPSA-60) serves as the Departmental focal point for developing and carrying out coordinated strategies for assisting State and local authorities in assessing and implementing energy policies, programs and related activities.
- Secretariat for the QER (EPSA-90) provides secretariat functions, including multiagency coordination and analytical support, for the development of the Administration's QER.

Highlights of the FY 2016 Budget Request

EPSA is the Department's lead office for energy policy and systems analysis. In FY 2016, it will work to create comprehensive data sets and systems models to develop a more rigorous analytical basis for evaluation of energy-related policy drivers. In addition, EPSA will continue to expand its efforts in stakeholder engagement and State, local, and tribal support to help ensure the relevance of its analyses and assessments. EPSA will continue to serve as the Secretariat for the QER. EPSA's request reflects an increase of three FTEs and a $3.8 million increase in funding for additional analytical

activities, including outreach. The Request also includes a modest decrease in contributions to the Agency's Working Capital Fund based the re-estimation of costs following a full year of operations for the new Office.
The FY 2016 Budget Request for EPSA includes funding to support the following crosscuts:

Grid Modernization: To support this transformation, the Department of Energy's Grid Modernization Initiative will create tools and technologies that measure, analyze, predict, and control the grid of the future; focus on key policy questions related to regulatory practices, market designs, and business models building on analysis and findings of the QER; ensure the development of a secure and resilient grid; and collaborate with stakeholders to test and demonstrate combinations of promising new technologies.

Energy-Water Nexus: The energy-water nexus crosscut is an integrated set of cross-program collaborations designed to accelerate the Nation's transition to more resilient energy and coupled energy-water systems.

FY 2016 Crosscuts ($K)

	Grid Modernization	Energy-Water Nexus	Total
EPSA	1,000	4,500	**5,500**
Total, Crosscuts	**1,000**	**4,500**	**5,500**

Energy Policy and Systems Analysis
Funding ($K)

	FY 2014 Enacted[1]	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Energy Policy and Systems Analysis					
Program Direction	16,181	16,181	31,181	35,000	+3,819
Policy Analysis and Systems Studies	441	441	0	0	0
Climate Change Technology Program - Domestic	2,647	2,647	0	0	0
Total, Energy Policy and Systems Analysis	**19,269**	**19,269**	**31,181**	**35,000**	**+3,819**
Federal FTEs	**51**	**51**	**64**	**67**	**+3**

[1] In FY 2014, EPSA's Climate Change Technology Program – Domestic and Policy Analysis and Systems Studies activities are being funded under two separate program control lines.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Washington Headquarters					
Salaries and Benefits	7,500	7,500	9,917	10,537	+620
Travel	300	300	400	450	+50
Support Services	9,244	9,244	18,774	21,976	+3,202
Other Related Expenses	2,225	2,225	2,090	2,037	-53
Total, Program Direction	**19,269**	**19,269**	**31,181**	**35,000**	**+3,819**
Federal FTEs	**51**	**51**	**64**	**67**	**+3**
Support Services					
Subscriptions	400	400	430	430	+0
Management Support Services	500	500	500	617	+117
Technical Support Services	5,130	5,130	12,076	13,576	+1,500
Policy Analysis and Systems Studies	441	441	2,991	3,570	+579
Climate Change Technology Program - Domestic	2,647	2,647	2,647	2,650	+3
Grid Modernization Project	0	0	0	1,000	+1,000
Other Support Services	126	126	130	133	+3
Total, Support Services	**9,244**	**9,244**	**18,774**	**21,976**	**+3,202**
Other Related Expenses					
Working Capital Fund	1,750	1,750	1,500	1,418	-82
Training	70	70	80	85	+5
Energy IT Services	405	405	510	534	+24
Total, Other Related Expenses	**2,225**	**2,225**	**2,090**	**2,037**	**-53**

Program Direction
Funding ($K)

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Program Direction $31,181,000	**$35,000,000**	**+3,819,000**
Salaries and Benefits $9,917,000	**$10,537,000**	**+$620,000**
Funding provides for salaries and benefits, performance awards, and other personnel-related costs for 64 FTEs, which includes 13 new FTEs for the policy and systems analysis portfolio.	Continuation of FY 2015 activities for 67 FTEs.	Increase in funding due to an addition of 3 FTEs and increases related to cost of living adjustments.
Travel $400,000	**$450,000**	**$50,000**
Funds support assessments and other aspects related to coordinating the multi-agency QER, as well as support the domestic requirements of the Climate Change Technology Program. In FY 2015, EPSA is playing a more prominent role engaging State and local authorities on energy policy development.	Continuation of FY 2015 activities.	Increase in funding for outreach.
Support Services $18,774,000	**$21,976,000**	**+$3,202,000**
EPSA consolidated all relevant policy analysis support lines into the Support Services program direction line in FY 2015. Details provided in the following sections.	Continuation of FY 2015 activities.	Increase in funding. Details provided below.
Technical Support Services, Management Support Services, Subscriptions, and Other Support Services $13,136,000 Support for ongoing energy policy advice to the Secretary and QER activities requiring technical support. EPSA has a portfolio of analytical needs related to advising the Secretary on a broad-range of energy policy issues and an emerging portfolio in energy systems analysis in addition to the QER. Funding for Energy-Water activities is included ($1 million for data and modeling).	**$14,756,000** Continuation of FY 2015 activities, with an increase in support for EPSA's analytical portfolio, including technical support services, management support services, subscriptions, and other services.	**+$1,620,000** Increase expansion of analytical priorities for data and other quantitative methods for examining energy-water interdependencies (+$1.5 million). Also reflects increases in management support services (+$117,000) and a slight increase in IT-related support services (+$3,000).
Policy Analysis and System Studies $2,991,000 Funds support developing a systematic understanding of the trends in the regional and seasonal availability in water supplies affecting systemic risk in the Nation's power system, as well as exploring issues related to the potential use of non-traditional water sources for energy needs. EPSA is conducting analyses and developing models and policies, while actively engaging with Federal, State, Local, and Tribal regulatory and policy leaders and other stakeholders from academia, national laboratories, and private, non-profit, and other stakeholders to develop	**$3,570,000** Continuation of FY 2015 activities.	**+$579,000** Increase in funding to conduct additional analysis of system interdependencies for energy and water and for other high-priority needs.

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
solutions to shared problems. Funding for Energy-Water activities ($1.5 million) is included.		
Climate Change Technology Program – Domestic $2,647,000 Funds support: • Analysis of novel and/or pending legislative proposals related to clean energy deployment in the power sector, such as portfolio requirements and tax incentives, or in related end use sectors. • Analysis of the energy system implications of various existing authorities, consideration of related implementation or execution issues, and development of improved approaches to regulatory cost-benefit analysis. • Analysis of key technology policy questions related to technology supply and innovation, such as the role of energy finance instruments in deploying early-stage innovative technologies.	**$2,650,000** Continuation of FY 2015 activities with a modest inflationary increase.	**+$3,000** Modest increase in funding to account for increased activity on legislative proposals related to clean energy deployment in the new Congress.
Grid Modernization Project $0 No funding in FY 2015.	**$1,000,000** Funding to support framework for long-term collaboration. EPSA will leverage its convening power, technical expertise, and modeling and analytical capabilities to support robust decision making. Federal, State, and local efforts will be reinforced by engaging regional actors to examine critical regulatory issues and other areas of concern.	**+$1,000,000** EPSA will commence its role in the DOE Grid Crosscut. It will utilize capabilities to strengthen institutional partnerships and analysis.
Other Related Expenses $2,090,000	**$2,032,000**	**-$53,000**
Funding supports Working Capital Fund (WCF) expenses, Energy IT services, staff training costs, and other necessary operational costs.	Funding supports WCF expenses, IT services, staff training costs, and other necessary operational costs for 67 FTEs.	Decrease in funding is a more accurate reflection of EPSA's anticipated costs after full year of operations.

Energy Policy and Systems Analysis Performance

In accordance with the GPRA Modernization Act of 2010, the Department established FY 2014-2015 agency priority goals (APGs) in the 2014-2018 Strategic Plan published in April 2014. APGs support improvements in near-term outcomes and advance progress toward longer-term, outcome-focused strategic goals and objectives in the Strategic Plan.

The Office of Energy Policy and Systems Analysis is responsible for the following agency priority goal.

Agency Priority Goal: Enhance desirable characteristics and diminish vulnerabilities of the U.S. energy infrastructure to meet goals of economic competitiveness, national security, and environmental responsibility.

- Support the first installment of the Quadrennial Energy Review (QER) through early 2015 and begin implementation of relevant recommendations within DOE's existing authorities.

International Affairs

Overview

The Office of International Affairs (IA) has primary responsibility in the Department of Energy (DOE) for international energy cooperation in energy, science, and technology. IA advises the Secretary, Deputy Secretary and other DOE leadership on strategic implementation of the United States' international energy policy. IA leads and develops the Department's bilateral and multilateral energy and Research & Development (R&D) cooperation, including investment and trade activities, and represents the Department and U.S. Government in interagency processes, intergovernmental forums, and bilateral and multilateral initiatives on the development and implementation of energy policies, strategies and objectives.

IA leads international aspects of DOE's clean energy science, technology, R&D, and deployment mission. IA is also responsible for leading the Department and U.S. response to critical energy security commitments and relevant initiatives through multilateral efforts such as the Group 7 (G7) Energy Ministers' agenda, the Asia Pacific Economic Cooperation (APEC) forum, and the North American Leaders Summit (NALS).

IA coordinates DOE's energy relations with other countries in close coordination with the Department of State and other agencies. IA supports cooperative efforts with other government agencies to address clean energy technology and climate change issues internationally and advance clean energy technology development via research and policy. DOE cooperates with governments of other nations, directly and through international organizations.

IA contributes to progress on high-profile initiatives, including the Clean Energy Ministerial (CEM), Power Africa, the Major Economies Forum, Group 20 (G20), the Energy and Climate Partnership of the Americas (ECPA), and critical bilateral relationships. It supports technical analysis for U.S. leadership and contributions to climate change negotiations and integrated assessment reports. Specifically, through the CEM, a global forum which promotes improving energy efficiency worldwide, enhancing clean energy supply, and expanding clean energy access among participating governments, IA is able to lead multilateral initiatives in concert with major economy partners to drive accelerated market development around energy efficiency, renewable sources of energy, technologies and policies that support increased grid integration of variable renewables, and share best practices, advance women's participation in clean energy fields, and expand access to electricity to the more than one billion people in the world who do not have it. In FY 2016, the United States is hosting the seventh CEM and IA will serve as the focal point in organizing and executing this high-profile event.

Highlights of the FY 2016 Budget Request

In FY 2016, IA funding of $23.6 million, which includes an increase of $10.6 million in funding from FY 2015, will enable DOE to continue to leverage international partnerships to advance U.S. energy objectives. These efforts, as well as bilateral efforts to reduce fossil fuel subsidies, collaborate on Science &Technology (S&T) efforts, deploy clean energy technology, and support energy security efforts between friends and allies, will promote DOE and the Administration's strategic goals.

IA also supports the Energy-Water Nexus crosscut, which positions DOE to contribute strongly to the Nation's transition to more resilient energy and coupled energy-water systems. IA will support this crosscut by providing valuable analysis and activity in the areas of International Affairs, including support for the Energy Security and Clean Energy Technology efforts. These issues cut through all regional efforts, especially our bilateral relationships in the Middle East, Southeast Asia and Africa. There has been a significant increase in requests for collaboration regarding technology and policy outreach that IA can lead to tangible outcomes for US industry market share.

FY 2016 Crosscuts ($K)

	Energy-Water Nexus	Total
International Affairs	**300**	**300**
Total, Crosscuts	**300**	**300**

FY 2014 Key Accomplishments

- Organized the Administration's first US-Africa Energy Ministerial in Ethiopia; a key deliverable from the President's Power Africa initiative.
- Coordinated with international partners to support Ukrainian energy security and energy reforms; and spearheaded a new energy security initiative with our G7 energy security partners.
- Supported policy recommendations and deliverables for key Administration engagements
- Led and executed bilateral Strategic Energy Dialogues with key partners representing all regions.
- Renewed and expanded the Clean Energy Research Center with China, a flagship cooperation vehicle hailed during the critical US-China climate announcement.
- Co-hosted the 6th Clean Energy Ministerial in South Korea that advanced the deployment of clean energy technologies and critical next steps on reducing carbon emissions.
- Supported numerous trade and advocacy missions for US industry across all technology sectors.
- Expanded North American energy cooperation with Canada and Mexico, focusing on energy infrastructure, data and investment opportunities.
- Organized and collaborated with key partners on the first Caribbean natural gas study.

International Affairs
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2014 Operating Level	FY 2015 Enacted[1]	FY 2015 Operating Level[2]	FY 2016 Request	FY 2016 vs FY 2015 Enacted
International Affairs							
Program Direction	12,518	13,066	13,066	13,000	13,000	23,600	+10,600
Environmental Policy Analysis	520	520	520	0	0	0	0
Climate Change Technology Program - International	2,835	2,287	2,287	0	0	0	0
Use of Prior Year Balances	0	0	1,957[3]	0	1,145	0	0
Total, International Affairs	**15,873**	**15,873**	**17,830**	**13,000**	**14,145**	**23,600**	**+10,600**
Federal FTEs	**74**	**74**	**74**	**72**	**72**	**78**	**+6**

[1] In the FY 2015 Congressional Budget Request, activities previously funded under Program Support (Environmental Policy Analysis and Climate Change Technology Program – International) were consolidated under Program Direction.
[2] FY 2015 Operating Level includes prior year balance use of $1.145 million.
[3] Prior Year Balances in the FY 2014 Operating level provided for Support Services and Other Related Expenses.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2014 Operating Level[1]	FY 2015 Enacted	FY 2015 Operating Level[2]	FY 2016 Request	FY 2016 vs FY 2015 Enacted
Washington Headquarters							
Salaries and Benefits	10,970	10,970	10,970	10,250	10,700	11,805	+1,555
Travel	700	700	700	700	700	1,000	+300
Support Services	446	446	4,232	0	0	6,908	+6,908
Other Related Expenses	402	950	1,928	2,050	2,745	3,887	+1,837
Total, Program Direction	**12,518**	**13,066**	**17,830**	**13,000**	**14,145**	**23,600**	**+10,600**
Federal FTEs	**74**	**74**	**74**	**72**	**72**	**78**	**+6**
Support Services							
Environmental Policy Studies (formerly Program Support)	0	0	520	0	0	0	0
Climate Change Technology Program – International (formerly Program Support)	0	0	3,166	0	0	0	0
Energy Security and Clean Energy Technology[3]	0	0	0	0	0	6,320	+6,320
Subscriptions/Publications Services	45	45	45	0	0	45	+45
Management Support Services	219	219	219	0	0	221	+221
Embassy Assistance	75	75	75	0	0	75	+75
Other Support Services	107	107	207	0	0	247	+247
Total, Support Services	**446**	**446**	**4,232**	**0**	**0**	**6,908**	**+6,908**
Other Related Expenses							
Working Capital Fund	300	848	1,606	1,950	2,545	3,217	+1,267
Energy IT Services	92	92	292	100	200	600	+500
Training	10	10	30	0	0	70	+70
Total, Other Related Expenses	**402**	**950**	**1,928**	**2,050**	**2,745**	**3,887**	**+1,837**

[1] FY 2014 Operating Level includes two program support lines: "Climate Change Technology Program – International" and "Environmental Policy Studies." For comparability to the FY 2015 Enacted and FY 2016 Request levels, these line items have been included under Support Services. Operating Level also includes prior year balance use of $1.957 million (+$879K for Energy Security and Clean Energy Technology; +$100K for Other Support Services, +$758K for Working Capital Fund, +$200K for Energy IT Services, and +$20K for training).

[2] FY 2015 Operating Level includes prior year balance use of $1.145 million, which supports Salaries & Benefits and the Working Capital Fund.

[3] In FY 2016, Energy Security and Clean Energy Technology consolidates two program support line activities—Environmental Policy Studies and Climate Change Technology Program-International—which totaled $3.4 million in FY 2014 Enacted.

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Salaries and Benefits $10,250,000[1]	**$11,805,000**	**+$1,555,000**
The IA budget for salaries and benefits is required to hire full-time equivalent staff to provide professional expertise for key Administration initiatives.	Continuation of FY 2015 activities, with the addition of 6 FTEs to carry out sustained and growing international Administration commitments and maintain existing strategic engagements.	The funding increase is due to estimated cost of living increases and the need to hire 6 FTEs for sustaining engagement on critical and complex Administration Initiatives. The new hires require more specific regional and technical expertise, as detailed below: • Three technical experts to work on ongoing initiatives (CERC China, PACE India, IEA's SLT) and to foster strategic relationships (Turkey, Brazil, etc.) for S&T engagement– specifically individuals with renewables, micro-grid, and clean energy deployment experience. • Two FTE to solely focus on critical energy infrastructure to continue building infrastructure resilience, modeling, threat assessments and analysis for key partners. FTEs will continue the work on the Energy Infrastructure Security and Energy Restoration (ISER) and the NSC priorities of infrastructure resilience, modeling, threat assessments, and analysis for key partners: Saudi Arabia, Kuwait, Ukraine, and Iraq. • One FTE to focus on North American cooperation with a focus on infrastructure, energy finance and analysis, and to lead Secretarial and Administration deliverables following several high-level engagements.
Travel $700,000	**$1,000,000**	**+$300,000**
Travel funding is used for international travel to support Departmental energy dialogues. This includes travel to meetings relevant to international energy policy, science and technology, and Presidential initiatives.	Continuation of FY 2015 activities, with additional funds to support critical international commitments.	The funding increase is to develop new initiatives and sustain necessary engagement on existing strategic initiatives in support of international initiatives, which span all major regional efforts. Explore ways to enhance energy security strategies among the partners and allies in Asia and Europe.

[1] FY 2015 Salaries and Benefits supported by use of prior year balances ($.45 million).

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Support Services[1] $0	**$6,908,000**	**+$6,908,000**
Energy Security and Clean Energy Technology $0 Enacted IA is the Department's lead representative in international efforts relating to energy security and clean energy. In FY 2015, IA activities: • Promote U.S. company investment and trade throughout key international markets; • Support key multilateral efforts, such as the Clean Energy Ministerial (CEM), which is an effort for the major countries to share policy and technical expertise to accelerate clean energy deployment, encourage greater efficiency, promote smart grids, and boost economic opportunities; • Support U.S. interests through U.S. bilateral future technology options to examine feasibility of incorporating efficiency improvements for existing plants and facilities. Use of prior year balances supports this activity.	**Energy Security and Clean Energy Technology $6,320,000** Continuation of activities with targeted expansion in locations with established energy resource opportunities conducive to international energy markets:: • Working with key international partners to promote greater energy security in Asia, Europe and the Caribbean; • Further encouraging policy and regulatory structures that facilitate additional U.S. company investment and trade opportunities in emerging markets such as Africa; and • Adding technical capacity to better address technical and analytic barriers and provide more depth in our international energy security and clean energy efforts, including being able to take full advantage of key bilateral efforts with India, Brazil, Turkey and other strategic partners.	**+S6,320,000** Specifically, targeted increases are aimed to: • Focus on energy diversity for Europe, including Ukraine and energy efficiency initiatives across key energy-producing and consuming countries; • Broaden the use of technologies in Africa for enhanced energy access and sustainable energy development; and increase help to key U.S. partners (e.g., Mexico, India, South Africa) in their efforts to reform their power sectors, taking a system-wide view that emphasizes optimization, integrates higher shares of renewable energy, incorporates flexible demand response, and leverages smart grid solutions; and • Design and execute a robust energy-water strategy and S&T effort that will strengthen U.S. research and industry efforts.

[1] FY 2015 Support Services activities supported by use of prior year balances ($.695 million).

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Subscriptions/Publication $0 Provides key resources, (i.e. journals, magazine, newspapers) for IA reference purposes. Use of prior year balances supports this activity.	**$45,000** Continuation of FY 2015 activities.	**+$45,000** Funding increase will support digital publications and subscriptions needed by IA leadership and technical staff for real-time data and analysis to support policy development and execution.
Management Support $0 Support services paid through STRIPES system, AFP and other administrative support services. Use of prior year balances supports this activity.	**$221,000** Continuation of FY 2015 activities.	**+$221,000** The increase in funding is to support service contracts in securing technical experts for critical and complex initiatives such as CEM, energy security analysis and strategic bilateral technology partnerships.
Embassy Assistance $0 Funding provides ground transportation, cell phones and translation services in foreign countries. Use of prior year balances supports this activity.	**$75,000** Continuation of FY 2015 activities.	**+$75,000** Funding will support current operational levels for this activity.
Other Support Services $0 Other Support Services (including, Mail, Moving, Printing, Interpretation, Translation, Security, and SIPRNet Services, Office Maintenance, Office Construction, Health Travel Insurance, Contract Sponsorship, Furniture, Requisitions, Embassy Assistance, etc.) Use of prior year balances supports this activity.	**$247,000** Continuation of FY 2015 activities.	**+$247,000** Funding will support current operational levels for this activity.
Other Related Expenses $2,050,000	**$3,887,000**	**+$1,837,000**
Funds support Working Capital Fund expenses (including overseas presence), Energy IT Services, and staff training. Use of prior year balances supports this activity.	Continuation of FY15 activities. The increased complexity and demand on international issues and energy technology requires staff to stay current and focused on executing the mission. Training supports staff development and reflects retention efforts on talent.	Funding increase will cover overhead costs associated with 78 FTEs, including training, IT services and WCF contributions.

Public Affairs
Program Direction

Overview

The mission of the Office of Public Affairs (PA) is to communicate information about DOE's work in a timely, accurate, and accessible way to the news media and the general public.

The Office of Public Affairs (PA) directly supports the mission of the Department and the Secretary of Energy by developing and implementing strategies for communicating the Department's message, its policies, initiatives, and information to the news media and the general public. PA is also responsible for managing and coordinating public affairs activities for DOE headquarters, field offices, and DOE laboratories; serving as DOE's primary spokesperson in the news media; responding to requests for information from the public and the news media; arranging interviews with Department officials; providing speechwriting and media support services to the Secretary, Deputy Secretary and Under Secretaries; and preparing written press releases, fact sheets, electronic media and other products that communicate Departmental activities.

Through its Digital Strategy and Communications Office, PA continues to affect cost savings at the Department by consolidating website platforms, reducing duplication and improving transparency and accessibility of information. The Digital Strategy and Communications Office drives the Department's mission online via the Energy.gov website, social networking tools, blog outreach, citizen engagement tools, and other emerging online communication technologies. Digital Strategy and Communications is an innovative and growing part of our mission, as we seek to serve the public in more efficient and effective ways online. It is through our Digital Strategy Office that we are accomplishing the Administration's Open Government principles of making government more transparent, collaborative and participatory.

Highlights of the FY 2016 Budget Request

No major changes.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	2,472	2,472	2,485	2,339	-146
Travel	135	135	150	150	0
Support Services	100	100	90	90	0
Other Related Expenses	890	890	706	852	+146
Total, Program Direction	**3,597**	**3,597**	**3,431**	**3,431**	**0**
Federal FTEs	24	24	24	24	0
Support Services					
Digital Communication and website support	100	100	90	90	0
Total, Support Services	100	100	90	90	0
Other Related Expenses					
Energy IT Services	242	242	58	58	0
Working Capital Fund	648	648	648	794	+146
Total, Other Related Expenses	890	890	706	852	+146

Program Direction

Activities and Explanation of Changes

FY 2015 Request	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015 Request
Program Direction $3,431,000	**$3,431,000**	**$0**
Salaries and Benefits $2,485,000	**$2,339,000**	**-$146,000**
Provides funding for 24 full time employees. This includes the Department's team of media spokespersons, the New Media team that is managing an innovative and cost-saving effort to help upgrade the Department's digital communications and website efforts, the speechwriting team that supports the Secretary, the Deputy Secretary and other senior Department officials, and the administrative staff required to support the Department's public affairs mission.	Continuation of FY 2015 activities.	Slight decrease to account for anticipated attrition of staff. Pay increases and cost of living adjustments will be offset by savings that result from staff attrition.
Travel $150,000	**$150,000**	**$0**
Travel expenses support the office's ability to provide appropriate staffing when the Secretary and Deputy Secretary travel to public events.	Continuation of FY 2015 activities.	No change.
Support Services $90,000	**$90,000**	**$0**
Support Services include the contractors utilized to upgrade the Department's digital communications and website efforts, reducing costly duplications while improving transparency and customer service to the public.	Continuation of FY 2015 activities	No change.
Other Related Expenses $706,000	**$852,000**	**+$146,000**
Funding to support Working Capital Fund (WCF) and Energy IT Services costs. WCF contribution provides for shared service cost and Departmental overhead expenses.	Continuation of FY 2015 activities.	Slight increase in funding for WCF in FY 2016.

Department Of Energy
FY 2016 Congressional Budget
Funding By Appropriation By Site
($K)

Departmental Administration	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Chicago Operations Office			
Cost of Work for Others			
Cost of Work for Others	3,746	400	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	200
Total, Chicago Operations Office	**3,746**	**400**	**200**
Idaho Operations Office			
Cost of Work for Others			
Cost of Work for Others	1,000	1,000	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	1,000
Total, Idaho Operations Office	**1,000**	**1,000**	**1,000**
Lawrence Berkeley National Laboratory			
Cost of Work for Others			
Cost of Work for Others	2,866	1,392	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	4,634
Total, Lawrence Berkeley National Laboratory	**2,866**	**1,392**	**4,634**
National Energy Technology Lab			
Cost of Work for Others			
Cost of Work for Others	300	150	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	150
Total, National Energy Technology Lab	**300**	**150**	**150**
National Renewable Energy Laboratory			
Cost of Work for Others			
Cost of Work for Others	200	360	0
Office of Indian Energy Policy & Programs			
Office of Indian Energy Policy & Programs	263	0	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	510
Total, National Renewable Energy Laboratory	**463**	**360**	**510**
New Brunswick Laboratory			
Cost of Work for Others			
Cost of Work for Others	150	0	0
Total, New Brunswick Laboratory	**150**	**0**	**0**

Department Of Energy
FY 2016 Congressional Budget
Funding By Appropriation By Site
($K)

Departmental Administration	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
NNSA Albuquerque Complex			
Chief Information Officer			
Cybersecurity and Secure Management	2,700	2,700	0
Cost of Work for Others			
Cost of Work for Others	9,150	9,330	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	6,630
Total, NNSA Albuquerque Complex	**11,850**	**12,030**	**6,630**
Oak Ridge National Laboratory			
Cost of Work for Others			
Cost of Work for Others	11,861	14,768	0
Total, Oak Ridge National Laboratory	**11,861**	**14,768**	**0**
Oak Ridge Office			
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	8,968
Total, Oak Ridge Office	**0**	**0**	**8,968**
Pacific Northwest National Laboratory			
Cost of Work for Others			
Cost of Work for Others	9,344	9,000	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	10,000
Total, Pacific Northwest National Laboratory	**9,344**	**9,000**	**10,000**
Richland Operations Office			
Chief Information Officer			
Cybersecurity and Secure Management	5,900	5,900	0
Cost of Work for Others			
Cost of Work for Others	550	100	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	100
Total, Richland Operations Office	**6,450**	**6,000**	**100**
Savannah River Operations Office			
Cost of Work for Others			
Cost of Work for Others	9,370	5,500	0
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	6,700
Total, Savannah River Operations Office	**9,370**	**5,500**	**6,700**

Department Of Energy
FY 2016 Congressional Budget
Funding By Appropriation By Site
($K)

Departmental Administration	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Washington Headquarters			
Chief Financial Officer			
Program Direction	47,825	47,000	50,182
Chief Information Officer			
Program Direction	35,401	33,188	30,988
Digital Service Team - CIO	0	0	4,000
Cybersecurity and Secure Management	22,195	12,764	21,006
Corporate IT Program Support	15,866	19,612	27,806
Total, Chief Information Officer	**73,462**	**65,564**	**83,800**
Congressional, and Intergovernmental Affairs			
Program Direction	4,700	6,300	6,300
Economic Impact & Diversity			
Program Direction	6,648	6,200	7,995
Minority Economic Impact	2,483	2,800	2,005
Total, Economic Impact & Diversity	**9,131**	**9,000**	**10,000**
Energy Policy and Sysems Analysis			
Energy Policy and Sysems Analysis	19,269	31,181	35,000
General Counsel			
Program Direction	33,053	33,000	33,000
International Affairs			
Program Direction	13,066	13,000	23,600
Climate Change (International)	2,287	0	0
Environmental Policy Studies	520	0	0
Total, International Affairs	**15,873**	**13,000**	**23,600**
Program Direction			
Program Direction	24,488	24,500	25,400
Office of Indian Energy Policy & Programs			
Office of Indian Energy Policy & Programs	2,243	0	0
Management			
Program Direction	57,599	62,946	76,227
Small and Disadvantaged Business Utilization			
Program Direction	0	2,253	3,000
Office of the Secretary			
Program Direction	5,008	5,008	5,300
Public Affairs			
Program Direction	3,597	3,431	3,431
Strategic Partnership Projects			
Strategic Partnership Projects	0	0	1,108
Total, Washington Headquarters	**296,248**	**303,183**	**356,348**
Total, Departmental Administration	**353,648**	**353,783**	**395,240**

Inspector General

Inspector General

Office of Inspector General
Proposed Appropriation Language

For necessary expenses of the Office of Inspector General in carrying out the provisions of the Inspector General Act of 1978, [$40,500,000]*$46,424,000* to remain available until September 30, [2016]*2017*.

Explanation of Changes

No change.

Public Law Authorizations

- Public Law 103-356, "Government Management Reform Act (GMRA) of 1994"
- Public Law 106-531, "Reports Consolidation Act of 2000"
- Public Law 107-347, "Federal Information Systems Management Act (FISMA) of 2002"
- Public Law 111-5, "American Recovery & Reinvestment Act (ARRA) of 2009"
- Public Law 112-194, "Government Charge Card Abuse Prevention Act of 2012"
- Public Law 112-199, "Whistleblower Protection Enhancement Act of 2012"
- Public Law 112-239, "National Defense Authorization Act for Fiscal Year 2013"

Office of Inspector General

($K)

FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
42,120	42,120	40,500	46,424

Overview

The Office of Inspector General's (OIG's) average Return on Investment (ROI) is $15.05 for every dollar appropriated.[1] This demonstrates the OIG's dedication to its mission to strengthen the integrity, economy and efficiency of the Department's programs and operations. The OIG is able to accomplish its mission effectively, in part, because it has the authority to inquire into all Department programs and activities as well as the related activities of persons or parties associated with Department grants, contracts, or other agreements. In doing this, the OIG serves to provide the Secretary of Energy with an impartial set of "eyes and ears" to evaluate management practices. As a result of its work, the OIG has consistently provided a positive return on its investment.

The OIG focuses its efforts to enhance the efficiency and effectiveness of the Department's programs and operations in the following key areas:

- **Support Costs.** OIG identifies potential costs savings in areas such as the estimated $3.5B[2] spent each year on National Laboratory support costs.
- **Key Programs and Projects.** OIG evaluates the efficacy of the Department's management of key programs and projects such as the environmental management program, which annually expends approximately $5.9B.
- **NNSA Modernization Efforts.** NNSA is undertaking a massive modernization effort that involves major projects (e.g., weapons complex transformation) that benefit from OIG reviews which proactively identify efficient and effective operations.
- **Loan Guarantee Programs.** Most of the program agreements extend well into the future and require the OIG to hire experts to assist with reviews to confirm compliance with loan terms and conditions. New projects will serve to further extend the necessity for in-depth OIG reviews.
- **Cost Accounting Standards (CAS).** OIG provides reviews of Department contractors' incurred costs and compliance with Cost Accounting Standards.
- **Contract Review.** OIG assesses the Department's administration of its contracts portfolio, which is one of the largest on the civilian side of the Federal government.
- **Recovery Act.** Although the Department has awarded $31.7B[3] received under the Recovery Act, the OIG continues to expend significant resources to ensure that the funds have been used appropriately.

Highlights of the FY 2016 Budget Request

In each of the last four years, the OIG expended its carryover balances to perform required reviews and oversight. However, the OIG's prior year balances will be exhausted in FY 2015. The requested level for FY 2016 will ensure that the OIG can continue to operate at current levels and review the Department's efforts in the following critical areas:

- Project management;
- Cybersecurity;
- Nuclear life extension projects;
- Weapons complex modernization efforts; and
- Cost reduction efforts.

[1] Supporting details associated with the OIG's ROI can be found in the OIG's Semiannual Reports to Congress.

[2] Estimated costs reflect data gathered from the *Department of Energy's Functional Cost Report for FY 2009* and referenced in the *Management Challenges at the Department of Energy – Fiscal Year 2012*.

[3] Funds paid out by agencies according to www.Recovery.gov.

Program Direction
Funding ($K)

	FY 2014 Enacted	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	39,334	39,334	40,690	37,963	-2,727
Travel	1,661	1,661	1,690	1,690	0
Support Services	750	750	758	765	+7
Other Related Expenses	7,079	7,079	7,150	6,006	-1,144
Subtotal, Program Direction	48,824	48,824	50,288	46,424	-3,864
Use of Prior Year Balances[1]	-6,704	-6,704	-9,788	0	+9,788
Total, Program Direction	**42,120**	**42,120**	**40,500**	**46,424**	**+5,924**
Federal FTEs	**279**	**279**	**279**	**279**	**0**
Support Services					
Management Support					
FISMA	750	750	758	765	+7
Total, Support Services	**750**	**750**	**758**	**765**	**+7**
Other Related Expenses					
CIGIE	97	97	423	125	-298
Information Technology	2,400	2,400	1,543	1,000	-543
Training	414	414	420	420	—
Working Capital Fund	2,994	2,994	3,090	3,172	+82
Other Related Expenses	1,174	1,174	1,674	1,289	-385
Total, Other Related Expenses	**7,079**	**7,079**	**7,150**	**6,006**	**-1,144**

[1] Prior Year balances were used in FY 2014 to support a portion of existing authorized staffing levels, 8 additional FTEs and other critical operating expenses. OIG expects to use Prior Year balances in FY 2015 for the same purposes, to include 17 additional FTEs.

Activities and Explanation of Changes

FY 2015 Enacted	FY 2016 Request	Explanation of Changes FY 2016 vs FY 2015
Salaries and Benefits $40,690,000	**$37,963,000**	**-$2,727,000**
Funding supports Federal staff with specialized skill sets (e.g., Certified Public Accountants, Technology Crime Investigators, Certified Fraud Examiners) who are uniquely qualified to identify significant Departmental program and operational challenges.	Continue to identify significant Departmental challenges.	The OIG will use a risk-based approach to focus resources on areas within DOE that have the greatest impact on the security and prosperity of the country.
Travel $1,690,000	**$1,690,000**	**$0**
Continue to travel as required in the performance of OIG duties. OIG will use Video Teleconference, conference calls, and other cost saving measures when feasible.	Continue to travel as required in the performance of OIG duties. OIG will use Video Teleconference, conference calls, and other cost saving measures when feasible.	No change.
Support Services $758,000	**$765,000**	**+$7,000**
The OIG will use the financial statement audit contract to perform FISMA work for DOE and FERC.	Continue performing FISMA work for DOE and FERC.	The funding increase is due to higher FISMA-related costs reflected in the base contract.
Other Related Expenses $7,150,000	**$6,006,000**	**-$1,144,000**
This funding includes critical staff training in order to maintain required levels of proficiency and comply with the Inspector General Act. Funding also supports forensic hardware and software requirements needed to accomplish investigative responsibilities. Funds are also included for support for Council of the Inspectors General on Integrity and Efficiency (CIGIE) and to fund OIG's share of the DOE Working Capital Fund and Energy IT Services.	Continue to support training, information technology needs, and other requirements in the performance of OIG duties.	The funding decrease reflects a decrease in CIGIE support costs and a lower FTE level.

Department Of Energy
FY 2016 Congressional Budget
Funding By Appropriation By Site
($K)

Office of the Inspector General	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Chicago Operations Office			
Office of the Inspector General			
Office of the Inspector General	1,082	0	0
Total, Chicago Operations Office	**1,082**	**0**	**0**
Idaho Operations Office			
Office of the Inspector General			
Office of the Inspector General	1,353	0	0
Total, Idaho Operations Office	**1,353**	**0**	**0**
National Energy Technology Lab			
Office of the Inspector General			
Office of the Inspector General	2,977	0	0
Total, National Energy Technology Lab	**2,977**	**0**	**0**
Nevada Field Office			
Office of the Inspector General			
Office of the Inspector General	947	0	0
Total, Nevada Field Office	**947**	**0**	**0**
NNSA Albuquerque Complex			
Office of the Inspector General			
Office of the Inspector General	7,847	0	0
Total, NNSA Albuquerque Complex	**7,847**	**0**	**0**
Oak Ridge Office			
Office of the Inspector General			
Office of the Inspector General	5,277	0	0
Total, Oak Ridge Office	**5,277**	**0**	**0**
Richland Operations Office			
Office of the Inspector General			
Office of the Inspector General	1,894	0	0
Total, Richland Operations Office	**1,894**	**0**	**0**
Savannah River Operations Office			
Office of the Inspector General			
Office of the Inspector General	1,760	0	0
Total, Savannah River Operations Office	**1,760**	**0**	**0**
Washington Headquarters			
Office of the Inspector General			
Office of the Inspector General	16,819	40,500	46,424
Total, Washington Headquarters	**16,819**	**40,500**	**46,424**

Department Of Energy

FY 2016 Congressional Budget

Funding By Appropriation By Site

($K)

Office of the Inspector General	FY 2014 Current	FY 2015 Enacted	FY 2016 Request
Western Area Power Administration			
Office of the Inspector General			
Office of the Inspector General	2,164	0	0
Total, Western Area Power Administration	**2,164**	**0**	**0**
Total, Office of the Inspector General	**42,120**	**40,500**	**46,424**

Working Capital Fund

Working Capital Fund

Working Capital Fund
Program Mission

($K)

FY 2014 Current	FY 2015 Estimate	FY 2016 Estimate
279,172	288,056	281,534

The Working Capital Fund (WCF or Fund) is a financial management tool for improving the financing and delivery of a range of common administrative services. Service delivery is assigned to business-line service managers; financial responsibility resides in a Fund Manager and individual Business-line Managers are responsible for billing and funds control. The Fund creates a framework for business-like organization of support functions and market-like incentives for both customers and suppliers. The objectives of the Fund include:

- Improve the efficiency of administrative services by providing managers with the opportunity and responsibility to make choices on the amount, priority, and sources of administrative services used by their programs;
- Ensure that program mission budgets include a fair allocation of the costs of common administrative services; and
- Expand the flexibility of the Department's budget structure to permit service providers to respond to customer needs.

Fund businesses maintain performance-based plans that inform the budget and alert the Fund Manager of the need to change pricing policies. Each quarter the Fund Manager reviews financial and business performance. These reviews culminate in an Annual Report that includes analysis of financial measures, including each business' performance against its standards.

This budget charges full cost recovery for each business in its budget and program billings. Full costs in Fund prices improve cost accounting for WCF activities, support improved decision-making for business-line operations and program spending, and allow the Fund Manager to benchmark against other federal agency equivalent costs. This information will allow the Department to improve the efficiency of WCF service offerings. The Fund Manager is creating controls to satisfy oversight requirements, including regular budget reports on spending. This change is consistent with other agency WCFs and satisfies the need to recover costs in reimbursable activities.

WCF Business-line Accomplishments

WCF operations are valued by customers, serve the Department, and remain within the fiscal and policy guidelines established by the Department and by Congressional Committees. The Fund Manager's FY 2014 Annual Report documented that the Fund experienced an over-recovery of $34.2 million for its FY 2014 operations; and, for the first 18 years of operations reported a positive result of $48.4 million (2.0% of customer billings). Although net earnings for individual business-lines have fluctuated between profit and loss over the years, DOE is achieving its goal of sustained break- even operations. The major increase in over-recovery between FY 2013 and FY 2014 is due to the implementation of new business-lines in FY 2014. CyberOne, Overseas Presence and Interagency Transfers were sizable additions to the Fund; activities were further complicated by the CR in FY 2014, which did not end until mid-way through the fiscal year so a full year of activity was condensed into a much shorter period. Credit and deferral adjustments were made in FY 2014 and close monitoring of these businesses will continue in FY 2015.

The Department continues to examine ways to use the Fund to gain greater management efficiencies. The Fund has reported efficiency and effectiveness performance metrics since its inception and documents continuous improvement efforts to provide program customers with the best goods and services possible in accordance with other statutory requirements. Performance baselines include data recorded before the inception of the Fund. In addition to specific goals, the businesses describe strategies to improve resource utilization and accomplish objectives.

The Fund continues to help Departmental management with emerging priorities such as financing cybersecurity; DOE's new procurement system; the DOE-wide area network and cloud services; building modernization and safety improvements; project management training; computer-based learning; and the shift away from paper intensive systems. At the same

time, the Fund has allowed businesses to close, including the Executive Information System, Desktop, and the original Supply business.

Other accomplishments include:

- Building Business:
  - Executive Order 13514 on Federal Leadership in Environmental, Energy and Economic Performance establishes numerous environmental and energy goals for Federal Agencies. One of the most comprehensive goals in the order is for Federal Agencies to meet the High Performing Sustainable Building Guiding Principles for 15% of their building inventory by the end of FY 2015. These five Guiding Principles address elements such as energy and water conservation, , indoor air quality, materials management including green procurement, recycling, waste mitigation, and ozone depleting chemicals, , , and integrated design principles. In FY 2014, the Building Business met and documented each of these Guiding Principles for the DOE Headquarters Forrestal Building which can now be assessed as a DOE High Performing Sustainable Building.

- Telecommunication Business:
  - Sustained Headquarters Network Services Availability at 99.99%
  - Sustained DOEnet (wide area network) availability at 99.97%
  - Sustained Internet service availability at 100.0%
  - Sustained RSA/VPN services availability at 100.0%

- iManage Business:
  - iManage Uptime - 95% (Met)
  - STARS - Month-end closing by 3rd workday (Met); 98% of invoices paid on time - (Met)
  - STRIPES – Average cost associated with handling Tier 1 help desk incidents is less than $88/ticket (Met)
  - STARS/STRIPES – Internal Controls Statement of Assurance with no material issues (Met)
  - STARS – Unqualified Audit Opinion (Met)

Working Capital Fund: Business-line Budgets

Table 1 summarizes projected customer billings by business-line. These billings are the result of established pricing policies, which, together with service level agreements, provide the basis for programs to manage their utilization of the WCF and control their budgets. Changes to WCF businesses lines total -$6.5 million due largely to: increases in Building Occupancy (+$0.5 million), Interagency Transfers (+$0.5 million), Procurement Management (+$0.4 million), and other (+$0.3 million); offset by decreases in Administrative Services (-$0.7 million), CyberOne (-$7.0 million) and Overseas Presence (-$0.5 million). Further descriptions of these changes are included in the individual business-line sections that follow.

Table 1
Working Capital Fund Budget Business-lines[a]
($K)

	FY 2014 Current	FY 2015 Estimate	FY 2016 Estimate
Supplies	2,854	2,437	2,436
Mail and Transportation Services	4,389	4,145	4,204
Photocopying	3,818	3,490	3,541
Printing and Graphics	4,186	4,284	3,623
Building Occupancy	97,236	102,081	102,535
Telecommunications	30,258	31,710	31,756
CyberOne	40,000	40,000	32,980
Procurement Management	17,807	17,934	18,294
Corporate Training Services	2,697	3,373	3,367
Health Services	1,700	1,700	1,700

[a] Numbers may not add due to rounding.

	FY 2014 Current	FY 2015 Estimate	FY 2016 Estimate
Project Management Career Development Program	1,615	1,627	1,621
iManage	37,768	38,368	38,424
Financial Reporting Control Assessment	1,600	1,692	1,674
Pension Studies[b]	720	600	710
Financial Statement Audits	11,709	11,759	11,767
Overseas Presence	14,816	16,855	16,402
Interagency Transfers	6,000	6,000	6,500
Total, Working Capital Fund	279,172	288,056	281,534

The following section includes a description of each business-line, along with pricing policy and selected performance measures.

Supplies

Description
This business-line operates two self-service stores, which carry a wide variety of consumable office products. At customers' request, it acquires specialty items, not stocked in the stores. Products carried are based on review of equipment in the agency inventory and customer input and suggestions. This business is operated by Paper Clips, the office supply store name assigned by Winston-Salem Industries for the Blind, an affiliate of the National Industries for the Blind (NIB). Paper Clips operates the DOE supply stores as a commercial operation. Paper Clips is paid only for the supplies purchased by DOE employees. In support of federal green purchasing Executive Orders and statutory mandates, the Headquarters Paper Clips Supply Stores (located in Forrestal and Germantown) offer a wide range of environmentally-friendly supplies that are energy efficient or contain post-consumer waste (recycled) materials, bio-based materials (biological, agricultural or forestry-based), and biodegradable materials (decompose easily).

Pricing Policy
Each organization pays for supplies purchased by its employees.

Mail and Transportation Services

Description
The Mail Center provides a variety of mail services for all official and other authorized mail for DOE and its employees. Services include the processing of all incoming postal mail, outgoing official mail, internal mail processing, accountable mail processing, pouch mail, a variety of overnight express mail services, messenger services, directory services, and pick-up and delivery services. In response to the risk of terrorism, the business-line implemented various processes for sanitizing and testing mail against bio-terrorist attacks.

The Transportation Service includes shuttle bus operations, Headquarters executive transportation, motor vehicle fleet administration, and courier service. The shuttle bus operates between DOE Headquarter facilities. The Department utilizes two bio-diesel buses. Executive transportation is provided to Headquarters executive staff for official business required to further the mission of the Department of Energy. Motor vehicle fleet administration includes fleet maintenance, monitoring and tracking fleet activity, conducting fleet management activities, and the vehicle maintenance program. Courier service is for the delivery and pick-up of sensitive and non-sensitive material within the Washington Metropolitan area.

Pricing Policy
Mail and transportation pricing has multiple components:

[b] Pension studies were funded in Financial Reporting Control Assessments in FY 2014.

- Offices pay the actual dollar cost for outgoing United States Postal Service (USPS) mail and for Federal Express or other special mail services. Offices pay for internal mail distribution based on the number of mail stops.
- Offices pay for Mail Security based on their percentage of incoming USPS mail over the preceding six-month period.
- Offices pay for Express Mail labor based on their percentage of the total volume of incoming and outgoing special mail during the preceding six-month period.
- Offices pay for USPS Outgoing labor based on their percentage of actual outgoing mail for the preceding six months.
- Offices pay for specified special services on a negotiated basis.
- Programs pay for shuttle bus services based on their prior year usage.
- Programs pay for courier and messenger services based on their prior year usage.
- Programs pay for Headquarters executive transportation services based on their prior year usage.

Photocopying

Description
This business provides the following services:

- Staffed photocopy centers at Forrestal and Germantown capable of reproducing 25,000 impressions per document;
- Centralized (Walk-up) photocopy rooms;
- Dedicated (Customer-Assigned) photocopiers, including needs assessment analysis to determine workload and most appropriate equipment;
- Digital document management, including optical scanning of paper copy documents and storage on disk; and
- Digital news clips to programs based on subscriptions. (Note: News clips were previously provided as hard-copy documents prepared in the copy business.)

In FY 1996, before creation of the Fund, DOE Headquarters made over 100 million copies. The number of copies declined rapidly after creation of the Fund and has continued to decline. Currently, DOE Headquarters photocopies at an annual rate of 15 million copies.

Pricing Policy
Each office pays the full cost to maintain and supply its assigned dedicated photocopiers. For walk-up and staffed photocopiers, a cost per photocopy is calculated and programs are charged based on the number of photocopies made by program staff. The digitization pricing policy is to charge on a per-page basis to cover the costs of this business segment.

Printing and Graphics

Description
The Printing and Graphics Business-line provides procurement and liaison with commercial printers through the Government Printing Office. It also provides design and development of pre-press graphics, electronic forms and exhibits, and court reporting services. Contractor staff distributes materials produced in-house as well as materials produced by other government agencies. This business-line also provides professional photography, lab technicians, portrait studio operations, graphics, visual aids, and presentation materials. Centralized visual archives are provided through a repository of general interest photos.

Pricing Policy
Organizations pay direct costs for printing, printed products, Federal Register publications, and some graphics services. Additionally, programs pay maintenance and depreciation costs on graphics equipment and graphics supplies as a percentage allocation of costs incurred in the previous fiscal year.

Budget decrease is related to line of business efforts to cut fixed costs to be consistent with current usage trends.

Building Occupancy

Description
The core services in the Building Occupancy Business-line include space management (rent), utilities such as heat and electricity, cleaning services, snow removal, facility operation and preventive and restorative maintenance, pest control, trash removal, and waste recycling. Engineering and facilities services include drafting of construction documents, developing scopes of work, construction management and inspection, value engineering, leasehold administration, lock repair and key management, safety and occupational health, moving and warehousing services, and conference support. This business also provides electronic services, which involve audio/visual meeting and conferencing support, as well as repair and maintenance of Headquarters radio communications and electronic equipment. Approved improvements to the Headquarters complex are also included.

Pricing Policy
Policy is based on direct costs and allocations in the following manner:

- Each year, organizations sign occupancy agreements that define the space to be assigned to them.
- On a building-by-building basis, direct rental value of the space assigned to each organization is calculated, based on rent charged to the Department by the General Services Administration (GSA). Customer rent costs are based on areas assigned to each organization at the start of each fiscal year.
- Common use space costs in each building are divided among the tenants of that building based on their proportional shares of direct rental costs.
- Certain additional costs, such as common area improvements and health and life safety programs, are allocated as a pro rata addition to the building-by-building charges described above.
- Electronic Services charges are allocated according to direct building occupancy costs.
- In addition, tenants may arrange, at their own cost, alterations of office space.
- Charges related to property management are allocated based on program usage during the prior fiscal year.

Budget increase attributed to fuel, utility and GSA rent charges.

Telecommunications

Description
The Telecommunications Business-line consists of two comprehensive enterprise activities: Network Services and Telephone Voice Services.

Telephone Segment: The telephone segment comprises an infrastructure connecting two main Headquarters buildings and satellite buildings for internal dialing and basic line service. The infrastructure includes communication networks, installed telephone processing switching equipment, and trained technical personnel. Telephone service includes local, long distance, and international dialing; specialized services such as operator-assisted conference calls, voice mail, call forwarding, automatic ring-back, and custom calling cards; and trained technical personnel to install, repair and operate the system. There are approximately 11,200 telephone connections in DOE Headquarters. This reflects a reduction of 30 percent from the nearly 16,000 connections that were in place in FY 1996, before the Fund was implemented. As a result of the Department's transition from analog to digital phone infrastructure, the technology of phone operations and network operations merged. This segment also includes wireless communications.

Pricing Policy
Telephone system costs are allocated to Headquarters offices based upon four categories:

- Headquarters telephone system infrastructure costs, which are composed of: (a) the cost of the leased telecommunications circuits connecting the Headquarters buildings to the internal telephone system; (b) the cost of leased telecommunications circuits that support local, long distance and international calling; and (c) the cost of the technical staff who operate the Headquarters telephone switches, and install and repair the telephone wiring plant. Since the Fund's inception, program customers have been validating and reducing the number of active phone lines.

- The costs of dedicated communication circuits are allocated to organizations requesting installation of such lines.
- All long distance, local, and international calls at Headquarters are allocated to the originating telephones and thus to programs based on the actual billing information.
- All recurring wireless communication devices (cellular phone, pagers, blackberries, etc.) service contract costs and equipment purchases are charged to programs based on actual usage.

Network Segment: Networking provides connectivity for DOE Headquarters and Field operations through Local and Wide Area Networks. This connectivity provides interoperability for 86 organizational Local Area Network (LAN) segments in two main Headquarters and associated satellite buildings; and connectivity to the Headquarters application host systems. There are approximately 10,232 LAN connections in Headquarters. Field LAN connections are being added as those sites convert to the DOE standard configuration. LAN connections provide access to and cybersecurity for the internet, electronic mail, and other applications for information processing and sharing through infrastructure. It also provides connectivity to the entire national complex through DOEnet, which is a centrally managed DOE-wide area network designed to support DOE corporate systems and carry business sensitive data to users at 43 DOE sites.

Pricing Policy

Networking charges represent infrastructure costs which are composed of: (1) the cost of leased telecommunications circuits; (2) the cost of maintaining common network infrastructure components (routers, switches, etc.) and upgrades where needed; and (3) the cost of providing technical staff to install and repair network connections and monitor/operate the various common network components. These charges will be allocated among program organizations based on the number of active LAN connections, as a monthly charge. Since the Fund's inception, program customers have been validating the number of these connections. DOEnet costs are allocated to participating sites based on the costs associated with providing the service – circuit costs, hardware and maintenance costs, and the cost of providing technical staff.

CyberOne

The CyberOne Business-line consists of two Enterprise-wide capabilities to include: (1) Identity Credentialing and Access Management, $4 million (which was reduced by $7 million based on direction from OMB); and (2) Incident Response and Decontamination, $29 million. Incident Response and Decontamination consists of multiple cybersecurity enterprise services implemented through the DOE Joint Cybersecurity Coordination Center (JC3). Two of the most significant services in the JC3 portfolio are the Cooperative Protection Program (CPP), which provides cyber situational awareness, and the Cyber Fed Model (CFM), which enables cyber information sharing. Additionally, the CyberOne Business-line is governed by the DOE Chief Information Officer (CIO) who is advised by the Cybersecurity Program Mangers within the Department. The CyberOne line of business is managed by the CIO via the Office of the Chief Information Security Officer (CISO).

Description

Identity, Credential and Access Management (ICAM): The DOE ICAM program transforms Identity, Credential and Access Management (ICAM) from a system or facility effort to an enterprise strategic resource that can be leveraged to enhance cybersecurity and improve efficiency of business processes in each DOE Element. The ICAM program develops a comprehensive, enterprise solution that is in compliance with legislative and regulatory requirements (i.e. FISMA 2002, OMB M-05-24, OMB M-04-04, OMB M-11-11, etc.) as well as positions the Department to face today's ever increasing and complex security threat environment. The strategic goals for ICAM include:

- Increase security, which correlates directly to increased Personally Identifiable Information (PII) protection and minimize the number and impact of data breaches and trust violations.
- Achieve high degree of interoperability within the Department and with other Federal Agencies, thereby reducing the cost of ownership for application owners and utilizing new Cloud capabilities.
- Establish an enterprise and interoperable access management approach linking DOE Physical Access Control Systems (PACS) and Logical Access Control Systems (LACS) into a federated access management infrastructure.
- Foster an enterprise view of digital identity that facilitates the sharing of digital identity data across DOE Organizations, as well as with external DOE entities.
- Implement identity credentials at all Levels of Assurance, as defined in the Office of Management and Budget (OMB) Memorandum 04-04, based upon a risk management approach and DOE Organization requirements.

- Foster a system-of-system approach where the DOE Organizations collaborate and cooperate in implementing ICAM, identifying mission needs and managing associated risks.

From the different ICAM initiatives, only two will be supported by the WCF:

- **PKI-to-cloud** initiative to establish an enterprise Public Key Infrastructure (PKI) that is on the Federal Bridge and provides PKI certificates for interoperable and secure information exchange internal and external to DOE. Support for removing local certificates to comply with the Federal Bridge.
- **Personal Identity Verification (PIV)** enablement in support the HSPD-12 directive and Cross-Agency Priority (CAP) goal of strong authentication through issuance of PIV cards.

Incident Response and Decontamination: The Department's Incident Response and Decontamination capability aligns DOE's cybersecurity efforts with the Administration's twelve Comprehensive National Cybersecurity Initiative (CNCI) efforts. DOE's Joint Cybersecurity Coordination Center (JC3) enables Incident Response (IR) and Decontamination through the coordinated actions of the field site cybersecurity centers.

Below is a list of statutory and regulatory drivers for DOE's IR and Decontamination activities through the JC3:

- Federal Information Management Security Act (FISMA) 2002
- Homeland Security Act 2002
- Information Sharing Environment - Intelligence Reform and Terrorism Prevention Act of 2004 (IRTPA)
- Privacy Act 1974
- Health Insurance Portability and Accountability Act (HIPAA) of 1996
- Health Information Technology for Economic and Clinical Health Act (HITECH Act)
- Executive Orders 13526, 12598
- Homeland Security Presidential Directives 5,7,8,23
- Committee on National Security Systems Policy (CNSSP-18), National Policy on Classified Information Spillage
- Committee on National Security Systems (CNSS-048-07), National Information Assurance (IA) Approach to Incident Management
- Committee on National Security Systems Instruction (CNSSI-1001), National Instruction On Classified Information Spillage
- Office of Management & Budget (OMB)Memoranda 04-15, 06-19, 07-16
- OMB Circular A-130
- Federal Information Processing Standards (FIPS-200)
- National Institute of Standards and Technology Special Publication (NIST SP 800-53)

The JC3 provides Departmental, enterprise level, situational awareness in a rapidly increasing threat environment. At its core, JC3 facilitates the aggregation, correlation, and de-confliction of enterprise-deployed sensor inputs like those provided by the CPP and other data sources; provides threat analysis in coordination with DOE laboratories; conducts attack trending and tracking of advanced persistent threats; and distributes threat information and indicators of compromise to DOE entities in an automated manner. The JC3 provides cybersecurity enterprise services and tools to customers Department-wide and facilitates enterprise cybersecurity training for the Department.

The six primary functions of the JC3 in support of the DOE Enterprise are:

- Enterprise Monitoring (Department-wide) and Information Collection
- Advanced Cyber Analytics
- Enterprise Incident Management and Response
- Collaboration and Advisory Support
- Information Sharing and Reporting
- JC3 Program Management and Support Activities

The JC3 integrates Departmental Incident Management (IM) capabilities and coordinates all enterprise IM activities including prevention, detection, containment and recovery for all DOE elements. This includes activities on both unclassified and classified networks through partnerships with DOE Programs with direct support to classified networks through the National Nuclear Security Administration (NNSA). The JC3 also coordinates communications on behalf of the Agency for cybersecurity events and cyber emergency response with United States Computer Emergency Response Team (US-CERT) and other agency partners.

In July 2013, the Deputy Secretary assigned governance, management and operations of the JC3 to the DOE Office of the Chief Information Officer (OCIO). The OCIO, in coordination with the Under Secretaries, define the JC3 operational strategy, goals and objectives, and will establish an effective, transparent program management including its performance measures. Additionally, the OCIO will partner with the Assistant Secretary for Electricity Delivery and Energy Reliability (OE) to support DOE's Sector Specific Agency (SSA) relationships, including the Electric Sector Information Sharing and Analysis Center (ES-ISAC).

The DOE Chief Information Security Officer (CISO) is responsible for program management of the JC3. The CISO will partner and coordinate with other Department wide cybersecurity program managers to meet service level and performance measure requirements.

Under Secretaries and line managers remain accountable for the security of the information and information systems under their purview and ensure federal and contractor network and security operations centers cooperate fully with the JC3 while executing local organization or site cybersecurity activities. The cybersecurity program managers are responsible to their line management for coordinating enterprise wide cybersecurity requirements with the DOE CISO.

As a service of the JC3, CPP designs, operates, and enhances a system that collects high quality, information rich network data sets, enabling a more robust defense against adversaries targeting DOE assets.
CPP maintains a cooperative partnership between DOE Headquarters elements, the participating sites, and the analysis centers to provide the most effective use of the CPP collected data. Network sensors are capable of monitoring 10 Gigabit network links existing at over 90 DOE government and contractor facilities examining about 36 Terabytes/Day of raw network traffic, and generating over 1.4 Terabytes/Month processed data. This data is used by cybersecurity analysts to gain insights into the motives of our adversaries and enables a rapid response to emerging threats.
CPP collaborates with other US Government agencies, commercial companies, and the open source community to continually enhance system sensing capabilities. CPP technologies also enable the DOE OE's Cybersecurity Risk Information Sharing Program (CRISP), which is a public-private partnership, to facilitate the timely sharing of cyber threat information to develop cyber situational awareness in the Energy Sector.

Cyber Fed Model (CFM) is a JC3 service that has driven machine-to-machine sharing of cyber threat intelligence, speeding up proactive defense and distributed detection for the Department's National Laboratories and site offices.
CFM began with a pilot in FY 2004 and entered production status in FY 2009 and has distributed over 7 million bad actor addresses to date. In FY 2014, over 1.5 million bad actor addresses were distributed with an average of 5,000 per day. In many cyber incidents, timely sharing of information is often a second thought and CFM allows for the cyber systems to share, act and provide a coordinated defense 24x7x365 with minimal human interaction.
CFM supports the Deputy Secretary's direction to operate at machine speed in responding to cybersecurity threats and incidents. Flexible and customizable, CFM integrates the latest advancements and technologies developed by its project team members, and partners. CFM can deliver signatures and indicators of compromise to automatically update cyber defenses, such as intrusion detection systems, intrusion prevention systems, and firewalls.

Pricing Policy
CyberOne charges programs a pro rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares, using the Congressional request of the most recent year. These estimates reflect the three years (FYs 2013-2015) in the Department's FY 2015 Request to Congress.

Procurement Management

Description
Audit Services, Contract Closeout, and Purchase Card Surveillance business segments work together to help validate compliance with procedures and improve the internal controls of the Department. These divisions also respond to specific issues raised by the Inspector General. Ultimately, savings to programs are realized by preventing fraud, waste, and abuse.

Audit Services Segment of the business actually represents funding to various federal audit agencies; however, the majority of the funding is provided to the Defense Contract Audit Agency (DCAA). DCAA and the Department of Health and Human

Services (HHS) provide audit services to the Department's program offices and contracting officers in support of their acquisition activities. These services benefit the contracting officers in supporting their determination for reasonableness and realism of the contractor's proposed rates.

Contract Closeout Segment of the business is the final stage in contract administration support for DOE Headquarters elements. Services include ensuring that all contracted products and services have been delivered, final releases are obtained, final invoices and vouchers are processed for payment, and any remaining unexpended funds under the contract are released. Since FY 1996, the universe of contract instruments ready for closeout has been reduced from nearly 3,000 to approximately 1,000 instruments. Over $128 million has been de-obligated from expired contracts in the 13 years this activity has been operating as a Fund business. As a result of the American Recovery and Reinvestment Act of 2009, it is anticipated that there will be a substantial increase in the number of financial assistance awards that will require closeout.

Purchase Card Data Mining segment monitors purchase card usage by both federal and contractor employees. DOE purchase cards are issued under a task order with JP Morgan Chase Bank through the SmartPay2 program administered by the General Services Administration. Funding for this effort is derived from rebates DOE elements receive from JP Morgan Chase Bank, based upon the dollar volume of purchases. JP Morgan Chase Bank will provide a version of the data mining system, entitled IntelliLink, to DOE at no cost for the basic version. This business unit will detect patterns, trends, and/or anomalies for use in risk management, spend patterns, and other areas of analysis. If necessary, DOE will incur costs to enhance IntelliLink where it does not fully meet DOE's requirements.

Pricing Policy
Each Headquarters element pays the actual contract closeout cost, determined by the unit price of each contract type and negotiated level of service. Purchase Card Data Mining costs are allocated based on the distribution of refunds resulting from the DOE purchase card program. DCAA audits are charged to programs based on actual usage from the previous fiscal year. Traditionally, these expenses have been funded with program funding and the WCF proposes using this same funding for WCF billing.

The budget increase is due to DCAA audits.

Corporate Training Services

Description
The Corporate Training Services business-line combines Training Delivery and Services (TDS) and the Online Learning Center (OLC) business segments to deliver courses which support the Department's mission at competitive pricing and fee for service pricing.

Energy Online Learning Center (OLC) Segment is a web-based commercial off-the-shelf training system that provides access to online learning and training. The goal of this business segment is to use technology to deliver learning activities to the desktop where such delivery can be demonstrated to improve learning outcomes and reduce costs independently or in combination with other training methods. The overall vision of the OLC program is to provide the capability for all DOE federal employees to have access to web-based training via the desktop. The OLC has been structured to meet DOE needs with a customized access process and DOE-specific information (including DOE-mandated training).

Training Delivery and Services (TDS) Segment includes the design, development, and delivery of competency-based courses to meet critical skills development needs in Project Management, Program Management, and Acquisition and Assistance Management.

A series of Continuing Education courses has been added to present new topics and refresher training. Program offerings include modular course design and customized training for on-site and centralized delivery. The TDS Program has a 20-year track record of providing professional training and training services throughout the DOE complex. The training management services are offered to customers on a negotiated basis only.

SES Career Development Program (CDP) Segment is designed to develop a cadre of future executives prepared to take on the leadership and mission challenges of the Department. Each 2-year class has a relatively small number of participants (approximately 20) and is open to executives at other federal agencies. The Department has an existing Interagency Agreement with the Office of Personnel Management to provide some services; while other specialized services are provided by select vendors. This budget also includes cost of participant resource materials, travel, and rotational assignments/projects.

Senior Executive Service 360 Degree Assessments (SES 360) Segment provides services through an agency Agreement with the Office of Personnel Management. DOE's program is part of a larger effort to change the leadership culture throughout the agency. By administering leadership behavior assessments and simple, but targeted, evaluations of leadership training efforts, the Department can track changes in the perception of leadership behaviors over time and assess the effectiveness of leadership training. Participants are rated by people of varying relationships to the participant (e.g., peer, subordinate/direct report, and supervisor). Assessments will focus on leadership competencies most relevant to DOE's current strategic plan, and include items related to personal training experiences and the effectiveness of those experiences.

National Defense University (NDU) Segment provides services through an Interagency Agreement with the National Defense University (NDU/DOD) for DOE participation at the National Defense University (National War College) for Energy Master/Certificate Programs and the Advanced Management Program.
Using WCF will allow DOE to account for the full cost of these services.

Pricing Policy
Pricing policy for Corporate Training Services business-line is as follows:

- Participating DOE organizations pay for OLC access through a fixed annual fee per student and allocation of administrative costs, based on number of employees per program.
- Participating DOE organizations in the TDS pay $200/day for each employee enrolled in professional skills training course.
- The SES CDP segment assesses each participating WCF organization fees per person based on participants accepted into the program on a competitive basis. When there is no SES CDP class in session, program offices will not be billed for related costs.
- Participation in the SES 360 Assessments is financed by the benefitting program; fees per person are based upon specific assessment options.
- Participation in the NDU is financed by the benefitting program; fees per person are based upon the specific training program.
- Federal staff support consists of program management, developing curriculum, contractor oversight of distance learning, and managing classroom delivery by contractor staff.

Health Services

Description
The Health Services business-line provides common administrative services to the DOE Headquarters community. These services include a Headquarters health center, a drug testing program, an employee assistance program, and disability services. The Department believes cost reductions will result from consolidating these activities under one enterprise with a focus on program demand for these services.

Health Center Segment consists of two facilities: one at Forrestal and one at the Germantown. Services provided include: emergency response; travel immunizations; fitness-for-duty and pre-employment physical exams; annual influenza vaccinations; and general occupational health concerns. The health center is operated under an Interagency Agreement with the Department of Health & Human Services, Federal Occupational Health (HHS/FOH) to provide packaged services, which reduces costs and DOE resource needs.

Drug Testing Program Segment, a DOE-wide program, provides for collection, testing, and medical review of alcohol and drug testing. This activity supports testing of DOE positions for fitness-for-duty, pre-employment, and random drug testing and positions which require a clearance (e.g., security, technical, and/or executive positions) in line with Federal mandates (Executive Order 12564; Department of Transportation Regulations; and 49 Code of Federal Regulations Part 40). The Department has an existing Interagency Agreement with Department of the Interior to utilize their contracts, which reduces costs and saves DOE resources.

Employee Assistance Program (EAP) at Headquarters finances professional EAP counselors to offer assistance to DOE federal employees for family, work, health, and other concerns (work-life) in line with Federal mandates (Executive Order 12564; Public Law 79-658; Public Law 99-570 (5 U.S.C. §§7361 and 7362); Public Law 98-24 (42 U.S.C. §290dd-1); Public Law 96-24 (42 U.S.C. §290ee-1); Sec. 7361 and Sec. 7362 of Public Law 99-570; and the Public Health Services Act).

Disability Services coordinates contract vendors to provide sign language interpreting services for deaf and hard-of-hearing federal employees at Headquarters in line with Federal mandates (Rehabilitation Act of 1973, as amended).

Pricing Policy
Charges for Health Services are allocated to each program on the basis of their Headquarters employment levels at the beginning of the current fiscal year.

Project Management Career Development Program

Description
The Project Management Career Development Program (PMCDP) provides a wide range of developmental, mentoring, training, and rotational activities which lead to project management certification. Project management certification under the program is based upon the requirements for training, developmental activities, and experience outlined in the certification standard contained in DOE Order 361.1B, Chapter IV, and meets the certification requirements of the Federal Acquisition Certification for Program and Project Managers defined in OMB Circular A-11, Part 7. PMCDP defines necessary DOE project management knowledge, skills and abilities, as well as DOE training course requirements. Components of PMCDP also include a DOE career development tracking system and a DOE project management certification program.

Pricing Policy
In FY 2016, the business-line will continue to assess programs based on the number of projects, the amount of projects in the portfolio, and the number of incumbent project directors or potential project directors identified by the programs. Fixed costs related to the PMCDP will be charged to programs based on their pro-rata share of the number of projects and the value of those projects in the Project Accounting and Reporting System (PARS II). The variable costs of delivering courses will be charged to programs based on their pro-rata share of targeted participants.

In addition, we expect some programs outside of the assessment pool to desire participation in the training offered. In those cases, the business will allocate a certain number of slots, on a space-available basis, at the rate of $200/day. These charges will offset other development costs and future charges to the programs.

iManage

Description
iManage is the Department's solution for managing enterprise-wide systems and data. iManage is consolidating and streamlining Department-wide systems and business processes to integrate financial, budgetary, procurement, personnel, program, and performance information. iManage is supported at the core by a central data warehouse/portal that links common data elements from each of the Department's business systems and supports both external and internal reporting. Consolidation of Payroll and CHRIS businesses into iManage was approved on June 3, 2008. Consolidation provides efficiencies in its administration and result in a single, senior business manager.

Standard Accounting and Reporting System (STARS) Segment provides the Department with a modern, comprehensive, and responsive financial management system that records and processes accounting transactions for general accounting,

payments, receivables, purchasing including obligations and reservations, accruals, plant and capital equipment, nuclear materials accounting, and many other functions. STARS is also used for financial reporting including FACTS I & II, Standard Form (SF) 220.9, SF 224, and the Department's financial statements. STARS replaced both the Departmental Integrated Standard Cost Accounting System and Management Accounting Reporting System. Costs include all operations and maintenance support, including the Chief Information Officer's Application Hosting and annual Oracle Software licensing.

Strategic Integrated Procurement Enterprise System (STRIPES) Segment replaced and consolidated federal corporate, regional and local procurement-related systems across the Department. STRIPES automates all procurement and contract activities required or directly associated with planning, awarding, and administering various unclassified acquisition and financial assistance instruments; thereby, increasing the internal efficiency of the Department. STRIPES is also fully integrated with STARS, creating efficiency between the two systems and improving the accuracy and timeliness of funding commitments and obligations. Costs include all operations and maintenance support, including the Chief Information Officer's Application Hosting and the annual Compusearch subscription fees.

iBudget Segment is a budget formulation solution that will support the collection and management of budget formulation data for OMB and Congressional budget submissions and provide a capability to automate the budget publication. Costs will include the operations and maintenance support provided by Treasury. Short and long-term enhancements are also being considered for the funds distribution process, currently supported by the Funds Distribution System (FDS) and the field budget systems (BEARS/FCDS).

iPortal/Information Data Warehouse Segment is the iManage face to its customers. It provides the gateway into all iManage applications and services. The Information Data Warehouse (IDW) provides capability to integrate and store data from various corporate and/or program systems for reporting using Business Intelligence reporting tools. The iPortal/IDW has the potential to be the Department's authoritative source for all corporate business information, as demonstrated by its use for the American Recovery and Reinvestment Act (ARRA) data collections and internal/external reporting. The iManage iPortal/IDW provides many services that connect our people, simplify our work, and liberate our data. Costs will include the operations and maintenance of the technical infrastructure, consisting mostly of Application Hosting and annual software licensing fees.

Oak Ridge Financial Service Center (ORFSC) Segment completes over 120,000 payments annually and payment services are provided for all DOE programs, including, but not limited to: NNSA, EM, FE, SC and EE.

Corporate Human Resource Information System (CHRIS) Segment is a nation-wide operational portfolio of systems within the Department that serves as the official system of record for human resource management information for all employees. The CHRIS Project supports the Administration's strategic human capital management initiative and expands e-government within DOE, combining electronic workflow and other best practices in work processes with a web-based IT architecture and suite of software applications based on off-the-shelf products (PeopleSoft and Monster Government Solutions), and the legacy Employee Self-Service. This budget also funds Jobs One-Portal (J1P), recruitment using social media, and specific recruiting efforts to reach veterans and disabled veterans. In addition, costs for inter-agency contributions for electronic benefits are financed in WCF.

Digital Media Segment rationalizes hundreds of websites and streamline web operations, reducing duplicative spending, and improving overall digital communications. Costs will include the operations and maintenance of the technical infrastructure, consisting mostly of application hosting, iterative development, and platform upgrades to meet ongoing scale and usage demands.

Payroll Services Segment encompasses three areas: Payroll, Flexible Spending Account (FSA) administrative fees, and Transit Subsidy (SEET). Prepares civilian payrolls based on authenticated documentation. Through the Defense Finance and Service (DFAS), computes, deposits, and reports Federal, State, and local income taxes, maintains employee records related to Civil Service and Federal Employees Retirement Systems (CSRS and FERS), reports retirement information to the Office of Personnel Management (OPM), and performs reconciliation of account balances with DFAS, OPM and Treasury. Accounts and reports employee's health benefit coverage, thrift savings plans, transit subsidies (SEET), and unemployment compensation, among other non-salary employee payments. Processes donated leave into the Defense Civilian Pay System. Maintains and operates the Department's system of allocating payroll costs to the proper appropriation.

Pricing Policy
iManage activities charge programs a pro-rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares, using the Congressional request of the most recent year. These estimates reflect the three years (FYs 2013-2015) in the Department's FY 2015 Budget Request to Congress. Exceptions to this pricing policy include:

- STRIPES charges based on the actual number of system users recorded during the prior fiscal year.
- ORFSC charges programs based on a pro-rata share of invoices processed at the center.
- CHRIS and Payroll charges programs based on federal employment.
- SEET and FSA are charged to programs based on actual usage.

Financial Reporting Control Assessment

Description
The Federal Managers' Financial Integrity Act (FMFIA) and OMB Circular A-123, *Management's Responsibility for Internal Control,* define management's responsibility for internal control and include guidance for management to assess the effectiveness of internal control.

Financial Reporting Control Assessment will ensure the Department meets the intent of the Congress and the Executive Branch for internal control of financial reporting and has appropriate support for the Secretary's annual assurance statement, included as part of the Performance and Accountability Report. Because the requirements of OMB A-123 apply to the Agency as a whole, each benefiting program must share the cost.

In order to support these goals, the business-line will develop, provide, and maintain the capabilities needed to implement a comprehensive Department-wide evaluation of internal controls over financial reporting. The resources and knowledge to conduct such an evaluation are currently not fully available in-house. Furthermore, the Department's internal controls over financial reporting may ultimately be audited and a Certified Public Accountant (CPA) perspective, as well as the resources to complete the work may be necessary.

Pricing Policy
The Financial Reporting Control Assessment charges customers a pro rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares, using the Congressional request of the most recent year. These estimates reflect the three years (FYs 2013-2015) in the Department's FY 2015 Budget Request to Congress. Departmental programs that use proprietary financial systems, for example, Federal Energy Regulatory Commission (FERC) and the Power Marketing Administrations (PMA's) will be excluded from billing for this business.

Pension Studies

Description
Pension Studies provide program offices with an independent measure of contractor benefits and compare each contractor to both an internal and external benchmark. Program offices use the results of these studies in discussions with contractors regarding the need for reducing costs associated with contractor employee benefits. Results can be measured by the changes made to contractor employee benefit plans.

Pension Studies require access to actuarial expertise that is essential to understanding the implications on federal budgets of potential pension liabilities. Factors that impact pensions are dynamic and include: volatility of contributions, inflation, provisions in benefit plans, workforce restructuring, and pension legislation. These studies support the Department's budget projections, financial statements analysis, Office of General Counsel, and pension management plan.

Under the terms of the contracts that the Department has with each of its management and operations (M&O) contracts, the Department reimburses the contractors for reasonable costs associated with fulfilling their duties under the terms of the contract. These reasonable costs include costs associated with providing benefits to the contractors' employees. In recent years, these contractor benefit costs have been steadily increasing, putting pressure on the Department to complete

its mission work. Beginning in 2009, the Department increased its oversight of these benefits and began annual reporting on the expected reimbursements for pension plans in the FY 2012 Budget. DOE also plans to report on expected reimbursements for other postretirement benefits (primarily medical).

A key goal of this oversight is to improve transparency among the contractors with respect to the benefits being provided to the contractors' employees, as well as the associated annual cost per employee. The collection and analysis of this data requires a great deal of personnel, including the use of external actuarial services. However, publicizing the results of the survey has exerted pressure on the contractors to address the costs associated with their benefit plans. In addition, the Department has relied on external actuarial services to assist in the analysis of the information provided during the annual pension management review process, as well as in analyzing the impact of various proposals for cost reduction in the benefits provided by the different contractors. Given that there are approximately 50 pension plans and a similar number of postretirement benefit plans, analysis across the entire complex requires a significant amount of resources.

Pricing Policy
Programs will be billed $600,000 each year based on each program's sites' ratio of the total pension and post-retirement reimbursements reported in the April Report to Congress for the prior fiscal year. In addition to these fixed vendor costs, there is full cost recovery of federal and related costs.

Description

Financial Statement Audit

Support services relating to the audit contract are required to attain contractor expertise, needed primarily for financial statement audits required by the Government Management Reform Act (GMRA) (e.g., actuaries, petroleum engineers, and information technology support personnel). Due to the complex-wide and broad budget overview of these financial statement audits, mission programs will have the option of using program funds to finance this activity.

Pricing Policy (estimate)
The business-line charges customers a pro-rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares, using the Congressional request of the most recent year. These estimates reflect the three years (FYs 2013-2015) in the Department's FY 2015 Budget Request to Congress. Departmental programs that use proprietary financial systems (e.g., the FERC and the PMA's) will be excluded from billing for this business.

Overseas Presence

Description
The Department has a long standing presence in several foreign capitals. This enables the Department to promote American trade and support critical treaties with our allies.

DOE funds 22 federal employees and 27 locally employed staff in ten countries that support the Secretary and, by extension, the entire Department. The business-line provides administrative and operational support service to Departmental personnel traveling overseas for mission programs.

The budget finances federal salaries, overseas operating costs, and International Cooperative Administrative Support Services (ICASS) and Capital Security Cost Sharing (CSCS) programs. The Department utilizes State Department resources as shared services to ensure that costs are minimized.

Pricing Policy
Charges for Overseas Presence are based on actual usage of these services by program offices. The annual bill for these charges will cover the fixed cost of the program and be allocated to programs based on the previous year's actual usage.

The decrease is due to the change in the location of overseas assignments.

Interagency Transfers

Description

Interagency transfers are necessary to finance National Archives and Records Administration (NARA) storage and management of critical DOE records and the Integrated Acquisition Environment. Other activities include E-Government initiatives, which consist of consolidation studies of lines of businesses, agency assessments and other intergovernmental procurement systems.

The DOE Records Management Program ensures compliance with the Federal Records Act of 1950, as amended, by promoting the management of records throughout their life cycle in an economical, efficient, and effective manner. DOE maintains an annual agreement with NARA on records storage costs and appropriate records management and disposition, consistent with approved records schedules.

Integrated Acquisition Environment (IAE) provides a secure business environment that facilitates and supports cost effective acquisition of goods and services in support of mission performance. To accomplish this mission, IAE focuses on the following goals:

- Create a simpler, common integrated business process for buyers and sellers that promotes competition, transparency and integrity. Increase data sharing to enable better business decisions in procurement, logistics, payment, and performance assessment.
- Take a unified approach to obtaining modern tools to leverage investment costs for business-related processes.

IAE is operated under an Interagency Agreement with General Services Administration (GSA) to provide packaged services, reduce costs, and save DOE resources by leveraging economy of services. GSA is charged with the fiduciary responsibility to work across government to provide acquisition services to support agency missions by delivering timely acquisition tools and services, including but not limited to, the Central Contractor Registration, excluded parties list, electronic subcontracting reporting, federal business opportunities, federal procurement data, wage determinations, and others, as business requirements are identified by the acquisition community.

Pricing Policy

These activities will be charged to programs on a pro rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares, using the Congressional request of the most recent year. These estimates reflect the three years (FYs 2013-2015) in the Department's FY 2015 Budget Request to Congress.

Budget increase attributed to transfer of OPM charges (E-Gov) from iManage (CHRIS).

Crosscutting Activities

Crosscutting Activities

Energy-Water Nexus

($K)

FY 2015 Enacted	FY 2016 Request
15,575	38,350

Overview

The Energy-Water Nexus Crosscut Budget Request is an integrated set of cross-program collaborations that: 1) builds and deploys a DOE mission critical **data, modeling, and analysis** platform to improve understanding and inform decision-making for a broad range of users; 2) strategically targets crosscutting **technology research, development, demonstration and deployment** opportunities within the system of water and energy flows; and 3) is informed and supported by focused **policy analysis** and **outreach and stakeholder engagement**. Taken as an integrated whole, these investments position DOE to contribute strongly to the Nation's transition to more resilient coupled energy-water systems. The Energy-Water Crosscut budget request outlined here draws on ideas presented in DOE's report, *The Water-Energy Nexus: Challenges and Opportunities* (June 2014). This publication represents the culmination of an intense two-year effort that engaged sister agencies, DOE's national laboratories, state and local governments, utilities, industry, the broader science community, and others.

Present day water and energy systems are interdependent. From providing cooling to power plants to irrigating crops for biofuels, water is used in all phases of electricity generation and energy production. Conversely, energy is required to extract, convey, and deliver water of appropriate quality for diverse human uses, and then again to treat wastewaters prior to their return to the environment. Historically, interactions between energy and water have been considered on a regional or technology-by-technology basis. Despite their interdependency, energy and water systems have been developed, managed, and regulated independently.

Several current trends are increasing the urgency to address the energy-water nexus in an integrated way. First, precipitation and temperature patterns across the United States are undergoing rapid change with increasing frequency and intensity of extreme events. Second, U.S. population growth and regional migration trends indicate that the population in arid areas such as the Southwest is likely to continue to increase, further impacting the management of both energy and water systems. Third, introduction of new technologies in the energy and water domains could shift water and energy demands. Moreover, policy developments addressing water impacts of energy production are introducing additional complexities for decision making.

Assisting the nation in moving towards resilient and sustainable coupled energy-water systems is the overarching goal of this initiative. Success will be measured through DOE's ability to:

- Optimize the freshwater efficiency of energy production, electricity generation, and end use systems.
- Optimize the energy efficiency of water management, treatment, distribution, and end use systems.
- Enhance the reliability and resilience of energy and water systems.
- Increase safe and productive use of nontraditional water sources.
- Promote responsible energy operations with respect to water quality, ecosystem, and seismic impacts.
- Exploit productive synergies among water and energy systems.

While several federal agencies have missions that touch on the water side of the energy-water nexus, DOE's focus on the energy side is essential if the Nation is to realize meaningful solutions. The complexity at the energy-water nexus also demands a coordinated and integrated DOE approach, one that leverages the full range of Departmental assets, from basic science to applied research and, ultimately, outreach. This Crosscut, nearly two years in planning and preparation, improves understanding of vulnerabilities and opportunities as they evolve over time, presents new solutions through technology innovation and development, and links the knowledge and technology creation to societal impact through policy and stakeholder engagement activities.

Section 979 of the Energy Policy Act of 2005 directed the DOE to carry out a program addressing energy-related issues associated with the provision of water and water-related issues associated with the provision of energy. Since that time, the Government Accountability Office (GAO) has issued a series of reports calling for improved DOE information and

coordination at the energy-water nexus, including improving federal data for power plant water use (2009), improving information on water produced during oil and gas production (2012), and increasing federal coordination to better manage energy and water tradeoffs (2012). DOE's report plus the FY 2016 work outlined in the budget call is responsive to these directives and requests.

Highlights and Major Changes in the FY 2016 Budget Request

In FY 2015, DOE continues to manage its energy-water nexus activities as separate, modest programmatic efforts with an incremental increase in coordination. For FY 2016, major expansions are planned and included within the budget requests for six major programs: the offices of Energy Efficiency and Renewable Energy (EERE), Energy Policy and Systems Analysis (EPSA), Fossil Energy (FE), International Affairs (IA), Indian Energy (IE), and Science (SC). Additionally, and building from the June 2014 report, FY 2016 efforts will strategically align and actively coordinate around four pillars:

1. Data, Modeling, and Analysis (DMA) helps in understanding current energy system vulnerabilities while exploring complex systems dynamics for subsequent applications in planning the resilient, efficient, and competitive energy-water systems of the future. Efforts will advance foundational models, produce and analyze modeled output, and integrate data sets at spatial and temporal scales that matter to decision-makers at Federal, regional, state, and municipal levels. Improving capabilities will provide insights into technology RDD&D opportunities. The work outlined here builds on a DOE Office of Science 2012 workshop addressing modeling and long term predictions of the integrated water cycle. DMA work focuses on the following three sub-pillars:

a. *Layered Energy Resilience Data-Knowledge System* will fill key data gaps and develop the scope and preliminary design for an integrated data analytic system at the energy-water nexus built on existing DOE data capabilities.
b. *Integrated Multi-System, Multi-Scale Modeling Framework and Impact, Adaptation, and Vulnerability Model Development* will improve interoperability and process representations across a range of major modeling platforms that require integration to enable coupled simulations at the energy-water nexus.
c. *Impacts, Adaptation, and Vulnerability Strategic Research and Analysis* will deliver a broad range of energy-water analyses, tools, work products, and research insights to address priority needs of decision-makers and the research community.

2. Technology Research Development, Demonstration, and Deployment (RDD&D) produces technology solutions and infrastructure options to address vulnerabilities and increase resilience, and it offers the possibility of efficiency improvements and cost reductions to facilitate accelerated technology deployment. Technology RDD&D priorities are those opportunities with potential for highest impact as identified in energy-water flow analyses presented in the June 2014 report.

a. *Treatment, Management, and Beneficial Use of Non-Traditional Waters in Energy Systems* will advance treatment technologies and match applications of alternative energy sources to the diverse characteristics of non-traditional waters and projected beneficial uses.
b. *Sustainable Low Energy Water Utilities* will pursue processes, technologies, and systems that increase energy efficiency and energy recovery for water and wastewater treatment.
c. *Water-Efficient Cooling for Electricity Generation* represents a connection with the Supercritical CO2 budget crosscut. While the budget outlined here does not include investment in this area, the investments in the highly efficient supercritical CO2 brayton cycle presented in the Supercritical CO2 budget crosscut have the potential to reduce the water requirements for thermoelectric cooling.

3. Policy analysis informs understanding of the motivation and barriers to addressing vulnerability and resilience that can impact diverse regional, national, and global stakeholders. This analysis can also help identify priority questions to be examined through DMA and identify technology deployment barriers and opportunities. It can catalyze the timely and efficient transformation of the national energy-water systems to ensure that the U.S. industry remains at the forefront of clean and sustainable energy production and use.

4. Outreach and stakeholder engagement strengthens this overall collection of proposed activities by sharpening understanding of end-user needs, regional considerations, and other data sets, while helping to identify pathways and potential partners for deployment and implementation.

Overall, the FY 2016 Request features an investment portfolio that is balanced, integrated, and strategically aligned, while simultaneously preserving the unique mission imperatives of the individual programs. The integration occurs across the four pillars outlined above. For example, performance and cost specifications from technology RDD&D can feed both DMA and policy analysis. Policy analysis can inform understanding of technology deployment barriers and opportunities. In addition to being broadly useful to the R&D community, DMA produces analytical tools, forecasts, and datasets and can help to identify technology opportunity.

Energy-Water Nexus
Funding by Appropriation and Program ($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Departmental Administration			
Energy Policy and Systems Analysis: Program Direction	2,550	4,500	+1,950
International Affairs: Program Direction	---	300	+300
Total, Departmental Administration	**2,550**	**4,800**	**+2,250**
Energy Efficiency & Renewable Energy			
Advanced Manufacturing: Advanced Manufacturing R&D Projects	---	2,300	+2,300
Advanced Manufacturing: Industrial Technical Assistance	---	2,000	+2,000
Geothermal Technologies: Low Temperature and Coproduced Resources	1,045	3,500	+2,455
Geothermal Technologies: Systems Analyses	180	250	+70
Water Power: Hydropower Technologies	---	1,000	+1,000
Total, Energy Efficiency & Renewable Energy	**1,225**	**9,050**	**+7,825**
Fossil Energy Research & Development			
Crosscutting Research: Plant Optimization Technologies	7,000	6,000	-1,000
Natural Gas Technologies: Environmentally Prudent Development	3,000	6,000	+3,000
Total, Fossil Energy Research & Development	**10,000**	**12,000**	**+2,000**
Office of Indian Energy Policy and Programs			
Tribal Energy Program: Tribal Energy Grant Program	---	500	+500
Tribal Energy Program: Technical Assistance	---	200	+200
Total, Office of Indian Energy Policy and Programs	**0**	**700**	**+700**
Science			
Biological and Environmental Research: Climate and Environmental Sciences	1,800	11,800	**+10,000**
Total, Energy-Water Nexus	**15,575**	**38,350**	**+22,775**

Energy-Water Nexus
FY 2016 Funding by Pillar ($K)

	Data, Modeling, and Analysis	Technology Research Development, Demonstration, and Deployment	Policy Analysis	Outreach and Stakeholder Engagement	Total
Departmental Administration					
Energy Policy and Systems Analysis: Program Direction	2,900	---	1,500	100	**4,500**
International Affairs: Program Direction	200	---	---	100	**300**
Departmental Administration Total	**3,100**	**---**	**1,500**	**200**	**4,800**
Energy Efficiency & Renewable Energy					
Advanced Manufacturing: Advanced Manufacturing R&D Projects	---	2,300	---	---	**2,300**
Advanced Manufacturing: Industrial Technical Assistance	---	2,000	---	---	**2,000**
Geothermal Technologies: Low Temperature and Coproduced Resources	---	3,500	---	---	**3,500**
Geothermal Technologies: Systems Analyses	250	---	---	---	**250**
Water Power: Hydropower Technologies	1,000	---	---	---	**1,000**
Total, Energy Efficiency & Renewable Energy	**1,250**	**7,800**	**---**	**---**	**9,050**
Fossil Energy Research & Development					
Crosscutting Research: Plant Optimization Technologies	---	6,000	---	---	**6,000**
Natural Gas Technologies: Environmentally Prudent Development	1,000	5,000	---	---	**6,000**
Total, Fossil Energy Research & Development	**1,000**	**11,000**	**---**	**---**	**12,000**
Office of Indian Energy Policy and Programs					
Tribal Energy Program: Technical Assistance	200	---	---	---	**200**
Tribal Energy Program: Tribal Energy Grant Program	---	500	---	---	**500**
Total, Office of Indian Energy Policy and Programs	**200**	**500**	**---**	**---**	**700**
Science					
Biological and Environmental Research: Climate and Environmental Sciences	11,800	---	---	---	**11,800**
Total, Energy-Water Nexus	**17,350**	**19,300**	**1,500**	**200**	**38,350**

Program Roles

Departmental Collaboration

The interaction of the four elements proposed under the crosscut—DMA, RDD&D, Policy Analysis, and Outreach and Stakeholder Engagement cut across six DOE offices with planned investments for FY16. These include EERE, EPSA, FE, IA, IE, and SC. The bulk of the DMA investment comes from SC, with cross-office shared funding in Strategic Research and Analysis. Technology RDD&D is primarily supported by FE and EERE and benefits from cross-office collaboration. Policy analysis is contributed by EPSA. Crosscutting outreach and stakeholder engagement is contributed by EPSA and IA.

Data, Modeling, and Analysis (DMA)

DMA – Layered Energy Resilience Data-Knowledge System

EPSA

EPSA will focus on data scoping elements and capabilities aligned with potential use for the data system in multiple domains addressing a broad range of analysis, planning, and evaluation needs. In addition, EPSA will pursue key data gaps in characterization and beneficial uses of non-traditional waters.

SC: Basic Energy Research (BER)

SC efforts will focus on methodologies for exploring inter-layer correlations and interdependencies through time, observation-model data fusion, scalable analytics, distributed data methods, advanced algorithms for pattern recognition and identification of emergent behaviors.

DMA – Integrated Multi-System, Multi-Scale Modeling Framework and Impact, Adaptation, Vulnerability (IAV) Modeling

SC: BER

BER will focus on modeling efforts to improve understanding of complex systems dynamics and to enable next generation simulations at the energy-water nexus. BER will develop and test a model integration framework to enhance model interoperability, linking models such as Integrated Assessment Models (IAMs) and energy and other infrastructure models, including the Connected Infrastructure Dynamics Model (CIDM). Efforts will focus on the development and implementation of model couplers, coupling strategies, and scale matching challenges. There will be a major emphasis on improving spatial and temporal scales of the various component models, with a goal of adaptive resolution capabilities to increase computational efficiencies. Fine scale representations are critically important for exploring regional and local stressors, responses, and coupled behaviors at the energy-water nexus. Accompanying expansions of process representations and data sets is required for impacts, adaptations, and vulnerabilities modeling at the nexus. Efforts will be designed to accommodate both changing baseline conditions and characteristics of extreme events (e.g., droughts, floods, heat waves). Improvements will enhance insights into coupled system thresholds and tipping points. Thermoelectric system dependencies on cooling water will serve as an initial focus for the IAV work and deeper model development. Broader enhancements will seek to strengthen land representations within IAMs, for example in the Global Change Assessment Model (GCAM). Land cover and land use have critical bearings on energy and water supply and use. The objective will be to take into account a wider range of variables (soils, latitude, topography, etc.).

EERE: Water

Understanding how reservoirs and water releases through hydropower facilities and other major dams affect water quality in downstream rivers is extremely complicated, but very necessary for modeling the linkages between the nation's energy and water systems, simulating water dependencies and the implications of extreme meteorological events, and identifying potential tipping points or vulnerabilities. There are thousands of hydropower plants and other major dams within the U.S., and these facilities can have significant effects on water quality, which in turn can affect aquatic ecosystems and the operations of other energy facilities (like coal and nuclear thermal generating plants). Some effects of hydropower operations can be negative, such as inadequate dissolved oxygen or alterations to the natural pattern of water temperature fluctuations in streams. Other effects of hydropower operations are beneficial, such as the management of reservoir storage to maximize the supply of cool water during hot, dry extremes. Improvements in operational water-quality models can help minimize impacts and could potentially allow hydropower facilities to improve water quality management. All of these issues become more complicated as precipitation, runoff, and temperature patterns change, further affecting

generation capacity and power system flexibility. Improving the capability to model these interactions will be a priority emphasis for FY 2016, and will be closely coordinated with the Office of Science and other efforts to improve integrated assessment and vulnerability models.

DMA-IAV Strategic Research and Analysis

EERE: Geothermal
The Geothermal Office (GTO) will support improvements in lifecycle analysis models addressing the nexus.

EPSA
EPSA will undertake a significant role in building and testing regional scenarios, evaluating and "stress testing" (through modeling and related studies) potential future scenarios, and working with stakeholders to explore vulnerabilities and potential adaptations. Regional test beds will also be developed and used to evaluate the efficacy and utility of different analytic approaches.

IA
IA will undertake strategic analysis of international water stresses, as related to energy and potential deployment of new technologies.

IE
IE will support a range of investments in analysis of energy-water issues on Indian lands.

SC: BER
SC will pursue scientific analyses and supporting analytic methodologies to improve understanding of the complex forces that influence and shape evolution of the energy-water system. Forces include land use and land cover change, population/migration, regional economics, evolution of settlements (the built environment and connected infrastructures), energy and related technology developments and deployments and, importantly, changes in weather patterns and extremes. Complementary efforts will focus on development of scenario methodologies. Emphasis will be directed toward multi-scale challenges (e.g., global, national, and regional nesting of scenarios) and techniques for developing consistent, integrated scenarios that take into account the combined forces/factors identified above. SC will also advance regional climate, multi-model inter-comparison methods and downscaling capabilities in coordination with other research agencies, focusing on precipitation and other parameters of particular interest at the nexus. Modest funding will also support research analytic efforts for DOE's role in Interagency Working Groups of the U.S. Global Change Research Program that are presently engaged or seeking to engage in research at the energy-water nexus.

Technology Research, Development, Demonstration, and Deployment (Technology RDD&D)

Technology RDD&D -- Treatment, Management, and Beneficial Use of Non-Traditional Waters in Energy Systems

EERE: Geothermal
In FY 2016, GTO plans to conduct pilot-scale projects to develop technologies and processes for low temperature geothermal water desalination.

FE: Coal - Cross-Cutting Research
Water Management Research and Development will support sustainability and improved water efficiency focusing on treatment and use of non-traditional water. In FY 2016 focused R&D will include developing technologies and processes for treating water produced by injection of carbon dioxide in deep saline aquifers. This may include exploratory research and concept development of clathrate hydrate and other desalination process for production of potable water from carbon capture and storage (CCS). Focused R&D on innovative filtration technologies including membrane-based, evaporative, chemical, electrochemical and biological systems will be developed for the purpose of producing potable water through CCS and will be coordinated with other offices throughout DOE.

FE: Natural Gas
Natural Gas will fund research and development of treatment technologies for hydraulic fracturing flowback water and produced water from the formation to enable improved management practices. These improved management practices will reduce the volume of freshwater demand and increase recycling of flowback water, enhancing market opportunities to provide alternatives to the use of 100 percent freshwater for oil and gas extraction. Funding will also support life cycle analysis of water use in natural gas production.

Technology RDD&D – Sustainable Low Energy Water Utilities

EERE: Advanced Manufacturing
Proposed sustainable low-energy water utilities work includes RDD&D in processes, technologies, and systems that increase energy efficiency and energy recovery for water and wastewater treatment facilities. Recent technology advances in wastewater treatment present significant opportunities for improved energy efficiency and energy recovery in energy-water processes, and also suggest additional technology innovation opportunities that could be applied in water utilities and related industrial sectors, such as food processing or pulp and paper. The Advanced Manufacturing Office (AMO) will support this crosscut through a combination of targeted technical assistance and competitive awards to fund water and wastewater advanced technology development. AMO's technical assistance programs will work with the water sector to help accelerate adoption of energy efficiency industry-wide. The technical assistance work will be informed by engagement of state and local entities to illuminate market, regulatory, and technical barriers. Building off this strong base of technical assistance, the programs will extend work into net-zero energy operations, which will in turn encourage further diffusion of innovation. AMO will also support R&D investment in next generation technologies in areas such as more energy efficient pre-treatment for anaerobic digestion processes, gasification, and pyrolysis; reductions in the energy intensity of denitrification, and more energy efficient biosolid to energy conversion processes.

IE
IE will support demonstration projects for energy-water projects identified by the cross-cut efforts that are most relevant to Indian tribes. Initial focus will be on technologies that improve energy efficiency of drinking water and waste water systems on tribal lands.

Policy Analysis

EPSA
EPSA's policy analysis will draw upon and inform work in DMA and Technology RDD&D. The foundation of the policy analysis is a set of systems analyses addressing water and energy flows, energy infrastructure and technology deployment, market analysis and finance, and regulations at multiple scales. EPSA will continue to develop relevant and appropriate policy scenarios informed by societal developments and potential energy technology deployment trajectories. Complementary efforts will analyze energy system resilience under water constraints and also examine key federal, state, and local policies that affect energy-water system resilience. DOE will continue to identify and implement opportunities to leverage existing energy and water infrastructure investment programs, such as State and Tribal Assistance Grants and State Energy Programs. Efforts will also be directed toward region-specific analyses of the regulatory, economic, and market aspects of treating produced water from oil, gas, geothermal, carbon underground storage, and other sources. Similar efforts will be devoted to the topics of sustainable water utilities and thermoelectric cooling.

Outreach and Stakeholder Engagement

EPSA
Engaging with stakeholders of all types and at all levels is critical in understanding the relevant science, technology, business, and policy landscapes. Stakeholder engagement informs and is informed by DMA, technology RDD&D, and policy analysis. EPSA's objectives in this area include 1) informing and effectively utilizing data, models, and analysis; 2) informing technology specifications and improving the direct impacts of potential RDD&D investments; 3) informing and communicating policy analysis and design; 4) developing collaborative relationships at the state, local, tribal, and private sector levels in order to achieve constructive results. The proposed work includes regional workshops hosted collaboratively with universities, State Energy Offices, and regional stakeholders. These workshops will be designed to better illuminate regional challenges and potential solutions across a diverse set of topics.

IA

IA will explore and pursue international collaborations, building on extensive relationships with international stakeholders in recognition that the energy-water nexus is a global issue with ubiquitous data, modeling and analysis; technology RDD&D; and policy analysis interests. Collaboration with other nations gives the U.S. the opportunity to share resources to address shared issues. This work will include multilateral collaborations, such as through the Clean Energy Ministerial process, Asia-Pacific Economic Cooperation (APEC), and Power Africa, as well as bilateral collaborations with countries such as China and the United Arab Emirates (UAE).

Key Accomplishments and Objectives

FY 2014 Key Accomplishments

- Published *The Water-Energy Nexus: Challenges and Opportunities* in June 2014. Since that time the report has been broadly cited by a range of stakeholders and publications, including the Senate Committee on Energy and Natural Resources, National Association of Regulatory Utility Commissioners, Power Magazine, and American Water.
- Made progress designing and incorporating simplified, first generation water demand modules into the energy-focused Global Change Assessment Model
- Developed methodologies for simulating effects of air and water temperatures on thermal power plants in a Gulf coast regional modeling test-bed.
- Developed initial energy-water components in the Connected Infrastructure Dynamics Model.
- Developed a proof-of-concept model linkage paradigm including both “hard” and “soft” modeling connections between three different models: GCAM, an energy sector impact model (with water linkages), and a predictive model of weather variability and extremes.
- Investigated the technical and economic feasibility of utilizing low-enthalpy geothermal energy to desalinate various impaired waters (i.e., surface water, brackish water, seawater, waste water effluent, and geothermal brine). DOE evaluated a number of options and assessed the barriers to commercial development and the desirability of a field demonstration project.
- Modeled Forward Osmosis for cleaning produced waters from oil and gas operations. Predictive models of the various system components and processes were developed and integrated into a complete system model, with preliminary results indicating that produced water temperatures of ~120°C will provide sufficient heat to drive the Forward Osmosis process and allow for power generation.

FY 2015 Planned Activities

- Balance water supply and demand flows within the water resources module of GCAM.
- Complete numerical experiments examining the effect of changing weather patterns on individual and combined sectors (e.g. energy, food, water)
- Analyze uncertainty and perform GCAM and Integrated Global System Model (IGSM) sensitivity studies based on historical data, future scenarios, and model intercomparison.
- Inventory and develop individual data sets for IAM and IAV research with a focus on energy systems, water, land and related systems and stressors.
- Expand the scope and improve the outreach of technical assistance programs to reach municipal water and wastewater utilities. These technical assistance programs include Better Plants, Superior Energy Performance, Industrial Assessment Centers, and CHP Technical Assistance Partnerships.
- Develop first generation, state-level water and energy flow analyses to inform regional prioritization for outreach and stakeholder engagement.
- Develop initial energy-water policy analyses addressing the technology and economic dimensions to inform regional decision-making.
- Establish an MOU between DOE, DOI/USGS, and USDA to support collaboration on a water atlas addressing water availability.

FY 2016 Key Objectives

- Complete a conceptual design, scoping, and feasibility analysis for a layered energy resilience data-knowledge system for use at the nexus.

- Develop the software couplers and integration framework to combine models spanning key domains at the nexus.
- Develop future regional scenarios and conduct analytic “stress tests” that explore energy-water systems vulnerabilities and resilience.
- Fill data gaps in produced water.
- Improve spatial and temporal resolution of GCAM corresponding to scales required for analyses at the nexus.
- Complete a modeling framework for coupling hydropower technology and operational models with larger scale water-quality, earth-system, and IAV models.
- Expand technical assistance efforts in programs such as Better Plants, Superior Energy Performance Program, the Industrial Assessment Centers, and the CHP Technical Assistance Partnerships to catalyze energy performance improvements in water and waste water plants.
- Conduct wastewater treatment energy efficiency research and development in carbon recovery, denitrification, and biosolids conversions.
- Explore the development and implementation of innovative desalination processes.
- Improve separation techniques and filtration technologies in order to advance the beneficial use of produced waters
- Pursue international collaborations to address shared issues in the energy-water nexus space, with an emphasis on critical science and technology (S&T) cooperation and energy security.

Exascale Computing

($K)

FY 2015 Enacted	FY 2016 Request
149,000	272,624

Overview

Over the past several years, the Department of Energy (DOE) has become aware that future-generation systems will require significant changes in how high performance computers are designed and developed. The new designs proposed by industry to address the growing need for energy efficiency will result in massive parallelism all the way down to the processor level, which the high-performance computing (HPC) user community has never experienced before. We have reached a point where the continued improvement in processing performance requires breakthroughs in resolving the Von Neumann memory bottleneck, reducing power consumption, and solving problems of computing at unprecedented scales. As a consequence, the Department's approach to overcoming HPC technology challenges is aimed not simply at realizing a single, albeit, exceptional computing performance objective, but rather, at setting the U.S. on a new design trajectory of a broad spectrum of capabilities over the succeeding years. It is critical that we do this to build a sustained future of achievement and competitiveness that will extend orders of magnitude beyond the next targeted HPC platforms - exascale computing systems.

The business-as-usual investment pathway for developing the next-generation computers will not provide sufficient impetus to influence and steer U.S. industry through the impending inflection point in the roadmap/course towards increasing HPC computing power. Although the computing industry will respond to the challenges posed by this inflection point, its approach will be aimed at near-term solutions, which are inadequate to resolve the challenges DOE faces. Consequently, business-as-usual will contribute to the decline in U.S. leadership in this important area and hinder the nation's ability to advance its scientific, engineering, and national defense missions. A significant investment by the Federal government involving strong leadership from Department headquarters and close coordination by government, national laboratories, industry, and academia is required to address this national challenge.

A critical component of a federally funded effort in exascale computing is concurrent research and development in applications that will optimally exploit these emerging new exascale computing architectures. These "extreme scale" applications, i.e., applications enabled by exascale computing, must address the full spectrum of computing, including terascale and petascale as well as the targeted exascale applications. They should include those that support nuclear weapons stockpile stewardship, scientific discovery, energy technology innovation, renewable electrical generation and distribution, nuclear reactor design and longevity, data assimilation and analysis, and climate modeling. The Office of Science (SC) and National Nuclear Security Administration (NNSA) have already initiated R&D efforts in extreme scaling for applications. In FY 2016, these two offices will pursue greater engagement with the applied energy offices, to provide leadership and assist with the enabling of the next generation of important applications for strategic applied energy problems.

The nation that succeeds in leading in HPC and large-scale data analysis for the long term will have a competitive advantage in a wide array of strategic sectors, including basic science, national defense, energy, advanced manufacturing, health care, space, transportation, education, and information technology.

Since the beginning of the digital era, the U.S. federal government has made pivotal investments in the computer industry at critical times when progress was stagnating. We are once again at a critical turning point in HPC technology where innovations in hardware and software architectures are necessary to drive future advances in computing performance. While the computing industry will continue to advance technologies, the marketplace will drive them in directions orthogonal to HPC interests. Past experience has demonstrated that partnerships between the government and industry have led to the development of highly innovative, beneficial technologies and the incorporation of them into product lines in ways that adherence to market forces would have precluded. At this critical juncture DOE needs to directly influence future HPC technology that will result in the design and development of highly-energy-efficient, scalable exascale systems and lead to the development of extreme scale applications. The government must actively engage industry in HPC technology development, as market forces will not support national needs.

Failure to engage industry in satisfying our science and big data needs will open the door to other nations with demonstrated commitment to HPC investment to take the lead, not only in high-end computing, but also eventually in science, national defense, and energy innovation, as well as the commercial computing market. If the US defers to other nations the lead in HPC technology, the risks could include being subject to potential export controls exerted by these nations and we could be prey to unacceptable cyber-security and computer supply chain risks.

An HPC strategy, involving close coordination of future and relevant existing programs, is required to address this national HPC challenge. This strategy would entail taking on exascale technology goals through a coordinated pursuit by government, industry, and academia. It would also require developing extreme scale applications, each with substantially new capabilities.

The key exascale challenges that must be addressed are: parallelism, resilience, energy efficiency and memory and storage. In addition to the exascale challenges, our nation's HPC efforts face serious security threats that must be addressed by the Exascale Computing Initiative.

The Exascale Computing Initiative (ECI)'s goal is significantly accelerate the development of capable exascale computing systems to meet national security needs. This is defined as a hundred-fold increase in sustained performance over today's computing capabilities, enabling applications to address next-generation science, engineering, and data problems to advance DOEmissions. The plan includes three distinct pillars: the first pillar (Pillar 1) is Exascale Research, Development and Deployment (ExaRD); the second pillar (Pillar 2) is Exascale Application Development (ExaAD) to take full advantage of the emerging exascale hardware and software technologies from ExaRD; and third pillar (Pillar 3) is Exascale Platform Deployment (ExaPD) to prepare for and acquire two or more exascale computers. Pillar 3 will require outyear funding but has no associated budget request in FY 2016.

Highlights and Major Changes in the FY 2016 Budget Request

In FY 2016, DOE proposes to expand significantly its efforts in the following pillars:

- ***Pillar 1: ExaRD***
  - Exascale Co-Design Centers, exploratory research to co-design hardware and software architecture for a set of DOE mission-relevant applications; will be expanded to include R&D efforts in other Federal agencies,
  - Software Technology Research and Development, aimed at developing the many necessary, complex software technologies, including scientific data management, software productivity and resilience, and transparency to the user.
  - Vendor Research and Development, aimed at developing exascale node and system architectures.
- ***Pillar 2: ExaAD***
  - Readiness to Utilize "Capable" Exascale Systems, initiating the development of a suite of exascale applications software packages to ensure maximal scientific and engineering impact of the exascale systems.
  - There three application development efforts that will either be initiated or continued in FY 2016. These are: Stockpile Simulation, Climate Modeling and Functional Materials.

Exascale Computing
Funding by Appropriation and Program
($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Science			
Advanced Scientific Computing Research: Mathematical, Computational, and Computer Sciences Research	41,000	43,511	+2,511
Advanced Scientific Computing Research: High Performance Computing and Network Facilities	50,000	134,383	+84,383
Biological and Environmental Research	---	18,730	+18,730
Basic Energy Sciences	8,000	12,000	+4,000
Total, Science	**99,000**	**208,624**	**+109,624**
Weapons Activities			
Advanced Simulation and Computing: Advanced Technology Development and Mitigation	50,000	64,000	+14,000
Total, Exascale Computing	**149,000**	**272,624**	**+123,624**

Exascale Computing
FY 2016 Funding by Pillar
($K)

	Application Development	Research & Development	Total
Science			
Advanced Scientific Computing Research: High Performance Computing and Network Facilities	---	134,383	134,383
Advanced Scientific Computing Research: Mathematical, Computational, and Computer Sciences Research	---	43,511	43,511
Basic Energy Sciences	12,000	---	12,000
Biological and Environmental Research	18,730	---	18,730
Total, Science	**30,730**	**177,894**	**208,624**
Weapons Activities			
Advanced Simulation and Computing: Advanced Technology Development and Mitigation	20,000	44,000	64,000
Total, Exascale Computing	**50,730**	**221,894**	**272,624**

Program Roles

Departmental Collaboration

The Office of Science and NNSA have a long track record of successfully executing large, technically complex, scientific projects. Following past exemplars, the ECI will be organized as a project and will be executed within a tailored framework that follows DOE Order 413.3B, which defines critical decision points, overall project management, and requirements for control of baselined schedule and cost. A single federal official will have overall responsibility for execution of the project, will report to the cognizant DOE Headquarters program offices (SC and NNSA), and will be accountable to an Acquisition Executive, as defined in 413.3B. Project execution will be governed by a baselined schedule and cost envelope, in accordance with 413.3B, and will follow the defined processes for change control and management of contingency once the performance baseline for ECI is established.

Because of the breadth and complexity of the development and deployment of an exascale computer, an Integrated Project Team (IPT) will be established through an IPT charter with defined roles and responsibilities. The IPT will support the federal official, who will lead the IPT through the lifetime of the project.

Pillar 1 Exascale Research, Development and Deployment

SC: ASCR

The Office of Science has a long track record of successfully executing large, technically complex, scientific projects. This program office will apply its management and technical expertise to the exascale computing challenge. SC and NNSA will jointly determine which projects will be funded under this pillar and will select the performers. A significant investment is required in this pillar to enable DOE to overcome the exascale barriers and ensure that the computer industry can start deploying exascale computer systems in FY-2023. ASCR program managers will participate in the management of the ExaRD pillar.

NNSA: ASC

The National Nuclear Security Administration has a long track record of successfully executing large, technically complex, scientific projects. The ASC program office will apply its management and technical expertise to the exascale computing challenge. SC and NNSA will jointly determine which projects will be funded under this pillar and select the performers.

Pillar 2 Exascale Application Development (ExaAD)

SC: ASCR: Will utilize the ASCR SciDAC program to assist with the development of the applications in the ExaAD pillar. The SciDAC program provides ASCR funded intellectual resources in applied mathematics and computer science, expertise in algorithms and methods, and scientific software tools to advance scientific discovery through modeling and simulation. The development of SciDAC tools and resources by ASCR is intended for computational systems such as those existing and planned for at the Oak Ridge and Argonne Leadership Computing Facilities, the National Energy Research Scientific Computing Center, and similar world-class computing.

SC: BER: Will be responsible for determining the scope and management of the Climate Modeling programs that are included in the ExaAD pillar. Climate modeling science requires resolution of atmospheric and terrestrial processes across multiple scales, to project how systems such as aerosols, clouds, precipitation, ecosystems, and Arctic tundra will shift with climate. Energy and infrastructure planning will require precise projection of temperature exceedances, water availability, sea-level rise, storm likelihood, and crop potentials. The Extreme Challenges workshop series and the Advanced Scientific Computing Advisory Committee Subcommittee report on Exascale climate science articulated the need to understand the dynamic ecological and chemical evolution of the climate system, with quantification of the uncertainties in the impacts on regional and decadal scales.

SC: BES: Will be responsible for determining the scope and management of the Functional Material programs that are included in the ExaAD pillar. The Computational Materials Science and Chemistry workshop identified a number of material science challenge applications for future exascale computing resources, including: 1) new catalysts to improve the efficiency of industrial processes, make effective use of bioenergy, and drive energy conversion and environment mitigation processes; and 2) developing better models of photovoltaic processes and improving the efficiency of photovoltaic devices.

NNSA: ASC: Will be responsible for determining the scope and management of the Stockpile Simulation development program that is included in the ExaAD pillar. Our confidence in the nuclear stockpile relies on high fidelity simulations of all of the physical processes occurring within a nuclear weapon and the processes that support the design, production, maintenance, and evaluation of the nuclear arsenal, including support of life extension programs and weapons dismantlement. Integrated design codes (IDCs) model various aspects of nuclear weapons, and can have several million lines of code to accurately reflect the integrated multi-physics occurring in a nuclear weapon. The accuracy of these IDCs underpins confidence in the U.S. nuclear deterrent. To exploit the multi-level parallelism demanded by emerging architectures leading to exascale, significant new stockpile simulation code development will be required over the next 7-10 years.

Pillar 3 Exascale Platform Deployment (ExaPD)
The activities in this pillar are for determining the requirements necessary for deployment of exascale computers. Included in this component are the planning and execution of the procurements and any necessary site preparation, such as providing electrical power and cooling. SC and NNSA will jointly develop the deliverables for this pillar. For FY 2016, funding is not being requested.

Key Accomplishments and Objectives

FY 2014 Key Accomplishments
- Initiated the FastForward 2 program. The goal of this program is to fund computer vendors to start the design of exascale nodes. This program is funding AMD, Cray, IBM, Intel, Micron and NVIDIA.
- Initiated a program to perform research on Scientific Data Management, Analysis and Visualization at Extreme Scale.
- Held an external review of the preliminary conceptual design for the exascale computer initiative.
- Initiated a program to perform research on Software Productivity for Extreme Scale Applications.
- NNSA initiated its next-generation stockpile simulation code development effort.
- NNSA continued to improve the ASC proxy application set to better represent key performance features of mutual interests to the FastForward and DesignForward vendors.

FY 2015 Planned Accomplishments
- Released the document, “Preliminary Conceptual Design for an Exascale Computing Initiative”.
- Initiated the DesignForward 2 program. The goal of this program is to fund computer vendors to develop conceptual designs for an exascale computer, including modeling of important system characteristics.
- Initiated a program to perform research on Resilience for Extreme-Scale Supercomputing Systems.
- Complete the ECI performance baseline.
- Announce the ANL system under the CORAL procurement.
- Develop a plan to gather detailed hardware and software requirements for SC program offices for future computing resources.
- Continue application portability activites to prepare for FY 2016-FY2017 planned upgrades to SC facilities.

FY 2016 Key Objectives
- Formally start the DOE Exascale Computing Initiative.
- Initiate the first set of ECI projects in the areas of software technologies, vendor R&D and co-design centers.
- Initiate greater engagement with the applied energy offices.
- Initiate requirements gathering activities with SC program offices.
- Deploy Cray/Intel upgrade at LBNL.
- Finalize site preparations activities for CORAL upgrades.

Grid Modernization

($K)

FY 2015 Enacted	FY 2016 Request
196,144	356,027

Overview

The Grid Modernization crosscut is a coordinated program of activities to help set the Nation on a cost-effective path to an integrated, secure, and reliable grid system that is flexible enough to provide an array of emerging services while remaining affordable to consumers. Though small relative to industry size, strategic investments by DOE in foundational technology development, enhanced security capabilities, and greater institutional support and stakeholder engagement will provide tools necessary for the evolution to the grid of the future.

The reliability and functioning of the Nation's electricity grid is often taken for granted. Whereas rolling blackouts are the norm in many developing countries, U.S. customers have historically benefitted from highly reliable and affordable power transported through long-lived transmission and distribution infrastructure and built on a foundation of safe and secure centralized power generation. Our extensive and resilient power grid has fueled the Nation's growth engine and long been an exemplar for other countries. Access to electricity is such a fundamental enabler for the economy that the National Academy of Engineering named Electrification the greatest engineering achievement of the 20th century.

For nearly its entire existence, the Nation's electrical generation capacity has consisted of centralized sources that provide a mix of baseload power with generation that can respond quickly to spikes in demand. The ability of fossil sources (coal and natural gas) to fit into this type of structure has led to their domination of the electricity generating sector. Meanwhile, the management and oversight of the grid has evolved into a layered system of highly variable—and often incongruent—local, state, regional, and national policies and regulations.

However, advances in technology across the energy spectrum (including electricity generation, distribution, utilization, and consumption) are combining with changing public expectations and governmental policies to push the Nation's electric grid beyond its current capability. For example, in 2003, the total U.S. non-hydro renewable generation capacity was 20 gigawatts (GW), or about 2 percent of the country's total. By 2013, this had grown to 93 GW, or 8 percent of the total, with another roughly 12 GW anticipated to come on line by the end of 2014.[a] In some markets the penetration of renewable sources is much higher (e.g., solar photovoltaics (PV) provides 64 percent of annual peak load on the island of Kauai, Hawaii).[b] While the grid can easily accommodate new baseload energy sources, the variable characteristic of most renewable and distributed sources introduces new challenges to utilities and regulatory bodies that must continuously balance demand with reliability and affordability. Making the integration of renewables more challenging is the fact that some intermittent sources (like wind) tend to be centralized in specific locations, while others (such as rooftop-mounted photovoltaics) are widely distributed among a range of residential, commercial and industrial customers.

Concurrent with this rapid influx of variable power sources is demand by customers to have more control over their power consumption (and generation) and the introduction of "smart" devices that offer the ability to communicate with electricity providers. In addition, the emergence of technologies such as microgrids and energy storage systems offer many benefits in terms of providing reliable and high-quality electricity supplies to customers, but offer unique challenges in how they should operate in the context of the existing grid infrastructure and electricity markets.

At the same time, the rapid emergence of interconnected electricity information and control systems face daunting security threats, both cyber and physical, domestic and international, as well as the prospect of increasingly-frequent extreme weather events.

Never before has such a confluence of inter-related yet competing demands been placed on our electric power system. Symptoms of the problems underlying today's grid can be found in headlines across the country, ranging from challenges

[a] 2013 Renewable Energy Databook, NREL, forthcoming.

[b] Presentation from Michael Champley, Public Utility Commissioner from HI, Workshop on September 30, 2014.

over net-metering policies (at least 23 states have had active debates, proceedings, or legislation on net-metering[a]), to the massive 2003 blackout, to the potentially serious consequences of physical attacks on grid infrastructure.

It is clear that the future of the Nation's economic competiveness, energy security, and environmental stewardship depends on the modernization of the Nation's grid infrastructure. Technologies, markets, governing policies, and regulatory structures must change to adapt to current and future innovations. The Federal challenge is to enable adaptation that is efficient, coherent, and strategically aligned.

The Brattle Group, in a report for the Edison Electric Institute, has estimated that utilities will need to spend about $1.5 to $2 trillion by 2030 just to maintain the reliability of electric service.[b] With a relatively small investment in Federal dollars, DOE can play an important role in accelerating technology innovation and in gaining consensus among diverse stakeholders in the marketplace, ensuring that the trillions of dollars in expected private investment are strategically planned and leveraged to create a grid for the 21st century.

Highlights and Major Changes in the FY 2016 Budget Request

There are significant changes in the grid modernization budget request. Each individual program budget has defined these, but those that most directly impact the grid crosscut and provide critical links to other program areas are:

- A new State Energy Reliability and Assurance Grants program (+$27,500,000) for grants to states, localities, regions, and tribal entities for electricity transmission, storage, and distribution reliability planning.
- A Transformer Resilience and Advanced Components program (+$10,000,000) directed at both transformer protection from geo-magnetic fields and power electronics activities.
- Within the Solar Energy budget line, increases directed at improved controls, sensors, power electronics and connection to energy storage (+$32,106,000).
- Increase in the Smart Grid program line to develop next generation distribution management system and transactive controls that can accommodate the new end use technologies (buildings, solar, storage, and vehicles) and develop microgrid systems (+$14,561,000).
- Increase in the Building Technologies program line to improve building control system interoperability with new grid control systems and improve building internal controls to adapt to efficient and improved grid connectivity(active voltage control) (+$11,800,000).
- Increase in the Vehicle Technologies program line to link plug-in electric vehicle systems to the buildings and grid systems (+$11,800,000).

[a] "Standby and Fixed Cost Charges and New Energy Metering Debates." Publication of the North Carolina Clean Energy Technology Center. August, 2014

[b] "Transforming America's Power Industry: The Investment Challenge 2010-2030." The Edison Foundation, 2008.

Grid Modernization
Funding by Appropriation and Program ($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Departmental Administration			
EPSA: Program Direction	---	1,000	+1,000
Electricity Delivery and Energy Reliability			
National Electricity Delivery	6,000	7,500	+1,500
State Energy Reliability and Assurance: Grants for Electricity TS&D Reliability	---	27,500	+27,500
Clean Energy Transmission and Reliability: Advanced Model Grid Research	10,648	15,000	+4,352
Energy Storage	12,000	21,000	+9,000
Clean Energy Transmission and Reliability: Energy Systems Risk and Predictive Capability	6,190	7,000	+810
Smart Grid	15,439	30,000	+14,561
Clean Energy Transmission and Reliability: Transmission Reliability	17,424	18,000	+576
Transformer Resilience and Advanced Components	---	10,000	+10,000
Cybersecurity for Energy Delivery Systems	45,999	52,000	+6,001
Infrastructure Security and Energy Restoration	6,000	14,000	+8,000
Total, Electricity Delivery and Energy Reliability	**119,700**	**202,000**	**+82,300**
Energy Efficiency & Renewable Energy			
Building Technologies: Emerging Technologies	6,200	18,000	+11,800
Facilities and Infrastructure: Facilities Management	30,000	36,000	+6,000
Hydrogen and Fuel Cell Technologies: Hydrogen Fuel R&D	---	3,000	+3,000
Hydrogen and Fuel Cell Technologies: Technology Validation	1,500	5,500	+4,000
Solar Energy: Systems Integration	27,894	60,000	+32,106
Vehicle Technologies: Vehicle Systems	6,200	18,000	+11,800
Wind Energy: Mitigate Market Barriers	4,650	12,027	+7,377
Total, Energy Efficiency & Renewable Energy	**76,444**	**152,527**	**+76,083**
Office of Indian Energy Policy and Programs			
Tribal Energy Program: Tribal Energy Grant Program	---	500	+500
Total, Grid Modernization	**196,144**	**356,027**	**+159,883**

Grid Modernization

FY 2016 Funding by Pillar ($K)

	Institutional Support and Alignment	Technology Innovation				Grid Security and Resilience	Total
		Design and Planning Tools	Systems Control and Power Flow	Grid Sensing and Measurement	Devices and Integrated System Testing		
Departmental Administration							
EPSA: Program Direction	1,000	---	---	---	---	---	**1,000**
Electricity Delivery and Energy Reliability							
Clean Energy Transmission and Reliability: Advanced Model Grid Research	---	5,000	7,000	3,000	---	---	**15,000**
Clean Energy Transmission and Reliability: Energy Systems Risk and Predictive Capability	---	3,000	---	---	---	4,000	**7,000**
Clean Energy Transmission and Reliability: Transmission Reliability	---	3,000	6,000	9,000	---	---	**18,000**
Cybersecurity for Energy Delivery Systems	---		---	---	---	52,000	**52,000**
Energy Storage	---	4,000	7,000	---	10,000		**21,000**
Infrastructure Security and Energy Restoration	---	---	---	---	---	14,000	**14,000**
National Electricity Delivery	7,500	---	---	---	---	---	**7,500**
Smart Grid	---	---	5,600	---	24,400	---	**30,000**
State Energy Reliability and Assurance: Grants for Electricity TS&D Reliability	27,500	---	---	---	---	---	**27,500**
Transformer Resilience and Advanced Components	---	---	---	---	5,000	5,000	**10,000**
Total, Electricity Delivery and Energy	**35,000**	**15,000**	**25,600**	**12,000**	**39,400**	**75,000**	**202,000**

	Institutional Support and Alignment	Technology Innovation				Grid Security and Resilience	Total
		Design and Planning Tools	Systems Control and Power Flow	Grid Sensing and Measurement	Devices and Integrated System Testing		
Reliability							
Energy Efficiency & Renewable Energy							
Building Technologies: Emerging Technologies	1,000	---	---	4,000	13,000	---	**18,000**
Facilities and Infrastructure: Facilities Management	---	---	---	---	36,000	---	**36,000**
Hydrogen and Fuel Cell Technologies: Hydrogen Fuel R&D	---	---	---	---	3,000	---	**3,000**
Hydrogen and Fuel Cell Technologies: Technology Validation	---	---	---	---	5,500	---	**5,500**
Solar Energy: Systems Integration	---	5,000	20,000	10,000	25,000	---	**60,000**
Vehicle Technologies: Vehicle Systems	500	1,000	---	4,500	12,000	---	**18,000**
Wind Energy: Mitigate Market Barriers	1,127	4,200	3,700	---	3,000	---	**12,027**
Total, Energy Efficiency & Renewable Energy	**2,627**	**10,200**	**23,700**	**18,500**	**97,500**	**---**	**152,527**
Office of Indian Energy Policy and Programs							
Tribal Energy Program: Tribal Energy Grant Program	500	---	---	---	---	---	**500**
Total, Grid Modernization	**39,127**	**25,200**	**49,300**	**30,500**	**136,900**	**75,000**	**356,027**

Program Roles

Departmental Collaboration

DOE proposes to achieve grid modernization through a multi-year collaborative initiative involving public and private sector energy stakeholders including utilities, regulators, developers, the North American Electric Reliability Corporation, Electric Power Research Institute, and many others. This will be led by three DOE offices, as described below, with additional participation from the Office of Indian Energy Policy and Programs (IE):

- The Office of Electricity Delivery and Energy Reliability (OE), whose role is to enable the grid to use all available energy sources to serve all loads while meeting climate, security, reliability, resiliency, safety, and affordability objectives, and provide overall management of DOE's Grid Modernization efforts.
- The Office of Energy Efficiency and Renewable Energy (EERE), whose role is to enable energy efficiency, renewable power, and sustainable transportation technologies to be integrated into the grid in a safe, reliable, and cost-effective manner.
- The Office of Energy Policy and Systems Analysis (EPSA), whose role is to provide rigorous analysis, robust stakeholder engagement, and recommendations for policy options that support the public interest in efficient markets, clean reliable energy, and modernization of the Nation's energy systems.

The Department's Grid Modernization program has three parts:

- ***Institutional Support and Alignment****:* Create an overarching stream of grid-related "institutional" analyses, workshops and dialogues to highlight challenges and explore the option space for grid transformation, focusing on key policy questions related to new technologies, regulatory practices, market designs, and business models.
- ***Technology Innovation****:* Increase the emphasis on the coordination of relevant existing base-level, grid-related R&D among DOE offices on core technological challenges and propose additional funding for R&D that will create tools and technologies that measure, analyze, predict, and control the grid of the future.
- ***Grid Security and Resilience***: Help the U.S. electricity sector protect, prevent, and respond to natural and directed threats.

Institutional Support and Alignment

The adoption of DOE's R&D results will be significantly accelerated by a parallel stream of institutional analyses, workshops, and dialogues designed to raise awareness of the challenges, opportunities, and options for grid modernization. DOE's efforts focus on key policy questions related to the costs and benefits of grid-related investments, and the regulatory treatment of new technologies, market designs, and business models

Departmental Administration: Energy Policy and Systems Analysis

In FY 2016, EPSA ($1,000,000) will conduct energy sector analysis, modeling, stakeholder engagement, and development of policy recommendations that will help guide the crosscutting Grid Modernization activities. This includes generally ensuring consistency across the Department's electricity policy-relevant activities.

Electricity Delivery and Energy Reliability

National Electricity Delivery: NED ($7,500,000) will focus on assistance to States, regions and tribes providing analytical tool development for grid future scenarios as well as technical assistance.

State Energy Reliability and Assurance Grants: The SERAG program ($27,500,000) supports Grants for Electricity Transmission, Storage, and Distribution Reliability to finance state, local, regional and tribal entities to enhance reliability through integrated energy system planning. The increase will provide grants to develop energy system reliability plans to advance electric reliability planning and integrate it with environmental protection (including climate adaptation), climate resilience, and efficiency infrastructure planning and action.

Energy Efficiency and Renewable Energy

Building Technologies ($1,000,000): Efforts are needed to ensure regulators, policy makers, and other stakeholders understand the implications of building devices that can play a role in providing grid services and increasing the hosting capacity of clean technologies on the grid.

Vehicle Technologies ($500,000): As electric vehicles (EVs) become more prevalent, regulators need to better understand the role EVs can play in providing flexibility to the grid, including the ability to increase the hosting capacity of the grid.

Wind Energy ($1,127,000): Share technical information regarding the current state of wind integration with the utility community and engage stakeholders in organizations such as the North American Electric Reliability Corporation, the Federal Energy Regulatory Commission, and the Institute of Electrical and Electronics Engineers. Continue to analyze how wind energy impacts electricity markets.

Office of Indian Energy Policy and Programs

Office of Indian Energy Policy and Programs ($500,000) will provide financial assistance to support deployment of electrification infrastructure on Indian lands.

Technology Innovation: Design and Planning Tools

Electric power grid modeling and simulation applications are fundamental to the successful design, planning, and secure operation of power systems. Within the context of a new architectural framework for the grid, this initiative will develop the modeling and simulation tools needed for power system planning. The new tools will handle emerging needs driven by increasing model size, penetration of renewable energy sources, forecasting, and new data.

Electricity Delivery and Energy Reliability

Clean Energy Transmission and Reliability: In FY 2016, the CETR program ($11,000,000) will develop improved planning tools and data analysis to enable real-time integrated operations and operational planning for new grid design. The program will explore new grid architectures with industry and academia that enable system stability and reliability while opening markets to high penetrations of renewable energy and other technologies, such as microgrids.

Energy Storage: The energy storage program ($4,000,000) will evaluate storage impacts on grid design. The storage program creates the planning tools necessary to effectively place storage in electricity systems to maximize renewable energy use and minimize negative impacts on the distribution system

Energy Efficiency and Renewable Energy

Solar Energy ($5,000,000): Develop tools and algorithms such as stochastic representations of solar power output. Solar also supports cost reductions and efficiency improvements through innovative circuit design, development of advanced components, and optimal control.

Vehicle Technologies ($1,000,000): Develop tools and algorithms to determine how EVs can play a role in increasing the hosting capacity of variable renewables and develop improved modeling and planning tools for analysis of plug-in electric vehicles (PEVs), charging infrastructure, and associated electricity consumption and flow characteristics.

Wind Energy ($4,200,000): Develop tools and algorithms to develop stochastic representations of wind power output. Support grid studies and investigate the impact of wind technologies on a more regional basis.

Technology Innovation: Systems Control and Power Flow

Grid control systems have been developed over several decades using a set of design parameters that were appropriate in the 20th century: centralized dispatchable generation connected to transmission, relatively slow dynamics that permitted manual control, no significant grid energy storage, passive loads, one-way flow of real power at the distribution level, operation for reliability, and generation-following load for balancing. All of these design parameters are now being stressed to accommodate new grid capabilities, clean energy technologies, and changing economics. Many trends have changed the grid control landscape, such as the advent of variable generation sources, the penetration of distributed generation, the rise of responsive loads (e.g., demand response), grid dynamics that are 100x faster than in the past due to the availability of high-voltage power electronics combined with the behavior of wind and solar power, and the increasing use of endpoints of various kinds that have built-in intelligence.

Electricity Delivery and Energy Reliability

Clean Energy Transmission and Reliability: The CETR program ($13,000,000) will concentrate on design and simulation of a new transmission energy management system (EMS) for master control of the grid. Building on the advanced computation

and modeling work in progress, the advanced EMS system design must include control schemes to accommodate new signals from the distribution management system and loads that do not participate in markets today.

Energy Storage: The Energy Storage program ($7,000,000) will concentrate on new storage devices that provide fast acting storage response and control to balance high renewable energy penetration and stabilize variance in consumer load profiles. The program will fund highly leveraged demonstrations of integrated storage with distributed generation through cost-shared effort with public access to the results.

Smart Grid: In the Smart Grid program ($5,600,000), a parallel effort to the EMS will be the design of an advanced distribution management system (ADMS) for controlling new end-use devices and transactive abilities that interface with the electricity market. An ADMS system must include the new ability to interface with thousands of local distributed generation and end use devices, providing safe electricity flow and market signals for consumer participation in markets.

Energy Efficiency and Renewable Energy

Solar Energy ($20,000,000): Research in power electronics will develop intelligent devices that can maximize the power output from the PV arrays on the one side and serve as the interfaces to the electric grid on the other, while ensuring overall system safety, reliability, and controllability.

Wind Energy ($3,700,000): Develop faster forecasts using high performance computing and in (partnership with NOAA) and work with OE to incorporate these directly into tools being developed by OE and into new energy management system software that will be developed by industry.

Technology Innovation: Grid Sensing and Measurement

Instrumentation for transmission has improved with the deployment of phasor measurement units (PMUs or synchrophasors) and substation intelligent electronic devices, but sensing and measurement at the distribution level is still comparatively weak. Only about 20 percent of the distribution infrastructure is served by a traditional distribution management system, and many utilities still rely on customer phone calls to indicate outages. Distribution grid topologies are complex and variable, which complicates the identification of key points on feed circuits for the deployment of distribution level sensors. With the penetration of distributed energy resources, microgrids, and responsive loads, the need for improved distribution control is becoming more acute, while sensing and measurement at the distribution level are becoming crucial. Most distribution utilities do not have the means to determine what kinds of sensors to deploy, where to deploy them, and how to best develop the network of sensors. There is also a fundamental need to develop less expensive sensors and sensor networks that can be easily deployed.

This initiative will develop tools and strategies to determine the optimal type, number, and placement of sensors on distribution grids to provide operators the visibility for specific utilities and feeders. The initiative will also develop advanced methods to determine system states not directly accessible by measurement (such as internal generator or inverter states), and estimation methods for broad grid visibility. Finally, the initiative will develop frameworks to integrate sensors into grid systems for solar irradiance, forecasting, and market data, and data from interfacing infrastructures such as electrified transportation.

Electricity Delivery and Energy Reliability

Clean Energy Transmission and Reliability: The CETR program ($12,000,000) will improve the tracking use of real-time data in control rooms and energy management systems using synchrophasor based tools. We will continue support of the North American Synchrophasor Program Initiative (NASPI) to advance information sharing and joint problem-solving among utilities, vendors, universities, and the government, including hosting two annual workgroup sessions.

Energy Efficiency and Renewable Energy

Building Technologies ($4,000,000): Build upon sub-metering program and will develop low cost sensors to measure the status of building loads in the building management system.

Solar Energy ($10,000,000): Develop low cost sensors and communications and control of solar inverters to enable greater visibility of solar technologies on distribution networks.

Vehicle Technologies ($4,500,000): Develop and demonstrate new devices (e.g., low-cost communications-capable energy meters), systems, and algorithms to enable advanced controls of PEVs across the electricity distribution system.

Technology Innovation: Devices and Integrated System Testing

DOE offices such as EERE, OE, and the Advanced Research Projects Agency-Energy have historically funded the development of a wide range of individual technologies and devices designed to connect to the electric power system (including solar, wind, storage, and electric vehicles). The main goal has been to improve the performance, reliability, efficiency, and cost competitiveness of these devices. As costs come down and the devices are inserted into the grid in significant numbers, coordination of the devices through communication and control systems becomes increasingly important. From a systems perspective, the goal is for each individual device to function well, while achieving potential synergies with other devices and minimizing disruptive impacts from such devices.

There are also additional needs at the device and local control level, such as the need for controllable power electronic interfaces for distributed energy resources and energy storage, which can help enable broader integration of renewable and energy efficiency technologies. In addition to the device development, characterization of the capacity of these devices to provide a range of energy services is also critical. Evaluation and validation of these devices in a system context will also be critical to ensure that deployment of the technologies at scale would be beneficial.

Electricity Delivery and Energy Reliability

Energy Storage: The Energy Storage program ($10,000,000) will develop new storage technologies and functionality for grid operations.

Smart Grid: The Smart Grid program ($24,400,000) will concentrate on a fundamental shift in system integration at the distribution level aimed at new technology adoption, renewable energy penetration and enhancing consumer choice. In conjunction with the ADMS development in System Controls and Power Flow, the activities in this area will concentrate on advanced microgrid design and testing, as well as grid-side transactive systems working in conjunction with the buildings program.

Transformer Resilience and Advanced Components: The TRAC program ($5,000,000) will examine transformer failure mechanisms through multi-physics modeling and engaging in reduced- and full-scale physical testing. Assessing mitigation options such as testing of blocking devices, solid state solutions, conducting system-wide analyses, and monitoring ground-induced currents (GICs) will be included.

Energy Efficiency and Renewable Energy

EERE will investigate behind-the-meter storage to mitigate variable renewables like wind and solar technologies. EERE will also partner with OE to incorporate the successes in equipment characterization; communication, information, and computation infrastructure; and developing holistic grid services to make them work in the next-generation distribution management system. EERE will partner with a national laboratory consortium to design, simulate, and demonstrate a transactional energy ecosystem as the basis for accomplishing grid integration and realizing the full potential of energy and grid related opportunities.

Building Technologies ($13,000,000): Continue to characterize building loads and investigate open source interoperability platforms for buildings loads. This effort will also further develop transactive energy systems where devices can act as independent agents and provide grid services, comfort, etc. in response to market signals.

Facilities and Infrastructure ($36,000,000): DOE has developed several facilities to address grid modernization across the national laboratory complex. DOE constructed the Energy Systems Integration Facility (ESIF) at the National Renewable Energy Laboratory (NREL), a state-of-the-art facility opened in 2013 that is designed for testing, simulation, data analysis, engineering, and evaluation techniques for addressing grid integration challenges. DOE will be providing $36,000,000 to support ESIF facilities and infrastructure in FY 2016.

Hydrogen and Fuel Cell Technologies ($8,500,000): Continue to characterize electrolyzers and reversible fuel cells to determine what grid services they can provide and integrate them into a transactional energy ecosystem. Fuel Cells will also enable reversible fuel cells to be competitive and reduce cost and improve performance of high temperature electrolysis systems.

Solar Energy ($25,000,000): Continue to work on energy storage and studying the impact of high penetration of solar technologies on feeders as well as how the integration of all devices will fit into a larger distribution management system and into a transactional energy ecosystem.

Vehicle Technologies ($12,000,000): Collaborate with other programs to demonstrate the potential of PEVs integrated into a larger transactional energy ecosystem. Investigations will address such as grid system and analysis tools, interoperability standards, owner economics.

Wind Energy ($3,000,000): Work with other offices to enable wind devices to be connected into the greater distribution management system and transactional energy ecosystem.

Grid Security and Resilience

The focus of this activity is to improve the resilience of the electric sector by developing physical and cyber security solutions, analyze criticality and assess impacts to minimize risk, provide solutions for supply chain risks (specifically for transformers), and provide situational awareness/incident support during energy related emergencies.

DOE, as the Energy Sector-Specific Agency, has a number of responsibilities under the Presidential Policy Directive on Critical Infrastructure Security and Resilience (PPD-21), including:

- collaborating with infrastructure owners and operators to strengthen the security and resilience of critical infrastructure;
- serving as a day-to-day Federal interface for the prioritization and coordination of sector-specific activities;
- carrying out incident management responsibilities consistent with statutory authority and other appropriate policies; and
- providing technical assistance to the energy sector to identify vulnerabilities and help mitigate incidents, as appropriate.

Electricity Delivery and Energy Reliability

Clean Energy Transmission and Reliability: CETR's Energy Systems Risk and Predictive Capability subprogram ($4,000,000) will perform predictive modeling and risk analysis of the U.S. energy system.

Cybersecurity for Energy Delivery Systems: The CEDS program ($52,000,000) will continue a multi-faceted approach to preserving grid security. In partnership with industry, OE has been supporting the Cybersecurity Risk Information Sharing Program (CRISP), which is a collaborative effort with private energy sector partners to facilitate the timely sharing of threat information and the deployment of situational awareness tools to enhance the sector's ability to identify threats and coordinate the protection of critical infrastructure.

Infrastructure Security and Energy Restoration: The ISER program ($14,000,000) maintains proactive preparedness and energy sector outreach and energy response. ISER will continue to help secure the U.S. energy infrastructure against all hazards, reduce the impact of disruptive events, and assist industry in quickly restoring energy; it also develops tools and applies new technologies to enhance its capabilities to better fulfill these responsibilities. ISER's efforts with state and local governments, responding to and recovering from energy disruptions, ensure seamless collaboration at all levels.

Transformer Resilience and Advanced Components: The TRAC program ($5,000,000) will advance the understanding of risks associated with geomagnetic disturbances (GMD)/electromagnetic pulses (EMP) and their impact on large power transformers (LPTs), the most critical pieces of equipment in the grid.

Key Accomplishments and Objectives

FY 2014 Key Accomplishments

- Initiated more than $13 million of investment at the Energy Systems Integration Facility at NREL with 48 external partners.
- Release of the Sustainable and Holistic Integration of Energy Storage and Solar PV (SHINES) solicitation to develop and demonstrate solutions that meet both consumer needs and the needs of the electricity grid.
- An enhanced wide-area oscillation detection system was demonstrated for the first time in the Eastern Interconnection.
- To support the transition of synchrophasor research into commercial-grade tools, OE competitively awarded six projects to facilitate quick and effective response to grid conditions; utility partners have committed to deploying these tools after the two-year projects are complete.
- Launched the first of three Microgrid Incentive Prize Competitions to showcase enhancement of grid resiliency and to provide a cleaner and more efficient and cost effective power system.

- Several systems developed through OE support were commercially released. The Experion R430.1 system provides role-based access and control to secure grid operations; Exe-Guard technology enhances cyber and physical security of distribution automation systems and field device communications; and ADEC-G is a cybersecurity software tool with particular functionality for utility Smart-Grid applications.
- A first-of-a-kind system was installed for testing grid-connected, second-use electric vehicle batteries in stationary applications.

FY 2015 Planned Accomplishments

- Develop a Grid Modernization Laboratory Consortium consisting of 13 national laboratories that work in concert to address grid modernization challenges across the Department.
- Develop a Grid Multi-Year Program Plan for grid modernization across DOE.
- Conduct comprehensive review of all DOE grid programs across the national laboratory complex.
- Complete the Western Wind and Solar Integration Study III to investigate the impact of significant renewable penetration on large-scale system stability.
- Complete the Eastern Renewable Generation Integration Study which investigates how system operations could be impacted with significant renewable penetration on the Eastern Interconnection.
- Analyze the content of synchrophasor data to identify possible signatures characteristic of physical attacks, incipient equipment failures, and health on the transmission grid.
- Idaho National Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory develop a framework for federated testing and evaluation leveraging “best in class” physical and virtual assets for enhanced grid test and evaluation.
- Foster dissemination of open source software developed for power system applications.
- Launch a direct current (DC) microgrid initiative to achieve climate-neutral buildings with awards for new industry and national laboratory projects.
- Issue a competitive solicitation for the energy sector to transition mid-term research and development projects into real world cybersecurity capabilities for the energy sector through industry-led, cost-shared, short-term research and development.
- Initiate research on emerging technologies such as non-aqueous redox battery and sodium-based inorganic and organic batteries with potential for lower cost storage systems.

FY 2016 Key Objectives

- Working with the program offices, execute the first year of the Grid Multi-Year Program Plan.
- Leverage successes in equipment characterization and interoperability to enable distributed energy resources to work together to provide grid services and increase the hosting capacity of clean energy technologies.
- Develop a transactive energy ecosystem as the basis for accomplishing grid integration and realizing the full potential of energy and grid related opportunities.
- Develop low-cost power, vehicle, and building sensors that rely on open source interoperability standards to provide visibility and understanding to grid operators on the status of these assets and their ability to provide grid services.
- Initiate multi-laboratory outreach to states and regions to provide a directed point of contact for all grid related activities at DOE.
- Execute comprehensive grid annual operating plan that encompasses and coordinates grid activities across thirteen laboratories.
- Expand cross office collaboration on grid interface activities with coordinated testing and project coordination.
- Develop tools and better probabilistic forecasts into the next-generation energy management system to create a simple environment for system operators to make decisions with high penetrations of variable generation on their system. Expand mathematics and computational research to include uncertainty quantification, model formulation and reduction, and controls.
- Continue efforts in architecture and data analytics.
- Begin connecting research data from the Transmission Reliability and Advanced Modeling Grid Research subprograms to the Energy Systems Risk and Predictive Capability analytical platform.
- Advance real-time predictive analytics to enhance Federal, state, local, and industry knowledge for events.

- Develop the specifications for an open source ADMS platform for interconnection and interoperability with various systems and applications.
- Begin work on ADMS test cases and an ADMS test bed for evaluation under operating environments; begin testing of ADMS platform utilizing the test bed and test cases.
- Award new projects in networked microgrid R&D through a funding opportunity announcement to achieve full integration of a network of multiple microgrids with distribution systems.

Subsurface Technology and Engineering RD&D (SubTER)

($K)

FY 2015 Enacted	FY 2016 Request
168,000	244,018

Overview

While subsurface resources constitute the Nation's primary source of energy (providing more than 80 percent of total U.S. energy needs today), they are also critical to the Nation's low-carbon and secure energy future. Next generation advances in subsurface technologies will enable access to more than 100 gigawatt-electric (GWe) of clean, renewable geothermal energy, as well as safer and more sustainable development of domestic natural gas supplies. The subsurface provides hundreds of years of safe storage capacity for carbon dioxide (CO_2) and opportunities for environmentally responsible management and disposal of hazardous materials and other energy waste streams. The subsurface can also serve as a reservoir for energy storage for power produced from intermittent generation sources, such as wind and solar. These opportunities are directly linked to Administration priorities and to broader societal needs. Clean energy deployment and CO_2 storage are critical components of the President's Climate Action Plan and are necessary to meet the 2050 greenhouse gas (GHG) emissions reduction target of 83 percent below 2005 levels. Helping ensure that domestic hydrocarbon resource recovery is done in a sustainable and environmentally sound manner enhances national security and fuels economic growth. Thus, discovering and effectively harnessing subsurface resources while mitigating impacts of their development and use are critical pieces of the Nation's energy strategy moving forward.

The Subsurface Technology and Engineering RD&D (SubTER) Crosscutting Team, in collaboration with the National Laboratories, has identified *Adaptive Control of Subsurface Fractures and Fluid Flow* as a key crosscutting theme. The ability to have real-time control or "mastery" of the subsurface can have a transformative effect on numerous industries and sectors, impacting the strategies deployed for subsurface energy production and storage. Mastery of the subsurface requires efforts to address the following key challenges to optimize energy production, energy/CO_2 storage, and waste storage/disposal:

- *Discovering, characterizing, and predicting*: Efficiently and accurately locating target subsurface geologic environments; quantitatively inferring their evolution under future engineered conditions; and characterizing the subsurface at a relevant scale;
- *Accessing*: Safe and cost-effective drilling or mining with properly managed reservoir integrity;
- *Engineering*: Creating the desired conditions in challenging high-pressure/high-temperature environments;
- *Sustaining*: Maintaining these conditions over long time frames throughout complex system evolution; and
- *Monitoring*: Improving observational methods and advancing understanding of the microscopic basis of macroscopic complexity throughout system lifetimes.

In response to these challenges, SubTER proposes initiatives for planning and implementing jointly-funded targeted research, development, and field demonstrations (RD&D) emphasizing the following four topic areas:

- **Wellbore Integrity**
- **Subsurface Stress and Induced Seismicity**
- **Permeability Manipulation**
- **New Subsurface Signals**

These four topics will complement and be coordinated with a set of program-specific ongoing subsurface-related R&D investments.

Highlights and Major Changes in the FY 2016 Budget Request

Reflecting the increased maturity of the SubTER crosscutting initiative, the FY 2016 SubTER budget request differs significantly from the prior year request. The FY 2015 SubTER budget request focused on enhancing coordination of DOE offices with subsurface interests, through the classification of ongoing subsurface RD&D and other aligned initiatives.

Through this improved coordination, the SubTER crosscutting team was able to identify the gaps and “white spaces” that were not adequately addressed in the existing ongoing subsurface RD&D. This white space became the basis for the four focus areas identified above, which form the foundation of the FY 2016 SubTER budget request. SubTER will leverage the scoping and seed projects funded in both FY 2014 and FY 2015, to rapidly accelerate into high impact RD&D in the focus area structure proposed for FY 2016.

Subsurface Technology and Engineering RD&D
Funding by Appropriation and Program ($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Defense Environmental Cleanup			
Headquarters Operations: Technology Development	2,000	2,000	---
Idaho National Laboratory: Idaho National Laboratory	---	3,000	+3,000
Richland/Hanford: Hanford Site	---	3,000	+3,000
Total, Defense Environmental Cleanup	**2,000**	**8,000**	**+6,000**
Energy Efficiency & Renewable Energy			
Geothermal Technologies: Enhanced Geothermal Systems	32,500	39,000	+6,500
Geothermal Technologies: Hydrothermal	12,500	32,000	+19,500
Total, Energy Efficiency & Renewable Energy	**45,000**	**71,000**	**+26,000**
Fossil Energy Research & Development			
Carbon Storage: Advanced Storage R&D	23,500	17,384	-6,116
Carbon Storage: Storage Infrastructure	51,000	60,084	+9,084
Carbon Storage: Sub-Disciplinary Storage R&D	8,500	28,300	+19,800
Crosscutting Research: Coal Utilization Science	---	4,750	+4,750
Natural Gas Technologies: Environmentally Prudent Development	9,000	10,000	+1,000
Total, Fossil Energy Research & Development	**92,000**	**120,518**	**+28,518**
Nuclear Energy			
Fuel Cycle R&D: Used Nuclear Fuel Disposition	24,000	39,500	+15,500
Science			
Basic Energy Sciences: Chemical Sciences, Geosciences, and Biosciences	5,000	5,000	---
Total, Subsurface Technology and Engineering	**168,000**	**244,018**	**+76,018**

Subsurface Technology and Engineering RD&D (SubTER)
FY 2016 Funding by Focus Area ($K)

	Wellbore Integrity	Subsurface Stress and Induced Seismicity	Permeability Manipulation	New Subsurface Signals	Ongoing Subsurface-Related R&D	Total
Defense Environmental Cleanup						
Headquarters Operations: Technology Development	---	---	---	---	2,000	**2,000**
Idaho National Laboratory	---	---	---	---	3,000	**3,000**
Richland/Hanford: Hanford Site	---	---	---	---	3,000	**3,000**
Total, Defense Environmental Cleanup	**---**	**---**	**---**	**---**	**8,000**	**8,000**
Energy Efficiency & Renewable Energy						
Geothermal Technologies: Enhanced Geothermal Systems	---	5,000	---	---	34,000	**39,000**
Geothermal Technologies: Hydrothermal	---	5,000	8,000	8,000	11,000	**32,000**
Total, Energy Efficiency & Renewable Energy	**---**	**10,000**	**8,000**	**8,000**	**45,000**	**71,000**
Fossil Energy Research & Development						
Carbon Storage: Advanced Storage R&D	5,000	7,384	---	5,000	---	**17,384**
Carbon Storage: Storage Infrastructure	---	---	---	---	60,084	**60,084**
Carbon Storage: Sub-Disciplinary Storage R&D	5,600	15,316	3,884	3,500	---	**28,300**
Crosscutting Research: Coal Utilization Science	1,188	1,188	1,187	1,187	---	**4,750**
Natural Gas Technologies: Environmentally Prudent Development	---	---	---	---	10,000	**10,000**
Total, Fossil Energy Research & Development	**11,788**	**23,888**	**5,071**	**9,687**	**70,084**	**120,518**
Nuclear Energy						
Fuel Cycle R&D: Used Nuclear Fuel Disposition	26,000	---	---	---	13,500	**39,500**
Science						
Basic Energy Sciences: Chemical Sciences, Geosciences, and Biosciences	---	---	---	---	5,000	**5,000**
Total, Subsurface Technology and Engineering	**37,788**	**33,888**	**13,071**	**17,687**	**141,584**	**244,018**

Program Roles

Departmental Collaboration

SubTER is a crosscutting technology team that encompasses DOE offices involved in subsurface activities. Activities are aligned with energy production/extraction (FE-Oil and Gas, EERE/Geothermal Technologies Office (GTO)), subsurface storage of energy and CO_2 (FE-CO_2 Storage), subsurface waste disposal and environmental remediation (FE-Oil and Gas, Environmental Management, Nuclear Energy), and policy or analysis associated with the subsurface. The Office of Science (SC) supports a broad spectrum of fundamental research in subsurface science, focusing on topics including geology, geophysics, and biogeochemistry, among others.

SubTER provides a collaborative structure to identify scientific and technology challenges, efficiently leverage funding and expertise through multi-office collaborations, and avoid redundancy of duplicative efforts. Functions of the DOE SubTER Team include:

- Exchange details on current subsurface RD&D portfolios across DOE offices;
- Identify subsurface challenges and recommend and implement solutions;
- Assess adequacy of DOE RD&D budgets, plans and priorities, and identify potential cross-cutting initiatives;
- Provide the necessary technical data and analyses in support of relevant legislative or regulatory requirements;
- Facilitate intra-departmental and interagency collaboration of cross-cutting subsurface RD&D activities; and
- Establish partnerships with industry stakeholders operating in the subsurface.

Wellbore Integrity

Wellbore integrity is critical across all DOE programs focused on subsurface extraction of resources, energy storage, disposition of civilian and defense waste streams, and the remediation of sites contaminated from past endeavors. The need to reduce the risk of uncontrolled release of formation fluid or other materials throughout the lifecycle of a wellbore, extends across a wide range of geologic environments and time-scales from weeks to eons.

Fossil Energy Research & Development

Carbon Storage: Wellbore integrity is a key technology that addresses the need for stable wellbores to ensure safe and reliable injection operations, the long-term containment of CO_2 in the targeted reservoir, and protection of groundwater systems from subsurface actions. Wellbore materials must perform well over time in the chemical environment created by the injected fluids, they must be sufficiently strong to withstand mechanical stresses associated with injection and production, and they must have good cement bonds to ensure containment. FY 2016 R&D activities will focus on improved wellbore construction materials and technologies to ensure safe and reliable injection operations and long-term containment of CO_2 in subsurface reservoirs, including diagnostics. Additionally, coupling existing laboratory and field data with modeling and simulation efforts to quantify uncertainty and risk and better predict performance is critical.

Crosscutting Research: FY 2016 funding will support the development of computational models and simulation tools that can better predict and characterize wellbore performance and integrity, and help guide the development of remediation techniques. These tools are then applied and leveraged in support of activities conducted in the Carbon Storage Program.

Nuclear Energy

Fuel Cycle R&D: The Office of Nuclear Energy will continue to conduct scientific research and technology development to enable storage, transportation, and disposal of used nuclear fuel (UNF) and nuclear waste. R&D of waste disposal in deep boreholes in crystalline basement rock as one alternative for disposal is a high priority for the Department, and activities and funding are significantly increased in FY 2016.

The borehole disposal concept is to drill a borehole (or array of boreholes) into crystalline basement rock to a depth below the surface of about 5,000 meters (greater than 3 miles). Waste canisters would be emplaced in the lower 2,000 meters of the borehole, with sealing of appropriate portions of the upper 3,000 meters of the borehole. Deep borehole disposal was identified as a viable option by the Blue Ribbon Commission on America's Nuclear Future in 2012. In FY 2016, the Department will begin a field test that will include drilling a characterization borehole at a volunteer. The field test has three purposes: evaluation of the capability for drilling and construction of deep, large-diameter boreholes; downhole scientific analyses to assess hydrogeochemical conditions that control waste stability and containment; and engineering

analysis to assess the viability and safety of deep borehole canister emplacement. The engineering analysis will evaluate the feasibility of canister emplacement operations by determining performance envelopes for drilling, canister handling, and canister retrieval during emplacement. In addition, borehole sealing materials and designs will be examined through above-ground testing.

Subsurface Stress and Induced Seismicity

Knowledge of the subsurface stress state is required to predict and control the growth of hydraulically-induced fractures, re-opening of faults, and induced seismicity potentially associated with subsurface energy production, storage and waste disposal applications. Current capabilities to directly measure or infer the in-situ stress are inadequate to serve many public needs. This limitation leads to significant uncertainties and lost opportunities to take advantage of the subsurface for energy production and waste storage, and impacts public confidence in the subsurface energy sector.

Energy Efficiency & Renewable Energy

Geothermal Technologies: Improved methods to measure and manipulate subsurface stress are key technology pathways for interpreting the orientation of existing fracture networks, and engineering optimal fracture networks that can be used to mine heat from the Earth's subsurface. Proposed FY 2016 activities include R&D efforts to establish baselines for assessing the state of stress at key length scales, and developing new tools and methodologies to push the boundaries of dynamic stress characterization near the wellbore into the far field environment. Activities will include R&D into methods for stress measurement from the borehole and from the surface. FY 2016 investments will also lay the foundation for multi-objective field observatories that could include the design and testing of a high-resolution deployable surface and borehole seismometer array, and the design of a controlled-source demo site.

Fossil Energy Research & Development

Carbon Storage: Geomechanical deformation triggered by increased fluid pressure during injection operations could potentially result in faulting, fracturing, microseismicity, damage to the wellbore, and other types of elastic and inelastic deformation. Ideally, injection pressures are managed to optimize the system's performance, including minimization of geomechanical effects. Research has demonstrated that the hydrology and physical response of subsurface systems can be predicted and managed much better if characterization is accurate and the monitoring networks acutely tuned to the system. FY2016 activities will develop technologies to better characterize and measure the stress state and induced seismicity and continue the effective application of the National Risk Assessment Partnership (NRAP) tools for Carbon Storage and to other programs.

Crosscutting Research: Crosscutting Research activities continue the development of computational tools that will be used in support of better understanding and quantifying the uncertainty of risk associated with carbon storage and other subsurface activities.

Permeability Manipulation

The ability to adaptively manipulate permeability in the subsurface is a critical scientific and technical challenge. Current mathematical models for multi-phase flow in high permeability sandstones do not work for the nano-scale pores in low permeability rocks (i.e., shales and granite). If a marked improvement in mastery could be achieved beyond what has been developed up to this time after a century of drilling and fluid production/injection experience, there is the potential to radically transform multiple subsurface energy applications. The current lack of precise control over fracturing and fluid flow despite decades of industrial practice is testimony to the significant challenges involved, primarily related to the difficulty of characterizing the heterogeneous deep subsurface, and incomplete understanding of the coupled processes related to fluid flow, geomechanics and geochemistry over scales from nanometers to kilometers.

Energy Efficiency & Renewable Energy

Geothermal Technologies: Technologies to reliably manipulate permeability in the subsurface are critical to reducing risk in geothermal development, and to make enhanced geothermal systems a fully cost-competitive power generation technology. Activities proposed in FY 2016 for this focus area include lab R&D to (1) develop new technologies for enhancing, reducing, and eliminating fluid flow, (2) develop new methods for remotely characterizing flow in the subsurface, and (3) improve our fundamental understanding of physicochemical processes during the fluid-rock interactions typical of high-temperature geothermal reservoirs. Of particular importance to advancing geothermal technologies is extending engineering capabilities into increasingly harsh environments. The Geothermal Technologies office will also

coordinate with other offices to leverage well-characterized, available field sites with federal and industry partners to conduct targeted field tests. Opportunities to utilize accessible subsurface mines to conduct innovative tests on fluid flow through fractures will be considered.

Fossil Energy Research & Development

Carbon Storage: Maintaining caprock integrity and fluid flow within a reservoir is critical for long-term storage of CO_2. The ability to control permeability within a reservoir – maintaining low permeability in caprocks and high permeability in target storage reservoirs – can help manage subsurface fluid flow. Rapid, controlled reduction of permeability (for plugging, mitigation, and field management) can help maintain caprock integrity. FY 2016 activities will focus on development of injectates, additives, and/or other technologies that can enhance or destroy permeability in a controlled (timed, targeted) fashion and/or can facilitate an improved control of fluid flow in the subsurface. Efforts will leverage ongoing laboratory and field tests to better understand the fundamental processes of fluid-rock interactions related to CO_2 injection.

Crosscutting Research: FY 2016 funding will support the development of computational models and simulation tools that can better predict and characterize fractures and faults in the subsurface. Fractures and faults are potential migration pathways for CO_2 and subsurface fluids so better understanding and prediction of their formation is necessary for improved injection control.

New Subsurface Signals

A major obstacle to adaptive control of subsurface fractures, reactions and flow is our inability to clearly characterize and monitor critical subsurface features. Although the energy industry has developed sophisticated tools to characterize the subsurface using both surface and wellbore methods, an entirely new class of capabilities is needed to characterize fractures and associated processes at sufficiently high spatial resolution and over large enough volumes to guide subsurface operations. The challenge is complicated by the range of relevant scales and the coupled nature of relevant thermal-hydrological-mechanical-chemical (THMC) processes. Success in addressing this challenge is needed to master the subsurface for identification and characterization of ideal sites for energy-related operations.

Energy Efficiency & Renewable Energy

Geothermal Technologies: Improved technologies and methods for imaging the subsurface are essential to reduce risk in geothermal development by providing greater information on the subsurface environment at early stages of development. FY 2016 proposed activities will focus on advancing state-of-the-art technologies for subsurface interrogation both from the wellbore and from the surface. The R&D emphasis will be on the development of low cost, small, high-performance sensors for broad scale deployment in subsurface reservoirs. The work will also focus on developing methods for autonomous acquisition, processing and assimilation, which is a central component of the unifying “big idea” of achieving adaptive control of the subsurface. A portion of FY 2016 funds will be used for planning and site preparation necessary to test new sensors at a diverse set of field sites in future years.

Fossil Energy Research & Development

Carbon Storage: Uncertainty remains the largest single challenge in mastery of subsurface systems. Research has demonstrated that the hydrology and physical response of subsurface systems can be predicted and managed much better if the characterization is accurate and the monitoring networks are tuned to the system. Importantly, many of the tools used to monitor systems are used to characterize them. Technologies developed and validated collectively will increase confidence to stakeholders (e.g. operators, regulators and public) that monitoring technologies can monitor the transport and fate of CO_2. Robust technologies are necessary to address safety and environmental concerns; verify CO_2 migration to meet regulatory requirements; and account for greenhouse gas (GHG) emissions mitigation. New technologies improve our ability to monitor CO_2 at atmospheric, near-surface (including offshore water column) and subsurface levels for integration into an intelligent monitoring system. In FY 2016, research focuses on developing technologies such as advanced optical detection, remote sensing, and spatial averaging over large field areas; real-time monitoring; advanced geophysical techniques; and integrated autonomous intelligent monitoring systems. These technological advances improve our ability to ensure storage permanence and optimize storage capacity.

Crosscutting Research: FY 2016 funding will support the development of computational models and simulation tools that can support the design and integration of advanced technologies for measuring and capturing new subsurface signals from fluids and rocks. These tools are then applied and leveraged in support of activities conducted in the Carbon Storage Program.

Ongoing Subsurface-Related R&D

All of the SubTER offices also have significant ongoing investment in other activities not described above that directly address critical challenges related to subsurface engineering. The SubTER Crosscutting Team provides a valuable forum to share information regarding ongoing RD&D efforts, so that technology accomplishments of each office can be leveraged by the entire subsurface community. Below are summaries of the related program office base budget activities in FY 2016.

Defense Environmental Cleanup

Headquarters Operations: Technology Development: The Office of Environmental Management (EM) conducts a wide range of applied research activities in subsurface science, including the development of technologies and approaches for subsurface characterization, monitoring, remediation, and waste disposal. EM is also developing advanced computer modeling capabilities to simulate and predict the behavior and evolution of complex natural and engineered subsurface environments over long time periods. EM will support several technology development activities that are highly relevant to SubTER and that complement efforts in DOE's Office of Nuclear Energy and other DOE programs.

As part of its commitment to SubTER, EM will focus on developing a universal canister for deep borehole waste disposal. Activities will include design, fabrication and performance testing of waste canisters; assessment of packaging, transportation, and disposal requirements; and development of sensors, detectors, and devices for measurement and imaging. Various radioactive waste forms will also be evaluated for possible deep borehole disposal. These wastes include 74 million curies of cesium-137 and 32 million curies of strontium-90 packaged in 1,936 stainless steel capsules that are in temporary underwater storage at the Waste Encapsulation and Storage Facility at DOE's Hanford Site. They also include 4,400 cubic meters of dry granular calcine waste contained in 42 stainless steel bins (canisters) in temporary underground storage at the Calcine Solids Storage Facility at DOE's Idaho National Laboratory.

Energy Efficiency & Renewable Energy

Geothermal Technologies: A major initiative that is closely aligned with the subsurface crosscut and that will benefit significantly from interactions with other offices is the Frontier Observatory for Geothermal Research (FORGE). In FY 2016 FORGE will continue with baseline characterization, drilling and O&M. Other activities in the geothermal technologies office include hydrothermal and resource confirmation R&D along with slim drilling confirmation efforts. Other targeted RD&D has broad applications to subsurface technology and engineering.

Fossil Energy Research & Development

Carbon Storage: Other major activities with the Carbon Storage Program that are closely aligned with SubTER activities include the Regional Carbon Sequestration Partnerships (RCSPs), other small- and large-scale field projects, and fit-for-purpose research field activities. These field projects conduct regional and site-specific characterization and validation; simulation and risk assessment; and application of monitoring, verification, and accounting technologies for various storage reservoirs. They also validate technologies; improve our understanding of CO_2 injection, fluid flow and pressure migration; and geomechanical and geochemical impacts from CO_2 injection, and develop a "commercial toolbox" for cost-effective monitoring in all storage types. In FY 2016, the fit-for-purpose field activities address specific technical research and regional barriers to CCS deployment and may include projects that investigate active reservoir management as a method to better control or "steer" the CO_2 plume and pressure fronts within the reservoir. A crosscutting effort included in the funding for each focus area is enhanced support for the Energy Data Exchange (EDX), which coordinates historical and current data and information from a wide variety of sources to facilitate access to reliable information in support of science-based decision-making for carbon capture and storage.

Natural Gas Technologies: The Oil and Gas Program will continue RD&D activities that address and mitigate the risks associated with safe and environmentally sustainable shale gas development. These research activities are being coordinated with EPA and USGS as part a multiagency research strategy, and are addressing issues in various topic areas including resource characterization, water quality, water availability, and induced seismicity. Specifically, these research activities involve: (a) assessing the location, physical characteristics, and potential size of different unconventional oil and

gas (UOG) resources to understand the potential scale of development in different geographical areas and geologic settings; (b) quantitative understanding of water quality impacts over the entire cycle of UOG operations (site preparation, water acquisition, drilling, completion and fracturing, production, waste disposal, pipeline construction and site closure) and better understanding of how water quality impacts may vary over time and space and due to differences in UOG operations; (c) understanding of how UOG activities may impact both the quantity and availability of water required for hydraulic fracturing, and better understand the possible impacts of ground and surface waters withdrawals on drinking water resources; and (d) collection and analysis of seismic hazard background data for multiple sites; and develop models for probabilistic hazards assessment that account for induced seismicity; and development and validation of models for assessing the likelihood of induced seismic events.

Nuclear Energy

Fuel Cycle R&D: Used Fuel Disposition R&D will continue characterization and performance of generic mined geologic repository media and concepts for disposal of high-level radioactive waste and spent nuclear fuel. Activities continue to further the understanding of long-term performance of disposal systems in three main geologic rock types: clay/shale, salt, and crystalline rock. These activities include collaborations with international partners to leverage and integrate applicable R&D being conducted by other countries into the U.S. disposal R&D portfolio.

Science

Basic Energy Sciences: Within the FY 2016 Budget Request, BES continues to support the Department's Subsurface Technology and Engineering RD&D (SubTER) crosscut. The BES investment will focus on fundamental geochemistry and geophysics with an emphasis on subsurface chemistry and complex fluid flow. This research will address challenges in this area in wellbore integrity, stress state, permeability manipulation and subsurface signals.

Key Accomplishments and Objectives

FY 2014 Key Accomplishments

- SubTER became a chartered organization within DOE.
- SubTER held a workshop with National Lab Partners, released a public request for information, and held several public briefings. Extensive stakeholder engagement was used to identify the overarching goal of the crosscutting initiative and to begin to define the RD&D focus areas necessary to achieve this goal.
- A portfolio of six "seed projects" was funded with a total of $1.6 million.

FY 2015 Planned Accomplishments

- SubTER continued stakeholder engagement with a series of public briefings including a Town Hall Meeting at the American Geophysical Union (AGU) Annual Fall Meeting. These engagements and internal coordination meetings were used to bring increased fidelity to the focus area structure and possible activities within each focus area.
- Continued funding of "seed projects" targeted at $6 million.

FY 2016 Key Objectives

- SubTER will launch funding initiatives associated with the focus areas defined above and leverage the roadmapping and planning work completed during FY 2014 and FY 2015 to rapidly develop a portfolio of high impact RD&D projects.

Supercritical Carbon Dioxide (sCO_2)

($K)

FY 2015 Enacted	FY 2016 Request
30,300	43,600

Overview

Power cycles based on supercritical carbon dioxide (sCO_2) as the working fluid, instead of steam, have the potential for higher thermal efficiencies with lower capital cost when compared to state of the art steam-based power cycles. Taken together, the unique features of sCO_2, the potential for lower capital cost and the compounding performance benefits from a more efficient cycle on balance of plant requirements, fuel use, emissions, water use and cost of electricty are creating broad interest in the sCO_2 power cycle. The DOE Offices of Energy Efficiency & Renewable Energy, Fossil Energy, and Nuclear Energy have formed a Supercritical Carbon Dioxide (sCO_2) crosscut initative with the specific mission to reduce the technical barriers and risk to comercialization of the sCO_2 power cycle.

The benefits of realizing this mission are significant. Thermodynamic modeling of sCO_2 power cycles demonstrate better efficiency when compared to traditional steam based Rankine cycle systems. These same steam based cycles are used for roughly 80% of the world's electricity generation. The sCO_2 power cycle transforms heat energy to electrical energy through the use of a supercritical fluid rather than through steam and water and has the potential to reach thermal efficiencies of 50%. The average efficiency of the U.S. fleet is in the low thirties and the thermal efficiencies of modern steam cycles are in the mid-forties. The impact of thermal efficiencies of 50% or greater on cost of electricity would be transformative, making advanced power generation affordable. Furthermore, the broad application of the sCO_2 cycle and its unique features creates an attractive market, beyond large stationary power generation, further promoting industry interests. If industry were to commercialize this technology, significant progress would be made towards meeting national climate and energy goals, promoting domestic job creation, facilitating industrial competitiveness, maintaining U.S. technology leadership and providing the nation with cleaner and more affordable electric power. Developing this promising technology definitively supports the President's "all of the above" energy strategy.

The sCO_2 crosscut is structured around a common objective to establish a 10 MWe scale Supercritical Transformational Electric Power (STEP) pilot scale facility for evaluating power cycle and component performance over a range of operating conditions. Demonstrating favorable performance at this scale is the next step required to address technical issues, reduce risk, and mature this promising technology. The 10 MWe facility will be developed through competitive funding opportunity announcements that are cost shared with industry. Where appropriate the 10 MW facility will be used to address and resolve technology specific issues relevant to the different heat source applications. This initiative builds upon existing research and development (R&D) portfolios that will continue within the three individual DOE offices. This existing R&D is addressing application-specific technology development needs. DOE's national laboratories are also conducting considerable work on cycle operation, modeling, material evaluations and CO_2 fundamental property measurements. These ongoing activities are also required to support the sCO_2 initiative.

The 10 MWe STEP facility to be built under the sCO_2 crosscut will have the flexibility to test in a variety of configurations that will be required by the sCO_2 power cycle. Since this will be the first integrated test of a system operating at this size and under these conditions, it is prudent to start up and perform the first tests in the indirect-fired configuration. This configuration eliminates the additional challenges related to a natural gas/ sCO_2 turbine e.g. water vapor/ sCO_2 mix in the working fluid, sCO_2 bleed system, higher temperature components, Oxygen/ sCO_2 combustion, and others. However, once the indirect-fire cycle has successfully operated and been tested through the necessary suite of transient and steady state conditions, we will begin the transition to testing key elements of the direct-fired sCO_2 power cycle. These include adding water vapor to the working fluid, which will simulate a direct fired turbine and add corrosion issues, increasing the temperature range of the equipment, and on-site corrosion analyses capabilities. The direct-fire sCO_2 turbine, which is being funded under the Fossil Energy (FE) turbines program and is NOT currently a part of STEP, could be available for integration into the STEP facility in the 2020 timeframe. The direct-fire supercritical CO_2 fuel cycle is the ultimate goal for Fossil Energy because it can provide significant benefits for Carbon Capture and Storage (CCS) by reducing the costs and parasitic load of carbon capture and CO_2 compression.

Highlights and Major Changes in the FY 2016 Budget Request

The FY 2016 request continues the Department's coordinated efforts in research, development, and demonstration of the transformative sCO_2 Brayton cycle energy conversion technology. Recognizing that the near-term deployment and potential market applications for commercial sCO_2 power cycles are primarily in the fossil energy area, the Department is requesting FY 2016 funding for the Supercritical Transformational Electric Power (STEP) demonstration facility in the Office of Fossil Energy. The STEP request was previously included in the Office of Nuclear Energy's FY 2015 request.

The FY 2015 Omnibus directed the Department to engage with the appropriate stakeholders to gather information, with the goal of developing an effective solicitation for a public-private cost-shared sCO_2 demonstration program. A number of activities are planned during FY 2015 to further the Department's understanding of the potential market opportunities and barriers, and technical and programmatic risks affecting near-term and longer-term commercial deployment. Information will be gathered through a variety of mechanisms, which will include Requests for Information (RFI), workshops, technical meetings and/or site visits. In addition, the Department will solicit conceptual design information and preliminary scope, cost and schedule information to further refine our planning of the 10 MWe scale facility. In FY 2015, the Department will issue a solicitation for long lead item components for the 10 MWe facility, which include turbine expanders, compressors and recuperators. All FY 2015 activity funded through Nuclear Energy will be closely coordinated within the crosscut team, so that, in FY 2016, these activities will result in the solicitation, evaluation and competitive award(s) of the Fossil Energy-funded STEP pilot scale facility.

In FY 2016, Nuclear Energy will also fund stakeholder engagement that will continue through industry and utility outreach efforts to better understand the commercial deployment business case and the technical issues associated with maturing this technology for a variety of heat sources. This outreach will engage industry technology vendors, utilities, national labs, other research organizations and academia. Targeted research and technology development activities will be conducted to address critical risk areas and industry needs specifically related to the STEP pilot scale facility.

Supercritical Carbon Dioxide (sCO_2)
Funding by Appropriation and Program ($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Energy Efficiency & Renewable Energy			
Geothermal Technologies: Enhanced Geothermal Systems	---	500	+500
Solar Energy: Concentrating Solar Power	10,000	---	-10,000
Total, Energy Efficiency & Renewable Energy	**10,000**	**500**	**-9,500**
Fossil Energy Research & Development			
Crosscutting Research: Plant Optimization Technologies	2,000	15,500	+13,500
Supercritical Carbon Dioxide Technology	10,000	19,300	+9,300
Total, Fossil Energy Research & Development	**12,000**	**34,800**	**+22,800**
Nuclear Energy			
Reactor Concepts RD&D: Advanced Reactor Technologies	3,300	3,300	---
Supercritical Transformational Electric Power R&D	5,000	5,000	---
Total, Nuclear Energy	**8,300**	**8,300**	**---**
Total, Supercritical Carbon Dioxide (sCO_2)	**30,300**	**43,600**	**+13,300**

Program Roles

Departmental Collaboration

Work to date by individual program offices promoting sCO_2 power cycles has focused on cycle evaluation at small-scales (< 250 kW), component development (turbine expanders and recuperators) at intermediate scales, and technology development pertinent to heat source-specific applications. The objective of this collaboration is to focus on the validation of the sCO_2 power cycle, a common need to all three offices, through testing and operation of the 10 MWe facility. Supporting R&D on materials, cycle modeling, fundamental properties of CO_2, etc., specific to the power cycle development, will be coordinated and funded through this collaborative initiative. Heat source application specific technology development needs will continue to be funded by individual program offices as a complement to and coordinated with this sCO_2 collaboration. Opportunities to use the 10 MWe facility to reduce technical risk that are heat source and application specific will be pursued when possible. This will optimize the use of the 10 MWe facility and strengthen the collaboration. The overall collaboration and coordination of the sCO_2 initiative will be managed through regular meetings of the sCO_2 leadership team, sCO_2 project review meetings, program reviews, third party peer reviews and industry outreach efforts. This process will optimize the use of department resources by directing funds on the common objective, focusing effort and identifying common technology needs.

Appropriations

Energy Efficiency & Renewable Energy

The Office of Energy Efficiency & Renewable Energy (EERE) has two programs that are supporting activities in the sCO_2 crosscutting initiative.

Geothermal Technologies: Enhanced Geothermal Systems: The Geothermal Technologies program aims to establish cost-shared, pre-commercial, pilot demonstrations of sCO_2 as a geothermal working fluid, while continuing to leverage the technical expertise and capabilities of the National Laboratories. This will enable the development of more efficient, lower-cost energy systems which, in turn, save energy and reduce our carbon footprint. Geothermal Technologies will support this crosscutting initiative with near-term R&D focused on further testing and demonstration of CO_2 as a geothermal working fluid. ($0.5 million in FY 2016)

Solar Energy: Concentrating Solar Power: Solar Energy's Concentrating Solar Power (CSP) subprogram is reducing its request under the STEP Initiative from $10 million in FY 2015 to $0 million in FY 2016. This is as planned, as the FY 2015 request was to cover 3 years' worth of funding for sCO_2 technologies related to CSP. The FY 2015 funding will be used on research in the areas of corrosion, heat exchangers, receivers, and thermal energy storage and this work will continue throughout FY 2016.

Fossil Energy Research & Development

The Office of Fossil Energy (FE) R&D Program is working to develop sCO_2 power cycles for advanced coal and natural gas based power generation. The sCO_2 power cycle has broad application to advanced coal and natural gas based power systems providing efficiency benefits that will lead to lower cost of electricity while pursuing Program objectives for fossil fuel based power generation with reduced CO_2 emissions. Fossil Energy's ultimate goal is a directly-fired supercritical CO_2 fuel cycle which could also provide significant benefits for Carbon Capture and Storage (CCS) by reducing the costs and parasitic load of carbon capture and CO_2 compression.

Cross-Cutting Research: Plant Optimization Technologies

FE's Cross-Cutting Research program supports, amongst other topics, the development of materials for advanced coal and natural gas based power applications. Recent material developments from the advanced supercritical steam consortium have qualified materials that could be applicable to the sCO_2 power cycle. In FY 2016, this subprogram will conduct R&D focused on technology development of advanced materials and component testing of high temperature materials for directly-heated supercritical carbon dioxide (sCO_2) environments. Work in this sub program will target material development and evaluation that is synergistic with the consortium's steam application and the sCO_2 application. ($15.5 million in FY 2016)

Supercritical Carbon Dioxide Technology
FE's Supercritical Carbon Dioxide Technology program's funding in FY 2016 will be used to support the main objective of the sCO_2 collaborative initiative that is to establish a 10 MWe facility for evaluating component and cycle performance. Specifically FY 2016 funding will be used to fully fund the component development Funding Opportunity Announcement (FOA) and to initiate funding through a host site FOA. This FOA will establish the development team for the detailed design, construction and eventual operation of the 10 MWe facility. ($19.3 million in FY 2016)

Nuclear Energy
The Office of Nuclear Energy (NE) has been exploring sCO_2 power systems for roughly a decade. NE is working to develop sCO_2 Brayton Cycle technology for integration into advanced reactor systems with improved economics from lower capital cost and improved energy conversion that will improve the competiveness of nuclear generated electricity.

Reactor Concepts Research, Development and Demonstration: Advanced Reactor Technologies: NE investments have culminated in a 250 kWe proof-of-principle Recompression Brayton Cycle (RCBC) test loop at Sandia National Laboratories. NE utilizes this test loop to develop and validate advanced models of sCO_2 Brayton cycle technology for advanced reactors and components, as well as the development of system operating procedures. NE's efforts also examine liquid sodium/sCO_2 heat exchanger interactions and failure mechanisms. ($3.3 million in FY 2016)

Supercritical Transformational Electric Power Research and Development: A collaborative effort to develop and scale up advanced Supercritical Carbon Dioxide Brayton cycle energy conversion technology to facilitate commercial development. This program supports the STEP pilot-scale demonstration facility through engagement with industry and the broader stakeholder community to develop an effective public-private, cost-shared sCO_2 Brayton cycle demonstration program, including research and development of sCO_2 technologies. ($5.0 million in FY 2016)

Key Accomplishments and Objectives

FY 2014 Key Accomplishments
- Issued coordinated RFI to assess technology related issues - received 17 responses.
- Two government hosted workshops to gather industry perspectives on sCO_2 technology development.
- Built a highly functional cross-department sCO_2 Initiative Tech Team involving staff from EERE, FE and NE.

FY 2015 Planned Accomplishments
- Component FOA issued for long lead time components to include expanders, compressors and recuperators.
- Host Site Conceptual Plan FOA issued for technical approach, cost and schedule relevant to a 10 MWe facility.
- RFI issued to collect program execution related information.
- Independent government cost estimates for a 10 MWe scale sCO_2 pilot facility.

FY 2016 Key Objectives
- Final Project reports from Host Site Conceptual Plan projects.
- Host site FOA issued for detailed design, construction and operation.

Cybersecurity
($K)

FY 2015 Enacted	FY 2016 Request
311,513	306,337

Overview

The Department of Energy (DOE) is engaged in three categories of cyber-related activities:

- Protecting the DOE enterprise, including government-owned, contractor-operated sites, from a range of cyber threats that can adversely impact mission capabilities;
- Bolstering the U.S. Government's capabilities to address cyber threats; and
- Improving cybersecurity in the electric power subsector and the oil and natural gas subsector.

In 2013, the Department established a cybersecurity crosscut process to strengthen the coordination of budget activities related to cybersecurity across the Department so cybersecurity is managed based on strategic priorities. DOE also established an internal Cyber Council in 2013 to serve as the principal forum for coordinating cyber-related activities across the Department and for consideration of cyber-related issues requiring decisions by DOE senior leadership.

Highlights and Major Changes in the FY 2016 Budget Request

Funding for elements included in cyber-related activities decreased overall by -$5.2 million, or -1.7%, to $306.3 million. Funding for **'Protecting the DOE Enterprise'** in the cybersecurity domain decreased by $12.2 million, or -2.5%, due to the following changes:

- Overall funding for Field Cybersecurity elements decreased by -$4.8 million, as increases in Science (+$10.3 million), Environmental Management (+$2.8 million), Nuclear Energy (+$3.2 million) and Fossil Energy (+$1.1 million) were more than offset by a -$22.2 million decrease in NNSA Field Cybersecurity that reflects an FY15 one-year increase for NNSA used to implement a more secure classified computer computing environment and completed in FY15.

- Working Capital Fund (WCF) funding for CyberOne shows a $7 million decrease as a portion of the **Identity Credential and Access Management** (ICAM) planning and developmental activities were subsumed into the OCIO budget.

Funding for **'Energy Sector Cybersecurity'** increased by $6 million or +13% to fund Forensics Analysis Platforms that have the potential to provide enhanced mitigation strategies for industrial use; and increases in Acceleration of Information Sharing and Capability Maturity Models; and offset by a decrease in Wireless.

Cybersecurity
Funding by Appropriation and Program ($K)

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Bonneville Power Administration			
Bonneville Power Administration	40,226	42,236	+2,010
Defense Environmental Cleanup			
Carlsbad/Waste Isolation Pilot Plant (WIPP): Safeguards and Security	38	440	+402
Oak Ridge: Safeguards and Security	727	920	+193
Paducah: Safeguards and Security	292	1,000	+708
Portsmouth: Safeguards and Security	722	---	-722
Richland/Hanford: Safeguards and Security	2,478	4,278	+1,800
Savannah River: Safeguards and Security	1,694	1,955	+261
West Valley Demonstration Project: Safeguards and Security	288	457	+169
Program Direction: Working Capital Fund	4,793	---	-4,793
Total, Defense Environmental Cleanup	**11,032**	**9,050**	**-1,982**
Departmental Administration			
Chief Information Officer: Incident Management	12,233	---	-12,233
Chief Information Officer: Enterprise Services	6,582	---	-6,582
Chief Information Officer: Policy, Guidance, and Planning	2,549	---	-2,549
Chief Information Officer: Program, Policy, and Reporting	---	8,402	+8,402
Chief Information Officer: Strategic Planning and Initiatives	---	12,604	+12,604
Total, Departmental Administration	**21,364**	**21,006**	**-358**
Electricity Delivery and Energy Reliability			
Cybersecurity for Energy Delivery Systems: Accelerate Information Sharing	2,275	4,000	+1,725
Cybersecurity for Energy Delivery Systems: Capability Maturity Models	2,400	4,000	+1,600
Cybersecurity for Energy Delivery Systems: Cybersecurity Solutions	32,657	30,000	-2,657
Cybersecurity for Energy Delivery Systems: Incident Response Capabilities	3,667	4,000	+333
Cybersecurity for Energy Delivery Systems: Wireless	5,000	---	-5,000
Cybersecurity for Energy Delivery Systems: Forensics Analysis Platforms	---	10,000	+10,000
Total, Electricity Delivery and Energy Reliability	**45,999**	**52,000**	**+6,001**
Energy Efficiency & Renewable Energy			
Corporate Support Programs: Facilities and Infrastructure	2,200	2,190	-10
Energy Information Administration			
National Energy Information System	837	851	+14
Fossil Energy Research & Development			
Program Direction	1,335	1,750	+415
Nuclear Energy			
Idaho Sitewide Safeguards and Security: Cyber Security	11,268	14,466	+3,198
Other Defense Activities			
Enterprise Assessments: Support Services	3,846	3,846	---
Enterprise Assessments: Other Related Expenses	106	106	---

	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Environment, Health, Safety and Security: Security	4,385	5,409	+1,024
Legacy Management: Archives and Information Management	904	922	+18
Total, Other Defense Activities	**9,241**	**10,283**	**+1,042**
Science			
Safeguards and Security: Cyber Security	16,767	27,070	+10,303
Southeastern Power Administration			
Southeastern Power Administration	681	681	---
Southwestern Power Administration			
Southwestern Power Administration	1,790	1,879	+89
Strategic Petroleum Reserve			
Facilities Development and Operations	1,464	2,102	+638
Weapons Activities			
Information Technology and Cyber Security: Technology Application Development	4,000	6,000	+2,000
Information Technology and Cyber Security: Infrastructure Program	140,805	108,188	-32,617
Information Technology and Cyber Security: Enterprise Secure Computing	10,000	18,400	+8,400
Total, Weapons Activities	**154,805**	**132,588**	**-22,217**
Western Area Power Administration			
Western Area Power Administration	2,639	2,680	+41
Working Capital Fund			
Offset	−4,793	---	+4,793
CyberOne: JC3	28,994	28,935	-59
CyberOne: ICAM	11,000	4,046	-6,954
Total, Working Capital Fund	**35,201**	**32,981**	**-2,220**
Power Marketing Administrations			
Offsetting Collections	−45,336	−47,476	-2,140
Totla, Cybersecurity	**311,513**	**306,337**	**-5,176**

Cybersecurity
FY 2016 Funding by Pillar ($K)

	Protecting the DOE Enterprise	Energy Sector Cybersecurity	Grand Total
Bonneville Power Administration			
Bonneville Power Administration	42,236	---	**42,236**
Defense Environmental Cleanup			
Carlsbad/Waste Isolation Pilot Plant (WIPP): Safeguards and Security	440	---	**440**
Oak Ridge: Safeguards and Security	920	---	**920**
Paducah: Safeguards and Security	1,000	---	**1,000**
Richland/Hanford: Safeguards and Security	4,278	---	**4,278**
Savannah River: Safeguards and Security	1,955	---	**1,955**
West Valley Demonstration Project: Safeguards and Security	457	---	**457**
Total, Defense Environmental Cleanup	**9,050**	**---**	**9,050**
Departmental Administration			
Chief Information Officer: Program, Policy, and Reporting	8,402	---	**8,402**
Chief Information Officer: Strategic Planning and Initiatives	12,604	---	**12,604**
Total, Departmental Administration	**21,006**	**---**	**21,006**
Electricity Delivery and Energy Reliability			
Cybersecurity for Energy Delivery Systems: Accelerate Information Sharing	---	4,000	**4,000**
Cybersecurity for Energy Delivery Systems: Capability Maturity Models	---	4,000	**4,000**
Cybersecurity for Energy Delivery Systems: Cybersecurity Solutions	---	30,000	**30,000**
Cybersecurity for Energy Delivery Systems: Forensics Analysis Platforms	---	10,000	**10,000**
Cybersecurity for Energy Delivery Systems: Incident Response Capabilities	---	4,000	**4,000**
Total, Electricity Delivery and Energy Reliability	**---**	**52,000**	**52,000**
Energy Efficiency & Renewable Energy			
Corporate Support Programs: Facilities and Infrastructure	2,190	---	**2,190**
Energy Information Administration			
Energy Information Administration: National Energy Information System	851	---	**851**
Fossil Energy Research & Development			
Program Direction	1,750	---	**1,750**
Nuclear Energy			
Idaho Sitewide Safeguards and Security: Cyber Security	14,466	---	**14,466**
Other Defense Activities			
Enterprise Assessments: Other Related Expenses	106	---	**106**
Enterprise Assessments: Support Services	3,846	---	**3,846**
Environmental, Health, Safety & Security: Security	5,409	---	**5,409**
Legacy Management: Archives and Information Management	922	---	**922**
Total, Other Defense Activities	**10,283**	**---**	**10,283**
Power Marketing Administrations			
Offsetting Collections	−47,476	---	**−47,476**

	Protecting the DOE Enterprise	Energy Sector Cybersecurity	Grand Total
Science			
Safeguards and Security: Cyber Security	27,070	---	**27,070**
Southeastern Power Administration			
Southeastern Power Administration	681	---	**681**
Southwestern Power Administration			
Southwestern Power Administration	1,879	---	**1,879**
Strategic Petroleum Reserve			
Facilities Development and Operations	2,102	---	**2,102**
Weapons Activities			
Information Technology and Cyber Security: Enterprise Secure Computing	18,400	---	**18,400**
Information Technology and Cyber Security: Infrastructure Program	108,188	---	**108,188**
Information Technology and Cyber Security: Technology Application Development	6,000	---	**6,000**
Weapons Activities Total	**132,588**	**---**	**132,588**
Western Area Power Administration			
Western Area Power Administration	2,680	---	**2,680**
Working Capital Fund			
CyberOne: ICAM	4,046	---	**4,046**
CyberOne: JC3	28,935	---	**28,935**
Total, Working Capital Fund	**32,981**	**---**	**32,981**
Total, Cybersecurity	**254,337**	**52,000**	**306,337**

Program Roles

Departmental Collaboration
The DOE Cyber Council serves as the principal forum for coordinating cyber-related activities across the Department and for consideration of cyber-related issues requiring decisions by DOE senior leadership. It is chaired by the Deputy Secretary of Energy and members include the Secretary of Energy (ex officio), Office of the Chief of Staff, Under Secretary for Management and Performance, Under Secretary for Nuclear Security, Under Secretary for Science and Energy, Director of the Office of Energy Policy and Systems Analysis, Assistant Secretary for Electricity Delivery and Energy Reliability, Chief Information Officer, Director of the Office of Intelligence and Counterintelligence, and General Counsel. Representatives from other program and staff offices in the Department also participate in the Cyber Council as needed.

Protecting the DOE Enterprise ($254 million)
DOE operates a number of networks that are frequently the target of sophisticated cyber attacks. Strengthening cybersecurity in the DOE enterprise requires continuing or bolstering the following functional capabilities and initiatives in FY16 to protect, detect, respond, and recover.

- **Enterprise Cybersecurity Policy and Oversight** (administered by the Office of the Chief Information Officer)
  The Department will continue to operate and enhance its cybersecurity policy and program oversight activities to meet mission objectives, improve centralized reporting and oversight, and support federal initiatives in cybersecurity. Key program activities include continuous diagnostics and monitoring, improving information sharing and safeguarding, implementing a centralized supply chain risk management program, and managing a cybersecurity workforce development program.

- **Enterprise Cybersecurity Situational Awareness and Incident Response**. (Working Capital Fund)
  The Joint Cybersecurity Coordination Center (JC3) provides Departmental, enterprise-level cybersecurity threat and vulnerability information sharing, analysis, situational awareness, and incident response support and coordination. The JC3 also serves as the centralized incident reporting center and liaison with national cybersecurity centers such as the U.S. Computer Emergency Readiness Team, the National Cybersecurity & Communications Integration Center, and the Defense Cyber Crime Center.

- **Enterprise Identity Credential and Access Management (ICAM)** (Working Capital Fund)
  The ICAM program implements enterprise identity credentialing and access management infrastructure and capabilities for unclassified and classified systems to streamline the provisioning of access to DOE systems and ensure that personnel have access to facilities and information to which they are entitled and only for the time period required. Local site ICAM capabilities and activities are synchronized with enterprise efforts to create a “One DOE” identity ecosystem.

- **Direct programmatic funding for program cybersecurity activities and contractor-operated site cybersecurity**
  DOE’s cybersecurity policy establishes line management accountability for ensuring protection of information and information systems through senior DOE management, including the Department’s Under Secretaries. Departmental elements will provide direct funding to (or contractually direct) DOE labs and sites to bolster cybersecurity and site-specific incident response capabilities and implement the Department’s risk management approach.

- **Independent Oversight** (administered through the Office of Enterprise Assessments)
  The Department will maintain strong independent oversight over the security of both classified and unclassified systems. Oversight will include announced internal and external network penetration testing as well as "red-team" cybersecurity assessments to provide a full understanding of the Department's cybersecurity protection posture.

Improving Cybersecurity in the Energy Sector ($52 million)
Under the Presidential Policy Directive on Critical Infrastructure Security and Resilience (PPD-21), DOE is the Sector Specific Agency for the energy sector and has a number of responsibilities, including the following: 1) collaborating with infrastructure owners and operators to strengthen the security and resilience of critical infrastructure; 2) serving as the day-to-day Federal interface for the prioritization and coordination of sector-specific activities; 3) carrying out incident

management responsibilities consistent with statutory authority and other appropriate policies; and 4) providing technical assistance to the energy sector to identify vulnerabilities and help mitigate incidents, as appropriate.

DOE's Office of Electricity Delivery and Energy Reliability (OE) works with industry and other elements of the U.S. Government. In FY 2016, OE will focus on the following areas.

- **Accelerating information sharing to enhance situational awareness**
  In partnership with industry, OE has been supporting the Cybersecurity Risk Information Sharing Program (CRISP), which is a collaborative effort with private energy sector partners to facilitate the timely sharing of threat information and the deployment of situational awareness tools to enhance the sector's ability to identify threats and coordinate the protection of critical infrastructure. The FY16 request would support the expansion of CRISP.

- **Expanding implementation of the Cybersecurity Capability Maturity Models and Risk Management**
  DOE worked with the Department of Homeland Security (DHS), the National Institute of Standards and Technology, and industry to develop the Cybersecurity Capability Maturity Model (C2M2) to encourage adoption of best practices and to inform cybersecurity investment decisions. The Department also worked with industry on the creation of a Risk Management Process (RMP), which enables organizations to apply effective and efficient risk management processes and tailor them to meet their organizational requirements. The FY16 request would support expanding the implementation of the C2M2 and RMP.

- **Researching, developing, and demonstrating cutting-edge cybersecurity solutions**
  The FY16 request would support a competitive solicitation for energy sector led R&D to advance cybersecurity for energy delivery systems to transition mid-term research and development projects into real world cybersecurity capabilities that address the changing threat landscape. Example research areas could include: the capability to detect and address adversarial cyber activity that exploits expected and allowed operation of power grid components; or the capability to perform a comprehensive analysis of the root cause, extent, and consequence of an ongoing cyber intrusion in an energy delivery system without impeding the critical energy delivery function. It would also support near-term, mid-term and longer-term applied research at the national laboratories as well as strengthen core capabilities. Example research areas could include the capability to provide a moving target defense against attack planning or dynamic reconfiguration to maintain critical functions during a cyber-attack.

- **Exercising and refining the energy sector's cyber incident response capabilities**
  The Department is leading an effort to develop an effective, timely, and coordinated cyber incident management capability in the energy sector.

- **Forensics analysis platform**
  Funding for this effort will establish a virtual collaborative environment for conducting real-time advanced digital forensics analysis, to be used to analyze untested and untrusted code, programs, and websites without allowing the software to harm the host device.

Key Accomplishments and Objectives

FY 2014 Key Accomplishments

- **OCIO**
  - Responded to three major security events (Shellshock, BASH, Heartbleed) and collaborated with JC3 to prevent serious damage to information and information systems in the Department while saving considerable time and money.
  - Developed an enterprise level ICAM roadmap to guide and streamline the implementation efforts.
  - Established a new IM Governance Model to improve information resources processes.
  - Placed the DOE Contractor Training Site into production and populated it with DOE developed cybersecurity training modules.

- **NNSA**
  - Completed the recapitalization of the Enterprise Secure Network (ESN) and developed a life-cycle management plan for hardware and software components.
  - Advanced the modernization of the cybersecurity infrastructure, comprised of almost 100 sensors and over 70 data acquisition servers dispersed nationwide for the NNSA's Information Assurance Response Center (IARC).
  - Implemented the Identity, Credential and Access Management (ICAM) project at NNSA Headquarters and site elements. This entails ensuring the security of our facilities, and the people and information that use them.

- **OE**
  - Transitioned cutting edge cybersecurity solutions to the energy sector, including substation control system components and field devices designed to allow only expected cyber-activity to strengthen protections against unauthorized access, communications and executable processes.
  - Demonstrate a tool that deigns-in enhanced communications security for one substation control system component.

FY 2015 Key Objectives

- **OCIO**
  - Provide incident management capabilities to cover unclassified network incident response support, including support to EITS, the Department's unclassified backbone.
  - Sponsor cybersecurity initiatives, including technical reviews, proof of concepts, pilots, and first year operation and maintenance for evaluation of new technologies and advancing capabilities.
  - Implement additional capabilities for the Enterprise Cyber Governance System (ECGS).
  - Implement the Continuous Monitoring Strategy and Continuous Diagnostics and Mitigation Program across the DOE enterprise.
- **NNSA**
  - Finalize Implementation of the NNSA Continuous Asset Monitoring (CAM) Program within the NNSA unclassified mission computing environment.
  - Support NNSA Information Assurance Response Center sensor upgrade.
  - Maintain and support the infrastructure program that supports the cybersecurity operations and activities at NNSA M&O sites around a defense-in-depth approach.
  - Implement and coordinate Committee on National Security Systems (CNSS) requirements.
  - Implement Public Key Infrastructure (PKI) on classified networks.
  - Employ the Secret Fabric Application Hosting Environment (AHE) for deploying shared services and applications.
- **OE**
  - Accelerate and expand efforts to strengthen the energy infrastructure against current and future cyber threats.
  - Working with Energy Sector and government partners, support cutting edge research on cybersecurity solutions, information sharing to enhance situational awareness, implementation of tools to help industry improve their cybersecurity posture, and building an effective, timely, and coordinated cyber incident management capability in the energy sector.
  - Demonstrate a tool that designs-in enhanced communications security between control centers.

FY 2016 Key Objectives

- **OCIO**
  - Funds will support the continued development, enhancement, and management of major cybersecurity programs, such as supply chain risk management, training and awareness, continuous monitoring and others. These programs address evolving Federal Cybersecurity requirements and activities (e.g., FedRAMP, IS&S, etc.) and directly support overall cybersecurity efforts at the Department.
  - By centrally managing cybersecurity programs, the Department, through the OCIO will improve efficiency by implementing a standard program management framework and improving program oversight through periodic program reviews.

- **NNSA**
  - Complete the recapitalization of the Enterprise Secure Network (ESN) and develop a life-cycle management plan for hardware and software components.
  - Continue modernizing the Cybersecurity infrastructure, comprised of almost 100 sensors and over 70 data acquisition servers dispersed nationwide for the NNSA's Information Assurance Response Center (IARC).
  - Implement the Identity, Credential and Access Management (ICAM) project at NNSA Headquarters and site elements.
- **OE**
  - Accelerate and expand efforts to strengthen the energy infrastructure against current and future cyber threats.
  - Working with Energy Sector and government partners, support cutting edge research on cybersecurity solutions, information sharing to enhance situational awareness, implementation of tools to help industry improve their cybersecurity posture, and building an effective, timely, and coordinated cyber incident management capability in the energy sector.
  - Establish a virtual collaborative environment for conducting real-time advanced digital forensics analysis.
  - Demonstrate a tool that establishes a tailored trustworthy space for one energy delivery field device.
  - Work toward goal of resilient energy systems that are designed, installed, operated, and maintained to survive a cyber incident while sustaining critical functions.

Research and Development

The Department of Energy supports research and development (R&D) activities and facilities to ensure that the U.S. remains at the leading edge of discovery and to provide the science and technology to fuel innovation and long-term economic growth. The vast scope of the R&D activities encompasses high priority areas such as advanced manufacturing, clean energy, climate research, and Earth observing systems; and the operation of a large suite of scientific user facilities in support of the R&D activities.

Research and Development ($K) [a]

	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Basic Research				
Bonneville Power Administration Fund	4,773	4,868	4,868	0
Science	4,013,904	4,045,611	4,166,560	120,949
Electricity Delivery and Energy Reliability	3,846	6,208	5,100	-1,108
Fossil Energy R&D	4,256	4,270	4,114	-156
Defense Nuclear Nonproliferation	59,960	46,877	49,316	2,439
Weapons Activities	3,800	3,157	0	-3,157
Total, Basic Research	**4,090,539**	**4,110,991**	**4,229,958**	**118,967**
Applied Research				
Bonneville Power Administration Fund	2,473	2,522	2,522	0
Science [b]	64,666	0	0	0
Electricity Delivery and Energy Reliability	55,886	54,264	59,660	5,396
Energy Efficiency and Renewable Energy	540,146	512,138	823,334	311,196
Fossil Energy R&D	157,485	157,998	152,221	-5,777
Nuclear Energy	612,247	673,504	712,002	38,498
Advanced Research Project Agency - Energy (ARPA-E)	126,000	126,000	147,875	21,875
Defense Environmental Cleanup	7,057	4,620	5,216	596
Defense Nuclear Nonproliferation	162,182	126,795	133,392	6,597
Weapons Activities	2,820,484	2,677,586	2,544,016	-133,570
Total, Applied Research	**4,548,626**	**4,335,427**	**4,580,238**	**244,811**
	FY 2014 Current	**FY 2015 Enacted**	**FY 2016 Request**	**FY 2016 vs FY 2015**

Development				
Bonneville Power Administration Fund	8,661	8,822	8,822	0
Electricity Delivery and Energy Reliability	32,130	32,696	52,040	19,344
Energy Efficiency and Renewable Energy	326,271	304,025	466,366	162,341
Fossil Energy R&D	263,894	264,753	255,072	-9,681
Nuclear Energy	21,834	23,190	25,570	2,380
Advanced Research Project Agency - Energy (ARPA-E)	126,000	126,000	147,875	21,875
Naval Reactors	1,035,811	1,042,261	1,158,706	116,445
Defense Environmental Cleanup	14,327	9,380	11,598	2,218
Defense Nuclear Nonproliferation	52,782	41,265	43,412	2,147
Weapons Activities	682,548	556,798	471,432	-85,366
Total, Development	**2,564,258**	**2,409,190**	**2,640,893**	**231,703**
R&D Subtotal				
Bonneville Power Administration Fund	15,907	16,212	16,212	0
Science	4,078,570	4,045,611	4,166,560	120,949
Electricity Delivery and Energy Reliability	91,862	93,168	116,800	23,632
Energy Efficiency and Renewable Energy	866,417	816,163	1,289,700	473,537
Fossil Energy R&D	425,635	427,021	411,407	-15,614
Nuclear Energy	634,081	696,694	737,572	40,878
Advanced Research Project Agency - Energy (ARPA-E)	252,000	252,000	295,750	43,750
Naval Reactors	1,035,811	1,042,261	1,158,706	116,445
Defense Environmental Cleanup	21,384	14,000	16,814	2,814
Defense Nuclear Nonproliferation	274,924	214,937	226,120	11,183
Weapons Activities	3,506,832	3,237,541	3,015,448	-222,093
Total, R&D Subtotal	**11,203,423**	**10,855,608**	**11,451,089**	**595,481**

	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
R&D Related Equipment				
Science	160,576	157,867	180,501	22,634
Energy Efficiency and Renewable Energy	3,573	3,600	3,600	0
Fossil Energy R&D	16,032	15,782	18,044	2,262
Naval Reactors	13,350	17,038	22,490	5,452
Weapons Activities	84,854	86,720	88,628	1,908
Total, Equipment	**278,385**	**281,007**	**313,263**	**32,256**
R&D-Related Construction				0
Science	484,578	476,687	552,702	76,015
Naval Reactors	24,528	137,701	145,400	7,699
Defense Nuclear Nonproliferation	0	0	0	0
Weapons Activities	2,800	0	0	0
Total, R&D-Related Construction	**511,906**	**614,388**	**698,102**	**83,714**
Total Department of Energy R&D and R&D Facilities				
Bonneville Power Administration Fund	15,907	16,212	16,212	0
Science	4,723,724	4,680,165	4,899,763	219,598
Electricity Delivery and Energy Reliability	91,862	93,168	116,800	23,632
Energy Efficiency and Renewable Energy	869,990	819,763	1,293,300	473,537
Fossil Energy R&D	441,667	442,803	429,451	-13,352
Nuclear Energy	634,081	696,694	737,572	40,878
Advanced Research Project Agency - Energy (ARPA-E)	252,000	252,000	295,750	43,750
Naval Reactors	1,073,689	1,197,000	1,326,596	129,596
Defense Environmental Cleanup	21,384	14,000	16,814	2,814
Defense Nuclear Nonproliferation	274,924	214,937	226,120	11,183
Weapons Activities	**3,594,486**	**3,324,261**	**3,104,076**	**-220,185**
Total, Department of Energy R&D and R&D Facilities	**11,993,714**	**11,751,003**	**12,462,454**	**711,451**

[a] Totals may vary slightly from President's Budget Analytical Perspectives to reflect the most current estimates available.

[b] Applied funding in FY 2014 Office of Science represents SBIR/STTR funding transferred from other DOE programs. No applied funding is shown in FY 2015 or FY 2016 because the transfer from other DOE programs has not yet occurred.

Small Business Innovation Research and Small Business Technology Transfer

The Department of Energy manages two separate Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) programs, one administered by the Office of Science and the other by the Advanced Research Projects Agency – Energy (ARPA-E). The Office of Science has managed the DOE SBIR and STTR programs for the Department since the SBIR program was created in 1982 and the STTR program was created in 1992. The ARPA-E SBIR/STTR programs were created in FY 2012 to manage ARPA-E's SBIR & STTR allocations independently.

The SBIR/STTR Reauthorization Act of 2011 reauthorized the SBIR and STTR programs and provided for annual increases phased in over six years. The Act directs DOE to expend not less than the percentages of nonexempt extramural R&D as tabulated below. By statute, "amounts obligated for atomic energy defense programs solely for weapons activities or for naval reactor programs" are exempt [15 USC 638(e)(1)].

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
SBIR	2.5%	2.6%	2.7%	2.8%	2.9%	3.0%	3.2%	3.2%
STTR	0.30%	0.35%	0.35%	0.40%	0.40%	0.45%	0.45%	0.45%
Combined	2.80%	2.95%	3.05%	3.20%	3.30%	3.45%	3.65%	3.65%

DOE SBIR/STTR Programs Office

The SBIR/STTR Programs Office works collaboratively with twelve participating offices to administer the programs: six R&D program offices within the Office of Science; the Offices of Electricity Delivery and Energy Reliability, Energy Efficiency and Renewable Energy, Fossil Energy, Nuclear Energy and Environmental Management; and the Office of Defense Nuclear Nonproliferation within the National Nuclear Security Administration. Each office makes awards commensurate with its allocation, and collaborates with other offices as necessary.

The participating programs are responsible for topic selection, reviewer assignment, award selection, and project oversight. Each program office considers its high priority research needs and program mission, as well as the Department's goals for the program in developing research topics. The specific research topics selected for the SBIR and STTR programs are developed by the Department's technical program managers.

The SBIR/STTR Programs Office is responsible for issuing topics and solicitations, managing the peer review and award selection process, working with the Science Office of Acquisition and Assistance to award SBIR/STTR Phase I and Phase II grants, issuing annual reports to the U. S. Small Business Administration, performing outreach, and setting overall policy for the Department regarding the two programs.

ARPA-E SBIR & STTR Programs

In FY 2012 ARPA-E established an SBIR/STTR program separate from the DOE-wide SBIR/STTR program. The ARPA-E SBIR/STTR program employs the same rigorous merit review, accelerated contracting, funding, and active project management as all other ARPA-E programs. The ARPA-E SBIR/STTR Program in FY 2016 will focus on targeted, mission-relevant areas where the agency believes that small business provides the best opportunity for innovative technology development.

Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) ($K)

	FY 2014 Transferred	FY 2015 Projected	FY 2016 Request	FY2016 vs FY 2015 Projected
Advanced Research Projects Agency - Energy				
SBIR	7,650	8,577	8,872	295
STTR	1,725	1,183	1,331	148
Electricity Delivery and Energy Reliability				
SBIR	2,657	2,702	3,720	1,018
STTR	380	373	559	186
Energy Efficiency and Renewable Energy				
SBIR	27,404	24,168	38,690	14,522
STTR	3,361	3,333	5,805	2,472
Environmental Management				
SBIR	619	404	524	120
STTR	88	58	74	16
Fossil Energy				
SBIR	9,888	10,284	10,646	362
STTR	1,413	1,418	1,597	179
Nonproliferation R&D				
SBIR	6,975	6,233	6,784	551
STTR	997	860	1,018	158
Nuclear Energy				
SBIR	9,524	11,992	11,529	-463
STTR	1,361	1,654	1,729	75
Science				
SBIR	112,472	116,876	124,644	7,768
STTR	16,067	16,119	18,696	2,577
Total, SBIR	**177,189**	**181,236**	**205,409**	**24,173**
Total, STTR	**25,392**	**24,998**	**30,809**	**5,811**

Safeguards and Security Crosscut

Program Mission

The Safeguards and Security (S&S) program at headquarters and each DOE field site protects against theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts which may cause damage to national security, program continuity, the health and safety of employees, the public or the environment. The 'crosscut' summarizes the S&S programs that are distributed through the budget volumes. Each program's S&S components are described in the budget justifications for:

- Weapons Activities
- Defense Environmental Cleanup
- Health, Safety and Security (HS)
- Environment, Health, Safety and Security (EHSS)
- Enterprise Assessments (EA)
- Specialized Security Activities (SSA)
- Chief Information Officer (CIO)
- Science (SC)
- Nuclear Energy (NE)
- Energy Efficiency and Renewable Energy (EE)
- Fossil Energy Research and Development (FE R&D)
- Strategic Petroleum Reserve (SPR)
- Legacy Management (LM)

Program Overview

The budget for the direct funded S&S programs is organized to ensure consistency in program and budget execution and ensure management, direction, tracking and monitoring of security costs throughout the Department. Each program budget provides visibility for S&S issues in order to help management prioritize functions for effective and efficient S&S program implementation. Figure 1 shows comparable overall funding for S&S in FY 2014 Current, FY 2015 Enacted and FY 2016 Request. It does not include funding for Energy Sector cybersecurity. The S&S crosscut budget is comprised of the functional components shown in the following table.

Figure 1: Overall DOE S&S Funding (dollars in millions)

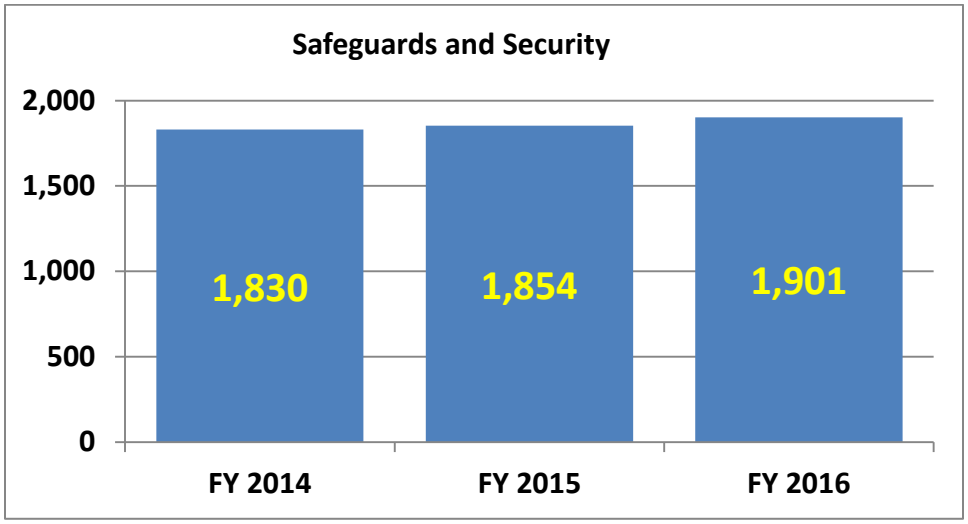

Table 1: Functional Components of S&S

Protective Forces	Provides for the protection of special nuclear materials, information, employees, and government property from theft, diversion, sabotage, and malicious destruction.
Physical Security Systems	Addresses access control and interior/exterior intrusion detection systems.
Information Security	Ensures that individuals protect classified matter and sensitive unclassified matter, and establishes protection systems that require degrees of protection for each classification level.
Cybersecurity	Assures protection of computer resources and networks.
Personnel Security	Supports activities associated with the access authorization program.
Material Control and Accountability	Provides assurance that the nuclear materials used and/or stored at DOE facilities are properly controlled and accounted for at all times.
Program Management	Assures a framework for efficient and effective security operations.
Security Investigations	Provides for background investigations for access authorizations.
Transportation Security	Provides secure transportation of nuclear materials.
Security Infrastructure/ Construction	Provides for update and repair of security related infrastructure and construction for that purpose.
Specialized Security Activities	Provides highly specialized analyses in support of national security objectives.

Table 2 shows S&S funding by program cost elements; and Table 3 by functional cost elements. Subsequent sections break out each functional element of field security by program.

Table 2: S&S Funding by Program (dollars in thousands)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Safeguards and Security (S&S) by Program					
Field Security					
Science	90,339	90,595	101,619	11,024	12.2%
Weapons Activities	1,021,902	1,039,928	1,050,089	10,161	1.0%
Defense Environmental Cleanup	241,000	240,000	228,313	-11,687	-4.9%
Nuclear Energy	94,000	104,000	126,161	22,161	21.3%
Energy Efficiency and Renewable Energy	9,210	9,210	9,200	-10	-0.1%
Fossil Energy R&D	4,540	4,052	4,535	483	11.9%
Strategic Petroleum Reserve	23,794	23,624	25,224	1,600	6.8%
Legacy Management	1,765	1,616	1,972	356	22.0%
Subtotal, Field S&S	**1,486,550**	**1,513,025**	**1,547,113**	**34,088**	**2.3%**
Headquarters Safeguards and Security					
Health, Safety and Security	70,309	0	0	0	N/A
Enterprise Assessments		18,952	18,952	0	0.0%
Environment, Health, Safety and Security		57,039	59,363	2,324	4.1%
Specialized Security Activities	202,242	203,152	221,855	18,703	9.2%
Chief Information Officer	30,795	21,364	21,006	-358	-1.7%
Working Capital Fund	40,000	39,994	32,981	-7,013	-17.5%
Subtotal, Headquarters S&S	**343,346**	**340,501**	**354,157**	**13,656**	**4.0%**
Total, Safeguards and Security	**1,829,896**	**1,853,526**	**1,901,270**	**47,744**	**2.6%**

Table 3: S&S Funding by Functional Cost Element (dollars in thousands)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
S&S by Functional Cost Element					
Field Security					
Protective Forces	684,041	663,191	661,851	-1,340	-0.2%
Physical Security Systems	133,609	140,468	130,120	-10,348	-7.4%
Information Security	49,589	41,819	42,101	282	0.7%
Cybersecurity	160,810	194,982	190,138	-4,844	-2.5%
Personnel Security	55,058	54,099	55,066	967	1.8%
Material Control and Accountability	41,134	39,663	35,818	-3,845	-9.7%
Program Management	119,520	113,848	113,695	-153	-0.1%
Security Investigations	31,721	35,696	39,278	3,582	10.0%
Transportation Security	210,345	219,259	253,565	34,306	15.6%
Security Infrastructure/Construction	723	10,000	25,481	15,481	N/A
Subtotal, Field S&S	**1,486,550**	**1,513,025**	**1,547,113**	**34,088**	**2.3%**
Headquarters Safeguards and Security					
Health, Safety and Security	70,309	0	0	0	N/A
Enterprise Assessments	0	18,952	18,952	0	0.0%
Environment, Health, Safety and Security	0	57,039	59,363	2,324	4.1%
Specialized Security Activities	202,242	203,152	221,855	18,703	9.2%
Chief Information Officer	30,795	21,364	21,006	-358	-1.7%
Working Capital Fund	40,000	39,994	32,981	-7,013	-17.5%
Subtotal, Headquarters	**343,346**	**340,501**	**354,157**	**13,656**	**4.0%**
Total Safeguards and Security	**1,829,896**	**1,853,526**	**1,901,270**	**47,744**	**2.6%**

Protective Forces

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Protective Forces					
Science	38,502	38,095	38,805	710	1.9%
Weapons Activities	398,931	388,485	385,792	-2,693	-0.7%
Defense Environmental Cleanup	164,525	152,424	144,746	-7,678	-5.0%
Nuclear Energy	55,475	57,547	65,611	8,064	14.0%
Energy Efficiency and Renewable Energy	5,200	5,200	5,200	0	0.0%
Fossil Energy R&D	2,624	2,176	2,228	52	2.4%
Strategic Petroleum Reserve	18,199	18,732	18,920	188	1.0%
Legacy Management	585	532	549	17	3.2%
Total, Protective Forces	**684,041**	**663,191**	**661,851**	**-1,340**	**-0.2%**

Mission

The Protective Forces element of field S&S provides funding to protect the Department's critical assets, which include nuclear weapons in DOE custody, nuclear weapons components, special nuclear materials, classified information and DOE facilities against a spectrum of threats, including terrorist activity, sabotage, espionage, theft, diversion, loss or unauthorized use.

Protective Force programs throughout the complex provide for personnel salaries, wages and benefits for personnel; management and supervision; and well-maintained and logically deployed equipment and facilities to ensure effective performance of assigned functions and tasks under normal and emergency conditions.

Protective Forces programs include the conduct of access control and security response operations; the physical protection of special nuclear material, classified matter and information, and government property; emergency response forces and tactical assistance during events as well as an on-scene security commander; random patrols; coordination with local law enforcement and protective force elements aimed at providing effective response to emergency situations; random prohibited article inspections; security alarm monitoring and dispatch services; the collection and destruction of classified matter; and constant testing of the protective force to respond to various event scenarios.

Protective Forces programs maintain a Special Response Team capability to provide resolution of incidents that require effective and timely response with force options that exceed the capability of front line protective force personnel. This includes recapture and recovery operations involving the use of special weapons, systems and tactics to effect recovery of special nuclear material under authorized control.

Physical Security Systems

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Physical Security Systems					
Science	13,580	12,601	12,019	-582	-4.6%
Weapons Activities	85,934	79,866	75,205	-4,661	-5.8%
Defense Environmental Cleanup	24,331	32,073	30,012	-2,061	-6.4%
Nuclear Energy	8,578	14,718	11,632	-3,086	-21.0%
Fossil Energy R&D	211	158	164	6	3.8%
Strategic Petroleum Reserve	857	939	949	10	1.1%
Legacy Management	118	113	139	26	23.0%
Total, Physical Security Systems	**133,609**	**140,468**	**130,120**	**-10,348**	**-7.4%**

Mission

The Physical Security Systems element of field S&S provides for the physical protection of special nuclear material and equipment, sensitive information, Departmental property and unclassified facilities. Included are buildings, fences, barriers, lighting, sensors, surveillance devices, entry control devices, access control systems, explosive detection systems, power systems and other real property and hardware designed for, or affecting security. This hardware and equipment are operated and used to support the protection of DOE property and other interests of national security.

Security Systems programs support DOE-wide efforts required to conduct performance assurance testing. These programs also ensure that security alarm systems are operational and functioning in accordance with applicable DOE requirements. Physical Security System programs are also responsible for two subprograms: (1) a barriers, secure storage, and lock program to restrict, limit, delay or deny entry into a designated area; and (2) an entry control and access program that provides positive identification of personnel requiring access to facilities and initial access to facilities in general, ensuring that persons entering or leaving facilities are authorized, and do not introduce prohibited articles into or remove Government property from Departmental facilities.

The budget estimates include all access control administrative activity involving production, accountability and destruction of access authorization badges and firearms credentials. They also include systems components and tamper-safe oversight by monitoring and responding to alarms, determining access and securing all alarmed structures on site. In addition, this element provides for handling all radio communications for the protection of the facilities.

Information Security

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Information Security					
Science	4,407	4,252	4,416	164	3.9%
Weapons Activities	37,536	30,432	29,079	-1,353	-4.4%
Defense Environmental Cleanup	3,858	3,179	4,378	1,199	37.7%
Nuclear Energy	3,242	3,451	3,721	270	7.8%
Energy Efficiency and Renewable Energy	200	200	200	0	0.0%
Fossil Energy R&D	59	52	54	2	3.8%
Strategic Petroleum Reserve	281	247	247	0	0.0%
Legacy Management	6	6	6	0	0.0%
Total, Information Security	**49,589**	**41,819**	**42,101**	**282**	**0.7%**

Mission

The Information Security element of field S&S ensures that material and documents that may contain sensitive and classified information are accurately and consistently identified, properly reviewed for content, appropriately marked and protected from unauthorized disclosure, and ultimately destroyed in an approved manner.

Information Security programs provides for plans, policies, procedures and training to ensure that all employees are aware of the requirements for the identification, review, classification, declassification, marking, protection and proper disposal of sensitive information and classified material. In addition, operational security considerations are used to preclude inadvertent compromise of classified material.

Cybersecurity

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Cybersecurity					
Science	16,074	16,767	27,070	10,303	61.4%
Weapons Activities	119,441	154,805	132,588	-22,217	-14.4%
Defense Environmental Cleanup	6,894	6,239	9,050	2,811	45.1%
Nuclear Energy	11,926	11,268	14,466	3,198	28.4%
Energy Efficiency and Renewable Energy	2,200	2,200	2,190	-10	-0.5%
Fossil Energy R&D	1,320	1,335	1,750	415	31.1%
Strategic Petroleum Reserve	1,969	1,464	2,102	638	43.6%
Legacy Management	986	904	922	18	2.0%
Total, Cybersecurity	**160,810**	**194,982**	**190,138**	**-4,844**	**-2.5%**

Mission

The Cybersecurity element of field S&S ensures that sensitive and classified information that is electronically processed, transmitted, or stored, is properly identified and protected. Cybersecurity programs also ensure that electronic systems are appropriately marked and protected. The programs plan, document, and test classified automated information systems (AIS), communications security (COMSEC), investigations and studies of compromising emanations (TEMPEST); and maintain an appropriate level of infrastructure reliability and integrity, as well as an unclassified AIS program. Included are appropriate plans, policies and procedures, assessments, tests, monitoring and self-assessments, certifications, and user and administrator training and awareness.

The amounts given here are program funds and do not include amounts in Program Direction accounts for Federal staff assigned to Cybersecurity work within the program offices. Nor do they include security elements that are within software applications developed for the Department's programmatic or administrative purposes; whether directly or indirectly funded.

Headquarters Cybersecurity: The Office of the Chief Information Officer also funds headquarters cybersecurity and program offices fund cybersecurity through the mechanism of the Working Capital Fund for the enterprise-wide CyberOne effort managed within the OCIO. In FY16 up to an additional $33 million will be funded through the WCF and managed by the OCIO. The table below includes cybersecurity efforts in EA and EHSS that pertain to cybersecurity testing, oversight, and insider threat activities. The Energy Information Administration EIA provides cybersecurity mechanisms for the National Energy Information System.

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Cybersecurity (Including OCIO and CyberOne)*					
Field Cybersecurity	**160,810**	**194,982**	**190,138**	**-4,844**	**-2.5%**
Energy Information Administration	823	837	851	14	1.7%
Health, Safety and Security	2,698	0	0	0	N/A
Environment, Health, Safety and Security	0	4,385	5,409	1,024	23.4%
Enterprise Assessments	0	3,952	3,952	0	0.0%
WCF Funding for Cybersecurity	40,000	39,994	32,981	-7,013	-17.5%
Office of the CIO	30,795	21,364	21,006	-358	-1.7%
Total, Cybersecurity	**235,126**	**265,514**	**254,337**	**-11,177**	**-4.2%**

* In the above tables, CyberOne funding is included only on the WCF line.

Personnel Security

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Personnel Security					
Science	5,416	5,267	5,412	145	2.8%
Weapons Activities	34,810	34,151	32,487	-1,664	-4.9%
Defense Environmental Cleanup	7,835	6,108	8,891	2,783	45.6%
Nuclear Energy	5,529	7,050	6,749	-301	-4.3%
Energy Efficiency and Renewable Energy	720	720	720	0	0.0%
Fossil Energy R&D	106	109	110	1	0.9%
Strategic Petroleum Reserve	604	661	664	3	0.5%
Legacy Management	38	33	33	0	0.0%
Total, Personnel Security	**55,058**	**54,099**	**55,066**	**967**	**1.8%**

Mission

The Personnel Security element of field S&S supports the access authorization program, and ensure security sensitivity through security briefings such as the initial refresher and termination briefings, re-orientations, computer based training, special workshops and classes, publications, closed circuit television programs, signs, posters and special event days. Support for the access authorization program includes: (1) personnel security assurance program, adjudications, screening and analysis of personnel security cases for determining eligibility for access authorizations, administrative reviews, and handling of Freedom of Information and Privacy Act requests related to security access authorizations; (2) security awareness and education; and (3) activities associated with classified and unclassified visits and assignments by foreign nationals.

Material Control and Accountability

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Material Control and Accountability					
Science	2,522	2,223	2,454	231	10.4%
Weapons Activities	29,962	28,678	23,739	-4,939	-17.2%
Defense Environmental Cleanup	4,981	4,422	5,169	747	16.9%
Nuclear Energy	3,669	4,340	4,456	116	2.7%
Total, Material Control and Accountability	**41,134**	**39,663**	**35,818**	**-3,845**	**-9.7%**

Mission

The Material Control and Accountability (MC&A) element of field S&S provides assurance that nuclear materials are properly controlled and accounted for at all times. MC&A provides evidence that all nuclear materials are accounted for appropriately and that theft, diversion, or operational loss has not occurred. MC&A also supports weapons production, nuclear nonproliferation, nuclear materials operations, facility closure, and nuclear critical safety by determining and documenting the amounts of nuclear materials in weapons and packaged items. MC&A administration includes the following: (1) assessing the levels of protection, control and accounting required for the types and quantities of materials at each facility; (2) documenting facility plans for nuclear materials control and accounting; (3) assigning authorities and responsibilities for MC&A functions; (4) ensuring that facility MC&A personnel are trained and qualified to perform their responsibilities; (5) establishing programs to report occurrences such as nuclear material theft, the loss of control or inability to account for nuclear materials, or evidence of malevolent acts; (6) conducting performance testing of required program elements; and (7) establishing facility programs to conduct and document internal assessments of their operations and MC&A programs.

Program Management

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Program Management					
Science	6,499	6,444	6,738	294	4.6%
Weapons Activities	77,808	74,511	73,589	-922	-1.2%
Defense Environmental Cleanup	27,249	24,946	22,939	-2,007	-8.0%
Nuclear Energy	5,581	5,626	7,845	2,219	39.4%
Energy Efficiency and Renewable Energy	490	490	490	0	0.0%
Fossil Energy R&D	220	222	229	7	3.2%
Strategic Petroleum Reserve	1,641	1,581	1,542	-39	-2.5%
Legacy Management	32	28	323	295	1053.6%
Total, Program Management	**119,520**	**113,848**	**113,695**	**-153**	**-0.1%**

Mission

The Program Management element of field S&S develops the framework for efficient and effective security operations. This includes the development and updating of S&S plans, conducting vulnerability assessments to determine if assets are at risk, modeling to ensure the plans and operations meet mission objectives, identifying assets that need protection, developing local threat assessments and participating in the S&S quality panel process and security education. In addition, these programs ensure that plans are developed and revised in accordance with DOE requirements, professional and technical training is administered, and Departmental S&S goals and objectives are implemented complex wide.

The programs develop S&S plans or other applicable security plans and implement S&S requirements, conduct surveys to determine whether S&S requirements have been implemented, respond to national and local threats and perform a vulnerability analysis that measures the risk of S&S assets. Program Management includes participation in the quality panel process, which raises issues from the field to the headquarters managers and ensures that the staff is properly educated in security matters.

Security Investigations

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Security Investigations					
Science	3,339	4,946	4,705	-241	-4.9%
Weapons Activities	27,000	30,000	33,000	3,000	10.0%
Defense Environmental Cleanup	982	350	1,173	823	235.1%
Energy Efficiency and Renewable Energy	400	400	400	0	0.0%
Total, Security Investigations	**31,721**	**35,696**	**39,278**	**3,582**	**10.0%**

Mission

The Security Investigations element of field S&S funds background investigations associated with providing access authorizations (security clearances) to DOE Federal and contract personnel who, in the performance of their official duties, require access to classified information or certain quantities of special nuclear material. Background investigations are required by Section 145 of the Atomic Energy Act of 1954, as amended, and Executive Order 12968, Access to Classified Information. The investigations are performed and access authorizations granted based on 10 C.F.R. 710, Criteria and Procedures for Determining Eligibility for Access to Classified Matter or Special Nuclear Material.

The Federal Bureau of Investigation conducts background investigations for DOE Federal personnel for positions of a high degree of importance or sensitivity as required by DOE Order 470.4, Safeguards and Security Program. Funding provides for initial background investigations, periodic reinvestigations, and reimbursement for fingerprint and name checks. The Office of Personnel Management conducts the majority of background investigations for DOE Federal personnel and contractors. Funding provides for initial Single scope background investigations, periodic reinvestigations, and initial and reinvestigation national agency checks.

Transportation Security

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Transportation Security					
Weapons Activities	210,000	219,000	251,610	32,610	14.9%
Defense Environmental Cleanup	345	259	1,955	1,696	654.8%
Total, Transportation Security	**210,345**	**219,259**	**253,565**	**34,306**	**15.6%**

Mission

Transportation security provides for the secure transport of weapons, weapons components, and nuclear materials to support Directed Stockpile Work and consolidation and disposition of nuclear material within the complex; to meet DOE, DOD, and other customer requirements. This functional component of S&S is primarily funded within NNSA's Secure Transportation Asset (STA) Program.

STA provides safe and secure shipments for Weapons Activities, Naval Reactors, Defense Nuclear Nonproliferation and Nuclear Counterterrorism Incident Response and other Department elements requiring this capability. The STA program supports Departmental initiatives to convert weapons-grade material to commercial reactor fuel. STA supports other DOE programs including Nuclear Energy and Environmental Management; and others, including the National Aeronautic and Space Administration, and international shipments in cooperation with Canada, The United Kingdom, and France.

Security Infrastructure/Construction

Funding Schedule ($K)

	FY 2014	FY 2015	FY 2016	$ Chg.	% Chg.
Security Infrastructure/Construction					
Weapons Activities	480	0	13,000	13,000	N/A
Defense Environmental Cleanup	0	10,000	0	-10,000	-100.0%
Nuclear Energy	0	0	11,681	11,681	N/A
Strategic Petroleum Reserve	243	0	800	800	N/A
Total, Construction	**723**	**10,000**	**25,481**	**15,481**	**154.8%**

Mission

Security Infrastructure provides critical security infrastructure investments and protection enhancements necessary to ensure adequate protection of DOE sites and personnel. In FY 2015 Defense Environmental Cleanup funds the Argus system at Savanah River Site. At Idaho National Laboratory (INL), FY 2016 activities include upgrading the perimeter intrusion detection and assessment systems (PIDAS) and the central alarm system (CAS) at the Materials and Fuels Complex (MFC). At the Nevada Test Site NNSA will fund the replacement of the obsolete PECOS alarm management system at the NNSS DAF with Argus, the current enterprise standard for Category I Special Nuclear Material protection; as a line item construction project.

Education Activities

The following section provides consolidated information on educational activities at the Department of Energy and includes data for fellowships, scholarships, workforce training programs and primary and secondary school activities. This section responds to language in the Explanatory Statement accompanying the Consolidated Appropriations Act, Public Law (P.L.) 113-76, requesting the Department of Energy to submit this data annually.

Education Activities ($K)

Fellowships	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Energy Efficiency and Renewable Energy				
Solar Energy				
SunShot Post-Doctoral Fellowship	940	2,000	2,400	400
The DOE SunShot Initiative postdoctoral research program funds emerging research leaders to pursue breakthrough solar energy technologies. These 2-year awards provide doctoral degree recipients the opportunity to conduct applied research at universities, national laboratories, and other research facilities.				
Fossil Energy				
Program Direction, Coal, and Gas				
Oak Ridge Institute for Science and Education (ORISE) Fellowships	6,774	0	0	0
The Oak Ridge Institute for Science and Education (ORISE) is a Department of Energy institute focusing on scientific initiatives to research health risks from occupational hazards, assess environmental cleanup, respond to radiation medical emergencies, support national security and emergency preparedness, and educate the next generation of scientists.				
Nuclear Energy				
Integrated University Program				
Nuclear Energy Fellowships	4,822	4,650	0	-4,650
This funding supports 33 graduate-level student fellowship grants to support nuclear science and engineering education and research and the training of the next generation nuclear energy workforce.				

Fellowships (continued)	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Science				
Advanced Scientific Computing Research				
Computational Science Graduate Fellowship (CSGF) Program	0	3,000	10,000	7,000
The CSGF fellowship, is jointly funded by the DOE's Office of Science (SC), Advanced Scientific Computing Research and the DOE's National Nuclear Security Administration, and supports the training of graduate students in computational sciences relevant to DOE's high performance computers and applications directly relevant to the DOE mission. CSGF requires students follow a course of study that transcends the boundaries of traditional academic disciplines - substantive graduate work in each of a scientific or engineering discipline, and generally includes computer science and applied mathematics. It also requires a practicum at a DOE lab in collaboration with a computational scientist. Fellows are mentored to become scientists and engineers able to communicate across scientific and technological disciplines. In FY 2014, Congress appropriated funds for the CSGF program within SC's Workforce Development for Teachers and Scientists, to support a fully forward-funded cohort in 2014.				
Fusion Energy Sciences				
National Undergraduate Fellowship (NUF) Program in Plasma Physics and Fusion Energy Sciences	0	300	0	-300
The NUF Program in Plasma Physics and Fusion Energy Sciences is an undergraduate research internship program. NUF provides outstanding undergraduates with an opportunity to conduct research in disciplines that generally comprise plasma sciences with an emphasis on fusion research. The goal of the Program is to stimulate students' interest in the fields relevant to fusion research, and also to provide capable assistance in and with experience in fusion research projects. In order that the students obtain a sufficient background to begin their research projects, the nine week project is preceded by a one week introductory course at the Princeton Plasma Physics Laboratory in the basic elements of plasma physics; the students then travel to the sites of their research projects. FY 2014, SC began to merge the NUF program with the Science Undergraduate Laboratory Internships (SULI) program supported by SC's Workforce Development for Teachers and Scientists.				
Workforce Development for Teachers and Scientists				
Albert Einstein Distinguished Educator Fellowship	1,200	1,200	1,200	0
The Albert Einstein Distinguished Educator Fellowship Act of 1994 gives the Department of Energy responsibility for administering a program of fellowships for elementary and secondary school mathematics and science teachers. The Office of Science's Workforce Development of Teachers and Scientists manages the Albert Einstein Distinguished Educator Fellowship Program for the Federal government and encourages participation by other Federal agencies. Selected teachers spend eleven months in a Congressional Office or a Federal agency. DOE supports 6-7 Fellows annually; approximately 4-5 DOE Fellows are placed in Congressional Offices and 2-3 are placed in DOE. Other agencies that have participated include the National Science Foundation, the National Aeronautics and Space Administration, and the National Oceanic and Atmospheric Administration, who sponsor their own fellows.				

Fellowships (continued)	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Computational Science Graduate Fellowship (CSGF) Program	8,700	0	0	0
The CSGF fellowship, is jointly funded by the DOE's Office of Science, Advanced Scientific Computing Research and the DOE's National Nuclear Security Administration, and supports the training of graduate students in computational sciences relevant to DOE's high performance computers and applications directly relevant to the DOE mission. CSGF requires students follow a course of study that transcends the boundaries of traditional academic disciplines - substantive graduate work in each of a scientific or engineering discipline, and generally includes computer science and applied mathematics. It also requires a practicum at a DOE lab in collaboration with a computational scientist. Fellows are mentored to become scientists and engineers able to communicate across scientific and technological disciplines. In FY 2014, Congress appropriated funds for the CSGF program within SC's Workforce Development for Teachers and Scientists, to support a fully forward-funded cohort in 2014.				
Weapons Activities				
Weapons Activities				
National Nuclear Security Administration (NNSA) Graduate Fellowship Program	2,054	1,700	2,000	300
NNSA manages a technical fellowship program to cultivate the next generation of leaders in managing in the nuclear stockpile, nonproliferation, nuclear security, and international security. This program will help foster the pipeline of highly qualified professionals who will sustain expertise in these areas through future employment within the nuclear security enterprise.				
Science Campaign				
Military Academy Collaboration	311	316	322	6
The NNSA's Military Academy Collaboration (MAC) Program seeks to enhance the relationship between the NNSA and the Department of Defense by providing future military leaders an in depth, technical understanding of and appreciation for NNSA capabilities. The Program offers support for four to six weeks of "in-residence" training on laboratory research and development projects, with travel, billeting, group transportation, and per diem paid by NNSA. The Program is also a recruitment tool for attracting interest in future employment by NNSA. Currently, the Program features collaborations between eight NNSA laboratories, plants, and test sites, and five military service academies: the United States Air Force Academy; the United States Coast Guard Academy; the United States Naval Academy; the United States Military Academy; and the United States Merchant Marine Academy.				
Advanced Simulation and Computing Campaign				
Computational Science Graduate Fellowship	1,500	1,500	1,500	0
This Fellowship is jointly funded by the Office of Science's Advanced Scientific Computing Research program and the National Nuclear Security Administration. The Fellowship supports students pursuing doctoral degrees in fields that use high-performance computing to solve complex science and engineering problems.				

Fellowships (continued)	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Inertial Confinement Fusion Ignition and High Yield				
Stockpile Stewardship Graduate Fellowship (SSGF)	2,280	2,321	2,363	42
The Stewardship Science Graduate Fellowship (SSGF) Program supports Ph.D. students in fields of study critical to stewardship science, such as properties of materials under extreme conditions and hydrodynamics, nuclear science, and High Energy Density Physics. The Program provides opportunities for SSGF Fellows to conduct research at NNSA's laboratories with some of the Nation's most sophisticated and powerful experimental and computational facilities. In doing so, the Fellowship Program builds a community of talented and committed doctoral students, NNSA laboratory staff, and university researchers who share a common desire to advance their science while impacting national security.				
Defense Nuclear Nonproliferation				
Nonproliferation and International Security				
Nuclear Nonproliferation International Safeguards Fellowship	750	750	750	0
This program is designed to meet a critical NNSA need for appropriately trained personnel in research, development, and implementation in areas pertinent to Nuclear Nonproliferation and International Safeguards. This fellowship is narrowly targeted to meet a specified expertise gap and produce interdisciplinary PhD graduates from the sciences and engineering who have a solid grasp on policy implications. Fellows are selected by a twelve-member panel of subject matter experts at the National Labs, and complete hands-on research alongside safeguards and nonproliferation teams within the Lab complex.				
Defense Nuclear Nonproliferation				
NNSA Graduate Fellowship Program	2,798	2,500	3,000	500
NNSA manages a technical fellowship program to cultivate the next generation of leaders in managing in the nuclear stockpile, nonproliferation, nuclear security, and international security. This program will help foster the pipeline of highly qualified professionals who will sustain expertise in these areas through future employment within the nuclear security enterprise.				
Naval Reactors				
Naval Reactors				
Rickover Fellowship	996	979	1,032	53
The Rickover Fellowship is an annual fellowship in support of naval nuclear propulsion program.				
Federal Salaries and Expenses				
Federal Salaries and Expenses				
NNSA Graduate Fellowship Program	303	1,346	1,500	154
NNSA manages a technical fellowship program to cultivate the next generation of leaders in managing in the nuclear stockpile, nonproliferation, nuclear security, and international security. This program will help foster the pipeline of highly qualified professionals who will sustain expertise in these areas through future employment within the nuclear security enterprise.				
Total Fellowships	**33,428**	**22,562**	**26,067**	**3,505**

Scholarships	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Nuclear Energy				
Integrated University Program				
Undergraduate Student Scholarships	205	350	0	-350
This program supports 37 undergraduate student scholarship grants to support nuclear science and engineering education and research and the training of the next generation nuclear energy workforce.				
Total Scholarships	**205**	**350**	**0**	**-350**

Workforce Training Programs	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Energy Efficiency and Renewable Energy				
Advanced Manufacturing				
Critical Materials Institute	200	200	200	0
Multidisciplinary teams at the Critical Materials Institute explore ways to address challenges in critical materials, including mineral processing, manufacture, substitution, efficient use, and end-of-life recycling. Approximately 1 percent of total planned funding is allocated to support educational activities.				
Industrial Technical Assistance/Industrial Assessment Centers	6,000	6,000	6,000	0
Currently located at 24 of the nation's top engineering schools, the Industrial Assessment Centers combine a traditional engineering curriculum with a unique blend of hands-on experience gained through conducting assessments at small and medium-sized manufacturers.				
Manufacturing Demonstration Facility	190	190	190	0
Work at the Oak Ridge Manufacturing Demonstration Facility focuses on improving and demonstrating new additive manufacturing and carbon fiber manufacturing technologies. Approximately 1 percent of total planned funding is allocated to support educational activities.				
America Makes	20	20	20	0
America Makes advances additive manufacturing technology and products, and serves as a nationally recognized additive manufacturing center of innovation excellence, working to transform the U.S. manufacturing sector and yield significant advancements throughout industry. Approximately 1 percent of total planned funding is allocated to support educational activities.				
R&D Facilities/Wide Bandgap Traineeships	0	2,000	2,000	0
In coordination with the Office of Science, the program will implement a technical training program focused on wide bandgap power electronics which will consist of a mixture of classroom and project based practical experience.				
EERE Advanced Manufacturing Internship Program	500	500	500	0
The EERE Advanced Manufacturing Internship Program will be administered by ORISE who shall administer an education program by providing up to 50 students, recent graduates, and active or former U.S. military servicemen and women for participation in a 6-week internship program at Oak Ridge National Laboratory (ORNL) in the area of Advanced Manufacturing.				

Workforce Training Programs (continued)	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Strategic Programs				
Energy Literacy	25	100	150	50
The Energy Literacy Project is an effort to support the Department's efforts to promote the nation's energy literacy in the participation of a coordinated energy education and energy literacy effort, to insure that the public has a modest understanding of energy sources, generation, use and conservation strategies to enable informed energy decision. A major activity associated with this goal was the creation of the Energy Literacy document "Essential Principles and Fundamental Concepts for Energy Education;" a peer reviewed collaborative effort to define energy literacy. This collaborative effort includes over 20 recognized educational partners and 13 federal agencies that comprise the U.S. Global Change Research Program Partner agencies.				
Energy 101	0	0	100	100
The Energy 101 Project is an effort to support ongoing energy workforce development and energy education activities in the nation's community colleges and universities and is part of Department's effort to implement a coordinated effort around energy education and energy workforce training. Activities associated with the project include the creation of a peer reviewed fundamentals of energy course framework that identifies energy fundamental principles for use in energy workforce and energy education content development, and also the support of the creation of communities of energy education subject matter experts.				
National Training and Education Resource (NTER)	675	300	0	-300
NTER is an easy-to-access, open source, web-based learning platform that enables learners, instructors, and organizations to deliver online training to learners at all levels. It provides free, state-of-the-art resources to help institutions develop, deploy, and manage educational and training courses for audiences of any type. This system was built with the capability to securely share content across all institutions and with the public. As an open source project, the NTER platform is free and has no licensing fees.				
Solar Decathlon	0	0	2,500	2,500
The U.S. Department of Energy Solar Decathlon is an award-winning program that challenges 20 collegiate teams to design, build, and operate solar-powered houses that are cost-effective, energy-efficient, and attractive. In addition to showcasing the cost savings and environmental benefits of market-ready solar technologies, the event encourages participating students to think in new ways about incorporating practical, affordable clean-energy solutions into residential applications.				
Vehicle Technology				
Outreach, Deployment & Analysis/Advanced Vehicle Competitions	1,999	2,500	2,500	0
The Advanced Vehicle Competitions activity educates the next generation of young engineers in automotive technology, providing first-hand experience with advanced technologies such as PHEVs and advanced combustion alternative fuel vehicles. In April 2014, DOE and GM announced the participating universities and vehicle platform for EcoCAR 3, a four-year completion series. The EcoCAR 2 competition concluded in June 2014; future year plans are for the final year of EcoCAR 2 and the five-year span of EcoCAR 3.				

Workforce Training Programs (continued)	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Vehicle Technology (continued)				
Outreach, Deployment & Analysis/Graduate Automotive Technology Education (GATE)	2,300	0	0	0
GATE helped to train a future workforce of automotive engineering professionals knowledgeable about, and experienced in, developing and commercializing advanced automotive technologies. This will help overcome technology barriers preventing the development and production of cost-effective, high-efficiency vehicles for the U.S. market by providing research opportunities and developing/establishing cross-disciplinary graduate engineering curriculum emphasizing that center's technology specialty. Focus is on three critical automotive technology areas: hybrid propulsion, energy storage, and lightweight materials.				
Building Technologies				
Solar Decathlon	2,350	2,800	0	-2,800
The U.S. Department of Energy Solar Decathlon is an award-winning program that challenges 20 collegiate teams to design, build, and operate solar-powered houses that are cost-effective, energy-efficient, and attractive. In addition to showcasing the cost savings and environmental benefits of market-ready solar technologies, the event encourages participating students to think in new ways about incorporating practical, affordable clean-energy solutions into residential applications.				
Workforce Development Activities	1,241	56	1,000	944
The combined workforce development activities are done in an effort to improve the quality, consistency, and dependability of the commercial buildings advanced energy workforce through guidelines for high-quality training and certification programs.				
Race to Zero Student Design Competition	400	400	400	0
The U. S. Department of Energy Race to Zero Student Design Competition (Race to Zero) is engaging undergraduate students, graduate students, and university faculty to become part of a new leadership movement to achieve truly sustainable homes. The competition was designed to 1) inspire and develop the next generation of building science professionals; 2) advance and enhance building science curriculum in universities; and 3) complement the experiential learning benefits provided by the U.S. Department of Energy Solar Decathlon through an additional collegiate competition opportunity.				

Workforce Training Programs (continued)	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Science				
High Energy Physics				
U.S. Particle Accelerator School	614	614	614	0
The Accelerator School provides a national graduate-level training program for undergraduate, graduates students, postdocs, and DOE national laboratory staff to obtain training not otherwise available to the scientific and engineering communities in the field of particle beams and their associated accelerator technologies. The host institution is Fermi National Accelerator Laboratory (Fermilab), although the location of the summer school changes from year to year depending on which university hosts it. Students are usually able to obtain course credit through their academic institutions. Nearly half of the participants are DOE laboratory staff. The expected outcome is the advancement of accelerator physics through a cadre of well-trained engineers and accelerator physicists. The school offers one of the few opportunities for in-job training in accelerator physics. There is little or no instruction or training available in this area within university physics programs.				
Workforce Development for Teachers and Scientists				
Office of Science Graduate Student Research Program	2,000	2,500	2,500	0
The goal of the Office of Science Graduate Student Research (SCGSR) program is to prepare graduate students for science, technology, engineering, or mathematics (STEM) careers critically important to the DOE Office of Science mission, by providing graduate thesis research opportunities at DOE laboratories. The SCGSR program provides supplemental awards to outstanding U.S. graduate students to pursue part of their graduate thesis research at a DOE laboratory in areas that address scientific challenges central to the Office of Science mission. The research opportunity is expected to advance the graduate student's overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories.				
Visiting Faculty Program	1,300	1,700	1,800	100
The Visiting Faculty Program (VFP) goal is to increase the research competitiveness of faculty members and students at post-secondary institutions of higher education (colleges and universities) historically underrepresented in the research community in order to expand the workforce that addresses DOE mission areas. Through direct collaboration with research staff at DOE host laboratories, VFP appointments provide an opportunity for faculty and students to develop skills applicable to programs at their home institutions; this helps increase the STEM workforce in DOE science mission areas at institutions historically underrepresented within the DOE enterprise. Appointments are in the summer term for 10 weeks.				
Community College Internships	700	1,000	1,200	200
The Community College Internship (CCI) program goal is to encourage community college students to pursue technical careers relevant to the DOE mission by providing technical training experiences at DOE laboratories under the direction of laboratory staff who serve as advisors and mentors. The CCI program places community college students in paid internships conducting technology-focused projects supporting laboratory work under the supervision of a laboratory technician or researcher. Appointments are for 10 weeks during the summer term or for 16 weeks during the fall and spring terms.				
Science Undergraduate Laboratory Internship	7,800	8,300	9,000	700
The Student Undergraduate Laboratory Internship (SULI) program goal is to encourage undergraduate students to enter STEM careers especially relevant to the DOE mission by providing research experiences at DOE National Laboratories under the direction of scientific and technical laboratory staff who serve as research advisors and mentors. With its long history, the SULI program places undergraduate students in paid internships in science and engineering research activities at DOE laboratories, working with laboratory staff scientists or engineers on projects related to ongoing research programs. Appointments are for 10 weeks during the summer term or for 16 weeks during the fall and spring terms.				
Total Workforce Training Programs	**28,314**	**29,180**	**30,674**	**1,494**

Primary and Secondary School Activities	FY 2014 Current	FY 2015 Enacted	FY 2016 Request	FY 2016 vs FY 2015
Energy Efficiency and Renewable Energy				
Geothermal Technologies				
Geothermal Student Competition	89	0	150	150
Geothermal Student Competition administered at ORISE.				
Wind Energy				
Wind for schools	0	600	0	-600
Wind for Schools funded teams of university students and faculty to support the installation of small wind turbines at K12 schools (the turbines themselves were funded through private donations) and the integration of those turbines into the curriculum at those schools. Under the program, more than 130 systems were installed in 11 states and tens of thousands of students engaged in educational activities around those turbines. As part of the Administration's consolidation of Science, Technology, Engineering, and Mathematics (STEM) education activities, DOE discontinued Wind for Schools at the end of FY13.				
Collegiate Wind Competition	570	600	650	50
The Collegiate Wind Competition initiated in 2014 is a workforce development initiative with ancillary STEM benefits.				
Fossil Energy				
Program Direction				
Science Technology Engineering and Mathematics (STEM)	5	0	0	0
This program supports various school sponsored STEM outreach activities, lab days, and science festivals.				
Science				
Workforce Development for Teachers and Scientist				
National Science Bowl	2,800	2,900	2,900	0
The DOE Office of Science National Science Bowl® (NSB) is a nationwide academic competition testing students' knowledge in all areas of mathematics and science, including energy. High school and middle school students are quizzed in a fast paced, question-and-answer format. Since 1991, more than 225,000 students have participated in regional and national competitions. The National Science Bowl® regional winning teams receive all-expenses paid trips to Washington D.C. to compete at the National Finals in late April. Competing teams are composed of four students, one alternate, and a teacher who serves as an advisor and coach. The Office of Science manages the National Science Bowl®, provides central management of 115 regional events, and sponsors the NSB finals competition.				
Total Primary and Secondary School Activities	**3,464**	**4,100**	**3,700**	**-400**

Pensions

Pensions

Contractor Pensions and Other Postretirement Benefits

This section of the budget provides projected contractor defined-benefit (DB) pension plan contributions and other postretirement benefit reimbursement costs. The DB pension plan contributions are provided for FY 2014 through FY 2016 by plan and by the following Department of Energy (DOE) Program Offices:[1]

- Office of Environmental Management (EM)
- Office of Science (SC)
- Office of Energy Efficiency and Renewable Energy (EERE)
- Office of Nuclear Energy (NE)
- Office of Electricity Delivery and Energy Reliability (OE)
- Office of Fossil Energy (FE)
- Office of Legacy Management (LM)

Projected contractor DB pension plan contributions are provided for FY 2014 through FY 2020 by plan and in aggregate for the National Nuclear Security Administration (NNSA).

Information regarding projected reimbursements for other postretirement benefits (primarily medical) can be found in Section II below.

Contractors that manage and operate DOE's laboratories, weapons plants, and execute environmental cleanup projects at various government-owned sites and facilities are required by DOE to assume sponsorship of the existing contractor DB pension plans and other postretirement benefit plans for incumbent employees who work and retire from employment at those sites and facilities. A portion of the DOE's funding is used to reimburse the costs of the DOE contractors' contributions to DB pension plans and the reimbursements for benefits paid from the other postretirement benefit plans, either as part of the indirect costs or as direct obligations for legacy plans.

Section I - Contractor DB Pension Plan Contributions[2]

DOE reimburses contractors for pension contributions at levels that are at least equal to the minimum required by the Employee Retirement Income Security Act (ERISA). Contracting officers approve amounts above the minimum required on a case-by-case basis. The minimum required contribution (MRC) is determined on a plan year basis. Only two of the contractor plans have a plan year that coincides with the fiscal year and therefore the majority of fiscal year contributions are spread across 2 plan years. At a minimum, plan sponsors of single or multiple employer plans[3] in which the plan assets were less than liabilities in the prior year must make quarterly contributions during the plan year with the first one due 3½ months after the beginning of the plan year and any outstanding amount due 8½ months after the plan year ends.

DOE's reimbursement of contractor costs in excess of the minimum contribution will require approval by the Contracting Officer, as well as Headquarters approval and will include coordination with the Chief Financial Officer, the General Counsel, and affected Headquarters Program Offices. Table 1 provides the information related to plans where funding in excess of the MRC was requested during FY 2014, and includes the MRC (assuming the legally required payments were made at the specified dates), the contribution approved, and the rationale for approving the higher contribution amount.

[1] Tables include projected contributions from Non DOE Work (previously referred to as "Work-for-Others" (WFO)) and "Other" entities (e.g., DOE departmental administration, classified programs, etc.).

[2] Since the final assets of the Fernald Pension Plan were distributed in early FY 2015, DOE reimburses contributions for 35 funded defined benefit (DB) pension plans and 13 non-qualified DB pension plans. Non-qualified plans have no assets and are funded on a pay-as-you-go basis.

[3] A single employer plan is a plan sponsored by only one employer; a multiple employer plan is a plan sponsored by 2 or more unrelated employers and not established by a collective bargaining agreement; a multi-employer plan is a plan established pursuant to a collectively bargaining agreement between a labor union and a group of employers in a particular trade or industry.

Table 1- FY 2014 Contributions in Excess of the MRC

Plan	FY 2014 Minimum Required Contribution ($K)	Additional Amount Requested ($K)	FY14 Total Amount Approved ($K)	FY14 Budget - President's Budget ($K)	Rationale
Pension Plan for Eligible Bettis Employees and Retirees	15,100	41,100	56,200	56,200	Level funding results in less volatile costs and decreases outyear requirements
Pension Plan of the Pacific Northwest Laboratories, Battelle Memorial Institute	29,300	15,700	45,000	40,000	Level funding results in less volatile costs and decreases outyear requirements
Retirement Program Plan for Employees of Certain Employers at the U.S. Department of Energy Facilities at Oak Ridge, TN	38,000	32,000	70,000	70,000	Level funding results in less volatile costs and decreases outyear requirements
Fernald Employees' Retirement Plan	-	2,818	2,818	-	Final amount needed upon final settlement at plan termination
Hanford Multi-Employer Pension Plan	86,300	4,900	91,200	97,162	Accelerates part of plan year 2014 contribution to 2013 to avoid endangered[4] status
Salaried Employee Pension Plan for KAPL Employees and Retirees	9,000	39,000	48,000	48,000	Level funding results in less volatile costs and decreases outyear requirements
Pension Plan for KAPL Employees in Participating Bargaining Units	1,300	6,100	7,400	7,400	Level funding results in less volatile costs and decreases outyear requirements
Kansas City Division Hourly Employees' Pension Plan	-	10,000	10,000	10,000	Level funding results in less volatile costs and decreases outyear requirements
Honeywell Retirement Earnings Plan for Aerospace Employees at the Kansas City Division	8,900	21,100	30,000	30,000	Level funding results in less volatile costs and decreases outyear requirements
LANS Defined Benefit Pension Plan	-	110,000	110,000	110,000	Level funding results in less volatile costs and decreases outyear requirements
LLNS Defined Benefit Pension Plan	-	20,000	20,000	57,958	Level funding results in less volatile costs and decreases outyear requirements
Lockheed Martin Specialty Components, Inc. Pension Plan	-	18,913	18,913	-	Advance funding for plan termination from LM appropriated funds
B&W Pantex Retirement Plan for Non-Bargaining Employees	13,930	5,430	19,360	19,600	Level funding results in less volatile costs and decreases outyear requirements

[4] The Pension Protection Act of 2006 classifies multiemployer plans that are less than 80% funded on a present value of accrued benefit basis as endangered. Plans classified as endangered are required to notify participants, and may require an increased funding regime.

Plan	FY 2014 Minimum Required Contribution ($K)	Additional Amount Requested ($K)	FY14 Total Amount Approved ($K)	FY14 Budget - President's Budget ($K)	Rationale
Sandia Corporation Retirement Income Plan	-	175,000	175,000	175,000	Level funding results in less volatile costs and decreases outyear requirements
Pension Plan for Employees at ORNL	13,000	29,000	42,000	40,000	Level funding results in less volatile costs and decreases outyear requirements
Rocky Flats Retirement Plan	-	5,000	5,000	0	Advance funding from LM appropriated funds.
WSI-LV Retirement Plan	622	873	1,495	1,895	Level funding results in less volatile costs and decreases outyear requirements
Independent Guard Association of Nevada Pension Trust Fund	300	930	1,230	1,197	Additional contributions are required based on collective bargaining agreement
Total	215,752	537,864	753,616	764,412	

The contractors are making concerted efforts to reduce the costs associated with these plans as the costs have steadily increased. In recent years, contractors have made changes to their DB pension plans in an effort to reduce the costs associated with them.

The termination of the Fernald Employees' Retirement Plan, a Legacy Management plan, has been completed in the first quarter of FY 2015 when the remaining $200,000 was distributed to participants. The Yucca Mountain Pension Plan and the Lockheed Martin Specialty Components, Inc. Pension Plan terminations are in process and are expected to be completed either by FY 2015 or 2016. The termination process is a lengthy process requiring notification and consent from the Pension Benefit Guaranty Corporation and approval from the Internal Revenue Service. Annuities from a highly rated insurance company will be purchased for participants currently receiving benefits; those participants who have not yet begun receiving benefits will be offered a choice between an annuity and a lump sum payment. This action will reduce budget uncertainty, reduce the benefit obligation reported on DOE's financial statement, and reduce administrative expenses.

Due to the timing of the required annual valuation for these contractor DB pension plans, the actual amount of the contractors' annual contributions to these DB pension plans that DOE will reimburse each fiscal year will not generally be known until after budget development. The majority of contractor contributions are included in indirect costs.[5] Thus, budgetary line items that include DOE reimbursement of contractor contributions to DB pension plans assume an indirect rate anticipated to be sufficient to meet reimbursement requirements. The allocation of contributions among NNSA, the program offices and work for others is done based on each site's best estimate of the allocation of work based on current and anticipated work for the various parties that the site serves.[6]

Projections of future DB pension plan contributions are highly sensitive to underlying data, methods, and especially assumptions. Changes in the population that are different from that expected impact the future costs of these plans; participants retiring earlier, living longer than expected may increase the costs while compensation increases less than expected may decrease the costs. The most significant assumptions affecting the contribution amounts are those assumptions with respect to future market conditions. In particular, the assumption of the expected return on investments earned by the plans each future year, as well as what the corporate bond yields will be in the future, because they drive the discount rate used to determine the liabilities, have the largest impact on the ultimate contributions that will be reimbursed by the DOE. For example, the actual contributions for fiscal year 2015 will not be known until January 2015 at

[5] Legacy Management Plans, the NNSA legacy UC plans and the ETTP Pension Plan rely on direct costs.

[6] These allocations were provided by the contractors to the DOE in July 2014.

the earliest because these contributions will be determined based on the asset value as of December 31, 2014, and the discount rate in effect at that time.

Therefore, it is important to emphasize that the actual amounts reimbursed for the applicable fiscal years shown will almost certainly be different from the projections provided in this section. The information provided for the funded plans (excluding the non-qualified plans) is based on plan contributions projected by the DOE's contractors in August and September of 2014. The non-qualified plan amounts equal the expected benefit payments which were provided by the contractors for the prior year financial statements. The information has been reviewed by NNSA and relevant DOE program offices and by the Office of the Chief Financial Officer.

- Table 2 provides aggregate FY 2014 actual and FY 2015 and FY 2016 estimated pension plan contributions eligible for reimbursement for all plans.
- Table 3 provides aggregate FY 2017-2020 estimated pension plan contributions expected to receive NNSA reimbursements.
- Table 4 provides plan-by-plan FY 2014 actual contributions and FY 2015 and FY 2016 estimated pension contributions eligible for reimbursement by NNSA and the DOE.
- Table 5 provides plan-by-plan FY 2017-2020 estimated pension plan contributions eligible for reimbursement by NNSA.

Table 2: NNSA and DOE Program Office Actual Contributions for FY 2014 and Projected Contributions for FY 2015 and FY 2016

Based on August 2014 and later[7] data and pro-rated by Program Office

Program Office	FY 2014	FY 2015	FY 2016	FY 2014-FY 2016 Total Projected Contributions
NNSA	830,831	841,348	828,065	2,500,245
EM	259,441	192,204	192,184	643,829
Science	80,407	77,554	82,282	240,244
EERE	30,766	28,524	28,267	87,557
NE	15,599	16,357	16,806	48,763
OE	2,400	1,909	1,840	6,150
FE	2,213	2,198	2,179	6,590
LM	26,730	0	0	26,730
Non DOE Work	179,218	163,949	179,503	522,670
Other	24,359	18,573	17,220	60,152
Total	**1,451,965**	**1,342,616**	**1,348,347**	**4,142,929**

There may be small variance in totals due to rounding

In addition, the FY 2015 NNSA amount has decreased by approximately $85.5M in contributions to reflect a favorable resolution regarding the manner in which the contributions for the Legacy UC will be calculated in the future.

Table 3: FY 2017-2020 NNSA Projected Reimbursements for Pension Contributions

Based on August 2014 and later data [8]

Program Office	FY 2017	FY 2018	FY 2019	FY 2020	Total
NNSA	672,557	507,662	328,097	341,358	1,849,674

There may be small variance in totals due to rounding

The decline in NNSA contributions between FY 2016 and FY 2017 is primarily due to the decline in the contributions required for the Legacy UC plans as these plans approach full funding.

Table 4 provides the following information for each plan:

Plan name and Plan type: single employer, multi-employer, multiple employer, state or non-qualified.
Status: *Open* means that new employees continue to become participants of the plan and earn benefits under a traditional defined benefit formula; *Closed* means that new employees do not become participants in the plan but active employees who were employed prior to the plan being closed continue to earn benefits. This includes plans where new entrants only or new entrants and legacy employees receive benefits under reduced hybrid formulas which are much less volatile (indicated by the word hybrid after closed). For non-qualified plans, "closed" means that the universe of possible participants is limited to individuals who are currently accruing benefits in the closed qualified plan at the respective site and who may at some point qualify for the non-qualified plan under the terms of the non-qualified plan. *Partially Closed* means that some subset of the employee population are still becoming members of the plan at the time of hire but that the majority of new employees are not; *Frozen* means that there are no longer any employees accruing credit for current service under the plan.

[7] Final information for FY 2014 contributions reported in October 2014 while projected contributions for FY 2015 and later reported in August-September 2014 for all departmental elements.

[8] See footnote 6, supra.

Reimbursements & Allocations: Expected contributions are allocated by program office for fiscal year 2014-2016 with 2014 representing actual contributions and contributions for later years based on submissions as outlined in footnote 6. *There may be small variances in totals due to rounding.*

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
East Tennessee Technology Park Pension Plan for Grandfathered Employees		2014	9,114	-	9,114	-	-	-	-	-	-	-	-
	Partially Closed	2015	9,525	-	9,525	-	-	-	-	-	-	-	-
	Multi-employer	2016	9,605	-	9,605	-	-	-	-	-	-	-	-
University of California Retirement Plan - Lawrence Berkeley National Laboratory		2014	35,437	560	209	23,920	3,079	209	181	404	6,591	-	283
	Open	2015	40,100	634	237	27,068	3,485	237	205	457	7,459	-	321
	State	2016	47,100	744	278	31,793	4,093	278	240	537	8,761	-	377
Pension Plan for Eligible Bettis Employees and Retirees		2014	56,200	30,910	-	-	-	-	-	-	25,290	-	-
	Closed	2015	54,100	29,755	-	-	-	-	-	-	24,345	-	-
	Single Employer	2016	70,200	38,610	-	-	-	-	-	-	31,590	-	-
Pension Plan of the Pacific Northwest Laboratories, Battelle Memorial Institute		2014	45,000	8,865	225	9,090	4,545	810	900	630	14,310	-	5,625
	Open	2015	35,000	6,895	175	7,070	3,535	630	700	490	11,130	-	4,375
	Single Employer	2016	30,000	5,910	150	6,060	3,030	540	600	420	9,540	-	3,750
Retirement Program for Employees of		2014	70,000	67,200	-	-	-	-	-	-	700	-	2,100
	Partially	2015											

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Consolidated Nuclear Security, LLC at the U. S. Department of Energy Facilities at Oak Ridge, Tennessee	Closed		65,000	62,400	-	-	-	-	-	-	650	-	1,950
	Single Employer	2016	65,000	62,400	-	-	-	-	-	-	650	-	1,950
HPM Occupational Health Services Retirement Plan		2014	606	-	606	-	-	-	-	-	-	-	-
	Partially Closed	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
Fernald Employees' Retirement Plan		2014	2,818	-	-	-	-	-	-	-	-	2,818	-
	Frozen	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
Hanford Multi-Employer Pension Plan		2014	90,885	-	87,249	3,635	-	-	-	-	-	-	-
	Partially Closed	2015	79,100	-	75,936	3,164	-	-	-	-	-	-	-
	Multi-employer	2016	79,900	-	76,704	3,196	-	-	-	-	-	-	-
Idaho National Laboratory		2014	42,871	5,089	22,722	129	729	8,737	4	13	4,549	-	900

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Employee Retirement Plan	Closed	2015	46,500	5,520	24,645	140	791	9,477	5	14	4,934	-	977
	Multiple Employer	2016	49,600	5,888	26,288	149	843	10,108	5	15	5,263	-	1,042
Salaried Employee Pension Plan for KAPL Employees and Retirees		2014	48,000	26,400	-	-	-	-	-	-	21,600	-	-
	Closed	2015	46,900	25,795	-	-	-	-	-	-	21,105	-	-
	Single Employer	2016	67,800	37,290	-	-	-	-	-	-	30,510	-	-
Pension Plan for KAPL Employees in Participating Bargaining Units		2014	7,400	4,070	-	-	-	-	-	-	3,330	-	-
	Closed	2015	5,600	3,080	-	-	-	-	-	-	2,520	-	-
	Single Employer	2016	8,300	4,565	-	-	-	-	-	-	3,735	-	-
Kansas City Division Hourly Employees' Pension Plan		2014	10,000	9,340	-	-	-	-	-	-	660	-	-
	Closed Traditional - Hybrid for New Entrants	2015	7,000	6,538	-	-	-	-	-	-	462	-	-
	Single Employer	2016	7,000	6,538	-	-	-	-	-	-	462	-	-
Honeywell Retirement		2014	30,000	27,540	-	-	-	-	-	-	2,460	-	-

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Earnings Plan for Aerospace Employees at the Kansas City Division	Closed	2015	20,000	18,360	-	-	-	-	-	-	1,640	-	-
	Single Employer	2016	20,000	18,360	-	-	-	-	-	-	1,640	-	-
LANS Defined Benefit Pension Plan		2014	110,000	78,100	7,700	6,600	550	2,200	-	550	13,200	-	1,100
	Closed	2015	140,000	99,400	9,800	8,400	700	2,800	-	700	16,800	-	1,400
	Single Employer	2016	134,000	95,140	9,380	8,040	670	2,680	-	670	16,080	-	1,340
University of California Retirement Plan - Lawrence Livermore National Laboratory Retained Segment		2014	231,825	231,825	-	-	-	-	-	-	-	-	-
	Frozen	2015	252,000	252,000	-	-	-	-	-	-	-	-	-
	State	2016	237,076	237,076	-	-	-	-	-	-	-	-	-
LLNS Defined Benefit Pension Plan		2014	20,000	14,400	-	800	200	-	-	-	4,200	-	400
	Closed	2015	23,000	16,330	-	1,150	230	-	-	-	4,830	-	460
	Single Employer	2016	23,000	16,330	-	1,150	230	-	-	-	4,830	-	460
Lockheed Martin Specialty		2014	18,913	-	-	-	-	-	-	-	-	18,913	-

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Components, Inc. Pension Plan	Frozen	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
University of California Retirement Plan - Los Alamos National Laboratory Retained Segment		2014	141,529	141,529	-	-	-	-	-	-	-	-	-
	Frozen	2015	157,970	157,970	-	-	-	-	-	-	-	-	-
	Single Employer	2016	141,428	141,428	-	-	-	-	-	-	-	-	-
National Renewable Energy Laboratory Retirement Plan		2014	16,718	-	-	836	13,040	-	167	-	2,675	-	-
	Closed Traditional - Hybrid for all	2015	15,900	-	-	795	12,402	-	159	-	2,544	-	-
	Single Employer	2016	15,400	-	-	770	12,012	-	154	-	2,464	-	-
National Strategic Protective Services Pension Plan		2014	1,581	-	746	835	-	-	-	-	-	-	-
	Partially Closed	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	2,800	-	1,322	1,478	-	-	-	-	-	-	-
National Security Technologies, LLC		2014	23,005	14,930	1,978	-	-	-	-	-	5,383	-	713

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
(NSTec) Employee Retirement Plan	Closed Traditional - Hybrid for all	2015	16,910	10,975	1,454	-	-	17	-	-	3,957	-	507
	Single Employer	2016	17,615	11,432	1,515	-	-	-	-	-	4,122	-	546
Consolidated Nuclear Security, LLC Retirement Plan for Bargaining Unit Members of the Pantex Guards Union	Closed	2014	2,160	2,138	-	-	-	-	-	-	22	-	-
		2015	50	50	-	-	-	-	-	-	1	-	-
	Single Employer	2016	510	505	-	-	-	-	-	-	5	-	-
Retirement Plan for Bargaining Unit Employees of the Metal Trades Council of Consolidated Nuclear Security, LLC	Open	2014	7,670	7,593	-	-	-	-	-	-	77	-	-
		2015	1,000	990	-	-	-	-	-	-	10	-	-
	Single Employer	2016	4,230	4,188	-	-	-	-	-	-	42	-	-
Consolidated Nuclear Security Retirement Plan for Non-	Closed	2014	19,360	19,166	-	-	-	-	-	-	194	-	-
		2015	27,550	27,275	-	-	-	-	-	-	276	-	-

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Bargaining Pantex Location Employees	Single Employer	2016	24,210	23,968	-	-	-	-	-	-	242	-	-
Rocky Flats Retirement Plan for Hourly Protection Employees		2014	-	-	-	-	-	-	-	-	-	-	-
	Frozen	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
Rocky Flats Retirement Plan		2014	5,000	-	-	-	-	-	-	-	-	5,000	-
	Frozen	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
Sandia Corporation Retirement Income Plan		2014	175,080	98,045	1,050	4,902	4,027	1,226	875	350	63,379	-	1,226
	Closed	2015	150,000	87,900	750	3,450	3,300	1,050	600	300	51,600	-	1,050
	Single Employer	2016	150,000	90,000	750	3,300	3,300	1,050	600	300	49,800	-	900
Savannah River Nuclear Solutions LLC Multiple Employer Pension Plan		2014	158,003	33,181	113,762	-	-	-	-	-	-	-	11,060
	Closed	2015	95,500	21,010	67,805	-	-	-	-	-	-	-	6,685
	Multiple Employer	2016	85,800	18,876	60,918	-	-	-	-	-	-	-	6,006

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
B&W Conversion Services Pension Plan for Grandfathered Employees		2014	2,068	-	2,068	-	-	-	-	-	-	-	-
	Partially Closed	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	2,600	-	2,600	-	-	-	-	-	-	-	-
Pension Plan for Employees at ORNL		2014	52,000	4,992	156	29,484	4,524	2,392	260	260	9,048	-	884
	Open	2015	46,000	4,416	138	26,082	4,002	2,116	230	230	8,004	-	782
	Single Employer	2016	46,000	4,416	138	26,082	4,002	2,116	230	230	8,004	-	782
Waste Isolation Pilot Plant Pension Plan		2014	7,620	-	7,620	-	-	-	-	-	-	-	-
	Open	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
West Valley Pension Plan		2014	3,592	-	3,592	-	-	-	-	-	-	-	-
	Closed	2015	1,200	-	1,200	-	-	-	-	-	-	-	-
	Single Employer	2016	2,000	-	2,000	-	-	-	-	-	-	-	-
Mound Employees Pension Plan		2014	-	-	-	-	-	-	-	-	-	-	-
	Frozen	2015											

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
			-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
WSI-LV Retirement Plan		2014	1,334	1,334	-	-	-	-	-	-	-	-	-
	Closed	2015	1,010	1,010	-	-	-	-	-	-	-	-	-
	Single Employer	2016	885	885	-	-	-	-	-	-	-	-	-
Independent Guard Association of Nevada Pension Trust Fund		2014	1,107	1,107	-	-	-	-	-	-	-	-	-
	Closed	2015	125	125	-	-	-	-	-	-	-	-	-
	Single Employer	2016	343	343	-	-	-	-	-	-	-	-	-
Yucca Mountain Salaried Pension Plan		2014	-	-	-	-	-	-	-	-	-	-	-
	Frozen	2015	-	-	-	-	-	-	-	-	-	-	-
	Single Employer	2016	-	-	-	-	-	-	-	-	-	-	-
Battelle Memorial Institute Excess Benefit and Supplemental Executive Pension Plans		2014	11	2	0	2	1	0	0	0	3	-	1
	Closed	2015	10	2	0	2	1	0	0	0	3	-	1
	Non-qualified	2016	10	2	0	2	1	0	0	0	3	-	1

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Executive and Supplemental Pension Plans for Designated Bettis Employees		2014	1,186	653	-	-	-	-	-	-	534	-	-
	Closed	2015	1,352	743	-	-	-	-	-	-	608	-	-
	Non-qualified	2016	1,429	786	-	-	-	-	-	-	643	-	-
Excess and Supplemental Pension Plan for Designated KAPL Employees		2014	221	121	-	-	-	-	-	-	99	-	-
	Closed	2015	273	150	-	-	-	-	-	-	123	-	-
	Non-qualified	2016	282	155	-	-	-	-	-	-	127	-	-
LANS 401(a)(17) Restoration Plan		2014	23	16	2	1	0	0	-	0	3	-	0
	Closed	2015	84	60	6	5	0	2	-	0	10	-	1
	Non-qualified	2016	112	79	8	7	1	2	-	1	13	-	1
LANS Restoration Plan		2014	11	7	1	1	0	0	-	0	1	-	0
	Closed	2015	31	22	2	2	0	1	-	0	4	-	0
	Non-qualified	2016	41	29	3	2	0	1	-	0	5	-	0
LLNS 401(a)(17) Restoration Plan		2014	93	67	-	4	1	-	-	-	20	-	2
	Closed	2015											

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
			308	219	-	15	3	-	-	-	65	-	6
	Non-qualified	2016	403	286	-	20	4	-	-	-	85	-	8
LLNS Restoration Plan		2014	48	34	-	2	0	-	-	-	10	-	1
	Closed	2015	139	99	-	7	1	-	-	-	29	-	3
	Non-qualified	2016	171	121	-	9	2	-	-	-	36	-	3
Sandia Nonqualified Pension Plan		2014	2,343	1,312	14	66	54	16	12	5	848	-	16
	Closed	2015	2,306	1,351	12	53	51	16	9	5	793	-	16
	Non-qualified	2016	2,401	1,441	12	53	53	17	10	5	797	-	14
The Savannah River Nuclear Solutions, LLC Nonqualified Pension Plan		2014	544	114	392	-	-	-	-	-	-	-	38
	Frozen	2015	420	92	298	-	-	-	-	-	-	-	29
	Non-qualified	2016	406	89	288	-	-	-	-	-	-	-	28
Washington Government Services Executive Pension Plan (TRU Solutions Participants Only)		2014	49	-	49	-	-	-	-	-	-	-	-
	Frozen	2015	58	-	58	-	-	-	-	-	-	-	-
	Non-qualified	2016	60	-	60	-	-	-	-	-	-	-	-

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 4: FY 2014 Actual and FY 2015 and FY 2016 Projected Contributions by Plan, NNSA and Program Office

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Plan status (open, partially closed, closed, frozen)	Fiscal Year	Total	NNSA	EM	Science	EERE	NE	OE	FE	Non DOE Work	LM	Other
Washington Government Services Executive Pension Plan (West Valley Participants Only)	Frozen	2014	184	-	184	-	-	-	-	-	-	-	-
		2015	162	-	162	-	-	-	-	-	-	-	-
	Non-qualified	2016	165	-	165	-	-	-	-	-	-	-	-
Consolidated Nuclear Security, LLC Equalization Retirement Income Plan and Supplemental Retirement Income Plan	Closed	2014	180	173	-	-	-	-	-	-	2	-	5
		2015	165	158	-	-	-	-	-	-	2	-	5
	Non-qualified	2016	162	156	-	-	-	-	-	-	2	-	5
UT-Battelle Equalization Retirement Income Plan and Supplemental Retirement Income Plan	Open	2014	178	17	1	101	15	8	1	1	31	-	3
		2015	268	26	1	152	23	12	1	1	47	-	5
	Non-qualified	2016	303	29	1	172	26	14	2	2	53	-	5
Total		2014	**1,451,965**	**830,831**	**259,441**	**80,407**	**30,766**	**15,599**	**2,400**	**2,213**	**179,218**	**26,730**	**24,359**
		2015	**1,342,616**	**841,348**	**192,204**	**77,554**	**28,524**	**16,357**	**1,909**	**2,198**	**163,949**	**-**	**18,573**
		2016	**1,348,347**	**828,065**	**192,184**	**82,282**	**28,267**	**16,806**	**1,840**	**2,179**	**179,503**	**-**	**17,220**

[11] See footnote 6, supra.

May be small variances in totals due to rounding.

Table 5: FY 2017-FY2020 Projected Contributions for NNSA by Plan
Based on August 2014 and later[11] data and pro-rated by Program Office
($K)

Plan Name	Fiscal Year	NNSA
University of California Retirement Plan - Lawrence Berkeley National Laboratory	2017	841
	2018	866
	2019	886
	2020	893
Pension Plan for Eligible Bettis Employees and Retirees	2017	17,435
	2018	14,300
	2019	11,275
	2020	10,835
Pension Plan of the Pacific Northwest Laboratories, Battelle Memorial Institute	2017	5,910
	2018	5,910
	2019	5,910
	2020	5,910
Retirement Program for Employees of Consolidated Nuclear Security, LLC at the U. S. Department of Energy Facilities at Oak Ridge, Tennessee	2017	62,400
	2018	9,696
	2019	-
	2020	-
Idaho National Laboratory Employee Retirement Plan	2017	4,819
	2018	3,525
	2019	-
	2020	-
Salaried Employee Pension Plan for KAPL Employees and Retirees	2017	14,355
	2018	9,955
	2019	12,375
	2020	12,100
Pension Plan for KAPL Employees in Participating Bargaining Units	2017	1,925
	2018	1,320
	2019	1,265
	2020	1,210
Kansas City Division Hourly Employees' Pension Plan	2017	6,538
	2018	6,538
	2019	6,538
	2020	6,538
Honeywell Retirement Earnings Plan for Aerospace Employees at the Kansas City Division	2017	18,360
	2018	18,360
	2019	18,360
	2020	18,360
LANS Defined Benefit Pension Plan	2017	90,880
	2018	86,620
	2019	82,360
	2020	78,100
University of California Retirement Plan - Lawrence Livermore National Laboratory Retained Segment	2017	143,919
	2018	76,619
	2019	-
	2020	-
LLNS Defined Benefit Pension Plan	2017	15,620

There may be small variances in totals due to rounding.

Table 5: FY 2017-FY2020 Projected Contributions for NNSA by Plan

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Fiscal Year	NNSA
	2018	15,120
	2019	14,400
	2020	13,490
University of California Retirement Plan - Los Alamos National Laboratory Retained Segment	2017	125,024
	2018	87,624
	2019	-
	2020	-
National Security Technologies, LLC (NSTec) Employee Retirement Plan	2017	11,851
	2018	20,538
	2019	17,166
	2020	17,802
Consolidated Nuclear Security, LLC Retirement Plan for Bargaining Unit Members of the Pantex Guards Union	2017	2,069
	2018	3,128
	2019	3,950
	2020	4,693
Retirement Plan for Bargaining Unit Employees of the Metal Trades Council of Consolidated Nuclear Security, LLC	2017	6,890
	2018	9,227
	2019	11,633
	2020	13,900
Consolidated Nuclear Security Retirement Plan for Non-Bargaining Pantex Location Employees	2017	19,681
	2018	16,305
	2019	13,088
	2020	10,108
Sandia Corporation Retirement Income Plan	2017	90,000
	2018	90,000
	2019	90,000
	2020	90,000
Savannah River Nuclear Solutions LLC Multiple Employer Pension Plan	2017	24,618
	2018	24,794
	2019	32,978
	2020	50,490
Pension Plan for Employees at ORNL	2017	4,416
	2018	1,747
	2019	-
	2020	-
WSI-LV Retirement Plan	2017	934
	2018	1,029
	2019	1,187
	2020	1,346
Independent Guard Association of Nevada Pension Trust Fund	2017	650
	2018	783
	2019	845
	2020	1,490
Battelle Excess Benefit and SERP Plans	2017	2
	2018	2

There may be small variances in totals due to rounding.

Table 5: FY 2017-FY2020 Projected Contributions for NNSA by Plan
Based on August 2014 and later[11] data and pro-rated by Program Office
($K)

Plan Name	Fiscal Year	NNSA
	2019	2
	2020	2
Executive and Supplemental Pension Plans for Designated Bettis Employees	2017	836
	2018	865
	2019	887
	2020	908
Excess and Supplemental Pension Plans for Designated KAPL Employees	2017	160
	2018	167
	2019	173
	2020	181
LANS 401(a)(17) Restoration Plan	2017	105
	2018	131
	2019	155
	2020	178
LANS Restoration Plan	2017	38
	2018	49
	2019	64
	2020	81
LLNS 401(a)(17) Restoration Plan	2017	357
	2018	440
	2019	517
	2020	592
LLNS Restoration Plan	2017	148
	2018	184
	2019	225
	2020	269
Sandia Nonqualified Plan	2017	1,503
	2018	1,552
	2019	1,593
	2020	1,620
SRNS Nonqualified Plan	2017	86
	2018	82
	2019	79
	2020	77
BW-Y12 NQ Plan	2017	153
	2018	150
	2019	147
	2020	144

Table 5: FY 2017-FY2020 Projected Contributions for NNSA by Plan

Based on August 2014 and later[11] data and pro-rated by Program Office

($K)

Plan Name	Fiscal Year	NNSA
UTB ORNL NQ Plan	2017	33
	2018	36
	2019	39
	2020	42
Total	2017	672,557
	2018	507,662
	2019	328,097
	2020	341,358

Section II - Other Postretirement Benefit Plans

For the most part, contractors do not fund other postretirement benefit plans in advance, but instead pay the claims incurred by the retired members or the premiums required to cover the plan benefits. The other postretirement benefits covered by the contractors are primarily medical including prescription drug but may also include dental, vision and life insurance benefits that are provided upon retirement from the contractor. The costs associated with these plans are expected to grow as the retired population grows and as healthcare cost trends continue to increase.

Due to the fact that the claims are not paid until incurred and processed, the actual amounts of contractors' payment of claims that DOE will reimburse for FY 2015 will not be known until after budget development. The contractor costs are included in indirect costs. The budget assumes an indirect rate sufficient to meet reimbursement requirements.[i] As mentioned in the pension section, the allocation of contributions among NNSA, the non-NNSA program offices, and work for others, is done based on each site's best estimate of the allocation of work based on current and anticipated work for the various parties that the site serves.

The contractors are making concerted efforts to reduce the costs associated with these plans as the costs have steadily increased. In recent years, contractors have made changes to their other postretirement benefit plans in an effort to reduce the costs associated with them as well as to simplify administration. These changes include:

- **Increased Retiree Cost-Share:** One contractor increased their pre-65 retirees' cost share of plan premiums.
- **Medicare Exchange Programs for Post-65 Retirees:** Five contractors have moved their post-65 retirees from the employer-sponsored plan to a Medicare Exchange program with an employer-provided stipend for coverage provided in a Health Reimbursement Arrangement. These plans reduce retiree medical costs while providing the retirees with opportunities to select a medical plan tailored to their needs.

Projections of future postretirement benefits to be paid are highly sensitive to underlying data, methods, and assumptions, particularly assumptions related to future increases in the expected claims paid each year as well as the underlying assumptions regarding usage and coverage. Thus, the actual amounts reimbursed in a future fiscal year may be different. All of the information provided is based on expected reimbursements as reported by the DOE's respective contractors in August 2014; it has been reviewed by the appropriate NNSA and DOE program office and the Office of the Chief Financial Officer.

- Table 1 provides aggregate FY 2014-2016 projected other postretirement benefit reimbursements.
- Table 2 provides aggregate FY 2017-2020 projected other postretirement benefit reimbursements for NNSA.

[i] The LM plans rely on direct costs.

Table 1: FY 2014-2016 NNSA and DOE Program Office Projected Other Postretirement Benefits Payments

Based on August 2014 data call and pro-rated by Program Office

Program Office	FY 2014 ($K)	FY 2015 ($K)	FY 2016 ($K)	Total FY 2014-FY 2016 ($K)
NNSA	158,407	173,069	185,510	516,987
EM	79,208	82,899	87,740	249,847
SC	53,057	55,965	59,855	168,877
EERE	5,590	5,716	6,078	17,385
NE	7,323	7,869	8,556	23,748
OE	483	452	480	1,415
FE	981	998	1,031	3,011
Non DOE Work	51,438	53,058	55,870	160,365
LM	76,168	78,300	80,781	235,248
Other	7,951	8,535	9,093	25,579
Total	**440,606**	**466,861**	**494,995**	**1,402,463**

Table 2: FY 2017-2020 NNSA and DOE Program Office Projected Other Postretirement Benefits Payments

Based on August 2014 data call and pro-rated by Program Office

Program Office	FY 2017 ($K)	FY 2018 ($K)	FY 2019 ($K)	FY 2020 ($K)	FY 2017-FY2020 Total Projected Contributions ($K)
NNSA	196,840	208,559	221,471	230,577	857,448

GENERAL PROVISIONS – DEPARTMENT OF ENERGY
(INCLUDING TRANSFER [AND RESCISSIONS] OF FUNDS)

SEC. 301. (a) No appropriation, funds, or authority made available by this title for the Department of Energy shall be used to initiate or resume any program, project, or activity or to prepare or initiate Requests For Proposals or similar arrangements (including Requests for Quotations, Requests for Information, and Funding Opportunity Announcements) for a program, project, or activity if the program, project, or activity has not been funded by Congress.

(b)(1) Unless the Secretary of Energy notifies the Committees on Appropriations of the House of Representatives and the Senate at least 3 full business days in advance, none of the funds made available in this title may be used to—

(A) make a grant allocation or discretionary grant award totaling $1,000,000 or more;

(B) make a discretionary contract award or Other Transaction Agreement totaling $1,000,000 or more, including a contract covered by the Federal Acquisition Regulation;

(C) issue a letter of intent to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B); or

(D) announce publicly the intention to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B).

(2) The Secretary of Energy shall submit to the Committees on Appropriations of the House of Representatives and the Senate within 15 days of the conclusion of each quarter a report detailing each grant allocation or discretionary grant award totaling less than $1,000,000 provided during the previous quarter.

(3) The notification required by paragraph (1) and the report required by paragraph (2) shall include the recipient of the award, the amount of the award, the fiscal year for which the funds for the award were appropriated, the account and program, project, or activity from which the funds are being drawn, the title of the award, and a brief description of the activity for which the award is made.

(c) The Department of Energy may not, with respect to any program, project, or activity that uses budget authority made available in this title under the heading "Department of Energy—Energy Programs", enter into a multiyear contract, award a multiyear grant, or enter into a multiyear cooperative agreement unless—

(1) the contract, grant, or cooperative agreement is funded for the full period of performance as anticipated at the time of award; or

(2) the contract, grant, or cooperative agreement includes a clause conditioning the Federal Government's obligation on the availability of future year budget authority and the Secretary notifies the Committees on Appropriations of the House of Representatives and the Senate at least 3 days in advance.

(d) Except as provided in subsections (e), (f), and (g), the amounts made available by this title shall be expended as authorized by law for the programs, projects, and activities specified in the "Final Bill" column in the "Department of Energy" table included under the heading "Title III—Department of Energy" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act).

(e) The amounts made available by this title may be reprogrammed for any program, project, or activity, and the Department shall notify the Committees on Appropriations of the House of Representatives and the Senate at least 30 days prior to the use of any proposed reprogramming which would cause any program, project, or activity funding level to increase or decrease by more than $5,000,000 or 10 percent, whichever is less, during the time period covered by this Act.

(f) None of the funds provided in this title shall be available for obligation or expenditure through a reprogramming of funds that—

(1) creates, initiates, or eliminates a program, project, or activity;

(2) increases funds or personnel for any program, project, or activity for which funds are denied or restricted by this Act; or

(3) reduces funds that are directed to be used for a specific program, project, or activity by this Act.

(g)(1) The Secretary of Energy may waive any requirement or restriction in this section that applies to the use of funds made available for the Department of Energy if compliance with such requirement or restriction would pose a substantial risk to human health, the environment, welfare, or national security.

(2) The Secretary of Energy shall notify the Committees on Appropriations of the House of Representatives and the Senate of any waiver under paragraph (1) as soon as practicable, but not later than 3 days after the date of the activity to which a requirement or restriction would otherwise have applied. Such notice shall include an explanation of the substantial risk under paragraph (1) that permitted such waiver.

SEC. 302. The unexpended balances of prior appropriations provided for activities in this Act may be available to the same appropriation accounts for such activities established pursuant to this title. Available balances may be merged with funds in the applicable established accounts and thereafter may be accounted for as one fund for the same time period as originally enacted.

SEC. 303. Funds appropriated by this or any other Act, or made available by the transfer of funds in this Act, for intelligence activities are deemed to be specifically authorized by the Congress for purposes of section 504 of the National Security Act of 1947 (50 U.S.C. 414) during fiscal year **[**2015**]***2016* until the enactment of the Intelligence Authorization Act for fiscal year **[**2015**]***2016*.

SEC. 304. None of the funds made available in this title shall be used for the construction of facilities classified as high-hazard nuclear facilities under 10 CFR Part 830 unless independent oversight is conducted by the Office of **[**Independent**]** Enterprise Assessments to ensure the project is in compliance with nuclear safety requirements.

SEC. 305. None of the funds made available in this title may be used to approve critical decision-2 or critical decision-3 under Department of Energy Order 413.3B, or any successive departmental guidance, for construction projects where the total project cost exceeds $100,000,000, until a separate independent cost estimate has been developed for the project for that critical decision.

[SEC. 306. (a) SECRETARIAL DETERMINATIONS.—In this fiscal year, and in each subsequent fiscal year, any determination (including a determination made prior to the date of enactment of this Act) by the Secretary of Energy under section 3112(d)(2)(B) of the USEC Privatization Act (110 Stat. 1321–335), as amended, shall be valid for not more than 2 calendar years subsequent to such determination.

(b) CONGRESSIONAL NOTIFICATION.—In this fiscal year, and in each subsequent fiscal year, not less than 30 days prior to the provision of uranium in any form the Secretary of Energy shall notify the Committees on Appropriations of the House of Representatives and the Senate of the following—

(1) the provisions of law (including regulations) authorizing the provision of uranium;

(2) the amount of uranium to be provided;

(3) an estimate by the Secretary of Energy of the gross fair market value of the uranium on the expected date of the provision of the uranium;

(4) the expected date of the provision of the uranium;

(5) the recipient of the uranium;

(6) the value the Secretary of Energy expects to receive in exchange for the uranium, including any adjustments to the gross fair market value of the uranium; and

(7) whether the uranium to be provided is encumbered by any restriction on use under an international agreement or otherwise.**]**

SEC. **[**307**]***306*. Notwithstanding section 301(c) of this Act, none of the funds made available under the heading "Department of Energy—Energy Programs—Science" may be used for a multiyear contract, grant, cooperative agreement, or Other Transaction Agreement of $1,000,000 or less unless the contract, grant, cooperative agreement, or Other Transaction Agreement is funded for the full period of performance as anticipated at the time of award.

[SEC. 308. In fiscal year 2015 and subsequent fiscal years, the Secretary of Energy shall submit to the congressional defense committees (as defined in U.S.C. 101(a)(16)) a report, on each major warhead refurbishment program that reaches the Phase 6.3 milestone, that provides an analysis of alternatives. Such report shall include—

(1) a full description of alternatives considered prior to the award of Phase 6.3;
(2) a comparison of the costs and benefits of each of those alternatives, to include an analysis of trade-offs among cost, schedule, and performance objectives against each alternative considered;
(3) identification of the cost and risk of critical technology elements associated with each alternative, including technology maturity, integration risk, manufacturing feasibility, and demonstration needs;
(4) identification of the cost and risk of additional capital asset and infrastructure capabilities required to support production and certification of each alternative;
(5) a comparative analysis of the risks, costs, and scheduling needs for any military requirement intended to enhance warhead safety, security, or maintainability, including any requirement to consolidate and/or integrate warhead systems or mods as compared to at least one other feasible refurbishment alternative the Nuclear Weapons Council considers appropriate; and
(6) a life-cycle cost estimate for the alternative selected that details the overall cost, scope, and schedule planning assumptions.**]**

[SEC. 309. (a) Unobligated balances available from prior year appropriations are hereby rescinded from the following accounts of the Department of Energy in the specified amounts:
(1) "Energy Programs—Energy Efficiency and Renewable Energy", $9,740,000.
(2) "Energy Programs—Electricity Delivery and Energy Reliability", $331,000.
(3) "Energy Programs—Nuclear Energy", $121,000.
(4) "Energy Programs—Fossil Energy Research and Development", $10,413,000.
(5) "Energy Programs—Science", $3,262,000.
(6) "Energy Programs—Advanced Research Projects Agency—Energy", $18,000.
(7) "Energy Programs—Departmental Administration", $928,000.
(8) "Atomic Energy Defense Activities—National Nuclear Security Administration— Weapons Activities", $6,298,000.
(9) "Atomic Energy Defense Activities—National Nuclear Security Administration— Defense Nuclear Nonproliferation", $1,390,000.
(10) "Atomic Energy Defense Activities—National Nuclear Security Administration— Naval Reactors", $160,000.
(11) "Atomic Energy Defense Activities—National Nuclear Security Administration—Office of the Administrator", $413,000.
(12) "Environmental and Other Defense Activities—Defense Environmental Cleanup", $9,983,000.
(13) "Environmental and Other Defense Activities—Other Defense Activities", $551,000.
(14) "Power Marketing Administrations—Construction, Rehabilitation, Operation and Maintenance, Western Area Power Administration", $1,632,000.
(b) No amounts may be rescinded by this section from amounts that were designated by the Congress as an emergency requirement pursuant to a concurrent resolution on the budget or the Balanced Budget and Emergency Deficit Control Act of 1985. **]**

[SEC. 310. (a) None of the funds made available in this or any prior Act under the heading "Defense Nuclear Nonproliferation" may be made available to enter into new contracts with, or new agreements for Federal assistance to, the Russian Federation.
(b) The Secretary of Energy may waive the prohibition in subsection (a) if the Secretary determines that such activity is in the national security interests of the United States. This waiver authority may not be delegated.
(c) A waiver under subsection (b) shall not be effective until 15 days after the date on which the Secretary submits to the Committees on Appropriations of the House of Representatives and the Senate, in classified form if necessary, a report on the justification for the waiver. **]**

[SEC. 311. Of the funds authorized by the Secretary of Energy for laboratory directed research and development, no individual program, project, or activity funded by this or any subsequent Act making appropriations for Energy and Water Development for any fiscal year may be charged more than the statutory maximum authorized for such activities: *Provided*, That this section shall take effect not earlier than October 1, 2015.**]**

[SEC. 312. (a) DOMESTIC URANIUM ENRICHMENT.—None of the funds appropriated by this or any other Act or that may be available to the Department of Energy may be used for the construction of centrifuges for the production of enriched uranium for national security needs in fiscal year 2015.

(b) The Department shall provide a report to the Committees on Appropriations of the House of Representatives and the Senate not later than April 30, 2015 that includes:

(1) an accounting of the current and future availability of low-enriched uranium, highly-enriched uranium, and tritium to meet defense needs; and

(2) a cost-benefit analysis of each of the options available to supply enriched uranium for defense purposes, including a preliminary cost and schedule estimate to build a national security train. **]**

[SEC. 313. None of the funds made available in this Act may be used—

(1) to implement or enforce section 430.32(x) of title 10, Code of Federal Regulations; or

(2) to implement or enforce the standards established by the tables contained in section 325(i)(1)(B) of the Energy Policy and Conservation Act (42 U.S.C. 6295(i)(1)(B)) with respect to BPAR incandescent reflector lamps, BR incandescent reflector lamps, and ER incandescent reflector lamps. **]**

[SEC. 314. None of the funds made available by this Act may be used in contravention of section 3112(d)(2)(B) of the USEC Privatization Act (42 U.S.C. 2297h-10(d)(2)(B)) and all public notice and comment requirements under chapter 6 of title 5, United States Code, that are applicable to carrying out such section.**]**

[SEC. 315. (a) NOTIFICATION OF STRATEGIC PETROLEUM RESERVE DRAWDOWN.—None of the funds made available by this Act or any prior Act, or funds made available in the SPR Petroleum Account, may be used to conduct a drawdown (including a test drawdown) and sale or exchange of petroleum products from the Strategic Petroleum Reserve unless the Secretary of Energy provides notice, in accordance with subsection (b), of such exchange, or drawdown (including a test drawdown) to the Committees on Appropriations of the House of Representatives and the Senate.

(b) (1) CONTENT OF NOTIFICATION.—The notification required under subsection (a) shall include at a minimum—

(A) The justification for the drawdown or exchange, including—

(i) a specific description of any obligation under international energy agreements; and

(ii) in the case of a test drawdown, the specific aspects of the Strategic Petroleum Reserve to be tested;

(B) the provisions of law (including regulations) authorizing the drawdown or exchange;

(C) the number of barrels of petroleum products proposed to be withdrawn or exchanged;

(D) the location of the Strategic Petroleum Reserve site or sites from which the petroleum products are proposed to be withdrawn;

(E) a good faith estimate of the expected proceeds from the sale of the petroleum products;

(F) an estimate of the total inventories of petroleum products in the Strategic Petroleum Reserve after the anticipated drawdown;

(G) a detailed plan for disposition of the proceeds after deposit into the SPR Petroleum Account; and

(H) a plan for refilling the Strategic Petroleum Reserve, including whether the acquisition will be of the same or a different petroleum product.

(2) TIMING OF NOTIFICATION.—The Secretary shall provide the notification required under subsection (a)—

(A) in the case of an exchange or a drawdown, as soon as practicable after the exchange or drawdown has occurred; and

(B) in the case of a test drawdown, not later than 30 days prior to a test drawdown.

(c) POST-SALE NOTIFICATION.—In addition to reporting requirements under other provisions of law, the Secretary shall, upon the execution of all contract awards associated with a competitive sale of petroleum products, notify the Committees on Appropriations of the House of Representatives and the Senate of the actual value of the proceeds from the sale.

(d) (1) NEW REGIONAL RESERVES.—The Secretary may not establish any new regional petroleum product reserve—

(A) unless funding for the proposed regional petroleum product reserve is explicitly requested in advance in an annual budget submission and approved by the Congress in an appropriations Act; or

(B) until 90 days after notification of, and approval by, the Committees on Appropriations of the House of Representatives and the Senate.

(2) The budget request or notification shall include—

(A) the justification for the new reserve;

(B) a cost estimate for the establishment, operation, and maintenance of the reserve, including funding sources;

(C) a detailed plan for operation of the reserve, including the conditions upon which the products may be released;

(D) the location of the reserve; and

(E) the estimate of the total inventory of the reserve.

(e) REPORT ON REFINED PETROLEUM PRODUCTS.—Not later than 180 days after the enactment of this Act, the Secretary shall submit to the Committees on Appropriations of the House of Representatives and the Senate a detailed plan for operation of the refined petroleum products reserve, including funding sources and the conditions upon which refined petroleum products may be released.

(f) REPORT ON STRATEGIC PETROLEUM RESERVE EXPANSION.—

(1) The Secretary, through the Office of Energy Policy and Systems Analysis, shall submit to the Committees on Appropriations of the House of Representatives and the Senate not later than 180 days after enactment of this Act the report required in Public Law 111–8 (123 Stat. 617) regarding the expansion of the Strategic Petroleum Reserve.

(2) The report required in paragraph (1) shall include an analysis of the impacts of Northeast Regional Refined Petroleum Product Reserve on the domestic petroleum market. **]** *(Energy and Water Development and Related Agencies Appropriations Act, 2015.)*

TITLE V – GENERAL PROVISIONS

SEC. 501. None of the funds appropriated by this Act may be used in any way, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913.

[SEC. 502. (a) None of the funds made available in title III of this Act may be transferred to any department, agency, or instrumentality of the United States Government, except pursuant to a transfer made by or transfer authority provided in this Act or any other appropriations Act for any fiscal year, transfer authority referenced in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act), or any authority whereby a department, agency, or instrumentality of the United States Government may provide goods or services to another department, agency, or instrumentality.

(b) None of the funds made available for any department, agency, or instrumentality of the United States Government may be transferred to accounts funded in title III of this Act, except pursuant to a transfer made by or transfer authority provided in this Act or any other appropriations Act for any fiscal year, transfer authority referenced in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act), or any authority whereby a department, agency, or instrumentality of the United States Government may provide goods or services to another department, agency, or instrumentality.

(c) The head of any relevant department or agency funded in this Act utilizing any transfer authority shall submit to the Committees on Appropriations of the House of Representatives and the Senate a semiannual report detailing the transfer authorities, except for any authority whereby a department, agency, or instrumentality of the United States Government may provide goods or services to another department, agency, or instrumentality, used in the previous 6 months and in the year-to-date. This report shall include the amounts transferred and the purposes for which they were transferred, and shall not replace or modify existing notification requirements for each authority.**]**

SEC. **[**503**]***502*. None of the funds made available by this Act may be used in contravention of Executive Order No. 12898 of February 11, 1994 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations). (*Energy and Water Development Related Agencies Appropriations Act, 2015*).